

# Development and Climate Change in the Mekong River Delta

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A case study on poverty, vulnerability,  
and how adaptive capacity can be enhanced.

Dissertation

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## **Zusammenfassung**

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Die vorliegende Doktorarbeit beschreibt und analysiert am Beispiel des südvietnamesischen Mekong Delta die Zusammenhänge von Armut und Vulnerabilität der ländlichen Bevölkerung, sowie die Wechselwirkungen der Lebensbedingungen mit den Auswirkungen des voranschreitenden Klimawandels. Die Studie verwendet den capability Ansatz und basiert auf einer empirischen Fallstudie. Die Ergebnisse der Studie zeigen, wie und in welcher Weise verschiedene Bevölkerungsgruppen bereits heute von den Auswirkungen von Klimavariabilität/ -extremen betroffen sind. Im Rahmen einer Analyse von überstehenden politischen Entscheidungen und Entwicklungsprogrammen, die potentiell zu einer Reduzierung von Vulnerabilität führen können, wird ein Fazit zu Möglichkeiten der Ausweitung adaptiver Kapazitäten gegeben.

Die Studie zeigt auf, dass Vulnerabilität in sozial diversifizierter Form auftritt und dass unterschiedliche Gruppen auf unterschiedliche Weise von den Folgen des Klimawandels betroffen sind. Arme und marginalisierte Bevölkerungsteile, die bislang nur unzureichend vom anhaltenden Wirtschaftswachstum des Landes profitiert haben, machen hierbei den größten Teil der von Vulnerabilität betroffenen Gruppen aus.

Eine Ausweitung adaptiver Kapazitäten hängt maßgeblich von integrierteren Ansätzen zur nachhaltigen Entwicklung ab. Die Studie identifiziert einkommensfördernde Maßnahmen, soziale Sicherung und politische Partizipation als wesentliche Bestandteile eines solchen Ansatzes. Auch wenn Katastrophenschutz einen wesentlichen Teil von Anpassungsmaßnahmen im Mekong Delta darstellt, müssen bestehende Ansätze besser mit den Bedürfnissen der lokalen Bevölkerung abgestimmt werden.

Die Studie gelangt zu dem Fazit, dass sich Vulnerabilität und adaptive Kapazität maßgeblich unter dem Einfluss sozioökonomischer und politischer Einflüsse bewegen, deren weitere Entwicklung die Frage nach institutionellen Anpassungsmöglichkeiten nach sich zieht. Wenngleich sich die Ergebnisse der Studie auf Grund der qualitativen Elemente des Forschungsdesigns in ihrer Gültigkeit nicht auf das gesamte Mekong Delta übertragen lassen, so tragen sie doch zu einem detaillierten Verständnis über vorherrschende Strukturen von Vulnerabilität gegenüber dem Klimawandel in der Region bei.

## **Executive Summary**

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Based on the Mekong River Delta in southern Vietnam, the present study describes and analyses the relationship between poverty and vulnerability of the rural population, including the consequences of climate change on the given living situation in the region. The research employs the capability approach and is based on an empirical case study. Results show how and in which way different livelihood groups are presently affected by climate variability and extremes. Current policies and programmes that may potentially reduce people's vulnerability are analysed, and conclusions are drawn on different aspects that would enhance adaptive capacity.

The study shows that vulnerability is socially diversified, with different population groups being affected by climate variability and extremes in different ways. In the case study region, poor and marginalised population groups are left behind in the country's ongoing growth period, and are those who tend to be the most vulnerable.

Ways to enhancing adaptive capacity will depend on integrated and more cohesive approaches that aim at more sustainable ways of development, and in which people are supported through livelihood approaches, social protection measures, and with their voice being heard in decision-making processes. Disaster risk management, though being part and parcel of any adaptation process in the region, must become harmonised with the prevailing needs of various livelihood groups.

The study concludes that socio-economic and institutional processes build central determinants of vulnerability and adaptive capacity which, in turn, are strongly influenced by institutional conditions. Results from the study are assumed to be informative about the experiences of the average of all sites, but are not summable to be valid for the entire Mekong River Delta, due to the qualitative parts of the case study design. Yet, results provide a number of valuable insights into prevailing vulnerability to ongoing climate change in the region.

*”Expanding the human capabilities of poor people remains central in any poverty reduction strategy. (...) (T)here is a powerful case for bringing vulnerability and its management to center stage.”*

(World Development Report 2000/2001)

*“Climate policies that fail to take vulnerable people into account will neither make climate change manageable nor shield anyone from its potentially disastrous impacts.”*

Bruce Campbell  
(UNFPA representative in Vietnam)

*“Climate change is unavoidable and it requires Vietnam to avoid the unmanageable, take concerted action and manage the unavoidable so as to ensure sustainable development.”*

Khai Hoan  
(Journalist)

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## Acronyms

5MHRP	5 Million Hectares Reforestation Programme
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ADB	Asian Development Bank
AfDB	African Development Bank
AFTA	ASEAN Free Trade Area
ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
AP 2015	Aktionsprogramm 2015
APEC	Asia-Pacific Economic Cooperation Forum
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
CBD	Convention on Biodiversity
CBFM	Community-based Forestry Management
CBO	Community Based Organisation
CCFSC	Central Committee for Flood and Storm Control
CDF	Community Development Fund
CDM	Clean Development Mechanism
CEM	Committee for Ethnic Minorities
CEMMA	Commission for Ethnic Minorities and Mountain Areas
CFSC	(Local) Committee for Flood and Storm Control
CGD	Center for Global Development
CIDA	Canadian International Development Agency
CIEM	Central Institute for Economic Management
CITES	Convention on International Trade of Endangered Species
CPRC	Chronic Poverty Research Centre
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
CPV	Communist Party of Vietnam
CRM	Climate Risk Management
CSO	Civil Society Organisation
DAC	Development Assistance Committee
DARD	Department of Agriculture and Rural Development
DFID	Department for International Development
DoFi	Department of Fisheries
DoLISA	Department of Labour, Invalids and Social Affairs
DoNRE	Department of Natural Resources and Environment
DPI	Department of Planning and Investment

DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EWS	Early Warning System
FAD	Food Availability Decline
FAO	Food and Agricultural Organisation of the United Nations
FGD	Focus Group Discussion
FPD	Forest Protection Department
GAP	Good Agricultural Practices
GCM	Global Climate Model
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GIZ	Gesellschaft für Internationale Zusammenarbeit
GoV	Government of Vietnam
GSO	General Statistical Office
HCFP	Health Care Fund for the Poor
HDI	Human Development Index
IFM	Integrated Flood Management
IFRC	International Federation of the Red Cross
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ISPONRE	Institute of Strategy and Policy on Natural Resources and Environment Strategy and Policy Institute
IWRM	Integrated Water Resources Management
LA	Livelihood Approaches
MAPP	Method for the Assessment of Projects and Programmes
MARD	Ministry of Agriculture and Rural Development
MDGs	Millennium Development Goals
MNR	Management of Natural Resources
MoC	Ministry of Construction
MoF	Ministry of Finance
MoFi	Ministry of Fisheries
MoH	Ministry of Health
MoLISA	Ministry of Labour, Invalids and Social Affairs
MoNRE	Ministry of Natural Resources and Environment
MPA	Marine Protected Area
MPI	Ministry of Planning and Investment

NA	National Assembly
NAPA	National Adaptation Programme of Action
NGO	Non-Governmental Organisation
NSADPM	National Strategy and Action Plan for Disaster Mitigation and Management
NTP on HEPR	National Target Programme on Hunger Eradication and Poverty Reduction
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
PAR	Public Administration Reform
PC	People's Committee
PDCED	Programme for Socio-economic Development in Communes of Special Difficulties
PES	Payment for Environmental Services
PPC	Provincial People's Committee
PPP	Public-Private Partnership
PRA	Participatory Rural Appraisal
PRB	Poverty Reduction Board
PRSP	Poverty Reduction Strategy Paper
REDD	Reducing Emissions from Deforestation and forest Degradation
RRA	Rapid Rural Appraisal
SEDP	Socio-Economic Development Plan
SMEs	Small and medium-sized enterprises
SOE	State-owned enterprise
SP	Social Protection
SRM	Social Risk Management
TAR	Third Assessment Report
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
VAARC	Vietnam Assessment Report on Climate Change
VBSP	Vietnam Bank for Social Policies
VCCI	Vietnam Chamber of Commerce and Industry
VLSS	Vietnam Living Standards Survey
VND	Vietnam Dong
WTO	World Trade Organisation

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# 1 Introduction

## 1.1 Climate change and development

The inevitability of changes occurring to the climate at both global and local scales is now a well-established fact. There is evidence for significant warming in this century on a scale unprecedented in the era of modern human history (e.g. Marshall et al. 2010; Tompkins and Adger 2004). Increases in maximum temperatures and in numbers of hot days have been observed over nearly all countries worldwide during the second half of the twentieth century (Sperling 2003) and up to today (Giddens and Rees 2010). Reports from the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup> argue that there is strong evidence that human activities are affecting the world's climate. In its 2001 assessment—which built the scientific fundament for the major part of subsequent discussions related to the topic—the IPCC states unequivocally that the consensus of scientific opinion is that

*“[h]uman activities (...) are modifying the concentration of atmospheric constituents (...) that absorb or scatter radiant energy. (...) [M]ost of the observed warming over the past 50 years is likely to have been due to the increase in greenhouse gas concentrations” (IPCC 2001a: 21).*

Overall data even suggests that the rate and duration of warming observed during the twentieth century are unprecedented in the past thousand years (Oreskes 2004; Arnell et al. 2005). While findings from a wide range of studies shows that the basics of global warming are not in scientific dispute, recent studies find that greenhouse gas concentrations are rising at a rate even greater than projected in the most pessimistic climate change scenarios used by the IPCC. A growing number of scientists are thus raising concerns that the IPCC's projections are likely to be conservative and over-optimistic (Hansen et al. 2008; Palmer et al. 2008; Rahmstorff 2007; Wheeler 2007). Arguably, there still are uncertainties about the degree to which the climate is changing and some doubt whether the experienced warming of recent decades is entirely due to the 'greenhouse effect'. But the fact that the climate is changing is not in doubt (Schelling 2007; Oreskes 2004).

Climate change is associated with substantial risks and already has significant consequences on ecosystems, physical and social systems (Adger et al. 2003; Hughes et al. 2003; Root et al. 2003). In its 2007 report the IPCC shows that the consequences of global climate change are becoming more and more observable and traceable in many regions worldwide. Based on these results, it is widely agreed by the scientific community that climate change is already a reality. Indeed, empirical and observational evidence from all continents show that both nature and society are affected by regional climate changes (IPCC 2007b; Fussel 2007).

While climate change will affect almost everyone, the magnitude of its consequences varies across continents and regions (IPCC 2001b). Predictions include regional differences in the increase of the number, frequency and intensity of climatic extremes, along with gradual

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<sup>1</sup> The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 as a reaction to growing concern about climate change since the 1970s and 1980s. The IPCC, which is mandated to assess the scientific, technical and socio-economic evidence relevant to understanding the issue, produced its first assessment report in August 1990. This provided the initial scientific evidence of climate change and provided the basis for negotiations on an international response to the problem (DFID 2004m). Within climate change research, the reports of the IPCC have become an authoritative source that sets agendas and acts as a legitimizing device for research. The scientific consensus on climate change is clearly expressed in the reports. It is therefore worth examining primary research on climate change and its interpretation within the reports of the IPCC (Adger 2006). Created in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environmental Programme (UNEP), IPCC's purpose is to evaluate the state of climate science as a basis for informed policy action, primarily on the basis of peer-reviewed and published scientific literature (see [www.ipcc.ch/about.htm](http://www.ipcc.ch/about.htm)).

changes such as temperature increases and alterations and variability in seasonal and rainfall patterns. While the IPCC (2007b) indicates that it is very likely that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent and rising sea levels will threaten the coastal regions of many nations, the physical impacts of climate change will be particularly severe in tropical and subtropical zones. More frequent and intense extreme weather events, such as storms, floods, and droughts, will put these zones under pressure (ibid.).

Therefore, even though the local effects of climate change are extremely hard to project, it is observed that many of the world's poorest places are at a risk of being overwhelmed by climate variability and extremes (Sachs 2005). Evidence that human induced climate change will affect many parts of the developing world has been scientifically accepted for some time already. According to the 2001 Assessment Report of the IPCC, developing countries are expected to suffer the most from the negative impacts of climate change, since they are more reliant on economies that are affiliated with climate-related sectors, such as agriculture, and will be more affected by changes of environmental, coastal, and water resources.

Based on their findings, the IPCC authors strongly suggest that climate change should not just be a future consideration independent of what appears to be the 'more pressing issues' such as socioeconomic development and poverty alleviation (IPCC 2001b). Years of research have highlighted that the livelihoods of the majority of people living in developing countries, notably in rural areas, are threatened, and it has been shown that inevitably it is 'the poor' who suffer the impacts of changing climatic conditions (e.g. Stern 2006, Tompkins and Adger 2004; Downing 2003; Ribot et al. 1996). However, challenges are only partly due to the direct consequences of climate change as such. On the one hand, 'the poor' are likely to be worst affected by climate change, due to its effects on climate-sensitive sectors of economic importance. On the other hand, though, developing countries possess only a limited degree of human, institutional, and financial capacity to anticipate and respond to the changing conditions (Sperling 2003). Hence, there is a strong need for starting now to respond to the challenges posed by a changing climate.

Given advances in scientific understanding on the consequences of climate change, the consideration of adaptation is of the highest priority (Adger 2001). Adaptation has recently become central to the development debate and academics and practitioners alike recognise the need to secure people's livelihoods that might otherwise be undermined by climate change (Boyd et al. 2009). There is a critical need to understand the processes by which adaptation to global environmental change comes about. Such enhanced understanding will inform "*both the scientific community and policy makers of the underlying causes of vulnerability, and the potential policy for ameliorating such vulnerability*" (Adger 1999: 249).

So while interest is growing in supporting vulnerable people and communities to adapt to the impacts of a changing climate, there is a general assumption that there are close links between development and adaptation. Against this background, data allows for coming up with at least two brief generalizations:

- Firstly, the ongoing discussion about the consequences of climate change once more shows that while economic growth is a necessary condition for poverty eradication, this alone may not be sufficient to be relied on. Also in those countries that have experienced high growth rates over the last decades, climate change will expose those poor people who have not been profiting from economic growth (Kramer 2007).
- Secondly, it has been argued that many approaches to poverty eradication may be directly undermined by a changing climate. Thus, climate change introduces a new challenge, not only because of the expected rise in temperature and sea-levels, but also

due to the current context of failure to address the causes of poverty adequately (Schipper 2007).

Hence it becomes clear that it is not just the poverty aspect which needs to be addressed; but also vulnerability (Scott 2006). Already, demands for assistance for the most vulnerable (instead of the poorest) have become louder (Nelson et al. 2008; 2007).

Understanding the additional vulnerability caused by climate change over poverty-inducing factors, and hence re-orient current development policies and practice to account for this has been identified as an urgent need (Sperling 2003; Richards 2003). This task, however, entails some wider challenges, because:

- Climate change is a relatively ‘young’ international issue with significant social, economic and political ramifications. Although there is a wealth of policy-relevant research in the environment community, examination of climate and development concerns is in its early days (Yamin 2004);
- climate change represents a classic multi-scale problem in that it is characterized by infinitely diverse actors, multiple stressors and multiple time scales (Adger 2006). In terms of linking the two areas of vulnerability and poverty, this makes it difficult to come up with an overarching understanding;
- predictions provided by global climate models (GCMs) have been on too coarse a scale and too long term to have much practical relevance to policy makers (DFID 2004i). Climate change impact studies have typically examined factors such as increases in the number of people at risk of flooding based on projections of sea level rise.

The issue at stake, particularly for political and social science, is to review all those initiatives, both politically and socially driven, that will help to increase the ability of people to cope with hazards. Reaching a better understanding of both poverty and vulnerability as well as of vulnerability and adaptation to climate change has become an important issue within the context of climate change. In practice, potential synergic relations between poverty and vulnerability still need to be explored in more detail. Recently, the notion of adaptive capacity has entered the research arena, to become a focal point that received thorough attention. Analysing what works and what doesn’t in order to enhance adaptive capacity has become an imperative step in order to provide initiatives on how adaptation to climate change may work. What these initiatives are and how they can be characterized is a central area of concern among the research community and, finally, to my study.

## **1.2 The Mekong River Delta: Rationale for the selection of the case study**

Vietnam, in the context of maintaining an opening-up policy, has changed rapidly in the past 25 years. Prominent features include renovation (*doi moi*) policies, full re-integration into the global economy, transition from a centrally planned economy to a market economy, and administrative reforms. Vietnam has also made impressive progress in poverty reduction—poverty has more than halved and GDP per capita has more than doubled over the past 15 years. Part of this success is essentially due to the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) and to effective development planning as stipulated in the Socioeconomic Development Plans. However, these changes and successes have generated new sets of challenges: integrating regional and local markets into the global economy, for example, has led to a disparity of incomes; natural resources have diminished and environmental degradation has increased. Development in Vietnam is far from being sustainable (VietnamNetBridge, July 10, 2008). Yet priority of the Vietnamese government—

which among political scientists is considered “*one of the few communist regimes left on earth today*”<sup>2</sup>—is strongly oriented towards further economic development and poverty reduction (GoV 2003: 2) by, at the same time, maintaining the status as a ‘socialist Republic’ under the rule of the Communist Party.

Most importantly, though, Vietnam is likely to be one of the five countries most adversely affected by climate change (Dasgupta et al. 2007), which potentially may affect the country’s development path. Even without predicted changes in climate, Vietnam, with an extensive coastline of over 3,200 kilometres in length, has a highly variable and unpredictable climate, and is one of the most natural disaster-prone countries in the world. Its location and topography makes the country suffering from a wide range of hazards, including typhoons, tropical storms, floods, drought, seawater intrusions, landslides and forest fires. With the second-largest population of South East Asian countries (82 million), around a quarter of the total population lives in the coastal region. During the last 50 years, Vietnam’s annual average surface temperature has increased approximately by 0.5-0.7°C, while the sea level along its coastline has risen by approximately 20 centimetres. Climate change has resulted in more severe and/or frequent occurrences of natural disasters, especially cyclonic storms, floods and droughts becoming more extreme (ISPONRE 2009).

The Mekong (*Cuu Long*) River Delta is among the regions which are most vulnerable to the impacts of climate change in Southeast Asia and will be notably hit by its consequences, as shown through a number of climatic analyses (MoNRE 2009; IPCC 2007b; Chaudhry and Ruyschaert 2007). The Mekong River Delta is a highly fertile and low-lying rural region located in the south of Vietnam. Due to soil productivity and farming being the main economic activity, the region is densely populated with around 22 million people (a fourth of the country’s population) living there. Increased incidence of floods, salt water intrusion and a change of the rainy season threaten economic vitality and can potentially reverse the positive development trend in the region. At the same time, climate change puts more stress on poor and vulnerable groups in particular, since they have fewer options to adapt. Despite a considerable decline in poverty and high economic growth rates, the Mekong River Delta is a region dominated by low income and low income opportunities, with approximately four million people living under the poverty line and a large population clustered just above that line. This is the highest number of poor people in any of Vietnam’s regions. With the region being prone to natural disasters already, climate change can lead to a precarious existence for the poor.

In such a context, clearly, sustaining the advances that have been reached will prove to be challenging. Coping with adaptation to climate change by dealing simultaneously with other given challenges is an important task to be considered by the Government of Vietnam. While a National Target Programme to respond to climate change has not entered its implementation phase yet, much can be learned from experiences that were made, successes that were achieved and challenges which persist. This holds particularly true against the background of existing policies and programmes, including poverty reduction strategies, that serve as a framework for intervention and state assistance on the ground.

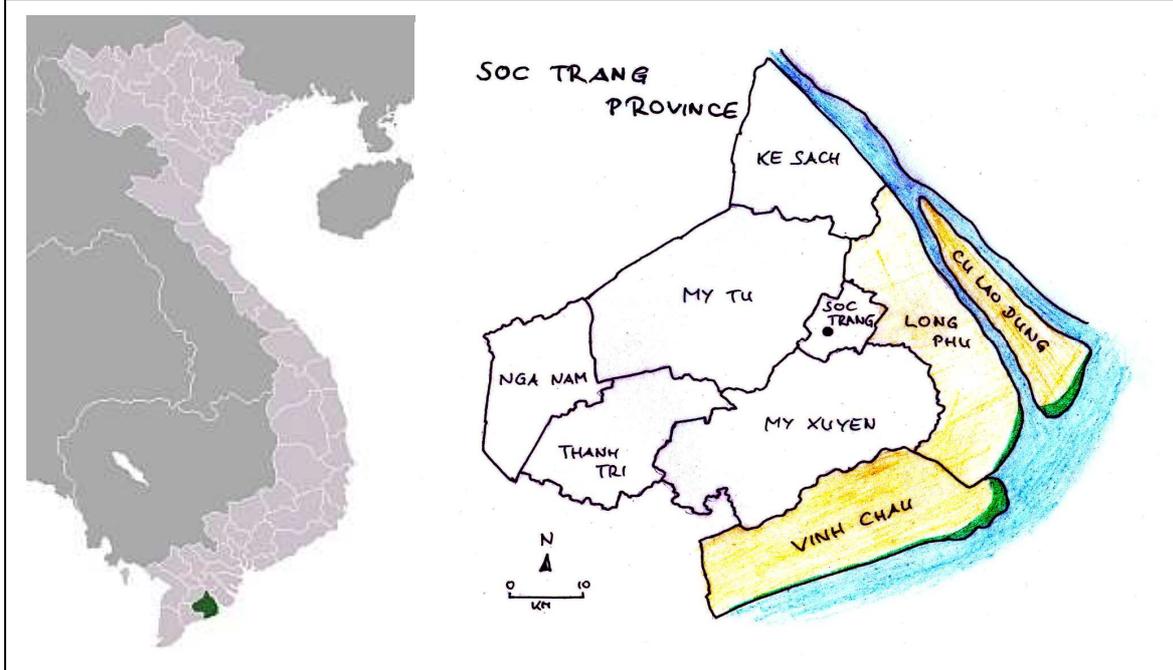
But the Mekong River Delta has diverse areas and coastal regions, making it difficult to apply a quantitative analysis of climatic risks to the whole delta area. Hence, my research focuses on a single province in order to analyse in detail those processes and conditions that determine vulnerability and foster change. I have selected Soc Trang as case study area which is one of thirteen provinces in the Mekong Delta region in the south of Vietnam (see Box 1) and is located south of the Hau River which is the southern-most of the nine Mekong River arms.

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<sup>2</sup> See: <http://www.conservativehumanrights.com/articles/elbegdorjtsakhia.html> [accessed August 15, 2010]

### Box 1: Map of Vietnam and Soc Trang Province in the Mekong River Delta

Source: <http://commons.wikimedia.org/wiki/File:LocationVietnamSocTrang.png>; GTZ 2008



Based on available data, Soc Trang Province is an ‘average’ province in the Mekong Delta (including population size, area size, poverty rate, growth rates etc), but is seriously affected under different climate change scenarios. People living in this coastal province are increasingly confronted with the imminent consequences of climate change while, at the same time, poverty is still widespread. Understanding reasons for poverty as well as identifying opportunities for adaptation to climate change becomes a prerequisite condition in order to formulate robust strategies for sustainable development.

### 1.3 Aims of the study

Climate change creates additional challenges to strive for sustainable development in the Mekong Delta region. A surge in interest in impact-oriented action is also discernable in research (Schipper 2007). Adapting to the consequences of climate change will be mandatory. In practical terms, the question of how to implement effective measures for adaptation is more and more coming to the fore. On the one hand, it is closely linked to individual countries’ abilities to simultaneously further development and poverty reduction goals (Sperling 2003). On the other hand, responding to climate change goes beyond that and depends on a wide set of issues, including political and cultural perceptions of risks and approaches to deal with them.

The Vietnamese government has undertaken considerable efforts recently in putting the topic of climate change on the political agenda and emphasising the weight of long-term adaptation planning; most prominently, a National Target Programme to respond to Climate Change is now formulated. Yet, the Programme has not been put into practice. Similarly, there is a lack of knowledge of the specific features of vulnerability and potential solutions for the region. An analysis of local vulnerability is therefore crucial to enhance understanding of response options. While many studies and assessments have been undertaken on poverty in the region, only few of them have put a focus on vulnerability and the social dimension of climate change (Le Bach Duong et al. 2005). But research has started to hypothesise that building communities’ adaptive capacity is a central part of any response option. However,

understanding of the impact of current development practice on adaptive capacity remains, as yet, limited (Wilson and Getnet 2011).

Against this background, the overall aim of the present study is to analyse how local communities are currently affected by climate-related events in the Mekong River Delta, how vulnerability in the case study area is characterized, and what the most relevant elements that shape vulnerability are and how they are potentially reduced. Empirical research is central in order to examine what is being done to cope in practice: how, for example, does a local population deal with certain climate variabilities—such as an extended raining period—, how are people negatively affected by these conditions, and—if so—how does a broader policy or specific development intervention help them to cope with any of the given and related concerns?

Answers shall be provided on how vulnerability of those population groups affected by climatic changes can be reduced and how adaptive capacity can be (further) enhanced. Direct assessments of adaptive capacity are not feasible, however, and so it becomes necessary to identify the characteristics or features that influence it. By placing the relationship between vulnerability to climate-related consequences and poverty into the centre of the present study, it is clear that both policy fields and their objectives are necessarily related, and that a broad overlap exists between potential response options, i.e. reducing vulnerability to the impacts of climate change and reducing poverty. This relationship is important and will be clarified in Chapter 2 of this study. ‘Poverty’ and ‘vulnerability’ are not interchangeable, however. Despite the given interlinkages, the two agendas are not the same.

Central to any undertaking on analysis of development and climate change is, I argue, the notion of ‘adaptive capacity’. As no universal characterization of the features of adaptive capacity is available, I provide a comprehensive depiction of its various features, based on an extensive review of the wider literature, and the development of a framework for adaptive capacity which in parts is based on research recently undertaken at the Overseas Development Institute (ODI).

Assessing those factors and drivers leading to adaptive capacity can only be successful if embedding analysis into a wider framework of vulnerability and adaptation theory (Adger et al. 2003) in which the role of socio-economic factors are sufficiently taken into account, and where significance is also given to institutional factors. More explicitly, the study aims to tease out how poverty and vulnerability to climate change interrelate, and to explore the way forward in terms of building adaptive capacity. It is important to understand these linkages, because of the implications of poor people’s livelihoods and future development in the context of projected climate change (Nelson et al. 2008). Doubtlessly, any assessment on climate-related risks and challenges must be based on a firm understanding of the characteristics and indicators of adaptive capacity. This, then, “*would also enable us to see how certain wider development interventions—many of which may not have been designed with climate change in mind, such as social protection or livelihood programmes—are contributing to characteristics of adaptive capacity*” (Jones 2011<sup>3</sup>). Providing answers to the research questions will both be of practical as well as of theoretical value and the aim is to examine critically what this proposed perspective can bring to the research of climate-related challenges.

I suggest, in line with Christoplos et al.’s (2009) argumentation, tracking the process of change in people’s lives will help to understand whether potential efforts to support adaptation really could make a difference. The present study’s interest is therefore on

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<sup>3</sup> See:

[http://blogs.odi.org.uk/blogs/main/archive/2011/03/25/Lindsey\\_Jones\\_adaptive\\_capacity\\_climate\\_change\\_monitoring\\_evaluation\\_adaptation.aspx](http://blogs.odi.org.uk/blogs/main/archive/2011/03/25/Lindsey_Jones_adaptive_capacity_climate_change_monitoring_evaluation_adaptation.aspx) [accessed April 3, 2011]

analysing the influence of ongoing climate change on people and on their communities in an area of high exposure risk to these challenges in the context of socio-economic development. Nevertheless, individuals are by no means passive as they act upon processes (Wehrli 2006) while, at the same time, ‘communities’ must be understood as units of highly diverse actors and structures that are compartmentalised across the distinction of power and interests. Hence, I will investigate how communities, according to their livelihood groups, perform against the prevalence of assumed vulnerability to these changes, and which strategies they apply. This approach turns the way in which communities and different population groups deal with these changes and how they secure their livelihood into the focus of research. Based upon this, the main exercise is to identify ways to enhance their adaptive capacity.

An analytical framework will be developed that facilitates empirical research and which *“provide[s] a language and frame of reference through which reality can be examined and lead theorists to ask questions that might not otherwise occur. The results, if successful, is new and fresh insights that other frameworks or perspectives might not have yielded”* (Judge et al. 1995: 3). Following the approach of the latter author, a first specific aim of the study is to outline a conceptual understanding that takes account of climate-related vulnerabilities and of those features shaping vulnerability and adaptive capacity. The work represents an integrated approach to the construction and application of a framework required for the analysis of the impacts of relevant policies and strategies, for the analysis of climate-related vulnerability and potential reduction thereof. Concerning this aim, then, the study will show that, despite a vast range of research strands, some challenges particularly hinder operationalising a conceptual framework to vulnerability and poverty. While there are a number of frameworks available on how impact evaluations of poverty reduction strategies can be conducted, the integration of ‘vulnerability’ into these frameworks has been a rather recent concern and has been applied less rigorously thus far among scientists and practitioners. It will be shown, though, that assessing vulnerability to climate variability and extremes, as well as assessing adaptive capacity, is feasible. The conceptual framework will allow for identifying, observing, and analysing features of adaptive capacity to the impacts of climate variability and extremes in the Mekong River Delta and will be based on underlying poverty and vulnerability theory. I do not seek to position myself as speaking on behalf of a ‘new’ approach or a framework that might triumph over anything currently dominant in the field. Rather, I would like to work with and to sharpen existing conceptual tools and to make them feasible to my study aims in which I assume local conditions are crucial in deciding on the value of policy responses to adapt to climate change.

The empirical findings in this study stem from the application of an analytical framework to a case study in the Mekong River Delta, a region that I believe to be particularly interesting in terms of poverty and vulnerability to climate change. Hence, the application of the conceptual framework, based on a suitable methodology, builds the second specific aim of this study. In this context, it is important to contend once more that the study does not provide an assessment of the country’s efficiency or quality in the implementation of adaptation projects. Rather, it focuses on the role of interventions and on how they reduce the vulnerability to climate change and enhance the adaptive capacity of the poor population groups in the face of climate change.

#### **1.4 The terminological context of ‘climate change’**

As a final notion to this introductory chapter, I shall define some important terms and the terminological context applied to this study. The very notion of ‘climate change’ has clearly been raising some terminological confusion in the past, and particularly has led to a number of misperceptions, especially in the field of social sciences. Therefore, the terminological context applied to ‘climate change’ in climate science needs to be of paramount importance

for any social science driven analysis of climate change. This perspective also holds true in the overall context and approach underlying the present study.

One fundamental challenge is that social scientists have only little to rely on since climate scientists themselves have not developed a universally accepted and comprehensive list of terminology to be applied related to the phenomenon. While having been careful in the past to state the distinction between ‘weather’ and ‘climate’, scientists are now working on linking climate variability and extremes happening today to climate change. Based on a list of definitions well-proposed by the USAID (2007), ‘weather’ describes atmospheric conditions at a particular place in terms of air temperature, pressure, humidity, wind speed, and precipitation. ‘Climate’, then, is often defined as the weather averaged over time (typically, 30 years). ‘Climate variability’ refers to variations in the mean state of climate on all temporal and spatial scales beyond that of individual weather events. Examples of climate variability are shifts that result from periodic El Niño and La Niña events. ‘Climate extremes’ can be, for example, extraordinarily heavy shiftings resulting from these events, but also include heavy windstorms, cyclones, and typhoons.

Based on the full weight of scientific evidence, it is now commonly accepted that, overall, the climate is changing, and that human activities are exacerbating natural changes in the climate (IPCC 2007a)<sup>4</sup>. By definition, ‘climate change’ refers to shifts in the mean state of the climate or in its variability, persisting for an extended period (decades or longer). More concretely, climate change is a statistically significant change in measurements of either the mean state or the variability of the climate for a place or region over an extended period of time, either directly or indirectly due to the impact of human activity on the composition of the global atmosphere or due to natural variability (Provention 2007). Climate change introduces a trend that is superimposed on natural variability, leading to changes in average climate conditions and exposure to extreme events over time (Few et al. 2006). Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC 2001a), that directly or indirectly alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods (IPCC 2007a).

Climate change is likely to manifest in four main ways, including

1. slow changes in mean climate conditions: For example, some regions may become drier or wetter on average (IPCC 2001b);
2. increased inter-annual and seasonal variability: For example, rainfall events may become more erratic in some regions;
3. increased frequency of extreme events, and
4. (scientifically highly contested) rapid climate changes causing catastrophic shifts in ecosystems (Tompkins and Adger 2004).

Moreover, increasing temperatures result in changes in sea levels which are projected to rise between 0.09 and 0.88 meters by 2100 relative to 1990 (IPCC 2001b), with a central value of 0.48 meters (Pfeffer et al. 2008). Two central reasons for this are, firstly, the thermal

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<sup>4</sup> Since industrialisation began, emissions of greenhouse gases (GHGs) – in particular carbon dioxide – have significantly increased, primarily due to increased burning of fossil fuels. As a result, heat has been trapped in the atmosphere and the earth’s global mean surface temperature has begun to rise, reaching its highest level for 140 years. Even if greenhouse gas emissions were entirely halted global temperatures would still be expected to rise over at least the next 50 years. This would happen because of the time lag between emissions and the atmosphere’s response, and because existing GHG concentrations have already reached a significant level (DFID 2004a).

expansion of water and, secondly, the addition of water to the oceans from the melting of mountain glaciers, ice caps and ice sheets.

While understanding climate change is central to formulating and building adequate policy response, and while climate models should form the basis for long-range planning, especially in those sectors sensitive to those changes (Blench and Marriage 1998), it is simply not yet possible to predict the future variability, frequency or timings of extreme events (DFID 2004f). The accuracy of climate predictions is limited by fundamental, irreducible uncertainties. For climate prediction, uncertainties can arise from limitations in knowledge (e.g., cloud physics), from randomness (e.g., due to the chaotic nature of the climate system), and also from human actions (e.g., future greenhouse gas emissions, population, economic growth and development). Some of these uncertainties can be quantified, but many simply cannot (Adger et al. 2009). A lack of data from many regional and local levels that can be of use for climate scientists and for modelling are other factors to be mentioned. An important bottleneck to understanding the implications of climate change remains collection of and access to meteorological data of sufficiently high resolution and continuity. Insufficient spatial and temporal coverage of meteorological datasets for countries and regions is a fundamental problem (Few et al. 2006).

So far, what is being experienced around the globe is that average temperatures are rising and dramatic and variable changes to extreme events are occurring (DFID 2004f). It is also agreed that climate variability will increase and some climate extremes will become more intense or more frequent (DFID 2004k), and there is consensus that the risk of drought, flooding, and storm damage is increasing and will continue to do so in many parts of the world. Yet, at the local level climate risks are experienced as a product of climate variability and extremes.<sup>5</sup> The latter two are integral parts of climate change (Smit and Pilifosova 2001), along with shifts in mean conditions (Füssel 2007; Hulme et al. 1999). Thus, while the world has been intensively discussing ‘climate change’ over the last two decades, a frequent saying still holds widely true: “*Climate is what you expect, but weather is what you get*” (Marshall et al. 2010: 7).

Taking a look at state-of-the-art literature concerning the manifold challenges of climate change shows that information disseminated is often couched in terms far more certain than the data warrants. Most impact and adaptation studies to date, for example, are based on climate change scenarios that only provide a limited set of possible future climates. Yet the climate change-related stimuli for which adequate response will be needed include climate variability and associated extremes which are inherently variable, “*from year to year and from decade to decade*” (Smit and Pilifosova 2001: 882). Variability and extremes go along with, and are an integral part of, climate change (Hulme et al. 1999). Hence, the emerging consequences of long-term climate trends on, for example, the occurrence of extreme weather events, while they may be related to global warming (Yohe and Tol 2002; Schär et al. 2004), cannot yet be distinguished clearly enough from natural variability (Eriksen and Kelly 2007).

However, with a wide range of extreme weather events having occurred in the summer of 2010—leading to catastrophic events such as floods in Pakistan and bushfires in Russia—discussions on whether climate change can now start to be blamed for these extreme events have increased in number and intensity. In this context, some scientists and government officials have recently moved the ball of climate discussion forward, saying unequivocally

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<sup>5</sup> For an analysis of climate change impacts on natural and human systems, particular attention is to be given to projected trends in the occurrences of extreme weather events, such as droughts, heat waves and floods. Changes in average weather conditions, while important, often provide an incomplete or even misleading image of future climatic conditions in a region. For example, even though annual rainfall in many areas of India may be expected to increase, the risk of acute water shortages in the same areas is also expected to increase, as rainfall will be more erratic and concentrated over fewer rainy days in the year (see, for example, IPCC 2007a).

that it is climate change leading to such disasters<sup>6</sup>. Yet, climate scientists “*seek to explain the complex causes behind a given variability or extreme, with the particular aim of detecting a possible departure from ‘normal’ conditions, and the role that human activities played, presently, scientists can’t say that recent events are ‘proof’ of climate change*”<sup>7</sup>. Thus, while scientists can indeed estimate probabilities, it “*rarely can (...) be asserted with 100 percent confidence that there is a causal relationship between variables*”<sup>8</sup>. Ultimately, therefore, while many events are consistent with what scientists have been warning about, no single event can be directly linked to or regarded as a direct proof of climate change<sup>9</sup>.

Based on this ongoing discussion on which events can be actually attributed to climate change, the usage and application of terminology used in the present study is as follows<sup>10</sup>: While there is high certainty that climate change is happening, it is not possible to say whether a certain weather event can be attributed directly to climate change. At the local level, climate risks are experienced as a product of climate variability and extremes (Few et al. 2006). The present study demonstrates that, for adaptation purposes, climate extremes and variability are integral parts of climate change, along with shifts in mean conditions and which, by being experienced on the local level, can be relatively easily traced and analysed in terms of their consequences. Climate variability and extremes are also important elements of the complex web of factors influencing people’s lives and livelihoods (Sperling 2003). For systems such as agriculture, forestry, water resources, and coastal zone settlements, then, the key climatic stimuli are not average conditions but variability and extremes (Smit and Pilifosova 2001). The ability to handle current climate variability is a vital and prime, if not a sufficient, requirement for managing a future change in climate. Understanding how to manage the consequences of climate variability in the context of the many other influences on social, economic, and natural systems will clearly provide useful experience when considering strategies for handling future climate change (Washington 2006).

## **1.5 Outline of the study**

The outline of the study follows a linear-analytic structure which is, according to Yin (2003: 152f.) a standard approach for composing research reports. This structure is comfortable to most investigators and readers, and probably is the most advantageous for a thesis or dissertation, with the context at hand. Hence, the sequences of chapters will be organised as follows:

The present introductory chapter is followed by Chapter 2 which discusses the problem being studied and provides a review of the relevant prior literature, i.e. the scientific discourse on poverty and vulnerability both generally and related to climate change. The chapter brings together elements from past scientific research and findings. In particular, the chapter identifies a set of important issues that are often given insufficient attention in current development theory but that will be critical for analysing and understanding the topic of adaptation to climate change.

Chapter 3 deals with a presentation of the discourse on adaptation and adaptive capacity to climate variability, extremes and change, and on approaches which are expected to support adaptation and increasing people’s and societies’ opportunities to build adaptive capacity. The chapter provides insights into possible solutions to overcome poverty and vulnerability in

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<sup>6</sup> See: <http://www.dailykos.com/story/2010/8/29/163423/286> [accessed February 15, 2010]

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> I am thankful to Prof. Joachim Betz who, during an early presentation of this study, raised lively discussions about the possibility to directly assess the consequences of ‘climate change’, and by this shaping my study.

their relation to exposure to climate change, and examines past experience in coping with climate-related challenges. Based on relevant literature, the focus is to show the overall importance of the notion of ‘adaptive capacity’.

Chapter 4 comprises my conceptual framework comprising the underlying conceptual model and the analytical framework. This will allow for broadening the understanding of what the case study is explicitly based on, i.e. the development of an instrument for analysis which allows assessing possible solutions to enhance adaptive capacity in the context of communities’ and livelihood groups’ vulnerability to climate variability and extremes. Overall, this framework is based on the capability approach and definitions of vulnerability mainly promoted by the IPCC (2007b).

Chapter 5 addresses the methodology employed for empirical work. The chapter deals with the research design of the study and formulates the type, levels and scope of work.

Chapter 6 then relates to the broader and context-specific analysis of the study’s main theme on the country level of Vietnam and presents the relevant socio-economic, political and institutional perspectives to the case study (introduction into the case). The overarching economic, social and political trends that are impacting the local level will be presented and existing policies and programmes on state-assistance, including poverty reduction strategies, will be discussed.

In Chapter 7, findings from the field study will be presented and analysed against the background of the main research questions and propositions made, and by explicitly dealing with the analytical framework.

Chapter 8 provides conclusions and implications from the case study.

## 2 Poverty and Vulnerability to Climate Change

This chapter deals with the first part of theory development to my study<sup>11</sup>, i.e. poverty and vulnerability to climate change. The chapter presents and discusses the two notions of ‘poverty’, on the one hand, and ‘vulnerability to climate change’, on the other hand, and deals with some of the prevailing conceptual challenges related to them. The chapter starts with an overview of the first problem being studied, i.e. the discourse on poverty and vulnerability.

A central concern of the chapter is to go beyond an income-centred understanding of poverty and to emphasise its multi-dimensional nature that also stretches to the concept of vulnerability. It will be argued that the concept of vulnerability is hard if not impossible to grasp when poverty is not defined in its multi-dimensional facets. Analysing the social aspects of vulnerability, in particular, will result in a hopeless venture when based on an income-driven understanding of poverty and does not lead to understanding the interrelation between the two concepts of poverty and vulnerability.

At the core of the chapter is the problem that any aspects of global futures “*are extremely uncertain, subject to radical flux, and influenced by many competing and unpredictable drivers*”, as Brooks and Grist (2008: 2) argue. Climate change is one such driver, though in its consequences it is closely related to other imminent processes of poverty and vulnerability. At the same time, there is a plenitude of reasons for why people are, or become, poor, just as reasons are many for why poor people are constrained in their endeavour to improving their lives. The collective aspects of vulnerability involve interaction and processes at various scales, from a single community to a country (Adger 1999) and even beyond these levels. These processes, as will be shown, will both affect and be affected by the consequences of climate change.

The objective of this chapter is to outline an understanding of vulnerability to climate change as the first step in appraising and understanding the social and economic processes which facilitate and constrain adaptation. Therefore, the present chapter provides a detailed discussion that will help to build a conceptual framework to operationalise poverty and vulnerability. Definitions of poverty are examined, and related to the concepts of vulnerability and risk. The concept of vulnerability is discussed in more detail, and the differences between bio-physical and social vulnerability are summarized. The IPCC definition of vulnerability is examined, and related to the concepts of social and bio-physical vulnerability.

The chapter is not intended to outline a ‘new’ theory on poverty and vulnerability; it rather brings together elements from past scientific research and more recent research findings. This will enhance the understanding of as well as the interlinkages between the two agendas. The chapter concludes with a summary which brings the key findings together and thus establishes a path for the following chapters where concern is about elaborating a pragmatic conceptual framework that can be applied empirically, hence making it possible to operationalise the concept.

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<sup>11</sup> Theory development prior to the collection and analysis of any case study data is an essential step in doing case studies. Developing the different components of a case study will force me, after having formulated the particular aims and questions related to the present study, to proceed with constructing a preliminary theory related to my topic of study. The role of theory development, as Yin (2003: 28) argues, “*is one point of difference between case studies and related topics such as ‘grounded theory’ or experimental designs [which] deliberately avoid specifying any theoretical propositions at the outset of an inquiry*”. Comprehensibly, the aims and questions of a study depend on a broader context and understanding—or theory—of what is being studied. Within the theoretical context to the present study, past and state-of-the-art research provides a rich background for designing an appropriate conceptual framework.

## **2.1. Poverty, Vulnerability, and Climate Change: An Overview**

Poverty and vulnerability have been central global concerns and raised lively academic debates over the last decades. The Human Development Report, in its 1997 edition, by highlighting economic and environmental changes during the last decades of the twentieth century was among the first documents that put an emphasis on the strong relation between the two notions. Changes are resulting in new risks and vulnerabilities which might reverse the success which has been made in economic development and poverty reduction during the past decades: *“The world is rapidly changing, with the globalisation and liberalisation of the world economy, with the rise of new conflicts, with the spread of HIV/AIDS, with the steady deterioration of environmental resources, with demographic changes, with the failures of economic growth in Sub-Saharan Africa, Latin America and the Caribbean and the Arab States, and with the transition to free market economic systems and democratic government. All these changes put added stress on the lives of people. And the people who already suffer deprivation in many aspects of their lives suffer most”* (UNDP 1997a: 65).

More than a decade later, climate change and its consequences have clearly turned into a new major challenge for international development and research. The Fourth Assessment Report of the IPCC (2007a; b) has confirmed that climate change is real, has quantified its magnitude and future evolution, and has assessed its impacts (Georg 2009). Climate change, in all its facets, is arguably the most persistent threat to global stability (Adger et al. 2003), to developing countries (Christoplos et al. 2009) and to the ‘poorest of the poor’ (Lasco et al. 2008) in this century.

Climate change is adding ‘another layer of risk’ on societies (Christoplos et al. 2009). The result in the decades to come may be an increase in the global burden of weather-related disasters: events that can threaten the sustainability of development processes and undermine progress toward poverty reduction (Few et al. 2006). Vice versa, it is clear that the increasing consequences of climate variability and extremes on economies and livelihood assets will have implications for people’s vulnerability to shocks more generally (DFID 2004a). The reality for many poor households is indeed a life of increasing vulnerability.

Principally, the ability to come up with more in-depth research on vulnerability is a central aspect for effectively reducing risk (Birkmann 2006: 9). Experts share a growing consensus that understanding vulnerability is vital to reducing the negative effects of crises, disasters, and other shocks on society (Warner 2007). Hence, vulnerability research today covers a complex, multidisciplinary field including development and poverty studies, public health, climate studies, security studies, engineering, geography, political ecology, and disaster risk management. This research is of particular importance and interest for policy makers and development organisations trying to reduce vulnerability—especially as related to poverty and the achievement of the Millennium Development Goals (MDGs).

Vulnerability research in climate change has, in some ways, a unique standing of being a widely accepted and used term and an integral part of the scientific agenda to climate change (Adger 2006). Researchers are currently working to refine definitions of ‘vulnerability’, measurement and assessment methods, and effective communication of research to decision makers (Birkmann 2006). Yet there is much confusion regarding the notion of ‘vulnerability’ in the climate change scientific community. At least four reasons for this can be outlined based on different authors’ reflections:

- Definitions of vulnerability vary (Eriksen and Kelly 2007; Kelly and Adger 2000; Liverman 1990) and the particular meaning of the term used in any analysis can be critical for the way that vulnerability may be studied or measured.

- There is little research at the regional and local level that could serve to understand vulnerability in terms of exposure, sensitivity and adaptive capacity; which are three components identified by the IPCC (Georg 2009).
- Researchers have identified a need for formalisation, in order to overcome misunderstanding and the use of ambiguous terminology (Ionescu et al. 2005), but how to do this is unclear.
- The study of vulnerability of human and natural systems to climate change and variability is a relatively new field of research that brings together experts from a wide range of fields. The review of approaches demonstrates diverging conceptions of vulnerability due to the different epistemological positions of research traditions and because of differing objectives of research (Adger 2006). Researchers bring in their own conceptual models to the study of vulnerability and adaptation, models which “often address similar problems and processes using different language” (Brooks 2003: 2). Therefore, ‘vulnerability’ can be used in a variety of ways, with different meanings, and different implications (Prowse 2003).

Timmermann (1981, cited by Dietz 2006) already in the early 1980s referred to difficulties in applying the term ‘vulnerability’: “*Vulnerability is a term of such broad use as to be almost useless for careful description*“. Yet Sen (1981) argued that while the concept of vulnerability is a rather loose one, there is no particular reason to assume that it must be clear-cut and sharp. “*In fact, a certain amount of vagueness is implicit in the concept—as it is in the concept of poverty*” (Sen 1981: 13). The really interesting question then rather might be what is the extent to which the areas of vagueness of the two notions, as commonly interpreted, tend to coincide. The diversity of approaches, as Adger (2006) adds, shall be seen as a strength and sign of vitality, not a weakness, of vulnerability research. While some sources emphasise the *economic* consequences of climate change—in the sense that it will reduce development by having a negative impact on pro-poor growth (DFID 2004a), an increasing focus has recently been put on the *human* dimension of the problem where climate change is embedded into a broader perspective of poor people’s living conditions. This latter idea of human development is, per se, related to individual well-being in all its facets. Definitions of human development particularly encapsulate notions of ‘freedom from want’ and ‘freedom from fear’ that were elaborated by Amartya Sen (Adger 2008).

To conclude, after decades of research there is some fundamental agreement that poor communities in developing countries are most vulnerable to those changes unfolding on them from external drivers.- But, as Wilson and Getnet (2011) summarize, research is still challenged by some important questions, i.e. what are the underlying reasons of vulnerability? What is it that makes poor households particularly vulnerable? And what are the interlinkages between poverty and vulnerability to climate change? The present chapter is for discussing these questions in more detail.

## **2.2. Characterising Poverty and Vulnerability**

This sub-chapter provides an overview of some basic, though important, considerations on ‘poverty’ and ‘vulnerability’, comprising the two notions’ definition, causes, and ways of analysis. The sub-chapter will considerate some of the major constraints and problems underlying to each of the two concepts for operationalisation and empirical research. The following overview is therefore meant to provide an idea of the more basic assumptions that are central for an understanding of those characteristics inherent to each of the two concepts.

### 2.2.1 Poverty: The needs approach

There are many definitions of poverty depending on the context of the situation and the views of the person giving the definition. Sen refers to two initial understandings: Orshansky, for example, has argued that *“poverty, like beauty, lies in the eye of the beholder”* (Orshansky 1969, cited by Sen 1981) while Hobsbawm (1968, cited by *ibid.*) emphasised that poverty *“is always defined according to the conventions of the society in which it occurs”*. Some commonly accepted features that define poverty can be identified, however.

According to Amartya Sen (1981: 17), *“[i]t seems natural to think of poverty as something that is disapproved of, the elimination of which is regarded as morally good”*. In the same way, a more recent document published by the Government of Ireland (2007: 20) illustrates that *“[p]eople are living in poverty if their income and resources (material, cultural and social) are so inadequate as to preclude them from having a standard of living which is regarded as acceptable (...)”*.

Defining poverty by low income is still an essential part of many if not most approaches in the field, but no definition of poverty can be found that exclusively refers to ‘income’ as the only indicator of poverty. Poverty, in its broadest sense, can be defined as *“deprivation, lack or want”* (Chambers 1989) what makes it a low state of well-being. Poverty is now thought of as a kind of generalised lacking, or a state of being without some essential goods and services. ‘Poor people’ are people deprived of things that they need to live a normal life (Toye 2010). This is also referred to as absolute poverty or destitution and which is in comparison to relative poverty which is the condition of having fewer resources or less income than others within a society or country, or compared to worldwide averages (Krugman and Wells 2009).

#### Measuring ‘the poor’

Despite the range of definitions available, some problems arise with the exercise of identifying ‘the poor’, since *“we have to view them not as members of the huge army of ‘the poor’, but as members of particular classes, belonging to particular occupational groups (...). Classifying the population into the rich and the poor may serve some purpose in some context, but it is far too indiscriminating to be helpful in analysing (...) poverty”* (Sen 1981: 156). In this sense, for instance, a small peasant and a landless labourer may both be considered poor according to some definitions, but their fortunes are not tied together.

The requirements of a concept of poverty must therefore include two distinct—but not unrelated—exercises, namely (1) a method of identifying a group of people as poor (‘identification’); and (2) a method of aggregating the characteristics of the set of poor people into an overall image of poverty (‘aggregation’) (Sen 1981: 11). Based on these exercises, there are various ways to define the cut-off point between the poor and the non-poor, with the most common route through specifying a set of ‘basic’ (or ‘minimum’) needs, and regarding the inability to fulfil these needs. This poverty measure, which generally is applied in a quantitative fashion, is generally fixed in time, though, and poverty is often seen as essentially a static concept (Moser 1998).

One particular way of assessing the fulfilment of basic needs can be through specification of a ‘consumption norm’ and, for example, through measuring the calorie intake of poor households: allegedly 2,300 calories a day per person is required, according to FAO standards. This minimum survival calorie intake is then priced and a percentage above that is than fixed for non-food expenditure. This approach has been steadily criticized, since there is no uniform standard of this kind, and that in general calorie requirements vary with, for example, climate and the amount of physical work performed (Toye 2010). Another challenge for measuring the nutrition base as a part of basic needs is when income rises, actual proportion spent on food consumption falls, even if actual expenditure on food rises (‘Engel’s

law'). Attention is usually paid, however, to the difference in food needs between adults and children, with much ingenuity devoted to deciding the adult-equivalence scale in order to convert children's minimum consumption needs into that of an adult. Finally, the household, which is normally taken as the unit for accounting for consumption, is a somewhat dubious concept: "*Different patterns of family formation, of migrant employment, of the adoption and fostering of children sometimes make it difficult to decide on which groups of people are 'eating out of a common pot' and thus forming a household for statistical enumeration purposes*" (Toye 2010: 46).

Another prominent and widely popular way to assessing poverty is to make use of a 'poverty line', with 'the poor' being those whose incomes lie below that line (Sen 1981: 9). This can be done very simply by just counting the number of the poor, and then expressing poverty as the ratio of the number of the poor to the total number of people. Identifying poor people then becomes a matter of tallying up how much people fall below some pre-set threshold. This percentage is called the 'headcount ratio' of the poor (Toye 2010), which, as a most prominent example, is applied by the World Bank. Based upon application of the USD 1-a-day threshold, data suggests that there has been an overall decline in the poverty rate in developing countries, from 28 percent in 1993 to 22 percent in 2002. This fall in the number of poor people, particularly in rural areas, has been mainly in the East Asia and Pacific region, while in other regions, notably Sub-Saharan Africa and South Asia, rural poverty was rising (World Bank 2007). In 2005, 1.4 billion (one in four) people in the developing world were considered poor, according to a USD 1.25-a-day poverty line.<sup>12</sup>

One central point of critique on the use of any pre-set threshold is the inherent implication that need is 'absolute'; once basic needs are met, poverty is no more (Toye 2010). Also according to Sen, this has to be accepted with caution, since the head-count measure suffers from at least two more serious drawbacks: "*First, it takes no account of the extent of the short-fall of incomes of the poor from the 'poverty line' (...). Second, it is insensitive to the distribution of income over the poor. (...) Both these defects make the measure quite unacceptable as an indicator of poverty, and the conception of poverty that lies implicit in it seems eminently questionable*" (Sen 1981: 11). Consequently, while the category of 'the poor' has some legitimacy in the evaluative context, it is "*still far too gross a category and requires to be broken down*" (ibid.: 157), since adhering to a simple poverty line can also have distorting effects on policy matters (ibid.). Trends in the headcount ratio do, of course, have obvious informational value. The reduction in income poverty in China in the post-reform period, for example, must be seen as an achievement of great importance, given that lack of income often drastically constrains the lives that people can lead. But this finding needs to be supplemented with further information about what has been happening in matters of living conditions (Drèze and Sen 1995: 69f.).

While Sen sees a welcome tendency to recently move away from figures of national income *per head* to measurements of income *distribution* (because it is possible for the proportion of population below the poverty line to fall while those who are in poverty experience a deepening of their deprivation), even then the basic problem of putting all poor people into one single category persists (Sen 1981: 151f.). Others have added that the advantage of seeing poverty through the lens of income distribution poverty (and in comparison to a poverty line) is that when economic growth raises living standards altogether beyond some minimum threshold, the poor "*do not vanish, but are still there, trapped in the bottom deciles of the income distribution*" (Toye 2010: 46).

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<sup>12</sup><http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21881954~pagePK:34370~piPK:34424~theSitePK:4607,00.html> [accessed June 9, 2009]

It was only in recent years and with the turn of the millennium that the discussion on poverty and the prevailing constraints to defining and measuring poverty have enjoyed greater attention. Until the end of the twentieth century, the issue of global poverty had a relatively low international profile (Hulme 2010), since it was assumed for a long time in prevailing development thinking that poverty could be overcome with an overall raise of economic performance in developing countries. Hence, the focus much more was on ‘how to achieve economic development?’ than ‘how to alleviate poverty?’. If at all, some interests were put on issues of how to aggregate poverty data rather than how to categorise the poor. In recent years, then, an extensive body of literature has emerged on the definition of poverty, including studies that are concerned with the very features and facets that shape poverty.

### **Analysis of poverty**

As Sen already argued some thirty years ago, causations of poverty and effects of poverty are important issues to study in their own rights (Sen 1981: 10). Central causes of poverty are mainly shaped by economy-related restraints, but are also related to social and environmental insufficiencies. Social and political exclusion is another important cause of poverty.

For the foreseeable future, poverty remains a largely rural phenomenon in the developing world (Sabates-Wheeler et al. 2008).<sup>13</sup> In terms of absolute numbers of people, over half of the developing world’s population (3 billion people) lives in rural areas, including the vast majority of the world’s poorest people. The 2008 World Development Report ‘*Agriculture for Development*’ (World Bank 2008a) puts the figure at 75 percent<sup>14</sup>. Half of the rural population lives in smallholder farming households, and in all around 86 percent of rural people depend on livelihoods that are connected to agriculture in some way, either through farming or working in the sector (World Bank 2007: 3f.). Rural poor people, therefore, can fit a range of ‘profiles’ that are “*ranging from smallholders, pastoralists, workers on plantations or smaller farms growing either food or cash crops for domestic consumption or export, engaging in on-farm, off-farm and non-farm activities including services, and living in rural towns, villages, and more remote places*” (Sabates-Wheeler et al. 2008: 7).

While farming and agriculture are not necessarily related to the incidence of poverty, yet in the vast majority of developing countries the rate is higher in rural areas than in urban areas. There is a recognition that ‘place matters’ (Bird et al. 2002) (or ‘location matters’, Adger 2003), with ‘spatial poverty traps’ argued to only offer low agricultural potential, often having no access to irrigation, and only possessing poor levels of infrastructure while also being vulnerable to climatic fluctuations, pests, diseases and man-made and natural hazards (CPRC 2004). As Scott (2006) argues, spatial poverty traps result from a combination of deficiencies in both the natural and physical environment, with low quality natural resources in areas that can be termed ‘marginal lands’ and include arid zones, swamps, saline lands and steep slopes. In Africa, the highest incidence of poverty occurs in arid zones (UNDP 1997a). According to Scott (2006), the quality of the physical environment is a key determinant of the sensitivity of a particular community and area to risks. The quality of resources available, in particular land, in both rural and urban areas is another key dimension of poverty, as having impressively been assessed by Narayan et al. (1999).

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<sup>13</sup> Doubtlessly, though, urban poverty has become a topic of its own. In fact, there has been a rapid growth of urban population from the twentieth century up to today. It is estimated that the total number of urban population will soon be higher than in rural areas, with urban population in many countries growing at a faster rate than total population, such as in India (Hashim 2009). Migration from rural to urban areas, the building of vast slum areas in many metropolitan regions in the developing world, crime, and high levels of income inequality have been major topics of research on urban poverty analysis. Understanding urban poverty presents a set of issues distinct from general poverty analysis (Baker and Schuler 2004) and thus may require additional tools and techniques.

<sup>14</sup> Regional differences are striking, ranging from 41 percent of poor people living in rural areas in Latin America and Caribbean to almost 93 percent in East Asia and Pacific region (Ravaillon et al. 2005).

The list of rural disadvantages in general living condition is often also associated with economic isolation in terms of transport costs (Adger 2003), imperfect or thin markets, and market-related risks which tend to be related to distance from urban centres (Sabates-Wheeler et al. 2008). Economic isolation is an important cause for rural people for engaging in other than economic activities to gain their livelihoods (for example subsistence production may be cheaper and less risky than reliance on markets to meet food needs) (ibid.). Different findings show, however, that for the extreme poor this compensating mechanism is not truly in place (Scott 2006). Such explanations of persistent poverty imply that economic integration into the world system could be the solution. Clearly it is not, as examples from many places show<sup>15</sup> (Adger 2003: 2f.).

Moreover, there are many other factors shaping poverty at the individual and households level that let people live under poor and precarious conditions in the developing world, including low education levels and suffering from disability or disease. The Chronic Poverty Research Centre (CPRC), for example, argues that ill health, particularly of the household's main income earner, "*is perhaps the most common driver of chronic poverty at the individual and household level*" (CPRC 2004: 44). The idea of an 'ill health spiral' describes how illness leads not only to the loss of human capital; but also requires expenditure on treatment (Scott 2006).

Questions remain on the 'environment' and its linkages to poverty. The poverty-environment connection is still described as a 'big question' with which the research community engages (Gray and Moseley 2005) as described fairly extensively by Scott (2006). Debates about poverty-environment connections originate in 18th century Malthusian ideas of a vicious poverty-environment spiral where the poor 'seldom think of the future' and continually degrade their natural resource base (Malthus 1798, cited by Scott 2006). The debate has definitely moved on since then, though Scott (2006) argues that the relationship between poverty and the environment is seldom systematically explored. Certainly, according to Scott (2006: 1), "*the relationship(s) need to be disaggregated – with one of the central questions being whether different sorts of poor people (varying by level of poverty, profession, location, age, gender) degrade or improve components of the environment in different ways*". Definitely, there are a great number of factors influencing the degree to which people are likely to suffer from the negative effects of environmental change (Moser 1998). Hence, seeing the environment as the sole determinant of poverty doesn't acknowledge the reasons behind why people live in environmentally degrading areas, since environmental causes of poverty, then, "*often combine with other political, social and economic causes so that the (...) poor commonly experience several forms of disadvantage and discrimination at the same time*" (ibid: 12).

Poor people, finally, are also exposed to risks beyond their community—those affecting the economy, the environment, and the society in which they live. Hazards such as civil conflict and wars, economic crises, and natural disasters affect not only their current living standards but also their ability to escape poverty (World Bank 2000: 37). This final aspect carries the subject of vulnerability, rather than poverty, over to the next chapter.

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<sup>15</sup> Advocates of globalisation argue that the greatest vulnerabilities are to poverty. To reduce them, the 'globalising' faith holds that poor areas need to be integrated into the world economy through investment in infrastructure, opening up of trade flows, and allowing the developing countries to meet the market-oriented economies of the world on an even playing field—an optimistic view that globalisation "*can be made to work for global social good*" (Adger 2003: 3). Vice versa, the discontents of globalisation point out that people are vulnerable to economic globalisation. Liberalising trade and integrating economies into world markets "*makes the incomes of the poor insecure, open to vagaries and price fluctuations, and ultimately more vulnerable when other shocks and stresses come along*" (ibid.).

## 2.2.2 Vulnerability: The physical and bio-physical dimension

Basically, concepts of vulnerability aim at identifying and analysing risks to shocks and crises, risks that evolve from non-adequate coping strategies, and risks that evolve from the impacts of shocks and crises (Watts and Bohle 1993: 4f.). While the concept of vulnerability is fundamental to human-environment research (Wu et al. 2002), understanding vulnerability to climate-related risks has also now become one of the most important foci that shape research. In here, experts share a growing consensus that understanding vulnerability is vital to reducing the negative effects of crises, disasters and other shocks on society (Warner 2007). The term ‘vulnerability’ has emerged in the last two decades and it becomes a lexicon for both scientists as well as policy makers to use it as a lexicon and also overuse it without having the proper meaning and understanding (Georg 2009). Currently, the concept of ‘vulnerability’ has been used in a variety of ways, with different meanings, and different implications (Prowse 2003). This diversity of conceptualisation is due to the fact that the term has been used in different policy contexts, referring to different systems exposed to different hazards (Gbetibouo and Ringler 2009).

### Definition of vulnerability

The word ‘vulnerability’ is derived from the Latin word *vulnerare*, meaning ‘to wound’. This understanding makes clear that vulnerability has a negative connotation and therefore presupposes a notion of ‘bad’ and ‘good’, or at least ‘worse’ and ‘better’ (Ionescu et al. 2005). Vulnerability is the risk to be harmed physically or psychologically. At a very basic level, therefore, vulnerability can be defined as “*the capacity to be wounded*” (Kates et al. 1985, cited by Smit and Pilifosova 2001). Vulnerability describes the “*degree to which a system is susceptible to injury, damage, or harm*” (Smit et al. 1999<sup>16</sup>). However, general definitions of vulnerability do not specify the type of loss or the individuals, groups, or societies expecting loss (Cutter 1996).

‘Vulnerability’ is no more a new concept for the mainstreaming development literature (Georg 2009). In the 1970s vulnerability was introduced within the discourse on natural hazards and disaster by O’Keefe et al. (1976). Therefore, the emerging interest and conceptualisations of vulnerability clearly draw on insights that are firmly rooted in disaster management (Watts and Bohle 1993). This older paradigm in the study of risks and hazards, termed the ‘behavioural paradigm’, mainly perceives vulnerability as a combined function of hazard, exposure and sensitivity, and therefore may be referred to as *physical* or *bio-physical vulnerability*. Crucially, these first generations of vulnerability analysis have applied a purely physically concept of vulnerability (Brooks 2003: 3), and perceived the consequences of a disaster as directly impacting on a given system.

Being vulnerable in ‘bio-physical’ terms suggests both a physical component associated with the nature of the hazard and its first-order physical impacts, and a biological or social component associated with the properties of the affected system that act to amplify or reduce the damage resulting from these ‘first-order’ impacts (Brooks 2003: 4). As summarized by Brooks (2003: 4f.), biophysical vulnerability is “*a function of the frequency and severity (or probability of occurrence) of a given type of hazard (...). Disasters occur when there is an interaction between a ‘natural’ hazard and a population*”.<sup>17</sup> Moreover, Brooks adds, a hazard may cause no damage if it occurs in an unpopulated area or in a region where human systems are able to cope with it. A system that sustained no net damage from a hazard might be interpreted *post hoc* as being “*invulnerable*” to that hazard. The understanding of vulnerability in bio-physical research traditions to vulnerability, then, locates vulnerability as

<sup>16</sup> See: <http://ipcc.ch/ipccreports/tar/wg2/index.php?idp=650> [accessed September 20, 2008]

<sup>17</sup> In the words of O’Keefe et al. (1976: 566), “*without people, there is no disaster*”, while the IFRC adds that “[t]he human factor is the difference between a natural event and a disaster” (IFRC 2010: 3).

an 'end point' of analysis which is directly related to certain damages occurring from 'natural' events such as drought or flood (O'Brien et al. 2004). The cause of a disaster is mainly viewed as being 'extreme forces of nature', and the poor perception of hazards and risk. The concept believes in the ability of technology, prediction, bureaucratic organisation and modernisation to mitigate disasters (Blaikie et al. 1994).

### **Measuring bio-physical vulnerability**

It is commonly agreed that the first step in a vulnerability assessment must be to determine which of the wide range of conceptual frameworks available to use and, hence, which analytical definitions of vulnerability to apply (see, for example, Rygel et al. 2005; Downing and Pathwardan 2004).

Focussing on the bio-physical aspects of vulnerability makes analysis a comparatively feasible and quantitative exercise. Bio-physical vulnerability is concerned with the ultimate outcomes of a hazard event, and is often viewed in terms of the amount of damage experienced by a system as a result of an encounter with a hazard. Jones and Boer (2003, cited by Brooks 2003) are therefore referring to biophysical vulnerability when they state that "[v]ulnerability is measured by indicators such as monetary cost, human mortality, production costs, [or] ecosystem damage (...)". These are indicators of *outcome* rather than indicators of the state of a system prior to the occurrence of a hazard event (Brooks 2003: 4). Based on the underlying definition of biophysical vulnerability, the main aim of research is to assess the net damage for a given level in a given system resulting from a risk, or the *expected* net damage resulting from a hazard. Being primarily rooted in the study of a given exposure of a system, the underlying assumption is that human life and livelihood is at risk from natural phenomena such as earthquakes, volcanoes, floods, droughts, tsunamis and other hazards (Hewitt 1997).

By later expanding the study of risks and hazards to other fields, researchers have grouped various types of risks into natural and economic, or to sectoral aspects such as health, infrastructure, and agriculture. For natural risks, typically they are flood, drought, storm, typhoon, land slide, fire or environmental degradation. Economic risks can range widely from failures in crop, investment and business, livestock epidemics to market jobs or job loss. In terms of sectoral approaches, health risks, for example, may consist of child malnutrition, chronic illness, disability or accidents. In measuring vulnerability, it is also important not only to identify risks "*but also to understand risk characteristics, including their magnitude (size and scope), frequency, and duration*" (Le Bach Duong et al. 2005: 65).

Vulnerability, in its bio-physical understanding, has then been used to assess the state of exposure, usually associated with a given society in a specific geographical location (rather than with individuals or social groups). Yet the main interest was to measure net impacts of a given risk or hazard. Within social science approaches to hazards the concept of vulnerability has been developed by Hewitt (1983) and others, providing a challenge to what they regarded as a dominant view which described the causality of risk from hazards as "*running from the physical environment to its social impacts*". Thus even social science analyses of hazards, up till the 1980s, were primarily "*technocratic and prescriptive, by incorporating the human element in hazards as an input to designing planning, warning and coping systems*" (Adger 1999: 250). Another aspect that has found its way into assessments of biophysical vulnerability was to differentiate between individual and collective risks and shocks: *Idiosyncratic* shocks are those that affect the individual or household (e.g., death, injury, unemployment); *covariate* shocks are those that affect localities or nations (e.g., epidemics, disasters, wars) (Devereux 1999; Sinha and Lipton 1999). Several researchers have expressed some concern on this distinction, though, by noting the imprecision in these definitions. For example, Fafchamps (2003) asks, 'How many farmers must be affected by crop failure before

it is called a drought?’ Similarly, Cafiero and Vakis (2006) note the complexities of distinguishing between idiosyncratic and covariate risk. The consequences of a disaster therefore are the direct *impact* of a hazard (in a physical understanding), unfolding on the properties of the human system that is exposed to and affected by the hazard, or the *outcome* of a disaster which is mediated through the internal properties of a system (in a bio-physical understanding).

Based on their findings, researchers then attempted to distinguish between measurements of current and future vulnerability. Current vulnerability, it is assumed, as determined by past adaptation and the current availability of coping options, provides a baseline from which a system’s future vulnerability will evolve (Brooks 2003: 10). However, the ability to disaggregate social and societal features such as poverty at the individual and household level and to therefore gain a fuller understanding of future vulnerability is limited when applying a biophysical research understanding, because “*it is extremely difficult to apply the concept of vulnerability to concrete situations*” (Wisner 1993: 127). This often leads to reducing vulnerability to a single causal factor. Such causal reductionism ignores the highly differentiated experience of individuals and households when placed under similar pressures and strains. The challenge therefore is to “*create ways of analysing vulnerability implicit in daily life*” (ibid.: 128).

In sum, while poverty—based on an income-based approach—is measurable in its absolute terms, using different methods such as a ‘poverty line’, or a ‘consumption basket’, vulnerability can be measured in bio-physical terms and by employing a number of quantitative indicators, such as lives lost, people affected, or economic losses. Both approaches, though, show a number of simplifications and shortcomings.

### **Analysis of bio-physical vulnerability**

While bio-physical research on vulnerability clearly can help to provide a number of highly informative data on the exposure of a wide range of systems to disasters, risks and hazards, many assumptions about these aspects of vulnerability are contested (Scott 2006). Problems start when societal or social indicators, or those features that are based on the internal propensities of a system, are tried to become quantified. For example, based on bio-physical aspects of vulnerability, it has been argued that “*poor people are more vulnerable because of their high dependence on natural resources, and their limited capacity to cope with climate variability and extremes*” (Sperling 2003). But then, questions to remain unanswered are, for example, ‘who are the poor?’, ‘are rich people not dependent on natural resources?’, ‘why is capacity to adapt low?’

Evidence used in analysing vulnerability through a bio-physical lens was mainly based on correlative studies where it was shown that poor people are particularly impacted by natural disasters in terms of losses and overall numbers of people hurt or killed. Evidence of the primacy of vulnerability as a determinant of a disaster is shown through the following considerations, for example: Based on Abbott (1991), between 1970 and 1985 over 97 percent of all the world’s major natural hazard triggered disasters and 99 percent of all disaster-related deaths occurred in the developing world, while in the 1990s at least 96 percent of the annual victims of natural hazards lived outside of Europe and North America (Walker and Walter, cited by Bankoff 2001). The work thus showed that the greatest losses of life concentrate in developing countries, while Walker and Walter (ibid.) concluded that vulnerability is increasing, due to an increased numbers of disasters over the last 50 years.

By taking a simple look at the living conditions of population groups around the globe, it is both striking and true that households and communities face many risks. Hazards such as floods, droughts and tropical cyclones afflict many regions of the world, but their impact in terms of lives lost and livelihoods disrupted tends to fall most heavily on the poor in

developing countries (Few et al. 2006). Impacts also compound one another and accumulate over time, as repeated disaster shocks have a range of cumulative effects, including drought reoccurring with such frequency that people have no time to recover in between events (Christoplos et al. 2009). Also, exposure to one type of risk can increase vulnerability to other risk factors, such as when crop failure leads to malnutrition, which increases the risk of common illnesses.

In Asia, for example, around 60 percent of the poorest people lived in ecologically fragile and vulnerable areas by the early 1990s while in sub-Saharan Africa this figure was 50 percent (Leach and Mearns 1991). These environments include flood plains, arid grounds, mountainous and hilly regions and fragile forest ecosystems. A DFID (2001) review of 23 Participatory Poverty Assessments undertaken in 2001 emphasises how the poor do feel directly vulnerable to environmental shocks and stresses. ‘Voices of the Poor’, Narayan et al.’s approach to let poor people provide an insight into their lives and grievances, also highlights some of the direct implications of disasters on the poor; in the words of a Kenyan farmer ‘the poor live at the whim and mercy of nature’ (Narayan et al. 1999). These shocks and stresses can play a key role in moving people down to a lower state of well-being. Poverty, then, is not just an indicator of vulnerability if looking through a biophysical lens, but ongoing shocks and stresses also act as ‘drivers of poverty’ (CPRC 2004).

In terms of exposure to natural disasters, Sinha and Lipton (1999: 27) assert that “*exposure to risks from natural hazards arise essentially from location, in addition to behaviour*” and argue that certain countries are more ‘prone’ to natural disasters than others. More generally, Sinha and Lipton (ibid.) state that: “*So while prima facie residence in risk-prone regions/cities exposes all to risk, (i) the nonpoor are less likely to be living there, and (ii) their [the poor’s] exposure arises from quality of housing, access only to marginal lands, limited access to markets, poor quality of livestock, etc. – factors that are direct correlates of poverty itself*”. These findings are intriguingly true, and thus have helped to shape the understanding of ‘the poor’ in vulnerable contexts. A decade later, still “*the brunt of displacement and property damage from disasters is felt in unplanned, informal or customary settlements of the poorest segments of society*” (IFRC 2010: 6). In a recently published article on important lessons drawn five years after Hurricane ‘Katrina’ hit the city of New Orleans, Ospina (2010)<sup>18</sup> writes that “*despite the fact that this disaster took place in the context of a developed nation, its effects on poor and marginalized populations reminded us that prevailing vulnerabilities can act as threat multipliers*”.

What is finally clear is that, on the one hand, physical and bio-physical aspects of vulnerability, by constituting the ‘first’ and ‘second’ generation’ of vulnerability studies, have opened the eyes of both politicians and the research community to the serious problems associated with natural disasters and other risks and hazards and their consequences on different scales and in different geographic contexts. On the other hand, though, the assessment of vulnerability, has to address some broader conceptual problems arising in the evaluation of poverty and human deprivation in general. Some of the issues involved have been extensively examined in the literature on ‘poverty’ (such as by Drèze and Sen 1989).

It is also clear that by taking a merely biophysical understanding the definition of vulnerability is too short and narrow to adequately understand the problems associated with risks. This can be seen in other literature on vulnerability where a focus is set on the ‘dual facets’ of vulnerability: “*an external side of risks, shocks and stresses to which an individual or household is subject and an internal side which is defencelessness, meaning a lack of means to cope without damaging loss*” (Chambers 1989: 1). Hence, Chambers argued that

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<sup>18</sup> See <http://niccd.wordpress.com/author/angelicaospina/> [accessed September 13, 2010]

vulnerability has an external and internal side, with people being exposed to specific natural *and* social risk.

Some of the conceptual work undertaken in behavioural studies on vulnerability has clearly paved the way to more structuralist ways of understanding the underlying problems, though: By bringing in the notion of ‘idiosyncratic’ (individual) vulnerability, it has been argued that poor people indeed will make use of even their scarce resources and decision-making skills to deal with the given challenges, hence not being passive ‘victims’ of disasters and disaster-related events (DFID 2004k). Risk, moreover, is not necessarily negative as the outcome of risks depends on how individuals, households, interest groups or communities have responded to earlier risks; hence, *“an increase in risk can also increase opportunities”* (Yaqub 2000, cited by Prowse 2003).

### **2.3. The Multiple Dimensions of Poverty and Vulnerability**

The following sub-chapter provides an overview of what can be called the ‘multiple dimensions’ of poverty and vulnerability. In the past, vulnerability studies identified ‘the poor’ as being primarily affected by disasters, with the net losses significantly impacting on these parts of society. However, to reiterate, ‘the poor’ isn’t a very helpful category for causal analysis. Different groups sharing the same predicament of poverty get there in widely different ways (Sen 1981: 156). This not only leads to a number of important implications on the concept of poverty, but also on the research of vulnerability. In other words, the two ‘basic’ understandings of poverty and vulnerability, in the way outlined above, do not help much yet to understand why, how, and to which extent communities can be affected by the impact of a hazard. Increased awareness and findings, though, has lead to more adequate approaches to deal with given societal conditions in vulnerability research, and mainly is based on antecedents provided by Amartya Sen and some other authors.

The sub-chapter, therefore, examines the complex relationship between poverty and vulnerability to risks and hazards. I define what I mean by capabilities and well-being and discuss some of the more specific characters of poverty in the context of social vulnerability.

#### **2.3.1 Poverty and Vulnerability: Towards a multi-dimensional approach**

The conceptualisation of biophysical vulnerability has been criticised for understanding people as passive victims (Hewitt 1997). Bankoff (2003) criticises the very basis of the concept, since in his view ‘vulnerability’, as a term, is shaped by a knowledge system that was developed and formed within the academic environment of western countries and therefore inevitably represents values and principles of that culture.

Narayan et al. (1999) show that poor people in both rural and urban areas experience ill-being in multiple ways, going beyond standard economic definitions of income and material consumption poverty *“based on yardsticks such as a dollar a day and encompassing bad experiences, and bad feelings about the self”* (Narayan et al. 1999: 3). By contrast, *“[w]ellbeing was variously expressed as happiness, harmony, peace, freedom from anxiety, and peace of mind (...). For many, too, spiritual life and religious observance were woven in with other aspects of wellbeing”* (ibid.). Therefore, while the nature of ill-being and poverty is context and person-specific, there are also commonalities in people’s experiences that transcend different countries and cultures, including rural and urban areas, as well as age and gender divides (Sabates-Wheeler et al. 2008). However, the contrast between the performances of different occupation groups, even between groups that are all ‘typically’ poor, indicates the need for avoiding gross categories such as the poor and the rich (Sen 1981: 156f.). This, then, leads to a number of implications on the research of poverty and vulnerability.

Perhaps the most striking theory on the multi-dimensional features of poverty is outlined in Amartya Sen's book 'Hunger and Public Action' in which the author provides a first insight into his concept of 'poverty and basic capabilities' (Sen 1989: 42ff.) which addresses some broader conceptual problems arising in the evaluation of human deprivation in general. In his concept, Sen refers to his ideas of the variables that are of ultimate interest when dealing with poverty, for example, whether a 'poverty line' should be drawn in terms of an income level or rather in terms of some failures of 'basic functioning' (such as being physically fit).<sup>19</sup> Following the latter, Sen argues, 'income' as a variable should be rather seen as a mean and not as an end in itself. Based on these and other antecedents, there has been a clear tendency over the past decade to move away from one-dimensional approaches to the understanding of poverty as being solely income-related, and to an understanding of vulnerability merely perceived as something that is exclusively affected by outside disturbance on a system:

In relation to hazards and disasters, vulnerability has moved towards a concept that links the relationship that people have with their environment to social forces and institutions and the cultural values that sustain and contest them: "*The concept of vulnerability expresses the multi-dimensionality of disasters by focusing attention on the totality of relationships in a given social situation which constitute a condition that, in combination with environmental forces, produces a disaster*" (Bankoff et al. 2004: 11). Henninger (1998), for instance, outlines five sources of risk which all influence vulnerability: 1) Environmental risk (droughts, floods, and pests); 2) Market risk (price fluctuations, wage variability, and unemployment); 3) Political risk (changes in subsidies or prices, income transfers, and civil strife); 4) Social risk (reduction in community support and entitlements); and 5) Health risk (exposure to diseases that prevent work) (Henninger 1998: 12). Eriksen and Kelly (2007), for example, argues that fragile zones are characterised by environmental, economic and political threats that limit their opportunities. Therefore, multiple natural and man-made phenomena, rather than one single cause, combine to produce vulnerability.

In relation to poverty, it was surprisingly the World Bank that was among those to promote a more multi-dimensional understanding of 'human well-being'. By investigating the causes of poverty based on an examination of the dimensions highlighted by poor people, the World Bank suggested to build up the following categories: a) Lack of income and assets to attain basic necessities—food, shelter, clothing and acceptable levels of health and education, b) Sense of voicelessness and powerlessness in the institutions of state and society, and c) Vulnerability to adverse shocks, linked to an inability to cope with them (World Bank 2000: 34). The Bank concluded that "[p]oor people live without fundamental freedoms of action and choice (...). They often lack adequate food and shelter, education and health, deprivations that keep them from leading the kind of life that everyone values. They also face extreme vulnerability to ill health, economic dislocation, and natural disasters. And they are often exposed to ill treatment by institutions of the state and society and are powerless to influence key decisions affecting their lives. These are all dimensions of poverty." (World Bank 2000: 1). These ideas have been widely accepted now. Sabates Wheeler et al. (2008: 4) highlight that poverty is indeed multi-dimensional, with notions of poverty "*expand[ing] beyond economic, material concepts of income and consumption to encompass experiential and psychological dimensions, such as access to services, feelings of social exclusion and lack of political rights*". Consequently, the authors favour the concept of wellbeing within a livelihoods framework, with 'wellbeing' constituting an absence of poverty and a) access to assets, (b) ability to obtain an income, (c) access to services and (d) empowerment.

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<sup>19</sup> In fact, Sen argues that counting the poor based on focusing on an—indeed widely used—income-based 'head-count measure' is "*quite acceptable as an indicator of poverty, and the conception of poverty that lies in it seems eminently questionable*" (Sen 1981: 11).

A related yet distinct usage of a linked poverty-vulnerability understanding is that deployed by Marcus and Wilkinson (2002: 1) who focus on people who are “*particularly vulnerable to the effects of poverty*”. This change of emphasis, focusing on the outcomes of poverty, highlights the important difference between the *means* and *ends* of human well-being. Whilst the *means* of human well-being “*refers to indicators of inputs intended to achieve an end result*”, such as income or the consumption of food or the use of health services, the *ends* of human welfare measures the outcomes themselves, such as life expectancy or nutrition or literacy (Lok-Dessallien 1998: 7).

This focus on the *ends* of human well-being is, as we will see as we go along, commonly associated with Sen’s work on entitlements, capabilities and functionings (Sen 1999, 1984, 1981; Drèze and Sen 1989). Therefore, bringing the notion of ‘human well-being’ into the vulnerability research consequently means to put some elementary focus on the human, or social, dimension of vulnerability, and therefore putting some emphasis on the multi-dimensional nature of the two notions.

The following sub-chapters are based upon these introductory references on the multi-dimensional dimensions of poverty and vulnerability, both as individual concepts as well for finally linking them up. I start with an outline of the capability approach; even though this may have “*its own unique difficulties and ambivalences to resolve at the level of both theory and practice*” (Alexander 2008: 5), I argue that it is a helpful device for assessing critical elements of poverty and vulnerability.

### **2.3.2 Capabilities and entitlements**

In terms of developing an underlying conceptual approach that overcomes theoretical problems associated with the overall aim of the study, I argue that the ‘capability approach’ by Amartya Sen helps a lot for bringing poverty and vulnerability together in an analytical way; hence I propose to follow an understanding which puts ‘capabilities’ at the focus of the concept and therefore allows to follow a multi-dimensional understanding to the problem. The capability approach has been considered by at least some authors that have dealt with vulnerability (e.g. Moser 1998) before.

For some time now, poverty is widely viewed as encompassing both income and non-income dimensions of poverty, including lack of income and other material means; lack of access to basic social services such as education, health, and safe water; lack of personal security; and lack of empowerment to participate in the political process and in decisions that influence people’s lives. According to the UNDP (1997), the dynamics of poverty also are better understood, and extreme vulnerability to external shocks is now seen as one of its major features. In 1971, Rein described three broad concepts of poverty’, i.e. (1) ‘subsistence’, (2) ‘inequality’, and (3) ‘externality’ (Rein 1971, cited by Sen 1981). This means nothing more than that there are close interrelations between people, when being poor in assets, and the constraints from the surmounting economic, social, and political system, and a related high vulnerability to exposure to external stressors.

#### **Origins of the capability approach**

Problems for understanding and analysing poverty-vulnerability relations based on the more basic approaches (see chapters 2.2.1; 2.2.2) to these two notions become clear by following Sen’s demonstration on three historically outstanding natural calamities (Sen 1981)—the ‘Great Bengal Famine’ (1943), a historic flood in Bangladesh (1974), and a massive drought in Ethiopia (1973)—employed by Sen as introductory examples to his conceptualisation of the entitlements, and then, later, the capability approach:

In the first example, Sen shows that cyclones can turn into an essential part of what may be described as a real humanitarian disaster. This can be described by the ‘Great Bengal Famine’ which in 1943 resulted in the death of millions of people in today Bangladesh. There, a cyclone, followed by torrential rain in some parts of Bengal lead to a winter crop that was “*quite arbitless*” (Sen 1981: 52) with around one third from average amounts of harvest. The problem then, however, was the outbreak of a fungus disease which, together with rice imports that were cut off due to the Japanese occupation of Burma in 1942 affected internal and external food supply to Bengal. Hence, the cyclone needs to be understood just as one—even though important—part of the puzzle consisting of the cyclone, flooding, fungus disease, the disruption of the Second World War, and the loss of Burma rice which all then resulted in a “*serious shortage in the total supply of rice available for consumption in Bengal as compared with the total supply normally available*” (ibid: 53). Thus, it is important to note the fact that while 1943 was not a very good year in terms of crop availability, it was “*not by any means a disastrous year either*” (ibid.: 58). Biophysical explanations of vulnerability cannot help to explain the disaster; hence certain further calculations and considerations are needed in order to explain what virtually lead to the famine (ibid.).

In a second example, Sen discusses in detail the consequences of a flood by presenting the example of a famine in Bangladesh in 1974 where approximately 30,000 to 100,000 persons died of starvation. By questioning the capsule vulnerability story ‘first the floods; then the famine’, Sen asks whether the famine could really be said to be caused by the floods, and explains that the actual reasons leaving to the famine were in fact given by other reasons encapsulated in the overall social, economic, and political system of Bangladesh by that time (Sen 1981: 131ff.). In his examination, Sen shows that the floods played a vital and direct part in the spiral that lead to the famines, but that they did not reflect themselves in a lower output of crops until after the famine, but much more so in a decline in employment opportunities that was immediate due to a reduced demand for rural services and crafts leading to reduction of exchange entitlements among the related occupation groups. In understanding the causation of destitution, therefore, “*one has to go much beyond the statistics of food availability*” (ibid. 148).

These findings then ultimately also hold true when referring to another example provided by Sen which deals with aspects of famine due to droughts: Sen largely explains that the drought that affected north-east Ethiopia in 1973 led into a humanitarian crisis not only (even though to a certain part) due to a lack of rain in the region, but much more must be blamed to a wave of refugees coming from neighbouring countries crossing the Ethiopian borders during that time. With more and more refugees coming into the country, the seriousness of the situation seems to have been systematically minimized by the government, and also the international organisations were rather slow in recognizing the situation as what it was (Sen 1981: 87). In total, then, Sen shows that better understanding of famines can be found through analysing access (instead of availability) of food, since a ‘food availability decline’ (FAD) view alone provides no sufficient explanations. These insights, largely, brought Sen to the conceptualisation of the ‘entitlement approach’.

First published in 1981, ‘Poverty and Famines’ is Amartya Sen’s classic exposition of the ‘entitlement approach’ to the analysis of human deprivation. The entitlement approach focuses on the ability of a person to acquire food and other relevant commodities within given and prevailing economic, social and legal arrangements. Food insecurity then is explained through so-called entitlement theory and as a set of linked socio-economic and institutional factors. Sen explains entitlements being the actual or potential resources available to individuals based on their own production, assets or reciprocal arrangements. Food insecurity is therefore a consequence of human activity, which can be prevented by modified behaviour and by political interventions. The theory of entitlements as an explanation for famine causes

was developed in the early 1980s (Sen 1984; 1981) and displaced prior notions that shortfalls in food production through drought, flood, or pest, were the principal cause of famine (Adger 2006). Sen's work provides excellent and important insights into the multi-dimensional facets of poverty and vulnerability. In his book, Sen relates problems of poverty and entitlements to exposure to external dimensions of vulnerability, such as cyclones, floods, and droughts, showing that simplifications will be grossly misleading in some contexts and that care is needed that the distortions are not too great.

In another landmark work, 'Development as Freedom', Sen (1999) again emphasises the importance of 'entitlements' that households and individuals have in order to expand their choices of economic, political and social opportunities for their overall well-being in a sustainable manner. He considers two major types of determinants of people's entitlement; i.e. the 'endowment' (such as land or labour) and the 'production possibilities' and their use—such as technology, knowledge and ability of people to make use of them. In this perspective, poverty is the deprivation of the *capabilities* of individuals, or poverty equals 'capability inadequacy' (Le Bach Duong et al. 2005).

### **Definition of capabilities and entitlements**

Sen started his work on the capability approach in the late 1970s. The approach of poverty as capability inadequacy relates to Adam Smith's (1776) treatment of 'necessities', and it treats the 'lowness of income' (such as income levels being below a specified 'poverty line') as being only instrumentally and contingently relevant (with the appropriate poverty line varying between different societies and with diverse individual and social conditions) (Drèze and Sen 1995: 69). But the capability approach also pertains to a long line of reflection advanced by Aristotle, Karl Marx, John Stuart Mill, and John Hicks among others (Alkire 2008).

Formally, a person's capability is a set of functioning bundles, representing the various alternative 'doings and beings' that a person can achieve with his or her economic, social, and personal characteristics. In a similar line of reasoning, with more specific concentration on the quality of life of poor people, the objective of improving well-being can be seen to be the enhancement of the capability of people to undertake valuable and valued 'doings and beings'. This can extend from such elementary capabilities as the ability to avoid undernourishment and related morbidity and mortality, to more sophisticated social capabilities such as taking part in the life of the community and achieving self-respect (Drèze and Sen 1989: 12).

In Drèze and Sen (1989), the notion of 'capability' refers to the extent of freedom that people have in pursuing valuable activities or functionings,<sup>20</sup> where the root of the problem of human deprivation can be social as well as physical, and where "*the remedies sought have to take note of the nature of the constraints involved and the extent to which they can be removed*" (ibid: 41), e.g. where the depriving effects can be eradicated through public policy aimed at maintain capability (e.g. through the creation of economic and social opportunities). Moreover, the situation of the poor may be strongly influenced by the provision of and

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<sup>20</sup> "Functionings are beings and doings that people value and have reason to value. They can include quite elementary achievements, such as being safe, well-nourished and literate, or quite complex achievements, such as waging a political campaign for election or performing a classical dance routine exquisitely. Note that by definition functionings are valuable both objectively and to the person concerned. But the fact that they are valuable does not mean that they can be mechanically reduced to a single common denominator, such as happiness. Rather, the capability approach recognises genuinely distinct, plural and incommensurable kinds of human achievements. They are incommensurable in the sense that no permanent priority or relative weight can be associated with them. The weights quality of life measures apply to different functionings are, therefore, value judgements which reflect the relative importance of each functioning within the set for the purposes of the evaluation (or, in some cases, the relative priority of advancing each functioning at a given time)" (Alkire 2008: See [http://www.stiglitz-sen-fitoussi.fr/documents/capability\\_approach.pdf](http://www.stiglitz-sen-fitoussi.fr/documents/capability_approach.pdf)).

command over certain crucial inputs such as health care, basic education, or clean drinking water. For example, as Drèze and Sen argue, in situation of prevailing famines a vast majority of people who die are killed by various diseases and not directly by starvation as such. Consequently, the analysis of the relation between food deprivation, on the one hand, and undernourishment, morbidity, mortality, productivity and well-being, on the other, “*has to take note of the influence of the social environment, in addition to the variations of personal features*” (ibid: 45).

‘Capabilities’ are best defined as “*the various combinations of functionings (beings and doings) that the person can achieve. [It] is, thus, a set of vectors of functionings, reflecting the person’s freedom to lead one type of life or another (...) to choose from possible livings.*” (Sen 1992: 40). All formulations of capability have two parts: a) freedom, and b) valuable beings and doings (functionings).<sup>21</sup>

Capability is a rather broad concept, and it incorporates the concerns that are associated with what is often called ‘living standard’, but goes beyond it. Living standards relate specifically “*to the richness of the person’s own life, whereas a person may value his or her capability also to be socially useful and influential (going well beyond the pursuit of his or her own living standards)*” (Drèze and Sen 1989: 12). This distinction between the broader notion of capability and the narrower concept of living standard can be relevant in many contexts. The important thing at this stage is to note the general concern with ‘doings’ and ‘beings’ and the corresponding capabilities, rather than just with incomes or wealth or utilities. In fact, then, it is possible to see ‘poverty’ itself as a severe failure of basic capabilities. That approach has much to commend, since it relates poverty to the failure of the ability “*to achieve precisely those things that are ultimately important*” (ibid.: 15). The use of the ‘capability approach’ can therefore focus either on functionings or on the capability to function, or both (ibid.: 45).

One cutting point between capability and entitlement is that the widespread failure of basic capabilities relates to a diverse set of entitlement inadequacies (Drèze and Sen 1989: 45). Yet, the focus on entitlements, which is concerned with the command over ‘commodities’, has to be seen as only instrumentally important, and the concentration has to be, ultimately, on basic human capabilities (ibid.: 13). The entitlements of a person are “*the set of commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces*” (ibid.), but are in fact bound by legality or custom—in other words, opportunities to avoid poverty (such as by raising income) are often constrained by rights to buy or sell resources (Adger 1999: 252). Larger entitlements contribute to wider capabilities, but the relationship is not the same for different persons (Drèze and Sen 1989: 13).

At the centre of the capability approach is the concept of agency which Sen understands as ‘a person’s ability to act on behalf of what she or he values or has reason to value’. The capability approach views human beings as active agents, directing their own lives and acting as agents that further larger social goals and objectives. Thus ‘freedom’ and ‘practical reason’ are central to the concept of capability (Alkire 2008), just as ‘justice’ is. Each of a person’s capabilities represents “*the real opportunity that we have to accomplish what we value*” (Sen 1992: 31). Capability thus captures not only achievements but also unchosen alternatives. It checks whether one person did at least have the *opportunity* of achieving the functioning that another actually achieved (Sen 1985). Thus capability is a particularly rich kind of opportunity freedom that can be elaborated quite extensively (Alkire 2008).

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<sup>21</sup> See [hdr.undp.org/en/media/Alkire\\_CA\\_Intro.ppt](http://hdr.undp.org/en/media/Alkire_CA_Intro.ppt) [accessed September 13, 2009]

## Measuring and analysing capabilities

Sen's work showed that income per capita is not the only way to measure people's well-being and poverty. Taking a multi-dimensional approach to measure poverty will, more often than not, reveal many people might not live in low income households, but must still be considered as living in poverty because they are deprived of basic needs in health, education, or nutrition. The focus of the capability approach is to design society's economic and political institutions in such a way that adequate material and social resources are available to everyone in order to possess and exercise a set of basic capabilities that go to make up a decent life (Alexander 2008: 3). Based on that focus, it becomes clear that the head count index to measure poverty can be quite inadequate since deprivations—various inadequacies of basic capabilities that relate to many different forms—can take many different forms that relate to many different causal factors (such as public health services, social insurance systems, or basic education systems) (Sen 1992; 1984). Further, even without that income-centred perspective, the head-count measure is insensitive to the levels and inequalities of incomes below the poverty line while the capability approach is not.

Since the 1990s, when interest in alternatives or complements to 'GDP' progressively resumed<sup>22</sup>, much research of poverty and vulnerability has been undertaken with a heavy emphasis on capabilities (and also, though to a fewer extent, entitlements). Emblematic of this trend was the creation of the United Nations 'Human Development Index' (HDI) which helps expand the concept of development beyond GDP per capita and that combines GDP with measures of health (proxied by life expectancy) and educational achievement. The HDI also plays a large role "*in raising the profile of important non-economic dimensions of the quality of life*" (Afsa et al. 2008: 1). However, as Afsa et al. contend, it is a very simple index that synthesizes information across a number of indicators and is rather relevant for comparisons of developing countries than for comparisons of more advanced countries. However, the HDI remains one of the few indexes that are regularly compiled and widely disseminated by international organisations to allow systematic cross-country comparisons.

The concept of capability and entitlement has been central in describing how people's command over resources is related to the ability to secure food or income and strategies to prepare for and recover from climatic events and change (Watkins 2007; Adger 2000). In particular, it is emphasised that while environmental factors may lead to a drop in food production, other social factors, such as market failure, determine whether or not a household can achieve food security and draw on alternative sources of food and income (Drèze and Sen 1989; Sen 1981). Food production decline can be an important cause of entitlement failure for small-scale food producers, who derive their entitlements from producing food; however, exchange entitlements decline, when prices of food soar and prices of assets plummet is also important (Eriksen and Kelly 2007). Moreover, contrary to the conventional 'Malthusian wisdom' that attributed famines to the shortage of food supply (Alexander 2008), Sen's political economy of famines illustrates that millions of people actually can die during famines not mainly because there is any significant decline of food available in the region, but because they lose their entitlements, i.e. the abilities and purchasing power to acquire food and to achieve health and nourishment. Therefore, as Alexander (2008: 4f.) stresses out, "*the fight against famines, poverty and other major societal failures can be more effectively won*

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<sup>22</sup> According to Afsa et al. (2008), GDP shortcomings, as an index for measuring socio-economic progress, feature again prominently in the public debate, following years of benign neglect. Such criticisms are almost as old as the concept itself, considering the repeatedly warnings about limitations of GDP as a welfare indicator. As a result, GDP suffers from two major weaknesses: (a) being a monetary aggregate, it pays little or no attention to distributional issues and to elements of human activity or well-being; (b) it is measuring productive flows and, as such, ignores the impact of productive activities on stocks, including stocks of natural resources.

*by protecting and promoting people's entitlements and by recognizing the interconnections of economic and political forces that cause these failures”.*

Undoubtedly, the failure of basic capabilities must ultimately be the central concern of my present study. Taking note of the fact that capabilities are influenced not merely by personal incomes but also by social facilities (such as public health, social security, or basic education) and political and institutional conditions (I will come back to this later), the question is how a person's well-being and quality of life, based on capability, can be measured in the context of my study focusing on poverty and vulnerability?

One possible way to measure capabilities is to come up with a list of basic capabilities that could be endorsed for research purposes. Such an approach, though, has to face the problem of justification as 'being normative' but in principle, incriminations can be somewhat tempered by pointing out that the list is open-ended (Alexander 2008: 3). Alexander (2008: 1) suggests that for example, “*we can consider a wide range of things to be valuable for a person's well-being*” and quality of life. However, shifting the focus towards capability does not mean ignoring the role of income. Even though it may not really make a difference whether poverty is seen as the failure of basic capabilities itself (e.g. ‘a person is poor if he or she has to lead a very deprived life’), or as a causal antecedent of that failure (e.g. ‘a person is poor if he or she has too low an income’) (Drèze and Sen 1989: 15), low income is clearly a major cause of human deprivation, but not the only thing that holds back a progress of capabilities.

The important aspect is that poverty is based on ‘multiple deprivation of capabilities’ with the need to understand capability as a multi-dimensional manifested in its various dimensions. According to the OECD (2002) this includes *human, economic, protective, political, and socio-cultural* dimensions. In its very essence, poverty is defined by a lack of capability while wealth is a high degree of capability (Bundesregierung 2005: XVI).

As conceptual approach, then, a multiple understanding of poverty allows for analysing and measuring both individual, as well as the total of dimensions of poverty (or wealth). The following provides an overview of the multiple dimensions of basic capabilities.

### **Box 2: Dimensions of human well-being (Capability approach)**

*Source: adapted from Sen (1999)*

1. **Being able to live a human life of normal length**; access to appropriate housing conditions, sufficient food, health care, clean drinking water, and education (*human capabilities*)
2. **Being able to make a living**; access to land, environmental resources, hired labour, and further income opportunities (*economic capabilities*)
3. **Being able to react effectively to external threats and to acute changes** (*protective capabilities*)
4. **Being able to participate effectively in political choices that govern one's life**: public participation, and accountability (*political capabilities*)
5. **Being able to participate actively in social life** (*socio-cultural capabilities*)

It turns out that what might be deemed as ‘basic’ capabilities is relative to culture, history and the level of a country's economic prosperity and political ‘maturity’. Indicators which may be stated as basic and vital in one place might be considered as nonessential in another context.

An everyday or a commonsense reading that is likely to be shared by most societies, however, is the idea that basic capabilities “*are those whose absence would foreclose the exercise and development of many other capabilities. Adequate nutrition and good health, we might say, open the door for education, learning and creativity, just as literacy and appropriate levels of formal and public education facilitate informed social interaction and political participation*” (Alexander 2008: 3). Exclusion from opportunities for public health, social security or basic education is a source of capability deprivation. In turn, these are linked to lack of progress in other dimensions (Watkins 2007). Therefore, the individual dimensions of poverty are closely related to each other and progress in one dimension can bring about improvements in another (Ashoff et al. 2009).

It becomes clear from the above that the capability approach is sensitive to cultural pluralism and takes into account the social, political or economical context in which it is applied (Baudoin 2009; Neufeldt 2009). In contrary to other theories, the starting point is not the economic level of people’s lives but the question of what they are able to do. The question is also not so much what a person or a community lacks, but rather, what it has.

In sum, the notion of capability in the context of poverty makes both a conceptual approach as well as practical application feasible. It recognises that poverty is more than inadequate income or even human development—it is also vulnerability and a lack of voice, power, and representation. In the following, experiences from this sub-chapter will be applied to the notion of vulnerability.

### **2.3.3 The concept of ‘social’ vulnerability**

As outlined in the above overview on the ‘first’ and the ‘second’ generation of vulnerability studies and their distinction from one other, social conditions related to vulnerability have been integrated in past vulnerability indicator studies to some extent, therefore enriching purely physically-based vulnerability studies by bringing in the ‘human’ context and by focusing more interest on ‘bio-physical’ aspects of vulnerability. But it became rapidly clear that the potential value of the vulnerability approach for research and for policy assessment had yet to be realised (Eriksen and Kelly 2007).

Based on insights provided by Sen and other scholars, it became clear that vulnerability to famines (or to human adversity in general) occurs in a broad political, socio-economic and also environmental context. The underlying causes of individual entitlement or livelihood failure are the political and socio-economic structures, just as resource ownership and control, were to be considered as the underlying causes of individual entitlement or livelihood failure making groups or individuals vulnerable.

#### **Origin of the concept**

The increased use of the term ‘vulnerability’ in the 1980s and 1990s can be related to the emergence of a new paradigm in the study of hazards and disasters at this time. This structuralist paradigm (instead of a behaviouralist one) asserted that physical hazards are distinct from the disasters that they potentially cause (Prowse 2003), with the required linkage being a vulnerable population (Wisner 1993). An emerging understanding of vulnerability as a pre-existing state *before* an external risk occurs (Brooks 2003; Kelly and Adger 2000), rather than an end-point, of vulnerability has focused attention on the processes creating these conditions (Eriksen and Kelly 2007). In a coherent way, Gbetibouo and Ringler argue “*the vulnerability of any individual or social group to some particular form of natural hazard is determined primarily by their existent state, (...) rather than by what may or may not happen in the future*” (Gbetibouo and Ringler 2009: 3). Therefore, it was assumed that the assessment of vulnerability has to address some broader conceptual problems arising in the evaluation of human deprivation in general (Drèze and Sen 1989).

Research on the social impacts of natural hazards came from explaining commonalities between different types of natural disasters and their impacts on society (Adger 2006). It became increasingly clear that these phenomena themselves are not independent of each other (Blaikie et al. 1994; Bohle et al. 1994; Sen 1981). While capability- and entitlements-based explanations of vulnerability focussed almost exclusively on the social realm of institutions, well-being and on class, social status and gender as important variables (Adger 2006), the approach became increasingly important for explaining the more ‘socially’-based features of vulnerability, especially from the 1990s on.

### **Definition of social vulnerability**

In general, the structuralist school of thought asserts that there is a need to place greater emphasis upon the vulnerability of a population as a determinant of a disaster (Prowse 2003). Its radical reversal to behavioural/ biophysical approaches suggested by, for example, Hewitt (1983) and others that see lack of access to resources as central to marginalization and ultimately resulting in vulnerability (Adger 1999: 250) is to define vulnerability as a pre-existing condition and therefore to emphasise economic and social structure as a *cause* of vulnerability, rather than as a *contribution* that mediates vulnerability. The structuralist paradigm therefore only gives secondary importance to a physical hazard as a determinant of a disaster (Blaikie et al. 1994). Whilst both behavioural and structuralist schools of thought contend that disasters occur when there is an interaction between a ‘natural’ hazard and a population, they disagree over the extent to which a disaster is defined by either the severity of the hazard or the vulnerability of the population (Prowse 2003).

This structuralist understanding is generally referred to as the concept of ‘social vulnerability’ (Brooks et al. 2005). Blaikie et al. (1994) were among the first to use terminology which emphasises the social construction of vulnerability. Social vulnerability can be defined as “*the exposure of groups or individuals to stress as a result of social and environmental change, where stress refers to unexpected changes and disruption to livelihoods*” (Adger 1999: 249). Research on social vulnerability to date has stemmed from a variety of fields in the broad range of social sciences. Each field has defined the concept differently, manifest in a host of definitions and approaches (Warner 2007; Adger 2006; Adger 1999). Yet some common threads run through most of the available work, with the most important assumption being that both the causes and the phenomenon of disasters are defined by underlying social, political, economic, and environmental processes and structures. Oliver-Smith points out that “*the concept of social vulnerability expresses the multi-dimensionality of disasters by focusing attention on the totality of relationships in a given social situation which constitute a condition that, in combination with environmental forces, produces a disaster*” (Oliver-Smith 2003, cited by Warner 2007). For Adger (2006: 268), vulnerability is “*the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt*”. Vulnerability is shaped by a complex set of relationships between the underlying economic, political, and social situation and the dynamics of change in both these and the physical environment (Adger 1999).

In its broadest sense, social vulnerability is one dimension of vulnerability to multiple stressors and shocks, including natural disasters. Impacts from multiple stressors are due to characteristics inherent in cultural values, social interactions, and institutions (Warner 2007). The latter context, the institutional one, indeed is a key determinant of vulnerability (Adger 1999). Examples of social vulnerability determined by the institutional context could be power relationships that exclude certain groups or individuals from benefiting from disaster risk reduction or post-disaster recovery efforts. Such power relationships manifest themselves between individuals or socio-economic groups, within institutional frameworks, or culturally-determined dialogues about stressors (Warner 2007). I will discuss this central point more extensively in chapter 4.2.

Social vulnerability strongly pertains then to the ability of individuals, social groups, or communities in terms of their ability to cope with and adapt to any external stress placed on their livelihoods and well-being (Adger and Kelly 1999). In this context of coping ability, Chambers (1989: 1) has argued that vulnerability has two sides: *“an external side of risks, shocks and stress to which an individual or household is subject; and an internal side which is defencelessness, meaning a lack of means to cope without damaging loss.”* Vulnerability has therefore both an external aspect, dealing with exposure to livelihoods, and an internal aspect comprising people’s ability to deal with that exposure. Kelly and Adger define social vulnerability in an equal way, and as the *“capacity of individuals and social groups to respond to, that is, to cope with, recover from and adapt to, any external stress placed on their livelihoods and well-being”* (Kelly and Adger 2000: 328). Eriksen and Kelly (2007) consider vulnerability, and the definition of vulnerability indicators, from this perspective of responsive capacity of human populations, and take due account of the fact that this vulnerability is shaped by both natural and societal factors. The range of researchers mentioned here therefore defines risk as consisting of two components: the first, equivalent to exposure as being previously understood, is a measure of the physical hazard. The second, vulnerability itself, is equivalent to capability and is largely determined by socio-economic structure and property relations. In sum, vulnerability is both event-based and a product of political and economic structural factors (Adger 1999; Pelling 1999; Mustafa 1998). This makes clear the fact that social vulnerability is a pre-existing condition—as outlined in the very start to this sub-chapter—as it affects a society’s ability to prepare for and recover from a disruptive event (Warner 2007).

### **Measuring and analysing social vulnerability**

The vast majority of current social vulnerability research represents an attempt to understand the social conditions that transform a natural hazard (e.g. floods, earthquakes) into a social stress, shock or disaster. Treating vulnerability as both a biophysical risk and a social response within a specific geographic location, the concept of vulnerability has been applied to a variety of levels and systems (Prowse 2003). Social vulnerability is likely to be measured in terms of predictive variables representing factors such as economic well being, health and education status, preparedness and coping ability with respect to particular hazards and so on (Brooks 2003: 13). It has been argued by some researchers, however, that despite having the theory of social vulnerability at hand, socially created vulnerabilities are still posing difficulties in being understood in detail, mainly due to the difficulty in quantifying them. As Cutter et al. (2003: 243) have stated, *“[a]lthough considerable research attention has examined components of biophysical vulnerability and the vulnerability of the built environment, we currently know the least about the social aspects of vulnerability”*.

Definitely, as some authors commented, it is important to advance tools and methodologies to reliably measure social vulnerability (Warner 2007). Based upon ongoing conceptual and methodological debates, social vulnerability research has come up with a number of remarkable studies and findings located across a wide range of scales and locations. Eriksen and Kelly (2007: 495) argue that *“[i]t is clear that the demand for credible vulnerability indicator studies can be best met through a process-based approach to indicator studies, an approach based on understanding of what determines levels of vulnerability, rather than diagnostic population characteristics alone”*. Therefore, most work conducted so far focuses on empirical observation and conceptual models. Social vulnerability has been the primary focus of field research and vulnerability mapping projects, which are *“generally concerned with identifying the most vulnerable members of society, and examining variations in vulnerability between or within geographical units that may experience similar hazards”* (Brooks 2003: 4).

The central insight brought by social scientists is that vulnerability is socially differentiated. Although different groups of a society may share a similar exposure to a natural hazard, the hazards have varying consequences for these groups, due to their diverging capacities to handle risk. According to Adger (1999: 250), vulnerability is a state of well-being and is not the same for different populations living under different environmental conditions or faced with complex interactions of social norms, political institutions and resource endowments, technologies and inequalities. Social vulnerability is determined by factors such as poverty and inequality, marginalisation, food entitlements, access to insurance and housing quality (Brooks 2003; Adger and Kelly 1999; Blaikie et al. 1994).

Vulnerability also varies spatially and temporally. It varies spatially because national environments, housing and social structure vary spatially. It varies temporally within people's lives because people move through different life stages with varying mixes of resources and liabilities (Smit and Pilifosova 2001). Moreover, as research on social vulnerability shows, it is helpful to disaggregate social vulnerability into the two distinct aspects of individual and collective vulnerability in order to clarify the scale issue and the unit of analysis. While disaggregation between different scales of vulnerability has also been one of the more important aspects of biophysical research on vulnerability, it was only with the enhanced understanding of social vulnerability that the differences between individual and collective vulnerability were more systematically explored. Individual vulnerability is determined by access to resources and the diversity of income sources, as well as by social status of individuals or households within a community. Collective vulnerability of a nation, region or community is determined by institutional and market structures, such as the prevalence of informal and formal social security and insurance, and by infrastructure and income. For example, *“inequality of income within a population is an important indicator of collective vulnerability, though the relationship is complex, involving direct and indirect linkages”* (Adger 1999: 256). The two aspects of vulnerability are obviously interlinked: At the community level social vulnerability is affected by relative distribution of income, access to and diversity of economic assets; and by the operation of informal social security arrangements (ibid.: 251).

Finally, research on social vulnerability suggests that not all individuals and groups exposed to a hazard are equally vulnerable; rather, affected people display patterns of differential loss (Wu et al. 2002). People possess different capacities to deal with their exposure by means of various strategies of action (Chambers 1989). Those living at margins—such as those without access to social services or political power—are more vulnerable than those with better access to resources (Dow 1992). For example, poor people are more likely to live in substandard housing and suffer from malnourishment. They have fewer opportunities for education and therefore employment, and are less likely to have health and property insurance (Rygel et al. 2005). Yet, there remains a lively debate whether 'poor' people are actually the most 'vulnerable' ones; the following sub-chapter will address this issue in more detail.

### **2.3.4 Poverty and Vulnerability: Many similarities, but...**

The overview provided of poverty and vulnerability over the course of the previous sub-chapters has sharpened the understanding of the two notions to some point. Those definitions provided of poverty as 'capability deprivation' or 'failure of basic capabilities' on the one hand, and vulnerability as 'unexpected changes and disruptions in livelihoods', on the other hand, clearly provides some leeway for further conceptual conciliation between the two approaches. A simple comparison between the ongoing debate on both poverty and vulnerability shows that while the capability approach puts the 'freedom of choice' and 'a person's ability to act on behalf of what she or he values or has reason to value' as main theme, approaches on vulnerability put their focus on the very jeopardy to lose this freedom

and ability (WBGU 2005). While the understanding of poverty is based on a multi-dimensional understanding of poverty since the very first starts of Sen's work on the capability approach (Sen 1981), vulnerability science also tends to base its underlying definitions of risks and hazards on a more enhanced approach for a number of years now (Dietz 2006; Livermann 1994).

Yet, the assessment of vulnerability has to address some broader conceptual problems arising in the evaluation of human deprivation in general. Hence, the following part of this disquisition shall provide an examination of differences that can be traced on the very basis of the two notions, as well as some of the major similarities that continue to exist between them. I argue that any endeavour to do so must indeed clarify to some more extent the definition and use of the two understandings of 'entitlements' and 'assets' which build the cutting point between poverty and vulnerability.

Ultimately then, the quite widespread notion that it is principally poor people that are those who are the most vulnerable must be based on a more differentiate and more intensive view in order to grasp the nature of the problem.

### **Poverty, vulnerability, and the need for categorising 'the poor'**

Basically, vulnerability can be conceived as being part of poverty itself. An understanding of vulnerability as being a component of poverty is touched upon by Sinha and Lipton (1999: 12) which highlight the issue that "*vulnerability in bad times, or timidity at all times, in face of exposure to DF [damaging fluctuations] (including risk) is an important, and sometimes neglected, component of poverty*". Yet poverty may effectively be defined as "*deprivation, lack or want*", while vulnerability may generally be understood as "*defencelessness, insecurity, and exposure to risks, shocks, and stress*" (Chambers 1989). According to Yamin et al. (2005), poverty conditions vulnerability, and vulnerability strongly puts an influence on the overall capabilities of poor people to leave the 'vicious circle' of poverty or to remain in there. It is clear that there are a lot of different understandings on how either of the two terms relates to the other—which is understandable since various theories of both terms exist and are contested.

By broadening the multi-dimensional understanding of poverty—that can be explored through employing the capability approach to the concept of vulnerability; Bohle et al. (1994: 40) were among the first to define vulnerability as "*an aggregate measure of human welfare that integrates environmental, social, economic, and political exposure to a range of harmful perturbations*". The link to Amartya Sen's work is striking in here and increasingly seems to fall on common ground; in order to proceed in the understanding of social vulnerability in the context of human development, namely, Christoplos et al. (2009: 19) argue that "*there is a need for a realistic but proactive human development agenda that recognises that poverty is not just about lack of income; it is about individuals and households being powerless to act and influence their futures*". While 'vulnerability' in literature provided by the Chronic Poverty Research Centre (CPRC) is also described as being part of the multiple dimensions of poverty which are not usually captured by income- or consumption-based indicators of welfare, the increasing acceptance of such a multi-dimensional conception of poverty is shown by a World Bank definition of poverty which includes "*material deprivation, low levels of education and health, exposure to vulnerability and risk, and voicelessness and powerlessness*" (cited by Hulme et al. 2001: 7). In this definition 'exposure to vulnerability and risk' is seen as being one of many constituent elements of poverty.

Overall, then, it is this latter conception which provides some understanding that "*poverty and vulnerability relate closely to each other, but they are distinct concepts and neither subsumes the other*" (Sen 1981: 23). According to Sen, trying to simply analyse vulnerability 'as an issue of poverty', or the other way round, would do little justice to either of the two concepts.

It is therefore important to understand that, while inequality and poverty are not unrelated, neither concept subsumes the other. “*Poverty can not be equated with vulnerability (...)*”, as Adger (2006: 268) points out. Of course, it is quite a different matter then to recognise that vulnerability and poverty are *associated* with each other (Sen 1981: 15). By analysing the different notions of poverty and vulnerability more thoroughly, it is clear that the study of poverty dynamics strongly benefits from engaging with, and incorporating, models or detailed conceptions of vulnerability (Prowse 2003).

But independent from any closeness in definition between the two terms, it is important to make further differentiations between ‘the poor’ then in order to come up with a fuller understanding of what poverty actually *means* in the context of vulnerability, and vice versa. To this end, Kozel and Parker (2001) categorise the ‘poor’ into three groups; the ‘destitute poor’, the ‘structural poor’, and the ‘mobile poor’, and argue that the destitute and the structural poor were particularly affected by vulnerability. These categories, in turn, contrast with the common ‘vulnerability to poverty’ use found in CPRC literature which focuses on the ‘transient poor’, and instead sees the vulnerability of ‘chronically poor’ as being particularly important (Prowse 2003). Chronic poverty and transient poverty can therefore be seen as comprising different groups; despite both groups are sharing the same burden of poverty at a certain point at a given time, their different states and conditions of vulnerability constitutes the main difference of status. For the ‘transient poor’, the potentiality of suffering a shock, and suffering from a failure from protective capability, may pull them into poverty—depending on the scale and also the frequency of the particular shock, though. The effect of this, however, is not permanent as ‘transiently poor’ households will have other capabilities that allow them to escape from poverty over time. This process is different for those who are chronically poor and who have a general low level of capability that ‘locks’ them in poverty. Any shock will lead to further deprivation. Prowse concludes that this understanding is very straightforward, since it is the extent of the potentiality of vulnerability, as influenced by exposure and capacity, which differentiates the transiently poor from the chronically poor (Prowse 2003).

Finally, classifying the broad category of ‘the poor’ into different groups according to their status in vulnerability also helps to overcome the problem raised by, for example, Okidi and Mugambe (2002: 7) who point out that vulnerability to shocks is not just a *cause* of poverty but is also a *symptom* of poverty. This is confirmed by Baulch and Hoddinot (2000: 19) who state that “*households with greater endowments and greater returns will tend to be less vulnerable to shocks*”.

Yet, classifications like those presented here typically avoid notions of the ‘non-poor’ and their relation to being, or becoming, vulnerable. Taking vulnerability as a pre-existing status that is prevailing on the collective level of society while being mediated on the individual level through features and quality of capability, I therefore argue, allows for an understanding of vulnerability that goes beyond a rather narrow focus of the ‘poverty is closely linked to vulnerability’ mantra that relates any state of observed vulnerability directly to poverty. In this regard, Prowse (2003) has come up with the creditable suggestion that whilst all households have some vulnerability, the condition or state of being ‘vulnerable’ is reached when a household has an even or greater probability of entering poverty than not. While it is certainly true that, in general, people living in poverty are more vulnerable than the wealthy to disasters (Fothergill and Peek 2004), vulnerability must be considered a broader concept than poverty because the non-poor are *also* vulnerable, at least to future poverty (some definitions of vulnerability refer to people whose income is within, say, 20 percent of the poverty line) (Sabates-Wheeler et al. 2008).

### Three categories of poverty-vulnerability relations

Based on the above considerations, I propose three categories in poverty-vulnerability relations:

I. *Vulnerability that locks people into poverty*; due to being a direct cause or a symptom of poverty, vulnerability influences the capability of poor people and locks them into the ‘vicious circle’ of poverty (Yamin et al. 2005).

II. *Vulnerability that makes non-poor people poor*; with this depending either on the severeness and constant frequency of a shock or on the undermining effects of collective vulnerability where non-poor are ‘indirectly’ affected.

III. *Vulnerability that still exists even if poor people can find a way out of poverty*. This characterization becomes clearer as we go along.

Concerning the first category, *vulnerability that locks people into poverty*, it is intuitively obvious how risk and vulnerability contribute to poverty (Sabates Wheeler 2008). It is also quite clear that a hazard is more likely to impact negatively on an already compromised livelihood system, because its capability is already low, and it has little diversity in terms of income sources and resources to absorb shocks (Adger 1999). Evidence also suggests that “*it is the poor who are discriminated against in terms of access to resources in disaster situations, making them inherently more vulnerable*” (ibid.: 260). Diminishing income, for example, will raise vulnerability to hazards, and the poor will be less able to cope effectively with shocks to their fragile livelihoods (Sabates-Wheeler et al. 2008), since they have less money to spend on preventative measures, emergency supplies, and recovery efforts (Clark et al. 1998). Therefore, during disasters, the poor suffer from higher mortality rates (Blaikie et al. 1994) than the non-poor. Poverty is also likely to restrain access to resources that could build the asset base that helps poor people to cope better with the prevailing constraints.

Further reasons that keeps members from this group from the ability to improve their status is that, more often than not, coping mechanisms will be adopted that will keep their income status low or that only increases vulnerability over the long run: Being dependent on environmental resources, for example, will potentially lead to a depletion of the natural resource base beyond the sustainable level and will increase exposure to environmental risks (Scott 2006). Pulling children out of school to earn extra income during an economic crisis, making quick sales of land or livestock at desperately low prices, and lowering nutritional intake below the levels necessary to sustain health (World Bank 2000: 37) are all ‘mal-adaptive’ coping strategies.

Being aware of their vulnerability, some will concentrate on low-risk activities and undertake no investment or land improvement, and small-scale traders without access to credit markets or insurance schemes will not undertake risky (though potentially lucrative) activities, in order to keep their exposure to hazards low (Dercon 2002). “*Though entirely logical*”, Sabates-Wheeler et al. (2008: 18) argue, “*these responses to risk come at a high cost, in terms of reduced average returns and, therefore, the perpetuation of long-term poverty*”.

For this group, it is also location that matters. While local economic and social conditions drive poor people into marginal areas (Sperling 2003), they tend to be located in riskier areas and live there in only poorly built housing which can be a major disadvantage when disasters occur (Rygel et al. 2005). Their generally low quality of housing will be an important determinant of their vulnerability to a flood, for example, including other chronic stresses such as the burden of work in recovery of home and livelihood after an event (Fordham 2003,

cited by Adger 2006).<sup>23</sup> Although the monetary value of the economic and material losses of the wealthy may be greater, the loss sustained by the poor are therefore more devastating in relative terms than (Morrow 1999) due to the given ‘spatial correlates’ (Bankoff et al. 2004). Finally, both poverty and vulnerability are related to levels of infrastructure (Devereux 1999), with levels of infrastructure being lower in marginal areas than in better-off areas.

There are many more examples of constraints that lock poor people into vulnerability, but these mentioned here shall be clear enough in context. All these are aspects that hinder people to escape from poverty: *“there are numerous sources of risk (...) which make households more likely to suffer shocks and experience an erosion of assets, deepening their vulnerability to future shocks and damaging their ability to escape poverty”* (Bird et al. 2002: 18). Therefore, it will be particularly those non-economic assets—particularly based on political and/or socio-cultural capabilities—that are decisive to this group (Bohle 2001).

Concerning the second category, *vulnerability that makes non-poor people poor*, it has been argued before that one common use of ‘vulnerability’ is in relation to ‘vulnerability to poverty’. In this sense vulnerability has been used to describe the potential for people to enter into poverty or chronic poverty (Prowse 2003). It is a high level of exposure to hazards that generally undermine livelihoods of this group (Sabates-Wheeler et al. 2008). Exposure of non-poor households to hazards is clearly given in many times, but generally their underlying functioning base will allow them to cope with a given level of exposure whereby poorer population groups may already be affected. In many times, it is clear that better-off population groups are quite ‘unvulnerable’ to a given exposure. However, exposure may turn into a real hazard if scale or frequency increases to a level where adaptive capacity of wealthier groups also becomes impacted, for example through losses in the asset base, such as becoming ill beyond ability for treatment etc. Indeed, it has been argued before that a high asset base also may lead to increased levels of vulnerability; yet, these are rather exceptional cases and becoming affected by a ‘natural’ hazard would be a result of vulnerability to stresses that have occurred in different ways (e.g. violence, theft). One example of a direct increase of vulnerability to natural hazards would be a massive market failure in which those groups that are economically better-off will be more affected than, say, self-sufficient subsistence farmers.

It is certainly true though that access and entitlement to resources also have temporal dimensions, in that access to resources is a pre-requisite for recovery from the impacts of hazards. Eriksen and Kelly (2007) point out that reasons are many that lead to increasing vulnerability, including privatisation of land, loss of diversity in livelihoods, and declining health status, and in these cases also non-poor households can be affected. In case access and entitlement will be restrained, vulnerability for wealthier groups may increase (this can also include redistribution of political and economic power, for example, or cases where class or ethnic struggles lead to a drastic redefinition of entitlement. Deng (2007: 250) finds a *“strong and significant positive correlation (...) between famine mortality in 1998 and initial wealth”* in a study which he conducted in Sudan, and labels this phenomenon ‘the cure of assets during civil war’. In these circumstances, *“assets do not reduce vulnerability—quite the opposite”* (Sabates-Wheeler et al. 2008: 20). Adger and Kelly (1999) then point out that, while income is related in a direct manner to the architecture of entitlements, resources and wealth in themselves do not constitute security, since resources are mediated through property rights and access to them. Yet, vulnerability to ‘natural’ hazards will rather be a secondary cause of vulnerability in these cases.

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<sup>23</sup> As the same author argues, though, their location in a flood-risk area will be less likely to influence its vulnerability to drought.

In most cases, though, the notion of assets and entitlements build sources of welfare or income that are realized by wealthier groups. Entitlements are “*the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces*” (Sen 1984: 497). However, as we have learnt from the previous sub-chapter, entitlements are only instrumentally important while the main notion is on capabilities. In this case, then, vulnerability relates to a diverse set of entitlement inadequacies which are mediated through a failure of basic capabilities. Individual failure of capabilities also includes better-off population groups to become affected by an increased level of vulnerability.

Despite this, there is a continuing need for clear differentiation between ‘non-poverty’ and vulnerability (Prowse 2003) and this is obvious when one considers that “*not all members of a particular vulnerable group are invariably poor*” (Lok-Dessallien 1998: 5). In this context, it is certainly important to consider the notions of ‘idiosyncratic’ and ‘covariate’ vulnerability, two terms that have received increased amounts of interest recently. Households in developing countries are frequently hit by severe individual (idiosyncratic) and collective (covariate) shocks resulting in high consumption volatility. A household’s currently observed poverty status might therefore not be a good indicator of the household’s general poverty risk, or in other words its vulnerability to poverty (Günther and Harrtgen 2006). Although several measurements to analyse vulnerability of wealthier groups to poverty have recently been proposed, empirical studies are still rare as the data requirements for these measurements are not met by the surveys that are available for most developing countries. Interestingly, Günther and Harttgen, in a study undertaken in 2006 based on data from Madagascar show that whereas covariate shocks have a substantial impact on rural households’ vulnerability, urban households’ vulnerability is largely determined by idiosyncratic shocks. This, I assume, mainly relates to the fact that rural livelihoods have particular characteristics as they depend heavily on agriculture and other rural sectors strongly reliant on natural resources. Weather-related shocks and stresses and risks associated with seasonality are intrinsic to rural livelihoods tied intimately to agricultural production (Sabates-Wheeler et al. 2008). In terms of farmer groups that are better-off at a given point in time, for example, low crop yields may result in low incomes and food insecurity, which leaves these groups close to poverty, and acutely vulnerable to the smallest hazard or shock (ibid.), with this constituting the idiosyncratic side of vulnerability. If there will be many farmers affected by low yields at the same time, then, this could result in covariate vulnerability, affecting both poor and non-poor groups.

Hence, it becomes clear that risks, if not adequately addressed either on the individual or the collective level, can also make non-poor people or households poor (Le Bach Duong et al. 2005). Those with more entitlements and assets can cope with shocks as long as they are temporary, or low in scale. However, lack of means of well-being can set up a severe downward spiral also to wealthier groups or households.

Concerning the third category, *vulnerability that still exists even if poor people can find a way out of poverty*, this final category clearly shows that vulnerability is a more dynamic concept than poverty, since it captures the sense that people move in and out of poverty. It shows that vulnerability is also a *cause* of poverty, with sudden loss of income and assets, sometimes on a periodic basis (DFID 2004a). The increasing realisation that poverty itself is dynamic, “*that some of the poor are not poor all of the time*” (Yaqub 2000: 1), means that the historical distinction between poverty and vulnerability has become less valid (Prowse 2003). To adequately grasp this category, it is central to recognise that the outcome of risks depends on how individuals, households, interest groups or communities respond to risk, as an increase in risk can, for some more than others, also increase opportunities (Prowse 2003).

In sum, social vulnerability is created through the interaction of social forces and multiple stressors, and resolved through social (as opposed to individual) means. While poor individuals within a socially vulnerable context may break through the ‘vicious cycle’ of poverty, social vulnerability itself can persist because of structural—i.e. socio-economic and political—influences that reinforce vulnerability. With relation to *chronic* poverty that keeps people constantly vulnerable and locked into poverty at the same time, Devereux (1999) argues that vulnerability first of all results in *transitory* poverty—with there being a sudden collapse in returns following a shock or a stress—from which certain groups and communities will recover. While chronic poverty, he argues, results from low productivity and low returns from labour, land and capital, a central feature of the transient poor is their generally higher level of functionings and endowments. Sinha et al. (2002) also argue that the mere possibilities of what they term ‘disaster fluctuations’ may create risk-averse behaviour among the group of the chronic poor, with people acting in cautious and non-entrepreneurial ways even during normal times. These characteristics, then, do not hold true for those who will be able to again leave the poverty status.

### **Measuring poverty and vulnerability in its multi-dimensional features**

Based on a multi-dimensional approach, and after categorising poverty according to the various existing forms to which vulnerability can put direct influence on a person’s or community’s status, the exercise then is to analyse whether a person, household, or a community is ‘poor’, ‘vulnerable’, or both at the same time. The notion of ‘assets’ and ‘entitlements’ provides a helpful starting point for such kind of exercise.

As Moser (1998: 3) argues, assets are a primary factor in determining vulnerability: “*The more assets people have the less vulnerable they are, and the greater the erosion of people’s assets, the greater their insecurity.*” Assets include both tangible capitals (natural, physical and financial) as well as intangible ones (human and social) (Prowse and Scott 2008). Assets encompass what people have, including their natural (e.g. land, forest products, water), physical (e.g. livestock, shelter, tools, materials), social (e.g. extended family and other social networks), financial (e.g. income, credit, savings) and human assets (e.g. education, skills, health). In some perverse cases assets can increase vulnerability, but these are unusual circumstances (Sabates-Wheeler et al. 2008), as we have seen above.

But the ability to cope with and respond to change depends heavily on access to, and control over, key assets (Davies et al. 2009). Typically, those that are most vulnerable show a lack of, or restricted access to, key assets. This is what entitlements are about, to have and to keep control over key assets. For example, Cannon (1994) agrees that assets tend to be redistributed after a flood or drought in accordance with the pre-existing patterns of entitlements, by showing some impacts of events such as floods are not correlated with economic wealth, and economic criteria do not exactly reflect vulnerability (Adger 1999: 251).

Therefore, causes of vulnerability relate both to the assets people own and to the accountability and effectiveness of policies, institutions, and processes (Jones et al. 2010), due to the given reason that it is mainly them—beside the overall capability bundle—providing for rules that grant or guarantee entitlements. Both assets and entitlements ensure for, for example, access to education, health care, agricultural services, justice systems and conflict resolution mechanisms that are all key determinants of vulnerability. Hence assets and entitlements are suitable indicators of vulnerability.

To provide one vivid example for measuring poverty and vulnerability, according to Caroline Moser’s ‘asset-vulnerability framework’ (Moser 1998), households with more assets are less vulnerable, because their assets provide ‘buffers’ against shocks. For instance, a rural family that owns many livestock can sell some animals to buy food if a drought devastates their

harvest. The solution to reducing poverty and vulnerability, therefore, is to accumulate assets – not only physical assets like land and livestock, but also financial assets like savings, or ‘human capital’ assets like marketable skills, or ‘social capital’ assets like networks of influential friends. However, as Sabates Wheeler et al. (2008: 19) argue, the relationship between assets and poverty “*is not always this simple*”, with ‘covariate risk’ being a complicating factor:

- Firstly, the same drought that destroys a family’s field of crops can also kill their livestock, leaving them impoverished and highly vulnerable. This explains the paradox of why the people who produce food (farmers) are also the people who are most vulnerable to food crises—because rural sources of food and income are so interconnected, most livelihoods depend directly or indirectly on a single and unreliable input (rainfall).
- Secondly, shocks can affect the functioning of markets in ways that diminish the value of assets that are held as buffers against shocks. If food is scarce and rural households are forced into selling assets to finance food purchases, the likely consequence is that food prices will be forced up (excess demand) while asset prices will be forced down (excess supply). Sen (1981) calls this ‘exchange entitlement decline’.

### **Summary**

For a long time, the most common route to the identification of the poor was through specifying a set of ‘basic’—or ‘minimum’—needs, and regarding the inability to fulfil these needs as the test of poverty (Sen 1981: 23). The total set of existing ‘basic’ needs—or a lack thereof, vice versa—then provided an indication of vulnerability. This sub-chapter has shown that due to the important role that assets and entitlements play for a given level of vulnerability, integrating these two notions is a more suitable approach to measuring poverty and vulnerability than solely to focusing on ‘basic’ needs. Both vulnerability and poverty can then figure in the analysis of capability without making the two conceptually equivalent (ibid.: 15).

In sum, similarities and differences between poverty and vulnerability agenda vary, and will depend on different underlying criteria, definitions and approaches to each of the two agendas applied. I suggest that by understanding both poverty and vulnerability in their multifaceted forms helps to develop a conceptual linkage which at the same time helps to operationalise the concept in terms of an empirical study inherently based on the two agendas.

It has become quite clear, though, that poverty and vulnerability reinforce each other. Everyone is vulnerable to food insecurity, social exclusion and natural disasters, but it is the chronic poor that are more vulnerable in relative terms because they are more exposed to experience a larger and more prolonged (even irreversible) impact due to their limited (physical, financial, social and political) assets (Sabates-Wheeler et al. 2008). Assets usually reduce both poverty and vulnerability to livelihood shocks. The importance of entitlements on key resources cannot be overstated.

Social vulnerability explicitly deals with the capacities of people and population groups before a certain hazard is approaching. Hence, it is not exclusively dealing with the coping ability of people once a disaster has occurred. Moreover, poverty and vulnerability must both be seen as processes. Both poverty and vulnerability are dynamic and are conditions which are constantly being altered, reinforced, or diminished (Prowse 2003). This is shown by the fact that risks, if not adequately addressed, can even make non-poor families poor.

## **2.4. Consequences of Climate Change in the Context of Poverty and Vulnerability**

This sub-chapter provides an overview of climate change and its consequences in the context of poverty and vulnerability. The following parts are based on the observation that social scientists and climate scientists often mean different things when they use the term ‘vulnerability’; whereas social scientists tend to view vulnerability as representing the set of socio-economic factors that determine people’s ability to cope with stress or change (Brooks 2003), climate scientists often view vulnerability in relation to the likelihood of occurrence and impacts of weather- and climate-related events.

Basically, while the root problem in natural climate science is the (bio-)physical *risks* of climate change, social science is more concerned about people’s vulnerability in combination with actual or potential climate *hazards*. Accordingly, the main definition of vulnerability relates to these underlying main interests which, in climate science, will be the expected net damage for a given level of global climate change, while social scientists refer to vulnerability in terms of susceptibility of climate change as determined by underlying structural aspects of socio-economic and political and institutional factors. While climate change in social sciences is a contextual condition that adds upon a given vulnerability, for climate scientists those ‘natural’ risks will build the main impact determining vulnerability. Accordingly, the starting point of analysis in climate science is to come up with scenarios of future climate change<sup>24</sup>, but for social sciences it is current vulnerability to climatic stimuli such as variability and extremes which builds the centre of interest.

The previous sub-chapters that have provided for an understanding of vulnerability and its evolution from ‘physical’ to ‘biophysical’ to ‘social’ vulnerability over time are a helpful device for drawing this general parting line which distincts social scientists from climate scientists. Based on Eriksen and Kelly (2007), and Kelly and Adger (2000), for example, I argue that those previous climate studies that have focused on the physical implications of the projected change in climate, were often undertaken to the neglect of the social dimension of vulnerability. Thus, a more pronounced view is needed to understand those processes and dynamics underlying climate change and its consequences in the context of poverty and vulnerability; by distinguishing between social and biophysical vulnerability we can then “*resolve the apparent conflict between different formulations of vulnerability in the climate change literature*” (Brooks 2003: 13).

### **2.4.1 Forecasting the consequences of climate change**

Today, it is widely agreed by the scientific community that climate change is real and already a reality. The IPCC (2001a) has concluded that the climate system is changing and will continue to do so.<sup>25</sup> Based on this prominent citation outlined by the IPCC, the present sub-

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<sup>24</sup> The scenario approach is widely used in many sciences (physical, economic, but also social) in varied circumstances and for different purposes. Scenarios represent one of the main tools in climate change analyses, which are characterised by the assessment of future developments in complex systems that often are inherently unpredictable, are insufficiently understood, and have high scientific uncertainties (Abildtrup et al. 2006). But different definitions exist for the term ‘scenario’. For the IPCC a scenario is defined as “*a coherent internally consistent and plausible description of a possible future state of the world*” (IPCC 1990: 3). According to Abildtrup et al. (2006), scenarios are not predictions; rather they are pictures of possible futures. Scenarios can be used to explore alternative, plausible outcomes if basic assumptions about future developments are changed, for example regarding policy intervention.

<sup>25</sup> Climate change is an accepted fact for some years in climate science now. In its 2001 assessment, the IPCC states that the consensus of scientific opinion is that Earth’s climate is being affected by human activities: “*Human activities (...) are modifying the concentration of atmospheric constituents (...) that absorb or scatter radiant energy. (...) [M]ost of the observed warming over the past 50 years is likely to have been due to the increase in greenhouse gas concentrations*” (IPCC 2001a: 21). An analysis of 928 abstracts, published between

chapter deals with the expected effects of climate change on the macro-level of regions and countries and with some of the major problems related to, but more so with a discussion of the existing data upon which those climate forecasts are made.

Since the IPCC's 2007 report, confidence is certainly higher than in previous assessments with regard to projected patterns of warming and other features on a regional scale, including changes in wind patterns, precipitation and some aspects of extremes and sea ice. A global assessment of data since 1970 has shown it is likely (with '66-90 percent probability') that anthropogenic warming has had a discernible influence on many physical and biological systems (IPCC 2007b). Climate scientists<sup>26</sup> have therefore argued that there is growing evidence that climate change is increasing the frequency and intensity of climate-related hazards, and hence the level and patterns of often inter-related risks (Davies et al. 2009). However, many analyses on the consequences of climate change start with putting emphasis on the effects of macroeconomic and overall development conditions and challenges.

In this respect, it was also the IPCC which stated that impacts of climate change are very likely to impose net annual costs which will increase over time as global temperatures increase. The third IPCC assessment report (2007b) makes it clear that the impacts of future climate change will be mixed across regions. For increases in global mean temperature of less than 1-3°C above 1990 levels, some impacts are projected to produce benefits in some places and some sectors, and produce costs in other places and other sectors. It is, however, projected that some low-latitude regions will experience net costs even for small increases in temperature. It is very likely that all regions will experience either declines in net benefits or increases in net costs for increases in temperature greater than about 2-3°C (ibid.).

Impacts of climate change are not evenly distributed, in part due to the differentiated nature of hazards in different parts of the globe, but also due to differences in the ecological and socio-economic environment, which mediate these hazards and determine the severity of impacts. Analysis of vulnerability to climate change can be undertaken in many fields and on many sectors. According to the IPCC, consequences of climate change will exacerbate existing threats to livelihoods due to a combination of factors that include increasing frequency of climate hazards, diminishing agricultural yields and production in vulnerable regions, expanding health and sanitation risks, increasing water scarcity, and intensifying conflicts over scarce resources, which will likely lead to new humanitarian crises, as well as increasing urbanization, migration and displacement. In more detail, consequences will include:

- Impacts on agriculture and fishing: Reductions in crop yields in most tropical and sub-tropical regions due to decreased water availability, and new or changed insect pest incidence. In Africa and Latin America many rainfed crops are near their maximum temperature tolerance, so that yields are likely to fall sharply for even small climate changes; falls in agricultural productivity of up to 30 percent over the 21st century are projected; marine life and the fishing industry will also be severely affected in some places;

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1993 and 2003, and listed in the ISI database with the keywords 'climate change', showed that none of these papers argued that point that climate change exists (Oreskes 2004: 1686). Therefore, the IPCC is not alone in its conclusions. In recent years, all major scientific bodies around the world whose members' expertise bears directly on the matter—including insights from multiple disciplines and epistemologies—have issued similar statements (ibid.). So the basics of global warming are not in scientific dispute. There is serious uncertainty about the quantitative parameters, and there can be doubt whether the experienced warming of recent decades is entirely due to the 'greenhouse effect', there being other conjectured possible solar influences—*"But the theory" is not in doubt*" (Schelling 2007: 2).

<sup>26</sup> Human-induced climate change science has emerged from meteorological and other bio-physical sciences, with the contribution of response concepts and terminology from environmental sciences, and more recently inter-disciplinary approaches involving the social sciences (Nelson et al. 2008).

- Impacts on food security, employment, and local markets: Such changes would have a major impact on food security (i.e. food availability, accessibility, and utilization)<sup>27</sup>, employment, incomes, and economic growth; for example, one study has predicted a 9–25 percent fall in net farm revenue in India from a temperature rise of 2–3.5° C; reductions in crop yields can be expected to lead to localised food price rises;
- Impacts on sea level rise: Certainly one of the biggest challenges will to be faced in the Earth's coastal areas where sea level rise is forecast to flood huge amounts of land area. Coasts are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea-level rise. The effect will be exacerbated by increasing human-induced pressures on coastal areas. Manymillionsmore people are projected to be flooded every year due to sea-level rise by the 2080s. Those densely-populated and low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms or local coastal subsidence, are especially at risk. The numbers affected will be largest in the mega-deltas of Asia and Africa while small islands are especially vulnerable. Adaptation for coasts will be more challenging in developing countries than in developed countries, due to constraints on adaptive capacity (IPCC 2007b).
- Displacement of people: Huge displacement of people from coastal and densely populated low lying areas like the Bangla, Mekong and Yangtze Deltas, due to worsening environmental conditions that may lead to migration. Therefore, migration may grow in numbers: some expect up to 200 million migrants due to climate change impacts by 2050 (Stern 2006).
- Impacts on health: Exposure of millions of people to new health risks, especially from vector-based diseases like malaria and schistosomiasis, as well as water-borne diseases like cholera and dysentery. Malnutrition from the reduction in crop yields would increase the severity of these diseases. Also health impacts are likely to have an effect on growth, e.g. there is a reported correlation between higher malaria incidence and per capita growth (ERM 2002);
- Impacts on extreme climate events: Climate change will increase the frequency and severity of extreme climatic events like the El Niño related hurricanes and droughts; Pacific cyclones are predicted to increase by 10–20 percent. Poorer developing countries are most at risk since they are more reliant on agriculture, more vulnerable to coastal and water resource changes, and have less financial, technical and institutional capacity for 'adaptation'. Africa is particularly susceptible due to the desertification process, declining run-off from water catchment areas, declining soil fertility, dependence on subsistence agriculture, the prevalence of AIDS and vector-borne diseases, inadequate governance mechanisms, and rapid population growth. South Asia shares many of these problems (Richards 2003).

Hence, impact-oriented science is quite certain now that climate change exacerbates some major development challenges through heightened climate-related impacts by both changing the frequency and intensity of extreme events and by bringing changes in mean conditions. Climate change can undermine both economic as well as human development. Arguably, millions of people in developing countries are already vulnerable to climate variability and

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<sup>27</sup> By 2050, the number of people at risk of hunger is expected to increase by 10 to 20 percent as a result of climate change; and the number of malnourished children is expected to increase by 24 million – 21 percent more than without climate change. Sub-Saharan Africa is likely to be the worst affected region (see <http://www.wfp.org>).

extremes by now<sup>28</sup>, especially in economies heavily dependent on weather-sensitive resources (Kramer 2007). Climate change is seen as an additional obstacle to the achievement of sustainable development in the next century (Schipper 2007).

However, many of the published reports tend to conceal that databases regarding direct impacts of climate change, such as economic ones and the numbers of people adversely affected have poor data coverage for certain time periods and countries (Brooks and Adger 2003). Climate change over the long-term will be driven by complex dynamic systems about which understanding is limited. Demographic patterns, socio-economic development, future land-use and forestry practices, political evolution, and technological change will all drive the rate of emissions in the future; and each driver is a source of enormous uncertainty (e.g. Schelling 2007; Yohe and Schlesinger 2002). Yohe and Schlesinger (2002: 311) add that “*our ability to understand the geographical dispersion of the impacts of climate change has not yet progressed to the point of being able to quantify costs and benefits distributed across globe along one or more climate scenarios in any meaningful way*”. As the research community approaches the climate issue, therefore, it must work with scenarios that reflect these and other underlying uncertainties (Yohe and Schlesinger 2002)<sup>29</sup>. It does not surprise that due to these manifold complexities, there are problems of data reliability (Adger et al. 2009; Scott 2006; Adger et al. 2003; Yohe and Tol 2002) with the precise nature of climate change impacts remaining uncertain (see also chapter 1.5).<sup>30</sup>

Due to the enormous amount of challenges and uncertainties, then, the calculus of monetised costs has shifted away from centre stage in climate policy as human impacts—loss of life and livelihoods, local migration and the prospect of social unrest (Yamin 2004)—have gained greater importance and interest. Maybe the most consistent lesson that has been learned since then is that climate change “*is not the singular driving force of human affairs that is sometimes assumed—but neither is it a trivial factor. Climate is an important resource for human activities and an important hazard. Climate change is a source of significant stresses (and perhaps significant opportunities) for societies, yet it has always been only one factor among many*” (Smit and Pilifosova 2001: 890). Hence, it can be concluded while the consequences of a shift in climate are not calculable from the physical dimensions of the shift alone; they require attention to human dimensions through which they are experienced (e.g. Smit and Pilifosova 2001; Bryant et al. 2000; Rayner and Malone 1998).

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<sup>28</sup> There is a substantial degree of certainty that areas of the present day developing world will face greater incidence of extreme weather events in the future (Adger et al. 2003: 190). The cost of weather-related events is rising rapidly around the world. This reflects the increasing occurrence of high-risk events, as well as the value of assets at risk. During the 1990s, both rapid onset disasters, and slow onset disasters have become more frequent (DFID 2004h).

<sup>29</sup> Concerning the value of climate change scenarios to come up with exact forecasts of future development, Yohe and Schlesinger. (2002: 314) unambiguously argue: “*An economist might think that it would be productive at this point to express the Third Assessment Report in terms of costs and benefits distributed across globe along one or two specific climate change scenarios. To do so, however, would be both imprudent and impossible. It would be impossible to pick one climate scenario and still reflect the enormous uncertainties that cloud our understanding of how future climate might unfold even if we knew how the pattern of world development and associated changes in land-use over the next 50 years or so. It would also be impossible to translate any global climate change scenario into regional portrait that span the globe with sufficient resolution to inform impact research at local levels.*”

<sup>30</sup> All regions warm along all scenarios, but by different amounts even for specific climate sensitivities. Moreover, large differences for specific regions appear in spite of little differentiation in global mean temperature (Yohe and Schlesinger 2002). However, one issue that seems to be clear is that even if greenhouse gas emissions were curbed immediately, the global average temperature would still continue to rise due to the slow response of the Earth’s atmosphere system to past emissions. This suggests that any future levels of greenhouse gas concentration, once stabilized, will be above current levels (Sperling 2003).

## 2.4.2 Climate change and poverty

Central to the debate on climate change is that there is a risk that climate change will cause a further decline in the well-being of poor people and poor countries. The rise of ‘poverty’ on the climate change agenda stems from the 2001 report of the IPCC which identified the vulnerability of the poor to climate change impacts, as well as from the greater priority to poverty goals accorded by multi- and bilateral overseas development assistance (ODA), as indicated in the Millennium Development Goal (MDG) targets (Richards 2003). The 2001 IPCC report confirmed that the poorest (countries and people) are most at risk, and identified a range of poverty-related climate change impacts. The Glossary of the IPCC report does not provide a definition of ‘poverty’, though. While ‘climate change’ has lately become integrated into the development debate, ‘poverty’—in terms of definition and understanding—becomes largely neglected as a concept in the climate science and debate. It can be assumed, however, that most of the available outcome-related research is focused on the ‘chronic’ poor whose general level of basic capabilities is basically lower than that of the ‘transient’ poor (defined in the above sub-chapters).

Studies focusing on ‘the poor’ and on the threat climate change is posing to them can ultimately be related to what has been defined in the previous sub-chapters of this study as the *second generation* of vulnerability research that is concerned with the ‘biophysical’ consequences of vulnerability and in which the consequences of climate change are considered as an *outcome* of climate change, with consequences putting further constraints on the low living conditions of the poor. Generally, while many debates remain on outcome-led climate change studies and in how far they can contribute to a more detailed understanding of the consequence of climate change, some common threads can be identified that provide highly useful and important information. ‘Climate change impacts on poor countries and poor people’ is definitely one such thread. This research on climate change shows that inevitably it is the marginalized who suffer the most from changing environmental conditions (Tompkins and Adger 2004; Downing 2003; Sperling 2003; Smit and Pilifosova 2001). The existing evidence is based on the principle that climate change will substantially increase burdens on those populations that are already affected by climate vulnerability and extremes, and bear the brunt of projected (and increasingly observed) changes that are attributable to global climate change (Adger 2006).

But climate change will affect many groups and sectors in society, and different groups and sectors will be affected differently. ‘The poor’, therefore, is too gross a category for understanding why certain people, households, communities or population groups are impacted by climate change. According to Ionescu et al. (2005), at least three reasons are important here: First, the direct effects of climate change will be different in different locations. Second, there are differences between regions and between groups and sectors in society. Third, there are differences in the extent to which regions, groups and sectors are able to prepare for, respond to or otherwise address the effects of climate change.

Climate change almost always has a negative effect on people. It involves more and more-fierce weather-related disasters. And because human systems are closely tied to established climate systems, climate change will potentially create societal stress. It is clear, then, that climate change is likely to impact differently on people’s livelihood assets, including the poor; such as their health, access to water and natural resources, and homes and infrastructure. But these multiple dimensions of poverty that constrain the ability of (especially rural) populations to respond to the impacts of climatic variations (Sabates-Wheeler et al. 2008) are generally not taken into account in outcome-oriented studies.

Generally, though, it is true that the poorest inhabitants of developing countries already struggle to cope with current extreme weather events and climate variability. This can also be

shown through a number of impact-driven research: In 2010, the Pakistan floods that devastated large parts of the country directly affected about 20 million people, mostly by destruction of property, livelihood and infrastructure, with a death toll of close to 2,000.<sup>31</sup> In 2004, severe flooding in Bangladesh, caused by excessive rains of the annual Asian Summer Monsoon, killed over 600 people and displaced over 20 million (POST 2006). And in 1998, following Hurricane Mitch that hit Central America in 1998, the ‘poorest’ lost 18 percent of their assets; there was a 29 percent loss of crops; and 20 percent of hospitals and education centres were affected (Richards 2003).

With many assessments demonstrating that the brunt of climate *extremes* in the world is occurring in the developing countries, a study by Rosenzweig and Parry (1994) also found considerable disparity between developed and developing countries in terms of potential adverse effects of climate change *variability* on agricultural systems; developing countries suffer the greatest losses. Thus, there are numerous other examples which show that variability and extremes of the climate are already a concern for the poor (DFID 2004k). It is substantially true, then, that for poor countries in Africa, Asia and Latin America, climate change adds another layer of complexity to already existing development challenges, such as high levels of poverty and inequality, rapid population growth, underdeveloped financial markets and weak governance systems (Jones et al. 2010a).

Generally, poor communities also face a host of wider pressures, some of which may be influenced by the impacts of climate change that will impose another layer of risks—e.g. the threat of displacement in conflict, increasing population pressure on land, access to resources, and spread of endemic diseases (O’Brien et al. 2007). But I argue that the scope must be broadened beyond seeing climate change impacts through an exclusive ‘poverty lens’. Groups that are already marginalized bear a disproportionate burden of climate impacts, but this happens both in the developed countries and in the developing world (Adger 2006). And while it can already be seen that the impacts of some of the factors causing poverty are made worse by climate effects that reduce availability of and access to resources, worsen security, and threaten the livelihoods of the poor, this also holds true to other groups (Christoplos et al. 2009). The more interesting question therefore will be *why* people are affected by the consequences of climate change than coming up with an amount of *how many* people have been actually affected by a particular climate-driven event. It also might be clear that this ‘why’ approach promises to be more policy-relevant than the ‘how many’ one, in order to understand, and then to formulate, response options.

Yet, climate science has provided much understanding to some more principal features of climate change but, basically, comes up with rather holistic and sometimes inadequate correlations between the ‘poor’ and their assumed primary sources of livelihood. The main outcome-related reason for why chronic poverty is obviously so closely related to climate change impacts is that livelihoods of rural communities are primarily based on climate-sensitive natural resources. The concern is that climate change may involve a step-change in the frequency of climate extremes that exceeds the ability of the poor to cope (DFID 2004k), thereby directly correlating the state of resource dependency with the state of poverty. The scale and rate of environmental change driven by increases in concentration of greenhouse gases in the atmosphere may lead in the future decades to significant—and in many cases dramatic—alterations in the availability and quality of ecosystem goods and services (IPCC 2007b). Thus, the adverse consequences of climate change will be highest where there is a high dependence on natural resources. People exposed to the most severe climate-related hazards are often those least able to cope with the associated impacts (Davies et al. 2009). Against this background, then, it is argued that climate change is already affecting poor

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<sup>31</sup> See: <http://reliefweb.int/node/368203> [accessed November 3, 2009]

communities around the globe (Christoplos 2009) and threatens their livelihoods (Sperling 2003). This relation between climate change and poverty is what bio-physical impact-driven research has been able to provide to deepen the understanding of the existing and ongoing challenges. Social vulnerability research, once more, then aims to provide for an understanding of the underlying processes and structural causes that lead to vulnerability of climate change. These will be discussed in the following.

### 2.4.3 Vulnerability to climate change

‘Vulnerability to climate change’ has emerged in the last two decades and it becomes a central topic for scientists, policy makers, and development practitioners. While researchers from the natural hazards field tend to focus on the concept of risk and direct impacts thereof such as economic and poverty-related ones, those from the social sciences field often prefer to talk in terms of vulnerability (Brooks 2003). In the latter, it has been argued that because vulnerability and its causes play essential roles in determining the consequences of climate change, understanding the dynamics of vulnerability is as important as understanding climate itself (Smit and Pilifosova 2001). Consequently, concepts for analysing vulnerability to climate change have gained increasing importance in climate-related research (Tompkins and Adger 2005).

Overall, limitations of climate system models to capture the dynamic nature of vulnerability to climate change have turned an increasing interest into social sciences and societal theories (such as political science, sociology, development studies, and others) and the contribution they can deliver to elaborate a more profound understanding of the existing (or assumed) relations, and challenges, respectively, between climate and society. However, despite that the topic of climate change has built an area of research in social sciences for some years now, research into the consequences of climate change has yet to be seen as a relatively new development.

It is particularly the cutting point between poverty and vulnerability which has been central to social science perspectives on climate change. As we learn from Sen (1981), the widespread failure of basic capabilities relates to a diverse set of asset failure and entitlement inadequacies. Drèze and Sen (1989), for example, show that food insecurity is exacerbated by underlying social conditions of vulnerability as well as by external factors such as civil strife or population movements. Adger (2001: 928) puts these considerations into the broader notion of climate change, by noting that *“famine and food shortage are short-run unexpected phenomena, while food insecurity and climate change is a long-term trend”*. This has consequences to the way we should look on vulnerability to climate change.

#### Definitions

Many of the definitions of vulnerability to climate change and related terms I will use here come from the IPCC as it represents the widest consensus on climate change terms available (Nelson et al. 2008). Based on the constitutive work undertaken by the IPCC, its Third Assessment Report (TAR) contains the most illuminating definition of vulnerability. Its glossary defines vulnerability as

*“[t]he Degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity”* (IPCC 2001b: 995).

Exposure, hence, is defined by the IPCC (ibid.) as

*“[t]he nature and degree to which a system is exposed to significant climatic variations.”*

Sensitivity is

*“the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).”*

Finally, adaptive capacity is

*“[t]he ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences”.*

Based on the IPCC definition, we can therefore maintain that it is particularly the above three factors that determine vulnerability: It is also important to understand that the IPCC conceptualises vulnerability within a *systems* perspective. It judges a system to be vulnerable if it is exposed to climate change impacts, if it is sensitive to those impacts, and if it has a low capacity to cope with those impacts (Adger and Vincent 2005: 400).

According to further work undertaken on this definition, vulnerability can be understood essentially as a *process* variable, determined by the internal properties of a system. This is in line with Kelly and Adger (2000), for example, who argue that the vulnerability of any individual or social group to some particular form of natural hazard is determined primarily by their existent state, which is their capacity to respond to that hazard, rather than by what may or may not happen in the future. Vulnerability, hence, is the *susceptibility* of people to the harmful consequences of climate variability and extremes (Richards 2003).

While exposure and sensitivity determine the potential consequences of climate-induced change, adaptive capacity can have a major influence on what consequences actually eventuate. Adaptive capacity to climate change refers to both the ability inherent in the coping range in social systems and their ability to move or expand the coping range (Smit and Pilifosova 2001). Adaptive capacity is the component of vulnerability most amenable to influence for social systems (Marshall et al. 2010), and therefore is an obvious focus of my study. This approach also clearly shows the parting line between social science and physical climate science: While both research schools are based on the motivation to explain vulnerability of a system, the first one mainly strives to extend knowledge on adaptive capacity inherent *within* a system, while the latter focuses on the physical exposure given to it.

In the widest form of a common understanding, social groups are ‘vulnerable’ when their livelihood systems are sensitive to climatic changes, they have no or only poor capacities to adapt, and they lack supportive institutions or social networks (DFID 2004k). Principally, then, vulnerability is impacted by the negative consequences of the *external* dimension of climate change-related threats; but rather more it embodies the *internal* constraints of a system to respond to these. Hence climate change does not build the central determinant of vulnerability; it is the context of vulnerability (Dietz 2006).

Defining a given risk as contextual variable is, as we have learned from the above sub-chapters, central to the understanding of the concept of social vulnerability. For social systems, therefore, I consider what may be referred to as the concept of social vulnerability (Brooks et al. 2005; Brooks 2003; Kelly and Adger 2000; Adger 1999) which can be defined as *“the exposure of groups or individuals to stress as a result of social and environmental change, where stress refers to unexpected changes and disruption to livelihoods”* (Adger

1999: 249). This is in contrast to those views which concentrate on the physical dimensions of the issue, because on the greater emphasis placed on the dynamic interaction between exposure to climate variability and change and the social, political, institutional and economic structures that shape individuals' lives (O'Brien et al. 2007; Adger 2006).

### **Analysis**

Throughout history, humans have been vulnerable to climate-related hazards. Climate variability and extremes have always had the potential to wreck havoc to both natural and social systems. Due to ongoing climate change, though, recent data suggests that human society is now more vulnerable to climatic risks than ever before. Under the definitions above, a highly vulnerable system would be one that is very sensitive to modest changes in climate, where the sensitivity includes the potential for substantial harmful effects, and for which the ability to adapt is severely constrained.

Despite all the given relations between vulnerability and poverty, vulnerability to climate change is not strictly synonymous with poverty (Adger and Luttrell 2000). Different groups and sectors will be affected differently by climate change. Differences in exposure to the various direct effects of climate change (e.g., changes in temperature, sea level and precipitation) and different sensitivities to these direct effects lead to different potential impacts on the system of interest. Some people will be vulnerable to projected climate change impacts such as sea level rise, because they live in low lying coastal areas, but may not be poor in terms of income or access to assets. There may also be poor people living in areas which are not expected to be as affected as other areas (Nelson et al. 2008). But the notion of capability, I argue, allows for overcoming this dichotomy between poverty and vulnerability, by making use of contextual conditions.

Ionescu et al. (2005: i) point out that “*we have to see vulnerability to climate change as a relative concept, in the sense that accurate statements about vulnerability are possible only if one clearly specifies (i) the entity that is vulnerable, (ii) the stimulus to which it is vulnerable and (iii) the preference criteria to evaluate the outcome of the interaction between the entity and the stimulus*”. Based upon this specification, then, the challenge for research and action is to understand the interaction and relative importance of factors within social systems that contribute to social vulnerability (Warner 2007).

In recent years, there have been numerous attempts to cover the given complexities: Downing et al. (2001), for example, distinguish three domains of vulnerability: present criticality, adaptive capacity, and climate change hazard. Luers et al. (2003) propose a method for quantifying vulnerability (given the system, outcome variable, and stressor of concern) based on its three components: exposure, sensitivity, and adaptive capacity. Turner et al. (2003, cited by Gbetibouo and Ringler 2007) recognise that vulnerability is determined not by exposure to hazards (perturbations and stresses) alone, but also depends on the sensitivity and resilience of the system that is experiencing such hazards. All these authors develop an integrated conceptual framework of vulnerability built on these three major dimensions of vulnerability, namely exposure, sensitivity and adaptive capacity, which are influenced by a range of biophysical and socio-economic factors (Gbetibouo and Ringler 2007). What we basically can learn from these approaches is that, firstly, the essential features of a model of social vulnerability to climate change are that they focus on social aspects of the phenomenon and, secondly, that an approach to vulnerability based on human welfare leads to climate changes gaining significance when they have an impact on the relative and absolute well-being of individuals and groups. Based on the following brief outline, it becomes clear why an understanding of climate-related needs to be based on a generalized theory of vulnerability research. Generalized vulnerability theories provide the basis for social research on climate

change, where the underlying causes of risk inherently are the same as to other risks; this can be shown by the striking importance of a) the underlying asset base, and b) entitlements:

The asset base has been a central aspect in climate vulnerability research. Indeed, the availability and interplay of key assets needed to respond to evolving circumstances in a changing climate are central features that determine vulnerability. Combining the economic, political, social, and environmental resources, this feature is made up of a number of elements that constitute the various financial, physical, natural, social, political and human capitals—or, finally, capabilities—necessary to understand a system’s vulnerability to a changing climate (Jones et al. 2010a). During climatic shocks, households may lose lives, property, and other assets. Following climatic shocks, there may be reduced food security or increased health problems (DFID 2004f). In times of hazards, the immediate losses of assets may have far-reaching effects on other activities and asset holdings, effects which may not be so immediately obvious but which may be more damaging, particularly when people are forced into increasingly unsustainable responses in order to smooth their income or consumption. As we can learn from Sabates-Wheeler et al (2008), this effect is highlighted during a period of livelihood stress or crisis, to which people respond by engaging in ‘coping strategies’ such as borrowing, selling assets, rationing food consumption, or withdrawing children from school. The consequence of adopting such erosive coping strategies is that the household’s ability to generate future livelihoods is compromised, because its productive resource base has been compromised. When the next shock strikes, the household has fewer options and will again be forced to shed assets to survive. Over time, the ability to recover becomes undermined, and pushes people towards chronic poverty.

But causes of vulnerability relate not only to the assets people own, but also to entitlements and to aspects “*such as accountability and effectiveness of institutions and long-term processes of social, economic and political marginalisation*” (Jones et al. 2010: 3). Vulnerability is, therefore, not merely an outcome of climate risks, but is shaped by social determinants which determine a person’s bundles of rights and claims to resources that can be employed to secure livelihoods (Blaikie et al. 1994). Increasing inequality between different parts of a population in economically highly dynamic systems, for example, increases individual vulnerability to climate change. Such changes in inequality are linked to the reduction of communal allocation of resources and the pooling of risk, and other social phenomena in which entitlements to resources can be realised in times of crisis (Adger 1999).

In addition, vulnerability to climate change can be exacerbated by the presence of other stresses, with this being the very core of understanding vulnerability to climate change as a contextual condition to a given system. Non-climate stresses can increase vulnerability to climate change and can also reduce adaptive capacity (IPCC 2007b). Also, exposure to one type of risk can increase vulnerability to other risk factors, such as when crop failure leads to malnutrition, which increases the risk of common illnesses. Climate change therefore is adding “*another layer of risk*” (Christoplos et al. 2009: 1), with climate change superimposing on existing vulnerabilities (instead of creating new ones) (Sperling 2003). In other words, climate change will increase vulnerability to shocks of all kinds, not only climatic events (DFID 2004c).

Based upon literature, what is particularly challenging for research though is that climate change affects both the levels and the mix of idiosyncratic and covariate risks in several ways: Firstly, climate change is increasing idiosyncratic risk, such as increased mortality due to heat waves, increased occurrence of malaria and diarrheal disease, increased small hazard events, etc. Secondly, climate change increases covariate risk, for example through increasing the frequency of large disasters. As consequences of climate change are simultaneously affecting a wide range of people, current safety nets are likely to be overwhelmed. This includes both formal systems, such as social protection schemes, and informal systems, for example social

networks (DFID 2004c). Thirdly, idiosyncratic risk is becoming increasingly covariate, for example through increasing the severity of disasters and a variety of feedback processes such as the destruction of resources (Brooks 2003: 11).

Finally, what should be clear in context now is that the degree of local environmental degradation will influence the vulnerability of social stems to climate change. Due to ongoing human and economic activities, habitat fragmentation is already a leading cause of biodiversity loss, with changes in temperature and moisture regimes further limiting habitats necessary for the survival of species (Sperling 2003) and habitats that are highly valuable for providing livelihoods to people in developing countries.

### **Summary**

Vulnerability to climate change, as with vulnerability to other hazards, is not strictly synonymous with poverty. Although poverty and marginalization are key driving forces of vulnerability and constrain individuals in their coping and long-term adaptation (Cannon 1994), vulnerability to future climate change is likely to have distinct characteristics and create new vulnerabilities. This is not to say that those most marginalized are not most at risk. But households with diversified sources of income are certainly better protected against weather fluctuations that, in rural regions, can undermine agricultural production and rural incomes (Sabates-Wheeler et al. 2008). Poverty can then be related to marginalisation and lack of access to resources which are critical when faced with the risk of hazards.

While ‘poverty’ as a denominator is certainly too gross a category for being related to vulnerability to climate change, the notion of poverty in its multifaceted forms certainly is an important indicator of individual vulnerability to climate variability, extremes and changes. As we have learned in this chapter, poverty affects vulnerability in general through individuals’ expectations of the impacts of hazards and to invest to improve their living conditions. Yet, it is important to differentiate in more detail when we talk about ‘poverty’. The state of social vulnerability to climate change certainly does not equate directly to the level of poverty as there are many factors involved, not least the climatic and topographical factors which define the dimension of exposure to climate-related risk (Adger and Kelly 1999). Yet, major indicators of vulnerability are a lack of assets and capabilities, and entitlements. Maybe the most important threat is that climate change is likely to reinforce unequal social, political, and economic structures (Kates 2000, cited by Adger et al. 2003), leading to further stresses for those that already today are struggling with their abilities to living some decent live.

Finally, it must be clear then that the overarching country context that creates, maintains and reduces vulnerability shall not be disregarded. This is particularly due to developing countries, where poor educational and technological attainment, but also poor fiscal and legal systems take a direct toll on how given populations are and will be affected by climate variability, extremes, and change. These aspects certainly deserve some more attention in the following.

### **2.5. Summary**

This chapter suggests that a study on poverty and vulnerability will best be based on the theoretical assumption that the concepts of poverty and vulnerability are separated, but interrelated. Poverty, in its broadest sense, is defined as „*deprivation, lack or want*“ while, generally, vulnerability may be perceived as „*defencelessness, insecurity, and exposure to risks, shocks and stress*“ (Chambers 1989). Even though poverty cannot be equated with vulnerability, each of the two notions exerts strong influence on the other: On the one hand, while poverty determines vulnerability, vulnerability puts influence on the ability of people to leave, or to remain in, respectively, the ‘vicious circle’ of poverty (Yamin et al. 2005). In a

certain way, though, vulnerability is a more all-encompassing concept than poverty, because risks, if not adequately addressed, can make non-poor families poor. For the already poor families, risks can deepen their impoverishment.

It becomes clear from the above outline on poverty-vulnerability relations that, in sum, the consequences of climate change on different population groups will be context-specific, reflecting factors such as geographic location, economic and social characteristics, prioritization and concerns of individuals, households and social groups, the institutional and political context and the dynamics of change in these as well as in the bio-physical environment (Adger 1999). Understanding the consequences of climate variability and extremes on individuals and collective groups requires an understanding of their vulnerability. Overall, vulnerability to risks depends on a number of factors and is therefore shaped by a complex set of relationships. To this end, there is value of and need for employing a multi-dimensional approach to the analysis of poverty and vulnerability.

In line with Sen, I emphasise the importance of capabilities and their role for expanding opportunities for overall well-being. The notion of well-being, in this context, means the absence of poverty and vulnerability. The capability approach, I argue, is sensitive to local conditions and takes the question of what poor people ‘are able to do’ as starting point. The capability approach also takes into account the social, political and economic context in which it is implemented. Hence, taking poverty—understood in its many-faceted and multi-dimensional forms—as the underlying point of origin for examining social vulnerability, I will give scope to measure the social (rather than the (bio-)physical) side of vulnerability. The role of vulnerability to poverty can then figure in the analysis of capability without making the two notions conceptually equivalent (Sen 1981).

I define vulnerability as the exposure of individuals or collective groups to livelihood stress as a result of the impacts of climate change. Based upon the definition provided by the Intergovernmental Panel on Climate Change (IPCC 2007b), vulnerability is described through sensitivity of a system which is based upon the level of exposure and its adaptive capacity. In the following discussion on adaptive capacity and adaptation, the term vulnerability will therefore be used to refer to social vulnerability, unless otherwise stated. For effectively linking poverty and vulnerability, I describe adaptive capacity as being dependent upon the multiple dimensions of capabilities.

### 3 Development and Climate Change

This chapter deals with the second part of theory development to my study. It includes the question of how and under which premises ‘development’ can be sustained while the consequences of climate change are becoming increasingly noticeable in many of our world’s places. Development and progress, both related to economy and to society, can be perceived as change that is dependent on multiple levels and scales of influence; ranging from the global to the national and to the local level, and that is linked to levels of poverty and vulnerability that are not unaffected, both positively as well as negatively, by these processes. The chapter therefore starts with a discussion about assumed linkages between climate change and development, poverty, and vulnerability. The chapter then continues with discussing the concept of ‘sustainable development’, showing that it is based on a number of important methodological, as well as scientific-theoretical, considerations that make expressive the significance of the term in the broader context of development and climate change.

The chapter also deals with an outline of the two most prominent response options in the area of dealing with the consequences of climate change, i.e. adaptation and adaptive capacity. The chapter explores criteria for measuring achievements in each of these options, highlighting that there are various geographic scales and agents involved that range from autonomous adaptation undertaken at the local level to governments acting on behalf of society. Again, it is important to know about and to understand these challenges across multiple scales. Certainly, climate change is a global phenomenon with potentially catastrophic effects on economically and politically marginalized social groups in many areas of the world. Hence, with appeal to universal human rights, global action is required to alleviate vulnerability and reduce the threat. But this does not mean that the appropriate scale of governance is global for all related climate change issues. First, however, it is necessary to clarify the definition of adaptation and to review who actually adapts to climate change and why. The concept of adaptive capacity is explored at some length, and emphasis is placed on the hazard-specific nature of adaptive capacity and how this mediates its relationship with vulnerability. The chapter then deals with some of the prevailing conceptual challenges related to these two notions.

Another concern of the chapter is to keep in mind the results from the previous chapter on poverty and vulnerability, and thus to put its main theme into the underlying context of poverty and vulnerability in their multifaceted forms. Therefore, the need for improved understanding of the factors that shape vulnerability in order to develop measures aimed at facilitating adaptation and adaptive capacity will be expressed. It will be argued that a discussion on development and climate change cannot be held comprehensively without having the two aspects of poverty and vulnerability in mind. Any response to climate change that is not centrally concerned with the question of how social vulnerability can effectively be reduced in society will be largely condemned to fail.

Central to this chapter is the attempt to put together the two notions of adaptation and adaptive capacity while it is clear at the same time that systems have always had the ability to cope with, resist and recover from the impact of shocks and stresses (in ways sustainable or not), but with climate change now being expected to overstretch available coping strategies. ‘Lack of means to cope’ is therefore a central aspect to any theoretical consideration to the consequences of climate change, including ongoing climatic variability and extremes. I then will also explore the nature of adaptation and adaptive capacity, I present and discuss development approaches inherent to facing the risks of climate change, and I provide a review of state of the art literature on the role different policies and interventions may, or may not, play on broader aspects of progress and well-being and in dealing with the challenges presented by climate change.

### 3.1 Development and Climate Change: An Overview

It has been common understanding for a number of years now that the environmental and socio-economic consequences of climate change pose a serious risk to the developing world (IPCC 2001b), to economic growth, and to human development and well-being in general (Brooks and Grist 2008; Kramer 2007). While economic development and poverty reduction has been put on the global agenda of objectives to be achieved—with the latter involving both market-based approaches such as ‘pro-poor growth’ as well as approaches aiming at more broader aspects of human development such as the Millennium Development Goals (MDGs)—, raising awareness shows that the consequences of climate change threaten ‘to undo decades of work’ to tackle poverty in developing countries (Davies et al. 2009; Brooks and Grist 2008; Stern 2006; Sperling 2003). Based on such prevailing understanding, increasing levels of climate variability and extremes are expected ‘to set back’ developing countries’ economies, ‘reverse’ development gains, and ‘slow the achievement’ of pro-poor growth (Griebenow 2009).

This fundamental challenge and linkage between climate change and development has been started to be dealt with in a wide range of research and corresponding development literature in the recent past, based on an understanding which is widely compartmentalized across the distinction of two different approaches to adaptation<sup>32</sup>. Depending on the individual research perspective, namely, the consequences of climate change are understood as follows:

- a) The ‘risk-based’ understanding: Climate change is a risk that exacerbates development and macroeconomic growth and which, as a consequence, mainly demands for scientific forecasts of predictable climate changes and the elaboration of global and regional climate change models in order to provide for meaningful *adaptation* and adjustment in terms of ‘structural’ solutions, either planned (disaster preparedness) or reactive (disaster recovery). The underlying aim is to respond to impacts directly associated with climate change, based on technical adaptation to *future* climate change.
- b) The ‘vulnerability’- or ‘human development’-based understanding: Climate change means an elusive challenge for disadvantaged and poor population groups. For example, a joint donor report on climate change and poverty which was published in 2003 (Sperling 2003) emphasises the synergies between the climate change and poverty reduction agendas and observes that urgent action will be needed for increasing the *adaptive capacity* of the poor in order to reduce the consequences that climate change will have on them, to moderate potential change, and to cope with, and recover from these consequences based on sustainable development. Principally, the aim is to tackle the underlying causes of vulnerability to a range of stressors and hazards, including current vulnerability to climatic stimuli. Within the field of development studies, particularly, it is that workable approaches bringing together

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<sup>32</sup> There is a division of activities within national (and international) institutions into adaptation and mitigation. ‘Mitigation’ refers to actions taken to reduce greenhouse gas emissions and hence to tackle the causes of climate change, ‘adaptation’ refers to actions taken to deal with the consequences of climate change, both before and after impacts are felt. This dichotomy of actions to manage climate change risks separately through adaptation and mitigation in this way is mirrored at the national level, with adaptation and mitigation usually occurring in different policy domains and engaging different communities (Tompkins and Adger 2005: 563). The issue of adaptation to the consequences of climate change has been a concern of neglect for some time, due to two reasons mainly: First, international negotiations have been dominated largely by the interests of developed countries, focussing on mitigation issues and paying less attention to adaptation. Second, the prevailing development paradigm on poverty eradication has left only little space so far for dealing adequately with vulnerability. However, there has been considerable movement in both points in recent years, thus opening the floor for science as well as practical approaches.

goals of climate change adaptation as well as development and poverty alleviation need to be engaged (Georg 2009). Identification of vulnerability determinants is fundamental for understanding potentials for adaptation and adaptive capacity. Understanding how climate change is increasing vulnerability through its consequences on, for example, livelihoods, health, and education, is crucial to effective policy response. Therefore, Dietz (2006) writes that only more precise knowledge about how regions, countries, communities, households and individuals can meet changing frame conditions will lead to reducing the given and imminent gaps of knowledge. Finally, then, it is not climate change *per se* that builds the focus of social science analysis; it is the consequences for social systems and individuals arising from this.

Even though these two perspectives have much in common in what they may offer, a closer look reveals striking differences—and leads to different understandings of the underlying approaches. Independent from the specific view, though, it gets clear that climate change, development and poverty are intrinsically linked and, more often than not, these approaches cannot be regarded as independent from each other.<sup>33</sup> In this instance, while some authors (see, for example, Sperling 2003) argue that mainstreaming climate change policies will improve the quality of economic growth, others attach a rising importance to the role climate policy plays for poverty reduction (Provention 2007). Yet, elaboration of scientific as well as practical approaches for linking climate change adaptation and development plans is still in its early phase and vigorously discussed among a wide range of scholars (Voss 2010). Hence, the two differing understandings provided here are by no means definitive. Providing response, both scientifically as well as in development practice, on ‘what needs to be done’ and where to locate resources for planned response to climate change remains a challenging quest, independent of the specific lens through which climate change is observed. The challenge for research is to present the rationale for reducing vulnerability in terms of benefits and sustainability for all (Adger 2006).

### **3.2 ‘Sustainable Development’ and Climate Change**

The following sub-chapter provides an overview and discussion of ‘sustainable development’, and the origins, background and ‘career’ of the term in development theory and practice. It will be argued that sustainable development, as a concept, made a long way and is now anchored into much of the prevailing development debate on adaptation to climate change, at least on the rhetoric and visionary level.

A definition of the concept of sustainable development in the broader context of human development will be outlined, based upon which the notions of sustainable and human development and adaptation to climate change can be put in stronger relation. It will be shown that there are many classifications of ‘adaptation’ options based on their purpose, mode of implementation, or on the institutional form they take. ‘Adaptation’, as deriving mainly from the field of natural sciences, refers to actions taken to deal with the consequences of climate change, both before and after consequences are felt. Adaptation is in some contrast to the notion of ‘adaptive capacity’ which has its foundations in social sciences. Adaptive capacity

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<sup>33</sup> Scott (2006), for example, tries to bring these two understandings together by arguing that environmental causes affecting the incidence of chronic poverty can be broken down into five general categories, including: a) Disasters (floods, droughts, earthquakes, etc.); b) propensity for disease; c) environmental degradation; d) low quality natural resources; e) remoteness and lack of access. In his view, the first three fit broadly under the problem area of insecurity, risk and vulnerability while the last two are encompassed by the problem theme of assetlessness, low returns and inequality (determining the sensitivity of a community to environmental shocks, stresses and seasonality). He concludes that climate change is now acknowledged as a factor which can impact on all five of these environmental causes of chronic poverty.

is based on a continuous stream of activities, actions, decisions and attitudes, and that reflect existing social norms and processes.

Finally, the sub-chapter will discuss the overarching importance of the sustainability approach when dealing with the notion of climate change.

### 3.2.1 Development, climate change, and sustainable development

Undoubtedly, there is a large body of literature that relates to ‘development’, a term that Fforde (2010: 193) defines as “*the study of attempts at intentional change and the role of development policies*”. The term is characterised by contestation and disagreement (Fforde 2010), with the reader being confronted by a richness and abundance of research strands containing many different positions on how ‘to do’ and ‘to achieve’ development. According to Fforde (ibid: 193), it stands out that different authors “*disagree not only with each other but also with themselves over time, as authorities change their own positions*”.

Teresa Hayter argues, that back in the 1960s “*there was only little attempt (...) to define development. Instead, there was an unquestioned assumption (...) that ‘development’, whatever it was, could lead to improvement in the situation of poor people*” (Hayter 2005: 89). This comment provides an explanation to the reasons why the word ‘development’ started buzzing in dominant parlance: the term “*(...) rested on a mere – albeit unquestioned – assumption, and no one cared to define it properly. Both elements characterise a buzzword: an absence of real definition, and a strong belief in what the notion is supposed to bring about*” (Rist 2010: 20). ‘Development’, as Rist (ibid.: 22) points out, can therefore be considered as “*one of the indisputable truths that pervade our modern world [and] which has become a modern shibboleth, an essential password for anyone who wishes to improve their standard of living*”.

In the particular case of the term, the difficulty lies in the *a priori* positive meaning of the word ‘development’, which derives both from its supposedly ‘natural’ existence and from its inclusion in a cluster of unquestionable shared beliefs (Rist 2010). Despite its widespread usage, the meaning of the term ‘development’ remains vague, tending to refer to a set of beliefs and assumptions about the nature of social progress rather than to anything more precise (Hayter 2005). In Rist’s view, the undeniable *success* of ‘development’, linked to its *undeniable* failures in improving the condition of the poor, therefore needs to be called into question (according to UNDP statistics, the gap between the 20 percent poorest and the 20 percent richest of the world has more than doubled over the last 40 years of so-called development aid). Rist argues that not only will development fail to address poverty or to narrow the gap between rich and poor, but “*in fact it both widens and deepens this division and ultimately creates poverty, as natural resources and human beings alike are increasingly harnessed to the pursuit of consumption and profit*” (Rist 2010: 19)<sup>34</sup>.

Climate change is expected to put another layer of risk on existing stresses, and to make development ‘more difficult’. While the IPCC (2007b) highlights that climate change could impede achievement of the MDGs, this means one additional constraint added to parallel concerns that the world is already likely to fall short of the MDGs for 2015 in many countries (Kramer 2007), even though in most parts of the developing world substantial efforts have been undertaken to reduce poverty (Feldman and Wilt 1996).

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<sup>34</sup> Rist argues that in order to formulate a proper, sociological, definition of ‘development’, one has to put aside its emotional and normative connotations and also to incorporate all the external characteristics that are related to the subject matter. On this basis, his (quite radical) definition reads as follows: “*the essence of ‘development’ is the general transformation and destruction of the natural environment and of social relations in order to increase the production of commodities (goods and services) geared, by means of market exchange, to effective demand*” (Rist 2010: 23).

Basically, the Kyoto Protocol<sup>35</sup> to the United Nations Framework Convention on Climate Change (UNFCCC)<sup>36</sup> is aimed at strengthening the international response to climate change, and promotes the ultimate objective of preventing “*dangerous anthropogenic [human-made] interference with the climate system*” (UNFCCC 1992: 4<sup>37</sup>). Despite the UNFCCC’s strong notion on mitigation, Article 3 of the Convention encourages governments to adapt to climate change. It is quite clear now that adaptation is of high priority for all countries and that adaptation requires urgent attention and action (Adger et al. 2005). Moreover, the UNFCCC emphasises that “*adaptation to the adverse effects of climate change is vital in order to reduce the impacts of climate change that are happening now and increase resilience to future impacts*”<sup>38</sup>. Such action should be achieved within a time-frame sufficient “*to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner*”<sup>39</sup>.

Hence, while some formal mechanisms to promote response to climate change are in place, the following reference provides a broader overview of aspects to be considered in the discussion: Beck (1998), in his landmark book ‘World risk Society’, highlights how as a defining feature of modernity “*risk inherently contains the concept of control*” (Beck 1998: 40). Beck argues that hazards such as climate change do not recognise borders, that nuclear waste or genetically modified foods have unknown future consequences, and that it is impossible to isolate who is responsible and accountable for such risks or financial crises. Moreover, Beck asserts that the key issue within the ‘world risk society’ is “*how to feign control over the uncontrollable*” (ibid.: 41). This digression into social theory relates directly to ‘development’, and to how risk, uncertainty, and vulnerability should better be placed at the core of current debates and discourses within the social sciences. It also begs the question to “*whether current attempts at reducing poverty, such as the Millenium Development Goals, are themselves perhaps an endeavour to ‘feign control over the uncontrollable’ in the sense of only tackling the symptoms and not the causes of inequality*” (Prowse 2003: 17). ‘Adaptation’, then, is another central topic falling into this context of attempts to ‘feign control over the uncontrollable’.

Hence, a fundamental question in the context of climate change is: Is there a need for reorientation in development theory? I assume that development theory today is more important than ever before, but that no reorientation is needed. ‘Sustainable development’ is a quite helpful concept, and clearly merits detailed attention and analysis in the following. The term has moved a long way from its technical association with forest management in Germany in the eighteenth century<sup>40</sup>. Bruyninckx (2005) recalls that only very few concepts have made such a fast and pervasive career in academic and policy discourses as sustainability, and more particularly sustainable development. In the 1980s and 1990s it defined a key debate of global importance in perhaps an unparalleled fashion, bringing with it a worldwide coalition of actors such as governments, civil society, academia and business.

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<sup>35</sup> The Kyoto Protocol, which was adopted by consensus at the third session of the Conference of the Parties (COP3) in December 1997, contains emission targets for Annex I (developed) countries for the post-2000 period (see <http://earthtrends.wri.org/index.php> [accessed March 28, 2011]).

<sup>36</sup> The UNFCCC refers to the international agreement that targets industrial and other emissions of greenhouse gases such as carbon dioxide. The UNFCCC is the centerpiece of global efforts to combat global warming. Initially adopted in 1992 at the Rio de Janeiro ‘Earth Summit’, the Convention entered into force in March, 1994. The ultimate objective of the UNFCCC is the “*stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic (human-made) interference with the climate system (...)*”.

<sup>37</sup> See <http://unfccc.int/resource/docs/convkp/conveng.pdf> [accessed May 29, 2010]

<sup>38</sup> See <http://unfccc.int/adaptation/items/4159.php> [accessed May 29, 2010]

<sup>39</sup> See <http://earthtrends.wri.org/index.php> [accessed March 28, 2010]

<sup>40</sup> The term was first coined by a German forester, Hans Carl von Carlowitz, in his 1712 text *Sylvicultura Oeconomica*, to prescribe how forests should be managed on a long-term basis.

The discussions held in the name of sustainability created an important momentum for innovation in ideas, political mobilisation, and policy change—particularly in connection with the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992.

Since its introduction as a guiding policy principle during the period spanning from the publication of the Brundtland Report in 1987 to the Rio Conference in 1992, ‘sustainable development’ has been accepted as a framework for policy agendas as widely different as macroeconomic development. Yet, at the same time, the concept remains contested at different levels. Critics point, for example, to the vagueness of the concept, the level of aggregation that is not suitable for pragmatic policy-making, and the normative Western bias (Bruyninckx 2005). Although sustainable development as a concept has become important only since the publication of the Brundtland report on ‘Our Common Future’ (WCED 1987a), where sustainable development was broadly introduced and defined as “*development that meets the needs of the present without compromising the ability of future generation to meet their own needs*” (ibid.: 8), this definition is clearly embedded in a number of currents that have existed much longer and which comprise the Club of Rome’s ‘Limits to Growth’ report (1971), the Brandt Commission Report (1977), the United Nations Convention on the Human Environment held in Stockholm 1972 (where the first internationally recognised link was formulated between environmental problems and poverty (Caldwell 1990)), and finally then the United Nations Conference on Environment and Development—the *Earth Summit*, where sustainable development was the central concept around which the debates were organised. The Summit brought the notion of sustainable development into the policy debate, with positive consequences for the promotion of sustainable development indicators (Afsa et al. 2008). Its main results, the ‘Rio Declaration’ and the ‘Agenda 21’, further defined sustainable development and gave it a more policy-oriented content (Bruyninckx 2005). The emphasis became the ‘balancing’ of environmental, economic and social goals: a stable economy should be able to produce enough welfare for everybody, and to distribute the benefits and the cost in a much more equitable way, without endangering the environment (Fisher 1993). Therefore, while the notion of ‘sustainability’ has always put a strong focus on environmental concerns that are embedded into broader conceptualisations of society and economy, the discussion on sustainable development should not restrict itself on normative concepts for a more equitable use of environmental resources alone (Hein 1997).

Since the Rio Conference, the principle of sustainable development has been accepted as a guideline for international policy debates. In 2002, actors met again in Johannesburg for the Rio+ 10 Conference known as the World Summit on Sustainable Development (WSSD) where a core principle in the debates around sustainable development was identified as the necessity to integrate different policy domains, both in horizontal and vertical terms<sup>41</sup> (Bruyninckx 2005). Consequently, the Rio +20 Conference that is envisaged to be held in 2012 aims at following the route of previously held conferences, and to further discuss and define “*how to collectively generate a constructive development paradigm that reflects the ways in which the world has changed in the 20 years since the Rio Earth Summit*”<sup>42</sup>.

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<sup>41</sup> Horizontal policy integration is defined as recognition of the linkages between different policy domains and the need to approach them together. Vertical integration refers to the need to come to better policy coherence between different levels of policy-making and implementation, for example, the local, regional and national (Wilkinson 1997).

<sup>42</sup><http://uncsd.iisd.org/news/iucn-meeting-discusses-new-paradigm-for-sustainable-development/?referrer=uncsd-update> [accessed March 22, 2010]

In sum, then, despite the overall importance of sustainable development both for research and politics<sup>43</sup>, there is still much confusion about the notion of ‘sustainability’. Yet, that there is ongoing debate about the ‘practicability’ of sustainability is not the point. As with the terms ‘poverty’ and ‘vulnerability’ (see chapter 2), it is often important and fruitful for discussion to remain contested or vague. While academics continue to endeavour to refine the meaning of sustainability in efforts to find ways to adapt to the consequences of climate change, and locate the term in ever more precise terms within particular disciplinary debates, the essential point is the over-arching, symbolic role of ‘sustainable development’ (rather than a defined set of social ecological states) that remains so important both for research and for policy formulation.

### 3.2.2 Sustainable Development and Human Development

What framework for action is needed to promote ‘development’ in all its dimensions? Basically, Gillian Hart, in her paper ‘Development Critiques in the 1990s: culs de sac and promising paths’ (2001) introduces some fundamental distinctions between the “*geographically uneven, profoundly contradictory set of historical [developmental] processes*”, and the “*project of [development] intervention in the ‘third world’*” (Hart 2001: 650). This is in relation to Cowen and Shenton (1998: 50) who make a distinction between “*development as an immanent and unintentional process (...) and development as an intentional activity*”. As Bebbington et al. (2008: 5) correctly observe, this approach “*offers a means of clarifying the relationship between development policy and practice and the underlying processes of uneven development that create exclusion and inequality for many just as they lead to enhanced opportunities for others*”. Thus, development can either be understood as an unintended process or as an intentional activity.

Based on the focused interest of this study, much can initially be learned from years of research on poverty reduction as seen through the lens of development theory: While tackling poverty has long been the goal of international development—although theories and concepts have varied—, it becomes clear from research and international debates that the conceptual understanding of ‘poverty’ has undergone a fundamental shift over the past two decades: While supporters of a conservative understanding of ‘development’ have long argued that the only reliable way to reduce poverty is by means of economic development, and that aid will not reduce poverty in a sustainable way unless it first stimulates economic development<sup>44</sup> (Toye 2010), it is widely understood now that despite that economic growth is a necessary condition to development (and to provide the means to finance important services, such as health and education, which are key to achieving the Millenium Development Goals (MDGs) (DFID 2004a)), solely focusing on economic development is not sufficient for sustained and sustainable poverty eradication.

Human development therefore requires action “*beyond the economic domain*” (World Bank 2000: 33). As poverty is an outcome of economic, social, and political processes that interact with and reinforce each other in ways that can worsen or ease the deprivation poor people face every day (ibid.), it has become clear from the ongoing debate that ‘enhancing security’—by reducing the risk of such events as wars, disease, economic crises, and natural disasters—is a central means to reducing poverty. And so is reducing poor people’s

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<sup>43</sup> As Gieryn (1999) points out, sustainable development has become a ‘boundary term’, where science meets politics, and politics meets science.

<sup>44</sup> Indeed, there is much data available that strongly suggests that this is the case: poverty tends to fall when economic growth takes place. Yet data also shows that the rate of poverty reduction during periods of economic growth varies widely between countries. Growth evidently brings more benefits to the poor in some places than in others. Perhaps not surprisingly, where the initial income distribution is more unequal, there is less poverty reduction per unit of growth than in countries with a more equal distribution (Toye 2010).

vulnerability to risks and putting in place mechanisms to help them cope with adverse shocks (ibid.). But as Perch (2011: 1) argues, *“We are still struggling to find the right balance between human and sustainable development. Reconciling the imperatives of society and the environment remains one of the weakest areas of development policy”*. Social and ecological differentiation is a typical implication of the development process. In other words, environmental problems are aggravated through accelerated growth under the conditions of social poverty (high pressure to externalize environmental costs) as well as through misery (Hein 1997).

As far as the natural environment is concerned, it is well documented that industrialisation and development processes around the world come along with a range of commons that anyone could use before, but which then became private property (Rist 2010). ‘Development’ starts when land is transformed into what Polyani (1957) calls a ‘fictitious commodity’, and when the natural environment is turned into a ‘resource’. To put this into quite simple terms, this process brings about ‘winners’ and ‘losers’ in terms of social and ecological stratification processes. To put it differently, economic growth – widely hailed as a prerequisite to prosperity – takes place only at the expense of *either* the environment *or* human beings (Rist 2010). It was also the consideration of these challenges that led to the definition of sustainable development: *“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”* (WCED 1987a: 8). But in order to bring human and sustainable development together, then, the two separated but closely interconnected notions of intragenerational as well as intergenerational sustainability need to be brought together. Paradoxically, sustainability, against this background, remains a highly contested concept particularly in those developing countries that seek to close the gap to the developed world. Brundtland’s plea for a ‘new era of economic growth’ is certainly not in favour of those who rather consider ‘economic sustainability’ a top priority.

Based on the still ongoing debate on sustainable development, Sen (2008) brings in important considerations on how ‘sustainable development’ extends to human development by explaining that the report of the World Commission on Environment and Development made a clear focus on sustaining the fulfilment of human ‘needs’: *“We can, in fact, go beyond the Brundtland Report’s focus on human needs and bring in the larger domain of human freedoms, since the human development approach requires us to see people not merely as ‘needy’, but as people whose freedom to do what they have reason to do is important and demands sustaining (and if possible extension)”* (Sen 2007: 28). Based on this view, there is a huge contribution that the human development approach can make by invoking the central perspective of seeing development as the expansion of substantive human freedom. In a broader perspective, ‘development’ cannot be divorced from considering the lives that people can lead and the real freedoms that they can enjoy. Development cannot be seen merely in terms of enhancement of *“inanimate objects of convenience”*, such as rise in the GDP (or in personal incomes). This is the basic insight that the human development approach brought to the development literature, and this insight is *“critically important today for clarity regarding (...) sustainability”* (ibid. 28). This understanding finally results in sustainable development understood as an improvement of both human well-being, particularly for the poor (with a focus on intra-generational sustainability) as well as long-term environmental sustainability (with a focus on inter-generational sustainability).

The question remains of ‘how to do’ sustainable development that promotes human development. While there are many strands of argumentation, it is particularly the following three that deserve closer consideration:

- First, it is obvious that, with poverty now recognised as multi-dimensional (World Bank 2000; UNDP 1997), development efforts are increasingly addressing both income and non-income measures of welfare and poverty. Recently captured in part by the MDGs, non-income dimensions of welfare and poverty—such as human development and social development indicators addressing risk, and social capital—are being given closer consideration (World Bank 2004). Basic economic welfare, social development in terms of education, healthcare, and access to multi-faceted services, are the central elements of social progress and sustainable development in this approach.
- In a second perspective, it has been argued that dealing with change and unpredictability are central challenges for human development all over the world (Adger 2003). This requires an understanding of the dynamic interactions between social and ecological processes, and integrating socio-economic and institutional dimensions into all of the approaches. Drawing on wider political concerns about the relationships between environment, well-being, and struggles for social justice, Dobson (1999) delineates political theories that incorporate a ‘green’ politics perspective, placing sustainability concerns at the centre of a normative understanding of social and political change. Kates et al. (2001) in turn offered an integrative synthesis, linking the economic, environmental, and socio-political dimensions of sustainability into what they have dubbed a ‘sustainability science’.
- Third, it has been argued that one of the more fundamental changes has been the application of more participatory and process-oriented policy and development approaches in many countries. Across all scales, it has been observed that decisions made by individuals, society, and the state are to involve questions of economic efficiency, environmental effectiveness, equity, and political legitimacy. These four criteria are constitutive of the economic, social, and environmental dimensions of sustainable development (Adger et al. 2003). Actors and stakeholders from government, society and economy are now trying to formulate problem definitions together and reach consensus about certain goals of sustainable development and the contribution they can bring to the ‘process of change’ (Lafferty and Meadowcroft 1996). While manifold problems persist in the underlying process of formulating and implementing such ‘integrated’, ‘co-management’- or ‘public-private partnership’-based approaches, and while many unclarities also persist in terms of whether these approaches will lead to more justice-based and sustainable approaches in the long-term, it is clearly discernable that development planning in many places has changed and is now undertaken based on trends, paradigms and practices that have not been imaginable in the past. For others (Bruyninckx 2005), this particularly includes the idea of ‘decentralising sustainability’ and, hence, applying approaches that are based on principles of subsidiarity.

Despite these individual perspectives, there are ongoing concerns that without more fundamental societal and social changes, sustainable development will remain a tall order. Despite the whole set of ‘new’ development approaches, both inequality and poverty persist and lead to even higher degrees of environmental degradation over time. A more pervasive conceptual tenet of this principal problem of environmental degradation, Garret Hardin’s classic allegory of ‘The Tragedy of the Commons’ (1968) has been widely accepted by researchers and development practitioners as a basis for this prescription. Economic development is associated with ‘inevitable’ resource degradation what, for a long time, became the “*dominant perspective from which social scientists view natural resource issues*” (Colby 1991: 201).

In sum, while poverty reduction is yet declared to be the main goal for development aid initiatives (Baudoin 2009), the notion of sustainable development has brought some fundamental changes to policy planning and practice over time. It is certainly true that concern for protecting the environment has grown (Rist 2010). It is also accepted that actions to ensure greater environmental sustainability will be crucial in augmenting the assets available to poor people and in reducing the long-term incidence of poverty (World Bank 2000: 6). In terms of promoting collective security, success in both sustainable and human development initiatives should be redefined by how these promote and facilitate resilience, and by how they promote *“legitimate, broad-based development that allows individuals and societies to cope with risk and adapt to changing circumstances over time”* (Adger 2003: 3). Even though many human activities that accompany the processes of development may have destructive consequences, it is also within human power to resist and reverse many of these bad consequences if timely action is taken (Sen 2007: 29).

### 3.2.3 Sustainable Development and Adaptation to Climate Change

Adaptation to climate change<sup>45</sup> has been said to be ‘fundamental to human history’ (Adger et al. 2003) and has increasingly become a focus of policy debate at global, national, and local levels. Basically, climate change is frequently cited as one of the most important ‘natural’ problems confronting human development and is seen as an additional obstacle to the achievement of sustainable development (Schipper and Pelling 2006). It is widely agreed that even if greenhouse gas emissions were curbed immediately, the global average temperature would still continue to rise due to the slow response of the Earth’s atmosphere system to past emissions, which suggests that any future levels of greenhouse gas concentration, once stabilized, will be above current levels. Therefore, adaptation will be inevitable (Sperling 2003) and becomes more important and more urgent (Christoplos et al. 2009).

A number of articles in the UNFCCC and the Kyoto Protocol refer to adaptation. The IPCC recognises different forms of adaptation, but also states that there is little evidence that efficient or effective adaptations to climate change risks will be taken autonomously (Smit et al. 200). Thus intervention is necessary to enhance the ability to adapt to new or changing conditions without shifting towards ‘maladaptation’ (Adger et al. 2003: 190). Yet, current development strategies for a long time have tended to overlook climate change risks (Sperling 2003). Moreover, as a wide array of scientists and development organisations tells us, many policy makers still view climate change as peripheral compared to such issues as poverty alleviation and economic growth: *“They are unaware that climate change could threaten these much cherished goals of society”* (IPCC 2007b).

It is striking to recognise how, at a conceptual level, the matter of adaptation is linked both to aspects of intra- as well as intergenerational concerns which both are central aspects of the sustainability debate. While the linkages of these two aspects of sustainable development are well-expressed, linkages between sustainable development and adaptation to climate change are not clear on hindsight. Even though actors in the latter domain have followed their own directions, the discussion on sustainable development has certainly a lot to offer for the debate on adaptation to climate change<sup>46</sup>: Certainly, climate change has a direct effect on the

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<sup>45</sup> I define adaptation to climate change, in a manner similar to the IPCC (2001), as an adjustment in ecological, social, or economic systems in response to observed or expected changes in climate stimuli and their effects and impacts in order to alleviate adverse impacts of change or take advantage of new opportunities. Adaptation to climate change is *“the adjustment of a system to moderate the impacts of climate change, to take advantages of new opportunities or to cope with the consequences”* (Adger et al. 2003: 190).

<sup>46</sup> I assume that one reason why ‘adaptation’ has been widely decoupled from the international discussion on sustainable development might be found in the emphasis that is put on the role of the global level, i.e. that solutions to the problems of sustainable development can only be formulated there (see, for example, Haas et al. 1993; Hurrell and Kingsbury 1992; Caldwell 1990) and thus parallels have been drawn so far to the ‘mitigation’

sustainability of regions and areas worldwide. For example, climate can constrain both quality and quantity of water supply; floods can overwhelm water and sanitation infrastructure and management; and resource degradation can be blamed to people who are actually planning to cope with climate changes in an unsustainable manner. Sustainability almost always will automatically deal with how to face climatic changes, same as that adaptation must take sustainability into account. Environmental degradation (such as salination, deforestation and pollution) is the equivalent to ‘environmental stresses’ as identified as part of the vulnerability context. A degraded environment affects not only the well-being of the present generation; but also affects the livelihood possibilities of future generations who are reliant on those resources and leaves them more exposed to environmental shocks.

The need for adaptation is as important in dealing with climate change and environmental dangers as it is in tackling more ‘traditional’ problems of deprivation and poverty. And, even more importantly, human development is surely involved in both (Sen 2007: 29). Unmitigated climate change would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt (IPCC 2007b). Integrating the topic of climate change into development policies, several questions such as how climate change will affect developing countries’ development strategies, and how these strategies can be made sustainable in the context of climate change and its consequences, must be addressed (Baudoin 2009).

But sustainability of development in the face of climate change unfolding over decades and longer timescales is only now beginning to be addressed by scientists as well as decision-makers (Brooks and Grist 2008). On the one hand, the ability of society to respond to climate change (as for dealing with surprise in general), is central to the concept of sustainable development (Tompkins and Adger 2005: 562). On the other hand, there is a resurgence of interest in the concept of vulnerability with Devereux stating that “*risk and vulnerability have been rediscovered as key features of rural livelihoods and poverty, and are currently a focus of policy attention*” (Devereux 2001: 507). The recent recognition that better management of ‘damaging fluctuations’ and risks by those in or near poverty is, along with growth and redistribution, one of only “*three proximate causes of poverty reduction*” (Sinha and Lipton 1999: 4) which in the end means that “*vulnerability reduction is increasingly being seen as a central aspect of rural development policy*” (Farrington et al. 2002: 13). In this, it is widely acknowledged that promoting the long-term sustainability of rural areas requires an assessment of people’s capacity to handle stress from a host of external and internal factors such as resource depletion, global trading arrangements, service reductions and changing demographics. Against this background, it is clear that for many observers ‘adaptation’ is the key poverty issue surrounding climate change (Richards 2003).

### **Policy implications**

Policy supporting adaptation has been cast as a necessary strategy for responding both to climate change and to supporting development, making adaptation the focus of much recent scholarly and policy research (Schipper 2007). The integration of climate change adaptation within development processes is now a central issue for development policy and practice (Nelson et al. 2008), based on the consideration that future vulnerability depends not only on climate change but also on the pursued development pathway. An important advance since the IPCC’s Third Assessment (2007a; 2007b) has been the completion of impacts studies for a range of different development pathways taking into account not only projected climate

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rather than to the ‘adaptation’ challenge. However, as the world is preparing for the upcoming Rio+20 Conference to be held in 2012, it is widely clear already that an emphasis will be put on the relation between sustainable development, poverty, and climate change. As Sanwal (2011: 1) argues, “*Rio + 20 should be about big thinking and a re-shaping of current processes if we are to effectively deal with the two greatest challenges of our times, climate change and eradication of poverty*”.

change but also projected social and economic changes. These studies show that the projected impacts of climate change can vary greatly, and according to the development pathway assumed. For example, there may be large differences in regional population, income and technological development under alternative scenarios, which are often a strong determinant of the level of vulnerability to climate change. In addition, conceptions of what is economically and technologically practicable, ecologically necessary, and practically feasible are rapidly shifting. This difference is largely explained, not by differences in changes of climate, but by differences in vulnerability (IPCC 2007b).

In terms of climate-related vulnerabilities, there is growing awareness that “*a realistic but proactive human development agenda is needed that recognises that poverty is not just about lack of income*” (Christoplos et al. 2009<sup>47</sup>). Hence, it becomes clear from state-of-the-art literature and research that climate change adaptation cannot effectively address the root causes of poverty without taking a differentiated view on poverty and vulnerability (Davies et al. 2008), and without clearly separating the two fundamental elements of vulnerability, i.e. exposure, on the one hand, and the capacity to adapt, on the other hand. Thus, challenges are common both to the fields of poverty and vulnerability research.

Ideally, efforts to reduce social vulnerability to climate change go hand in hand with sustainable development and improvements in quality of life (Warner 2007). Climate prediction alone should not be the central approach to guide any possible approach to adaptation to climate change (Adger et al. 2009). Climate thus does not represent a central determinant of vulnerability; rather, it builds one side of the context of vulnerability (Dietz 2006). Consequently, Champain and Webster (2008) emphasise that development policy cannot just focus on the notion of climate change alone, due to the reason that the resilience of communities to the consequences of climate change is determined by the way social and economic systems are organised.

Therefore, policy implications of vulnerability are clearly broader than effects to reduce poverty. Policy interventions to manage vulnerability can either aim to reduce or to spread risk, or to strengthen resilience. In the absence or failure of autonomously driven measures to deal with hazards, public interventions need to support those affected by shocks and processes that they are unable to cope with unassisted (Sabates-Wheeler et al. 2008). This is not to say that those most marginalised are not most at risk. But there are incidences where some people will be vulnerable to projected consequences of climate change such as, for example, sea level rise, because they live in low-lying coastal areas, but may not be poor in terms of income or access to assets. There may also be poor people living in areas which are not expected to be as affected as other areas. Therefore, while there are clear overlaps between poverty and vulnerability, not all of the development measures—as effective as they (potentially) may be—will reduce the vulnerability of the poor and in some cases they could even exacerbate existing vulnerabilities. Understanding the different types of risks, how risks will change, and the opportunities of the poor are therefore critical to the understanding of climate-related vulnerability (Christoplos et al. 2009).

It becomes clear, at the end of the day, that the relationship between poverty and climate change is a two-way interactive process, in which poverty is viewed as both a cause of vulnerability to climate change but in which, primarily, it is a result of people living in fragile environments and conditions. In this context, sustainability clearly captures the desire for persistent and equitable well-being in the long run. As Adger (2003: 1) notes: “*The (...) aspirations for sustainability are captured in the notion of resilience – the ability to persist and the ability to adapt. Both sustainability and resilience recognise the need for*

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<sup>47</sup> See: [http://www.ccdcommission.org/Filer/the\\_human\\_dimension\\_of\\_climate\\_adaptation.pdf](http://www.ccdcommission.org/Filer/the_human_dimension_of_climate_adaptation.pdf) [accessed June 15, 2011]

*precautionary action on resource use and on emerging risks, the avoidance of vulnerability, and the promotion of ecological integrity into the future”.*

### **Challenges on the international level**

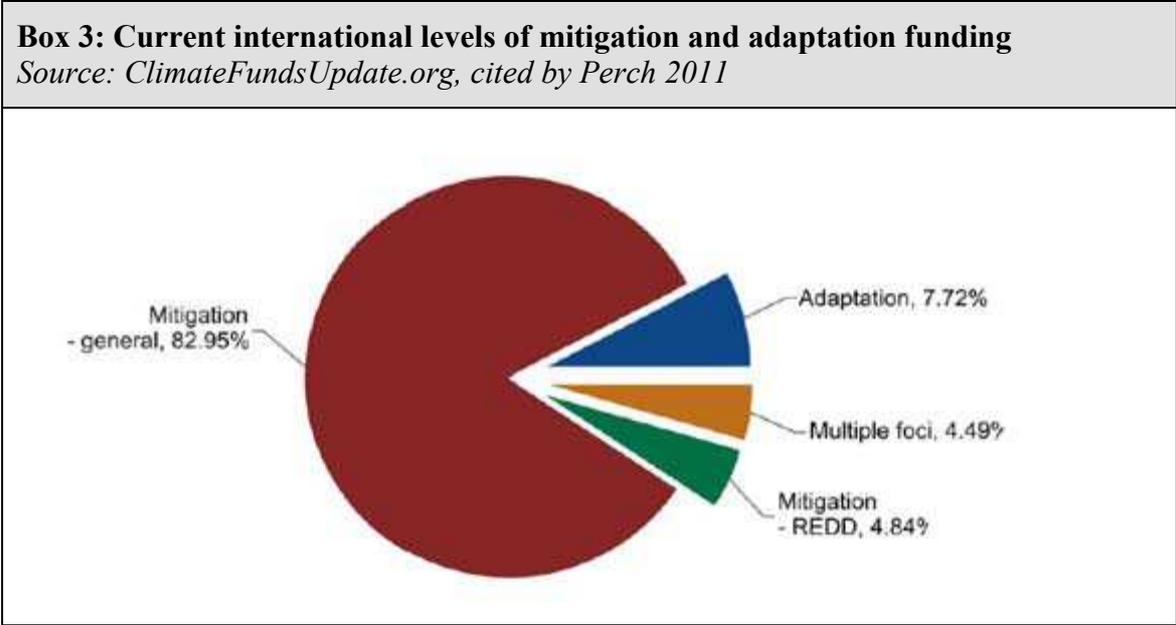
Within the set of international negotiations there are divergent views as to what constitutes adaptation and the role of development, particularly sustainable development (Adger et al. 2003: 190). It has been traceable that the debate on climate change did not begin to be taken seriously until after the year 2000, but has now taken centre stage as a real political and economic issue, to which people and governments pay attention. In Marrakech in November 2001, at the Seventh Conference of the Parties, delegates focused their minds on both adaptation to climate change and mitigation measures and, for the first time, formally recognised the dilemmas of adaptation for developing nations. This recognition took the form of funding mechanisms to assist countries to adapt (Konukiewicz and Schmidt 2008). The Delhi Declaration from the Eighth Conference of the Parties in November 2002 clearly reinforced the importance of adaptation. The Bali Action Plan which states agreed upon in late 2007, places adaptation to climate change on the same level as mitigation of greenhouse gases.

The IPCC recognised the importance of ‘sustainability’ in the Third Assessment Report in 2001 and provided guidelines on how to incorporate the concepts of development, equity, and sustainability into its scientific assessments (Tompkins and Adger 2004). Within the international negotiations the view is often expressed that sustainable development is required in terms of managing future climate change risks, as well as present day variability and extremes (it must be mentioned, though, that these two aspects take a clear back seat in comparison to the topic of seeking to promote low emission-based industrialisation). But others argue that the climate threat and the need for adaptation is not a continuation of what has been done before and that climate change brings new and urgent dimensions to sustainable development (Adger et al. 2003: 190). It also became argued that much of the literature on sustainable development deals with local issues, while the literature on climate change response is dominated by analysis at the global level. According to Munasinghe (2001), reconciliation of these scales is as important as proceeding on each of the two scales.

By large, as regards planning and financing, adaptation still is fraught with problems. For states or other subnational units within signatory countries of the climate Convention, the issue of compliance is complicated by the fact that there are no explicit enforcement, compliance, or monitoring mechanisms to ensure that they comply with international treaties. This holds true to both mitigation and adaptation, and enforcement is therefore contingent on national willingness to take responsibility for actions (Feldman and Wilt 1996). Moreover, it is particularly difficult to ensure mechanisms for international assistance for adaptation, because there is no binding level for the latter. Such additionality is a key requirement for recipient countries in any international adaptation regime, because *“their vulnerability to climate change would not be improved by a mere relabelling of development assistance”* (Füssel 2007: 268). While Adger (2001: 924f.) suggests that planned adaptation at the global scale could include collective investment in plant-breeding research for agriculture, early warning systems for food security, development of transferable infrastructure technologies for coastal defence, underwriting of particular insurance markets and other potential investments, uncertainties remain high.

Finally, it is said that current levels of funding are inadequate (Perch 2011) for providing for tangible results; this reflects the many open questions that still need to be answered on adaptation. For example, many developing countries have started to formulating and implementing ambitious and sophisticated National Adaptation Programmes of Action (NAPAs). However, NAPAs are a source of constant critique: Perch (ibid.: 4), for example,

states that “poverty, gender, and ethnicity are still not consistently recognised in (...) NAPAs as factors that shape vulnerability”. The following Box shows that only 7.7 percent of the USD 27 billion available on climate change-related funding in 2010 were targeted on adaptation.



In sum, developing climate policy in a sustainability context is challenging, as it requires large investments both in infrastructure and technology and in social change. It also has to penetrate a wide range of sectors: transport, construction, agriculture, health, tourism and so on. As Keeney and McDaniels (2001: 989) point out, “the first step is for governments to understand what they want to achieve with climate change policy choices”. Each sector, while pursuing its own internal objectives, can be encouraged through regulation to respond to climate change. By building on past research, Tompkins and Adger (2005: 564) propose that “any response to climate change must be cognizant of wider development pressures as well as goals such as increasing economic, environmental and social well-being instead of focusing solely on single systems management”. In total, this does not only require consideration of other development pressures and goals, but “also the factors that enable and constrain adaptation (...)” (ibid.). Against this background, Adger (2001: 924f.) argues that the range of planned adaptation at the global scale is limited compared “to the spontaneous reactive adjustments in resource use and livelihoods that will be required by every individual whose livelihoods are directly or indirectly weather-dependent”. On the national level, though, most countries are and will be able to act in a way to promote development policies linked to climate change and its consequences (Baudoin 2009).

The complexities described in this section reveal that responding to the consequences of climate change is not an ‘environmental’ problem; rather it is a political problem and one of sustainable development. Sustainable development and adaptation can be mutually reinforcing and fruitful to each other. Finally, climate policies not designed contextually might not be sustainable (Baudoin 2009). This, together with the notion that the starting point and center of any adaptation planning should be the people living in a particular system puts the notion of ‘adaptive capacity’ into the focus of any discussion about adaptation.

### **3.2.4 Adaptive capacity: Towards a sustainable approach for responding to climate change**

As I have shown in the analysis of the theoretical approaches to vulnerability and adaptation to climate change so far, the latter is mainly approached by two sides and which are, firstly, approaching vulnerability to climate change through the ‘risk’ lens by actually focussing on forecasted or actual impacts of climate variability and extremes and, secondly, through the ‘vulnerability’ lens, by putting people’s vulnerability to climate stress into the focus of analysis. A differentiation of these two approaches, even though mixed up quite frequently in the literature, is decisive for the understanding of a more sustainability-driven approach to respond to climate variability, extremes and change.

The main conceptual difference between ‘adaptation’, on the one hand, and ‘adaptive capacity’, on the other hand, is the underlying theoretical assumptions they stem from: Previous studies of vulnerability have mostly focused on particular sectors (such as water, agriculture or health) or aspects of exposure (such as flooding in coastal areas) in order to develop sector-specific indicators of vulnerability (such as the number of affected people, water availability, or food production per capita) (see previous sections). For the most part, these studies fall broadly into the ‘end-point’ category of analysing vulnerability. ‘End-point’ studies, in defining vulnerability in terms of net impacts, inevitably frame adaptive options in terms of ‘fixes’, often technological in nature. As a result, policy recommendations focus on identifying options for sectoral measures, such as introducing drought-resistant seeds or infrastructure changes specific to the projected change in climate parameters as these adjustments will, it is hoped, reduce net impacts and, ultimately, vulnerability. Put simply, the question that tends to be asked is – What can be done to protect the population? In contrast, ‘starting-point’ analyses address fundamental causes and drivers of vulnerability and, therefore, identify a broader scope of policy interventions. The ‘starting-point’ approach defines vulnerability as a pre-existing state generated by multiple factors and processes, such as political or economic marginalisation, that conditions the ability to respond to stress. When vulnerability is taken as a starting point for analysis, ‘fixes’ only represent one various reponse options. The question that often emerges from this type of analysis is ‘what can be done to strengthen people’s own capacity to respond and adapt?’ That a ‘starting point’ style of vulnerability analysis should lead to a broader range of adaptive options is a major conclusion of this discussion (Eriksen and Kelly 2007).

Based on these assumptions, a distinction can be made between approaches that respond to impacts directly associated with climate change and those that aim to tackle the underlying causes of vulnerability to a range of stressors and hazards, including climate change impacts (Wilson and Getnet 2011): The end-point/starting-point distinction corresponds to the first and second generation studies of climate change impacts and vulnerabilities. Based on Gbetibouo and Ringler (2009), the following Box provides a helpful overview of the main differences between the end-point and the starting-point approach:

**Box 4: Two approaches to the study of vulnerability in climate change research**

*Source: adapted from Gbetibouo and Ringler (2009)*

	<b>End-point approach</b>	<b>Starting-point approach</b>
<b>Main discipline</b>	<u>Natural sciences</u>	<u>Social sciences</u>
Definitions of vulnerability	Expected 'net damage' for a given level of climate change	Susceptibility of climate variability and extremes as determined by socio-economic etc. factors
Main problem	Climate change impacts	People's vulnerability to climate stress
Policy context	Climate change mitigation; 'Technical' adaptation	Adaptive capacity ; Sustainable development
Policy question	What are the benefits of climate change adaptation ?	How can the vulnerability of societies to climate hazards be reduced?
Research question	What are the expected 'net impacts' of climate change?	Why are some groups more affected than others?
Vulnerability and adaptive capacity	Adaptive capacity determines vulnerability	Vulnerability determines adaptive capacity
Reference for adaptive capacity	Adaptation to future climate change	Adaptation to current climate variability and extremes
Starting point of analysis	Scenarios of future climate change	Current vulnerability to climatic stimuli

Based on these two approaches, Adger et al. (2005: 79) define three cornerstones of adaptation which are; first, to reduce the sensitivity of the system to climate change (by, for example, increased reservoir storage capacity, planting hardier crops that can withstand more climate variability, or ensuring that new buildings in flood plains are constrained with a floodable ground floor); second, to alter the exposure of the system to climate change (by, for example, investing in hazard preparedness such as constructing sea defences in coastal communities); and, third, to increase the resilience of the system to cope with changes (by, for example, implementing generic actions which not only aim to enhance well-being and increase access to resources or insurance, but also include specific measures to enable specific populations to recover from loss). There are numerous other overviews available of what adaptation actually means and what types of approaches it includes, and they all confirm that there are a number of conceptual differences between adaptation and adaptive capacity, and in the way they 'frame' response to climate change. Although both terms have a wide variety of frequently overlapping definitions, put simply, 'adaptation' is best seen as intentional change, and 'adaptive capacity' can be based on any type of process or intervention that allows population groups to independently adapt<sup>48</sup>.

<sup>48</sup> O'Brien et al. (2004) highlight the separate epistemological positions on 'vulnerability as outcome' versus 'contextual vulnerability' which therefore can also explain the apparent paradox in the IPCC conclusions on vulnerability of regions. While developing countries are portrayed as 'most vulnerable' there is, at the same time, much evidence suggesting that communities and countries themselves have significant capacity to adapt latent in local knowledge and experience of coping with climatic variability (e.g. Berkes and Jolly 2001; Mortimore and Adams 2001). The paradox derives from two sides of vulnerability—a state of 'powerlessness and

## Critique on adaptation and the scope of adaptive capacity

Adaptation is seen as an important process to drive development, but how to do this has been widely unclear thus far (Schipper 2007). Research addressing future adaptations based on the interest of intentional change to climate change has tended (and still tends) to be normative, suggesting anticipatory and structural adaptation strategies to be implemented through public policy. Generally, such adaptation recommendations have been (and still are) based on forecasts of expected—and still largely unpredictable—climate change (Smit and Pilifosova 2001). Little research has examined, though, the more fundamental question of whether empirical evidence or theory supports a need for policy-implemented adaptation strategies. Therefore, work on adaptation so far has addressed climate-related impacts of climate change, rather than sufficiently addressing the underlying factors that cause vulnerability to it. Yohe and Tol (2002) argue that, in this context, many existing studies on adaptation have been criticized for overstating the power of adaptation to reduce climate-related costs because their authors have applied statistical models drawn from the developed world to the economic environments in the developing world. These studies have assumed, at least implicitly, that the adaptive strategies that are available and practicable in the market sectors of the world's developed economies would routinely be available to people who inhabit the world's developing countries. But, as the two authors argue, these are people who may face similar climate related stresses in the future, but they will face them in the context of extraordinarily dissimilar socio-economic circumstances. Schipper, in this instance, argues that

*“while there is a significant push all around for adaptation to be better placed in development planning, there is a missing step if vulnerability reduction is not considered central to this”* (Schipper 2007: 3).

She further highlights that

*“this will require adequately addressing the underlying causes of vulnerability: that is the role that development [rather than ‘adaptation’] has to play”* (ibid.).

While there is a significant push all around for adaptation to be better planned and/or to be better placed in development planning, Schipper finds this *“to be putting the cart before the horse”* (Schipper 2007: 7), due to a need on more fundamental thinking on how countries and societies potentially *may* respond. Adger and Kelly (1999) endorse this view by stating that just as vulnerability provides an entry point for study of the implications of climate change, so study of the ability of a population to respond—to cope, recover and adapt—must take centre stage in any policy-relevant analysis of vulnerability to climate change. But if the argumentations provided by these authors hold true, the necessary question to be asked are what are the differences between ‘adaptation’, on the one hand, and ‘development’, on the other, and how do they interrelate in the context of sustainability?

While in the past, floods and other risks were tried to become reduced through rather ‘structural’-driven measures like dams, flood walls, irrigation systems, and other changes to the environment, and while risk reduction was synonymous with engineering, I argue that—based on past research undertaken by, for example Warner (2007), Heijmans and Victoria (2001), and Frankenberger et al. (2000)—structural measures to adaptation alone cannot fully address the given challenges, important as they may be. Based on the initial considerations, it becomes clear that a more holistic approach is needed in order to seek for more sustainability for planning in climate-affected systems.

We can reiterate that vulnerability within social systems is, at its simplest, concerned with the degree to which systems have the ability to cope with, resist and recover from the impact of a

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endangerment’ (Hewitt 1997) and the recognition of the ability of social-ecological systems to adapt to changing circumstances (Adger 2006).

shock or a stress. ‘Adaptive capacity’, then, refers to the ability or capacity of communities or households to adjust in order to reduce vulnerability to climate variation, moderate potential damage, cope with, and recover from the consequences (Richards 2003). Adaptive capacity denotes the ability of a system to evolve in order to accommodate shock and stress or to expand the range of variability with which it can cope (Klein and Huq 2003). In the context of climate change, the IPCC (2001b) defines adaptive capacity as the potential or actual ability of a system, region, or community to adjust (or adapt) to the effects of climate change, variability and extremes, moderating potential damage, taking advantage of opportunities, coping with consequences, as well as expanding its coping range under existing climate variability or future climate conditions.

While adaptation puts a focus on covariate risks, assuming that climate change will bring risks that affect whole systems at the same time (this view is expressed by Sperling (2003), for example), adaptive capacity puts a stronger focus on the individual level. A focus on covariate risks largely neglects the role and perspective of the individual. By bringing in a stronger focus on idiosyncratic risks and, as such, putting a stronger focus on the individual and the notion of human development, adaptive capacity has much to offer. Moreover, while adaptation is concerned with the problem of how to support local systems in cases when autonomous adaptation is not within the coping range, the notion of ‘adaptive capacity’ asks exactly about what people do to adapt and how to support and helping them to adapt. Adaptive capacity, hence, makes notion of the fact that people are not ‘passive victims’ of climate change, and takes a much stronger systemic perspective than adaptation. It is nonetheless clear that when adaptive capacity is low, the need for external support for adaptation is high. Generally, then, the higher the adaptive capacity of a system is, the lower the need is for planned adaptation (Georg 2009).

However, while these assumptions may appear straightforward in theory, there is a need for stronger conciliation of the two terms and approaches, both in science as well as in practical approaches. Understandings of adaptive capacity are still very much in their infancy (Vincent 2007), and there is no agreement about its characteristics and determinants at national, community or household level (Jones et al. 2010). This is because, once more, in addition to exposure to some stress or crisis, social vulnerability depends on the *coping* ability of those affected. Coping ability has been defined by Wu et al. (2002) as a combination of resistance (the ability to absorb the damaging impacts of a hazard and continue functioning) and resilience (the ability to recover from losses quickly). It is striking that the understanding of adaptive capacity used here also borrows from Amartya Sen’s concept which is ‘the person’s ability to act on behalf of what she or he values or has reason to value’.

One fundamental idea on development and adaptation can be learned from the book ‘Hunger and Public Action’ (Drèze and Sen 1989). Based on previous work undertaken by the two authors (see chapter 2.3.2), the focus shifts from the *causation* of hunger and famines to their *prevention*. The central theme here is that public action has a crucial role to play in eradicating famines as well as endemic hunger. The State does, of course, have a major role to play in alleviating poverty and reducing vulnerability (and the various aspects of this role I will discuss fairly extensively in chapter 4.2). Vulnerability recognises the role of socioeconomic systems—in which the State plays an incremental part—in amplifying or moderating the impacts of climate change and “*emphasises the degree to which the risks of climate catastrophe can be cushioned or ameliorated by adaptive actions that or can be brought within the reach of populations at risk*” (Downing 1991, cited by Smit and Pilifosova 2001).

## Analysis of adaptive capacity

Vulnerability to climate change in present times and over significant time periods (years to decades) is crucially dependent on the adaptive capacity to the manifestations of climate change (Brooks and Adger 2001). And clearly, individuals and communities are presently responding to climate change in the same way that they have dealt with climate variability throughout history (Adger et al. 2003). The capacity to respond to changes in environmental conditions exists within communities to different degrees. Not all responses are sustainable, and there is recent historical evidence that large-scale, systematic changes in global climate have had profoundly negative consequences for many societies in the past (Tompkins and Adger 2004).

Earlier studies on adaptive capacity indicated that autonomous adaptations tend to be incremental and *ad hoc*, that they can take multiple forms, that they are in response to multiple stimuli (and rarely to climate alone), and that they are constrained by economic, social, technological, institutional, and political conditions (Smit and Pilifosova 2001). Autonomous adaptation is still today a core theme of many papers (see, for example, Christoplos et al. 2009; Sabates-Wheeler et al. 2008). Households respond to seasonal food insecurity and livelihood shocks by adopting a range of behavioural adjustments that are collectively known as ‘coping strategies’. These strategies either secure additional food (by selling assets, begging, borrowing or buying food) or are based on adjustments to having less food (by rationing or diversifying diets). Most of the literature strongly relates to the aspect that autonomous coping strategies may be ineffective and unsustainable with climate change over time, due to having economic, nutritional, social and/or environmental costs, and have the potential to increase vulnerability of affected population groups. In fact, severe coping strategies represent a failure of coping with hazards. As Sabates-Wheeler et al. (2008: 15) explain:

*“Households that are forced to sell their assets for food are consuming their wealth. Converting future streams of income into consumption goods is impoverishing and undermines future livelihood viability. So these responses to shocks help households to survive in the short term but at the cost of leaving them more vulnerable to future shocks (...) [S]ome strategies, especially those that are environmentally damaging, inadvertently magnify future hazard levels. Examples include cutting firewood and burning charcoal for sale, two livelihood activities that are widely adopted by poor people but can destroy vegetation and contribute to soil erosion. Overgrazing has similar consequences, while over-extraction of groundwater that lowers the water table can also raise the risk of future agricultural droughts.”*

Although some coping strategies may in fact be turned into longer-term strategies over time, this is not necessarily ‘adaptation’ in a positive sense. Some people who suffer repeated or multiple crises may be coping simply to survive, for example pastoralists who have lost their livestock or people displaced by conflict (Davies 1993). To provide another example of autonomous adaptation processes of population, this may in a more definite form include permanent outmigration and urbanization. Whether this is a positive or a negative change, in terms of leading to sustainable livelihoods, depends on a number of factors (see, for example, Jones et al. 2010; Hein 2009).<sup>49</sup> For example, from fieldwork undertaken in Port Sudan,

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<sup>49</sup> As Kothari (2002: 14f.) explains in relation to people who choose not to migrate out of marginal environments: “Many people cannot move because of systemic, structural and individual reasons that reflect their experiences of exclusion or adverse incorporation. These include domestic and familial obligations and responsibilities, disability and illness, age, education and skills, and an absence or lack of access to networks

Abdel Ati et al. (2010) show that urban migrants differ with regard to their former livelihood, their access to and willingness to engage in new economic opportunities and their political influence and, as a consequence, have integrated into the urban economy to a greater or lesser extent. A more positive example is provided by de Waal (1989) who shows how the *Zaghawa*, an ethnic group that originally was located in Eastern Tchad and Western Sudan successfully adapted their livelihoods following the drought in the 1970s by migrating south where they started engaging in farming and trade, while maintaining links with relatives in their area of origin, and sending remittances to them.

Based on these examples, it is clear that individuals and societies doubtlessly will adapt and have been adapting to climate change over the course of human history—“*climate is part of the wider geographical and historical landscape of human habitation*”, as Adger and Vincent (2005: 400) put it. Yet, it is commonly asserted that future climate changes will push beyond the limits of adaptation. For example, a drought with a probability of occurring once every 30 years, with a modest change in mean conditions may become a one in three or four year drought. Such changed frequency, and associated reduced recovery time, would greatly affect the effectiveness of (autonomously driven) adaptation options (Füssel 2007). Similarly, it is frequently assumed that the capacity of societies to adapt to climate risks is based on their level of economic development: the more economically ‘developed’ a society, the greater the access to technology and resources to invest in adaptation. Yet evidence from traditional societies demonstrates that the capacity to adapt in many senses also depends on factors such as experience, knowledge and, finally, dependency on weather-sensitive resources (Adger and Vincent 2005: 400).

Understanding adaptive capacity therefore requires moving away from simply looking at what a system has that enables it to adapt, to recognizing what a system does to enable it to adapt (WRI 2009). As Holling (2001, cited by Tompkins and Adger 2004) argues: “*Sustainability is the capacity to create, test, and maintain adaptive capability. Development is the process of creating, testing, and maintaining opportunity. The phrase that combines the two, ‘sustainable development’, thus refers to the goal of fostering adaptive capabilities and creating opportunities. It is therefore not an oxymoron but a term that describes a logical partnership.*” Adaptation to climate change has to be a continuous process that is sustainable and oriented towards longer-term livelihood security. Based on Adger et al. (2003: 181), the two final questions arising from this are how can people in developing countries, which are often expected to be less able to cope with adverse climate impacts, enhance their capacity to adapt to changes in climate that are now both more persistent and more extensive? And which active role can the State do play for providing support to enhance its people’s adaptive capacity? Providing answers to these questions will build the center of the following sub-chapter.

### **3.4 Adaptation and Sustainable Development: Putting livelihood approaches, social protection, and disaster risk reduction into perspective**

Having presented and discussed the major conceptual underpinnings of adaptive capacity in the previous section, this part of the study reviews how aspects of livelihood approaches, social protection and disaster risk reduction may act in contributing to the various features of adaptive capacity.<sup>50</sup>

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*and relationships. Thus movers and stayers alike are deeply embedded in specific economic and social-relational contexts”.*

<sup>50</sup> The principal idea to base the present analysis of adaptive capacity on the three intervention areas of livelihood approaches, social protection, and disaster risk reduction is inspired by an ongoing research project

The central and underlying assumption is that preserving livelihoods must be central to any development and adaptation strategy. The present chapter will therefore undertake the exercise of putting the different aspects of adaptation and adaptive capacity into perspective.

### 3.4.1 How to ‘enhance adaptive capacity’

To reiterate from the previous sections, climate change is predicted to exacerbate existing development challenges (World Bank 2010). Climate change will exacerbate existing threats to lives and livelihoods due to a combination of factors that include increasing frequency of climate hazards, diminishing agricultural yields and production in vulnerable regions, expanding health and sanitation risks, increasing water scarcity, and intensifying conflicts over scarce resources, which will likely lead to new humanitarian crises, as well as increasing urbanization, migration and displacement (IPCC 2007b). Therefore, consequences of climate change have the potential to put enormous amounts of stress on households and population groups according to their vulnerability to ongoing and increasing climate vulnerability and extremes.

Vulnerability within social systems is, at its simplest, concerned with the degree to which systems have the ability to cope with, resist and recover from the impact of a shock or a stress. The definition of vulnerability focuses on its dual facets, and comprises the external side of risks, shocks and stresses to which an individual or household is subject, and an internal side which is defencelessness, and a lack of means to cope without damaging loss (Chambers 1989). The IPCC also puts this emphasis on ‘lack of means to cope’.

Clearly, vulnerability is a central problem in relation to climate change which is demanding for adequate response. Causes of vulnerability relate both to the assets people own and to the entitlements to them and, for many population groups, to long-term processes of social, economic and political marginalisation. Lack of assets such as land, livestock, income, social networks and political links influences vulnerability, as it has a direct link on people’s capability to deal with stress (Eriksen and Kelly 2007). Hence, in developing an interventionist strategy that will result in vulnerability reduction, a methodology that emphasises the causes of vulnerability is likely to be advantageous.

Adaptation refers to actual adjustments which might ultimately reduce vulnerability to observed or expected changes in climate (IPCC 2007b). Against this background, Jones et al. (2010: 4) argue that adaptation actions are needed “*to ensure that individuals and societies are capable of dealing with the detrimental impacts of (...) climate change*”. However, a central critique to adaptation is that it cannot be seen as a technical process. Rather, the notion of sustainable development must take centre stage (Schipper 2007). Hence, it gets clear that adaptation to climate change is not as simple as designing projects, drawing up lists of possible adaptation measures and implementing these. It requires a solid process that will ensure that the factors that create vulnerability are addressed.

Brooks and Adger (2001) have argued that governments should address how they can reduce the vulnerability of population groups to adapt actively and autonomously by creating enabling environments for adaptation. Efforts to facilitate adaptation are surely diverse in

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financed by the UK Department for International Development (DFID) and implemented by the Overseas Development Institute (ODI), the Institute for Development Studies (IDS) and a number of UK-and US-based humanitarian non-governmental development organisations including Oxfam, CARE, Save the Children, and World Vision which, together, build the Africa Climate Change Resilience Alliance (ACCRA). The objective of ACCRA is to seek to explore vulnerability and adaptive capacity to climate variability, extremes and change in greater depth during field research in Ethiopia, Mozambique and Uganda, with the overall aim of generating evidence on how existing approaches can and do contribute to adaptive capacity. Therefore, the present part of the study is mainly based on research recently undertaken at the ODI, with the main concepts derived from Lindsey Jones and colleagues (Jones et al. 2010; and 2010a).

nature but can be conceptualised as varying from interventions designed exclusively to confront the impacts associated with a changing climate, to initiatives seeking to address the wider underlying drivers of vulnerability and adaptive capacity—often with little direct association with climate hazards (McCray et al. 2007). Authors such as Smit and Pilifosova (2001) and Wilson and Getnet (2011) agree that adaptation actions are rarely made in response to climate stimuli alone. In many cases, a direct climatic event is less likely to trigger adaptive action than the economic and socio-political consequences of the climatic condition. Interest is therefore growing in supporting vulnerable people and communities to adapt to the impacts of a changing climate, and there is a general assumption that there are close links between development and adaptation (Jones et al. 2010).

The fundamental question thus must be whether ‘development planning’ and ‘poverty reduction’ themselves provide workable means to reduce vulnerability. Surely, for answering this question, one has to be aware that a) people, within their possibilities, will autonomously pursue strategies that they find appropriate; b) needs for adaptation may be rather unpredictable on a large scale, and c) the vulnerability to climate change will strongly depend on prevailing changes in socioeconomic development pathways which, more often than not, will also be rather unplanned and autonomously driven (Brooks and Adger 2001). The poor adapt in ways that are usually unnoticed, uncoordinated, and unaided by national governments, development or international agencies. People draw on resources, but they do it in ways that are rarely reflected in the formal mechanism designed for sustainable or human development, poverty reduction and climate adaptation (Christoplos et al. 2009). Therefore, given that the consequences of climate change will be inextricably intertwined with current vulnerability and development challenges, climate change adaptation must aim at reducing vulnerability to current climate and non-climate shocks and stressors (Wilson and Getnet 2011). This is a tall order for any planned response option.

Jones et al. (2010; 2010a) start their approach to ‘enhancing adaptive capacity’ with the consideration that, given the wide array of consequences on and interactions with wider development, climate change will inevitably have considerable implications for humanitarian and development interventions. But, as Drèze and Sen (1989) point out wisely, not every drought is the prelude to famine, malnutrition or educational privation. And not every climate shock gives rise to the distress sale of assets, long-run increases in vulnerability or the spread of low human development traps—this is an area in which public policies and public institutions make a difference. Governments can play a critical role in creating mechanisms that build resilience, support risk management and reduce vulnerability. Policies in these areas can create “*an enabling environment for human development*” (Watkins 2007: 89).

Yet understanding of the impacts development interventions have on adaptive capacity at the local level remains limited (Jones et al. 2010). The uncertainty that confounds climate researchers confounds policy makers as well. Methods must therefore be devised that accommodate a wide range of uncertainty and ambiguity (Yohe and Schlesinger 2002). For example, it is necessary to distinguish between the sudden versus gradual changes that climate change brings. As Christoplos et al. (2009) ask, ‘what are people going to need to adapt to: an increase in the occurrence of extreme events, or the slower and incremental impacts of rising temperature averages or sea levels?’ There is an obvious need to adapt to both, I argue. Increasingly, development thinking has to understand how risk is at the centre of the human dimensions of poverty and vulnerability; therefore, climate change makes evident the need to recognise the risk inherent in human development. While international attention and effort has been devoted to mainstreaming risk reduction efforts into economic and social development activities (Warner 2007), Christoplos et al. (2009) respond that it is not about ‘mainstreaming risk into’ development but rather recognizing that development itself is risk management. Accordingly, Jones et al. (2010a) argue that there is a need to consider how humanitarian and

development approaches (that often have not been designed with having climate change in mind) can, in many instances, help enhance communities’ capacity to adapt to a changing climate or, at the very least, prevent actions that undermine adaptive capacity.

Neither the UNFCCC nor any other treaty on the international level indicates for any particular ‘adaptation policy’. Definition of what should be included in responding to climate change is subject to each country (Scholz et al. 2009). However, there is a strong cause for concentrating on a number of topics and underlying approaches to address the individual concerns and to reduce vulnerability, with climate change adding urgency to understanding and to re-evaluating the roles of policies and programmes in reducing vulnerability (DFID 2004c).

Although not conventionally associated with interventions aimed at facilitating adaptive capacity, in line with Jones et al. (2010a) I argue that it is particularly elements of livelihood approaches, social protection and disaster risk reduction practices that may ultimately contribute to and enhance aspects of the various feature of adaptive capacity<sup>51</sup>. Indeed, many interventions that fall under the remit of livelihood approaches, social protection and disaster risk reduction have gone their way towards enhancing adaptive capacity without the deliberate intention to do so. Jones et al. (ibid.) suggest that, through the combination of approaches into a collective, it may be possible to better address the key features of adaptive capacity needed to cope with and respond to climate variability, hazards, and change, in both the short and the longer terms. Better harmonization of these distinctive areas, coupled with greater communication and collaboration of the objectives of livelihoods, social protection and disaster risk reduction approaches, carries the potential to more effectively promote adaptive capacity across scales. Similar in many regards to the three intervention areas, climate change adaptation “cannot be characterized as a single intervention, and instead needs to be seen as an overarching approach, incorporating a number of different interventions” (Jones et al. 2010a: 4). The following Box illustrates this approach.

**Box 5: Promoting features of adaptive capacity through livelihood approaches, social protection, and disaster risk reduction**  
*Source: adapted from Jones et al. (2010a)*

- **SL:** A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities.
- **SP:** Initiatives that transfer income and assets to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalized.
- **DRR:** Systemic approach to identifying, assessing, and reducing the risks of climate-related risks

<sup>51</sup> There is a strong argument for bringing in Lascoumes’ and LeGales’ prominent note that “instruments at work are not neutral devices; they produce specific effects, independently of the objective pursued (the aims described to them)” (Lascoumes and Le Gales 2007: 1).

Implementing this approach will lead to different groups benefiting from each of the three areas of intervention which also means that the different areas should be complementary in their potential to promote adaptive capacity. Social protection specifically targets (or is aimed to target) the poorest and most vulnerable sections of the population. Disaster risk reduction and livelihood approaches rather focus on the entire affected population, irrespective of wealth. Together, with varying emphasis the three approaches both cover collective and individual risks. For example, as Jones et al. (2010a) show, improved access to meteorological data as a part of disaster risk reduction can benefit a whole nation, whether faced by potential disasters or not. Moreover, the promotion of assets as playing a central role in the whole approach has been an important component in linking disaster risk reduction and livelihood support, and this will be equally important for social protection. This, for example, may include support for physical assets (e.g. water harvesting, building emergency shelters), natural assets (e.g. increasing agricultural productivity, environmental resource management), financial assets (e.g. through skills training), and social assets (e.g. supporting self-help groups). In addition, the approach outlined here also has ex-post (to respond to the consequences of risk) and ex-ante (which is about reducing risk itself) elements, with varying emphasis though (Jones et al. 2010a). Policies to tackle the multi-dimensional dimensions of vulnerability as outlined in this framework are hence mutually reinforcing and must go hand in hand for becoming effective (OECD 2010). Hence, it also becomes clear that there is no hierarchy of importance between the three areas; rather, all are deeply complementary, and each part affects underlying causes of vulnerability addressed by the other two.

In the following, based on Jones et al.'s work, I will review how aspects of livelihood approaches, social protection and disaster risk reduction may act in contributing to the various features of adaptive capacity. It must be emphasised from the outset, though, that this presentation does not seek to expand on the conceptual work of adaptive capacity; rather, it aims to find out *“what aspects of livelihood approaches, social protection and disaster risk reduction can contribute to adaptive capacity, as well as to understand how such approaches can better respond to climate change and facilitate adaptation”* (Jones et al. 2010a: 1). Although the roots of the approach are in theories that look at underlying drivers of poverty and vulnerability, it is merely a framework for looking at and analysing change, not a theory of change. As Jones et al. (ibid.) conclude, the framework can therefore be used *“as a lens to look at the impact of any intervention on a system's capacity to adapt”*.

### **3.4.2 Sustainable Livelihood Approaches**

In the late 1990s, particularly in the UK but also more broadly, the term ‘sustainable livelihoods’ became enormously influential in development policy, and a principle example of how ‘sustainability’ can be a prime mover for linking science and policy in novel and potentially positive ways. The term ‘sustainable livelihoods’ first appeared in the 1987 ‘Food 2000’ report (WCED 1987b), but became more centre stage with the publication of the UK government’s ‘White Paper on international development’ in 1997 (DFID 1997), where it was seen as a critical element of development thinking. Ever since, sustainable livelihood approaches have been central to development and poverty reduction policy and practice (Ashley and Carney 1999).

The livelihoods and survival of rural people depend heavily on agriculture and other rural sectors that are highly weather-dependent and climate-sensitive: For example, agriculture in Sub-Saharan Africa, of which up to 90 percent is rain-fed, accounts for 70 percent of regional employment and 35 percent of gross national product (POST 2006). Weather-related shocks and stresses and risks associated with climate variability are therefore intrinsic to rural livelihoods (Sabates-Wheeler et al. 2008). With regard to sustainable livelihood approaches, shocks and stresses generally have been defined as *“pressures which are cumulative and*

*continuous, such as seasonal shortages and climate variability, soil degradation, population pressure, and shocks as sudden events such as floods, epidemics, droughts, but also wars, persecution and civil violence*” (Chambers and Conway 1991, cited by Jones et al. 2010a). Therefore, livelihoods are influenced in many ways, as climate change affects the ability of vulnerable populations to take advantage of opportunities (Christoplos et al. 2009).

### **Definition and concept**

At its most basic, a livelihood approach is *“simply one that takes as its starting point the actual livelihoods strategies of people (...). It looks at ‘where people are, what they have, and what their needs and interests are’”* (Chambers 1988, cited by Schafer 2002). Livelihood comprises the capabilities, assets, and activities required for a means of living.

A livelihood is sustainable *“when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base”* (Chambers and Conway 1991, cited by Jones et al. 2010a). The term ‘sustainable’ entails two main issues within livelihood perspectives: First, it tends to refer to coping with immediate and short-term shocks where local capacities and knowledge, if effectively supported, would be sufficient (Scoones 2009). Second, it implies that livelihoods are stable, durable, resilient and robust in the face of both shocks and stresses, and do not undermine the livelihoods options of others (Jones et al. 2010a).

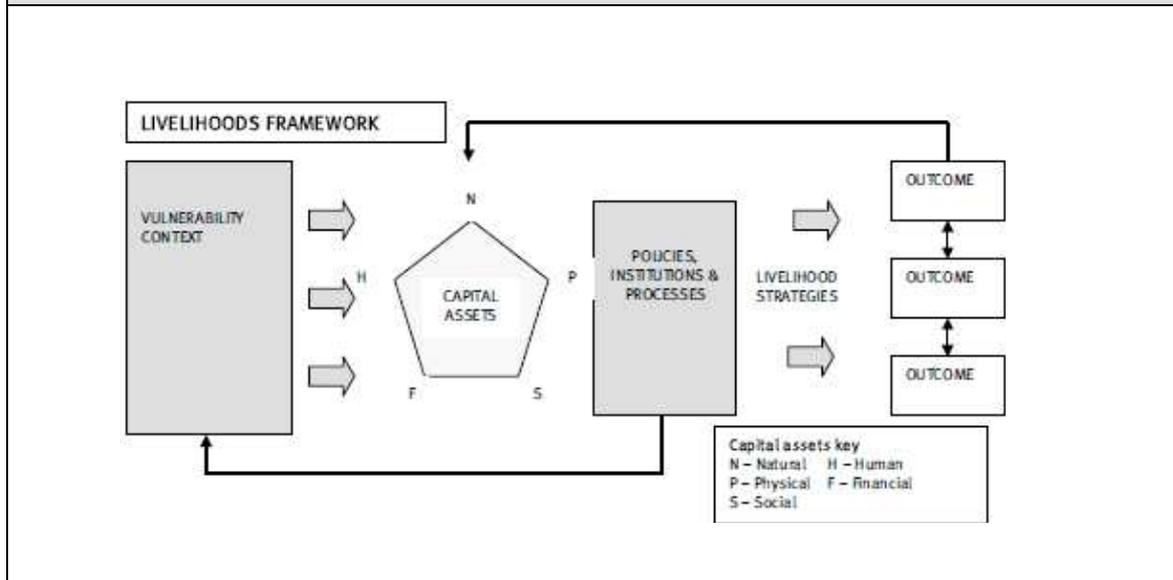
Livelihood strategies are what people do to make a living in normal times, or what people do to meet their livelihood goals (Schafer 2002). These may include agriculture, pastoralism and wage labour. Scoones (1998) divides (rural, agrarian) livelihood strategies into three clusters: intensification/ extensification (more output per unit area or increased area under cultivation), diversification (the adoption of new strategies), and migration. In most societies, livelihoods are in competition, and therefore the livelihoods strategies of one group may involve weakening or destroying those of others. Rules and regulating mechanisms are needed so that strategies applied by one group do not undermine opportunities for other groups.

Assets are a central factor of livelihoods and encompass what people *have*, including their natural (e.g. land, forest products, water), physical (e.g. livestock, shelter, tools, materials), social (e.g. extended family and other social networks), financial (e.g. income, credit, savings) and human assets (e.g. education, skills, health). There are close linkages between vulnerability and livelihoods, and building resilience is a question of expanding and sustaining these assets (Moser 1998). As the World Development Report 2000/2001 emphasises, *“key in expanding opportunities for people is (to help) to build up assets”* (World Bank 2000: 38). Vulnerability is therefore closely linked to asset ownership. The more assets people have, the less vulnerable they are; conversely, the greater the erosion of people’s assets, the greater their insecurity (Gbetibouo and Ringler 2009).

The key elements of a livelihood approach are the ‘livelihoods principles’ and the sustainable livelihoods framework. The principles include taking a participatory and capacity-building approach and working at different levels (micro and macro, or national and international, as well as community) for maximum impact, learning from change and adaptation and promoting sustainability (Ashley and Carney 1999; DFID 1999). The sustainable livelihoods framework shows the key elements of livelihoods and how these interact. It includes assets, strategies, outcomes and policies, institutions and processes (DFID 1999). It is presented in Box 6 below.

### Box 6: The sustainable livelihoods framework

Source: Jones et al. (2010); adapted from DFID (1999)



### Critiques of livelihoods approaches

Despite the adoption of livelihood approaches in rural development since the 1990s, a number of challenges have led to their decreasing prominence in recent years. Broadly speaking, the critiques are that livelihood approaches have not been able to incorporate global economic, political and environmental change (Scoones 2009). While, in reality, most livelihood support programs tend to focus on the provision, protection or recovery of assets, the support of alternative income generation activities will not result in the desired outcome of improved livelihood stability if wider markets are insufficiently developed (Jones et al. 2010a). Moreover, a number of researchers have highlighted a lack of attention to power, politics and governance, and have proposed new frameworks to include this dimension (Ludi and Slater 2007; Lautze and Raven-Roberts 2006; Collinson 2003).

Climate change is another area where livelihood approaches have been challenged. In livelihoods literature, sustainability is generally taken to mean coping with immediate shocks and stresses rather than adapting to long-term change. Bringing perspectives on livelihoods into climate change responses therefore means adopting a livelihoods analysis that identifies different future strategies or pathways in order to focus on long-term change and the capacity of systems to provide for livelihoods in the future (Scoones 2009).

### Livelihood support programmes

In traditional thinking to livelihood approaches, public spending on livelihoods can influence vulnerability and adaptive capacity directly and indirectly in various ways. It can try to manipulate the supply of strategic assets of the poor in a positive way, such as unskilled labour (e.g. by investing in health, family planning, or housing conditions) or human capital (e.g. by investing in the education system). Via direct market investments, such as for example in state owned enterprises (SOEs), state agencies can also exercise a major influence on the sectoral and regional structure of livelihoods (through means of production). Finally, there can be direct public measures (such as subsidies or tax exemptions) to change the situation of the poor (Bonschap and Klump 2004), but also interventions that support policies, institutions and processes (Lautze and Stites 2003; Young et al. 2007). By doing so, sustainable livelihood approaches can definitely bring some fresh thinking to development theory and practice.

What is even more important from a conceptual understanding, sustainable livelihood approaches can also help in enabling agencies to develop “*flexible and locally appropriate responses to risk, vulnerability and poverty*” (Jones et al. 2010a: 16). Entry points for poverty-relevant development measures can be related to: i) promoting and implementing poverty-oriented policies; ii) initiating and supporting pro-poor institutional change; iii) enhancing the capabilities of poor people; iv) facilitating access to existing opportunities; and v) reducing exposure to risks and reducing poor people’s vulnerabilities (ibid.).

It is important to emphasise that in the vast majority of developing countries the issue of poverty reduction builds a main imperative on the development agenda. The question of how to adapt to climate change and, particularly, how to increase the adaptive capacity of those affected by these changes, has come to the forefront of development theory and practice. At the national level of development countries, Poverty Reduction Strategy Papers (PRSPs) have been identified as a key instrument to link poverty and climate change agendas. PRSPs, which build the main planning instrument for achieving the MDGs in more than 70 low-income countries—and which are a requirement for receiving debt relief and concessional assistance from the World Bank and the International Monetary Fund (IMF) (World Bank 2007)—provide a framework for domestic policies and programmes, with the overall aim of reducing poverty (Kramer 2007).<sup>52</sup> At the same time, a more local-level, community-led process was conceived in the context of the debate on sustainable development (‘Agenda 21’) which at least to some parts influences implementation of PRSPs on the ground and which envisages sustainability being built from the bottom up through local initiatives by local governments, community groups, and citizens.

Given the challenges introduced by climatic changes, these strategies necessarily have to become measured and re-valued by their effectiveness in reducing vulnerability of poor population groups to these threats. However, it is becoming clear when considering the nature of global climate change that poverty reduction policies and goals will in themselves “*not address the specific climate change related risks for the most vulnerable portions of developing societies*” (Adger et al. 2003: 193). To this end, sustainable livelihood approaches can serve as a useful means to linking the national and local context of development policy, especially when linked with climate change adaptation. In livelihoods literature, sustainability is generally taken to mean coping with immediate shocks and stresses rather than adapting to long-term change. Bringing perspectives on livelihoods into climate change responses means adopting a livelihoods analysis that identifies different future strategies or pathways in order to focus on long-term change and the capacity of systems to provide for livelihoods in the future (Scoones 2009).

### **Conclusions on links with climate change adaptation**

As Sabates-Wheeler et al. (2008: 4) summarize, livelihood approaches as frameworks for conceptualising poverty and risk are informed by Sen’s work on endowments, entitlements and capabilities. In a given context, encompassing politics and policy processes and socio-economic conditions, livelihoods approaches consider what combinations of capitals—

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<sup>52</sup> In practice, though, ‘reduction of climate-related vulnerability’ or ‘adaptation to climate change’ is rarely, if ever, selected as a key poverty reduction strategy (PRS) objective. In fact, a review of fifteen PRSPs selected from a wide range of developing countries shows that poverty strategies commonly focus on enhanced expenditure programmes (especially in health, education, water and sanitation, and roads and infrastructure); enhanced social security programmes (such as microfinance and insurance); institutional reforms to improve governance (such as decentralization, public service reform, and tax reform); and structural reforms (including trade reform, privatization, financial sector reform, and agricultural sector reform) (World Bank 2003). However, as Lucas et al. (2004) criticize, other studies of the many PRSPs reveal a general absence of agreement on ‘how’, i.e. with what cause-effect processes, policies linked to aid and loans were to be said to reduce poverty.

human, financial, social, political, natural—are necessary to follow different livelihoods strategies and achieve different outcomes; “(...) *as such, livelihoods approaches embody multi-dimensional concepts of poverty*”.

Against this background, securing the livelihoods of people holds centre stage in any strategy to increase adaptive capacity. Livelihoods interventions do, in many instances, play a substantial role in promoting adaptive capacity. Ensuring equal access to sources and/or resources that provide for secure livelihoods is also a key objective of these interventions. All livelihoods interventions therefore have the potential to promote adaptive capacity.

However, as Jones et al. (2010) finally assert, adapting to long-term change has so far not been a major focus of livelihood approaches in practice. Incorporating climate change adaptation into livelihood approaches would mean reviewing livelihoods analysis to also identify potential future strategies and examining the capacity of systems to deal with future risks.

### **3.4.3 Social Protection**

Social protection<sup>53</sup> as an agenda for reducing vulnerability and risks of the poor has become an important part of the development discourse (Le Bach Duong et al. 2005). The popularity of the term ‘social protection’ is evidenced in the recent literature and policy debate that has variously focused on analysing the conceptual underpinnings of social protection (Conway and Norton 2002). The concept remains a confusing term mainly due to the range of existing definitions and the variety of ways it is interpreted (Le Bach Duong et al. 2005). Social protection has however fairly recently come into extensive use in developing countries (Norton et al. 2002).

#### **Objectives and definitions of social protection**

Social policy, in advanced western-industrialised countries, operates through state interventions to compensate for the inadequate welfare outcomes of the labour market. The social policy institutions reduce uncertainty by providing a structure to “*the rules of the game in society*” (North 1990: 4). Analysing the first welfare states in the nineteenth century, researchers used socio-economic explanations of welfare development to explain the emergence of social security systems.<sup>54</sup> As Priwitzer (2008: 2) explains, researchers saw a strong correlation between economic development on the one hand and social security spending on the other, regardless of the country’s political system or cultural or historical background. Wilensky (1975, cited by Priwitzer 2008) argued that through modernisation and economic growth, countries converge in their social security systems: “*Economic growth*

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<sup>53</sup> The term ‘social protection’ has been widely used around the world and is often treated as synonymous with ‘social security’, which is misleading. ‘Social protection’ and ‘social security’ are often used as if they were synonyms. They are not. Social protection is the broadest term, signifying the full range of protective transfers, services, and institutional safeguards supposed to protect the population ‘at risk’ of being ‘in need’. Social security is the term that covers the state-based system of entitlements linked to ‘risks’ (Standing 2010).

<sup>54</sup> As we can learn from Toye (2010: 47f.), the original concern of formulating social protection policies was not the modern one of bringing about poverty reduction by reducing the numbers of those deemed to be in poverty. Rather it was to prevent the working poor from falling into destitution. This is what motivated Charles Booth’s study of poverty in London and Seebom Rowntree’s study of poverty in York. The foundational concern was thus not with a current state of lacking or scarcity of consumption of those who had some regular income. Much more, it was about their exposure to future risks that could plunge families into depravity—and do so irreversibly. In short, the focus of concern was not their poverty, but their vulnerability. The social reforms that followed from these poverty studies were addressed to the causes of the vulnerability of the poor. For the risk of loss of employment, the State provided labour exchanges and unemployment insurance. When work was no longer possible, the State would pay an old-age pension to those who had contributed during their working lives. The solution was for the government to provide social safety nets for those among the working poor affected by stochastic risk. It was not for the government to try to raise their general standard of living.

*makes countries with contrasting cultural and political traditions more alike in their strategy for constructing the floor below which no one sinks”.*

For rural economies in developing countries, particularly in areas of rain-fed agriculture where assets and investment are low, and where markets are poorly developed, adequate formal or informal social protection mechanisms can make a major difference for well-being (Sabates-Wheeler et al. 2008). But the conditions for setting up workable and formal social protection schemes are certainly much more difficult here than in the Western world. Principally, though, the idea of social security in developing countries is doubtlessly based on similar principles as in the ‘developed world’, i.e. that of using social means to prevent deprivation and vulnerability. Yet, the authors argue that the notion of ‘promotional’ activities is stronger here than in Western-based concepts, and comprise means to get people out of poverty. Social means can be of various types. Perhaps the most immediate is to provide direct support to the ability of the vulnerable to acquire the means to basic capabilities. Providing free food or cash to potential famine victims is one example for this. On a more regular basis, providing unemployment insurance, free health services and basic education, etc. are other examples of such direct support. But the social means can also be of an indirect nature. For example, creating the social conditions of economic growth may take a substantial—and lasting—contribution to eliminating deprivation, if growth involves widespread participation of the population in the process of economic expansion (Drèze and Sen 1989: 16). Basically, social protection programs aim to protect poor and vulnerable households from the shocks and stresses that have negative impacts on their wellbeing, and are concerned with the ways to strengthen households’ or individuals’ resilience to adverse events.

It will be important to have in mind, though, that shocks across whole societies are often the hardest for poor communities and households “(...) *to cope with, especially when the shocks are repeated, deep, or persistent*” (World Bank 2000: 10). In this context, Yaqub (2000, cited by Prowse 2003) states, the “*trade-off between insecurity and opportunity and its effect on the transitory and permanent components of welfare and inequality reminds us not only that economic growth brings differential opportunities and costs across individuals, households, social groups, and countries, but also that national and global economies are prone to periodic moments of crisis which generate large amounts of insecurity*”. Therefore the need for appropriate social protection policies, “*whether providing a social assistance function (reducing the frequency or severity of poverty) or a social insurance function (ensuring consumption smoothing and prevention of catastrophe), is essential*” (Devereux 2001: 514). Hence, the idea is that when such assistance is guaranteed—for instance, where predictable and social security systems provide effective safety nets against shocks—the catastrophic consequences of disasters can be substantially contained (Sabates-Wheeler et al. 2008).

There are various definitions of what social protection is and what it comprises, each of which has implications for programming and implementation. Most definitions have a dual character, referring to both the nature of social protection and the form of policy response. For instance, in the World Bank definition, vulnerability is seen in terms of risk in relation to income and consumption instability. The International Labour Organisation (ILO) tends to define social protection in terms of living standards and human rights. It tends to rely heavily on assumptions geared to conditions of work. Other agencies such as the Asian Development Bank (ADB) focus on health and physical vulnerabilities in relation to adequate consumption under shocks (Le Bach Duong et al. 2005). However, social protection is generally difficult to define, and its use varies between authors. Social protection interventions aim to assist individuals, households, and communities to better manage risks and provide necessary measures to lessen the consequences for the most needy groups (ibid.). All of these represent a significant advance from the narrow ‘social safety nets’ debate of the 1980s (Jones et al.

2010a) in which, generally, realizing and ensuring basic livelihood means for all citizens was seen dependent on a social safety net in the form of unemployment benefits, minimum-wage legislation, primary health insurance, pension provisions, affirmative policies, etc.—and where there were heavy disagreements with regard to how tight the safety net should be and what level of social minimum it should guarantee (Alexander 2008: 3).

However, social protection is still contested, in terms of what can and cannot be considered a part of the concept. The conceptual underpinnings of different definitions on social protection, and the implications all of them have, can focus on the reduction of livelihood risks and provision of safety nets and social services for vulnerable, marginalized and poor groups; they do not necessarily include the same groups of people (Le Bach Duong et al. 2005). Some of the most recent and most discussed approaches are presented in the Box below.

**Box 7: Definitions of social protection**  
*Source: adapted from Jones et al. (2010a)*

Source	Definition	Features
Holzmann and Jørgensen (2000)	Social risk management (SRM) consists of public interventions to help individuals, households and communities better manage risk and to provide support to the critically poor.	The concept of SRM repositions the traditional areas of social protection (labour market interventions, social insurance and social safety nets) in a framework that includes three strategies to deal with risk (prevention, mitigation and coping), three levels of formality of risk management (informal, market based, public) and many actors (individuals, households, communities, NGOs, governments at various levels and international organisations), against the background of asymmetric information and different types of risk. This expanded view of social protection emphasises the double role of risk management instruments: protecting basic livelihoods as well as promoting risk taking. It focuses specifically on the poor, since they are the most vulnerable to risk and typically lack appropriate risk management instruments, which constrains them from engaging in riskier but also higher-return activities and hence gradually moving out of chronic poverty.
Norton et al. (2002)	‘The public actions taken in response to levels of vulnerability, risk and deprivation which are deemed socially unacceptable within a given society.’	Norton et al. (2002) argue that what is new about the concept of social protection is the link it makes between social assistance and wider objectives such as growth. This contrasts with earlier, largely ‘residualist’ or ‘safety net’ treatments of social assistance, which focused on providing support to those who would otherwise fall chronically or temporarily below some very low standard of living. It also allows us to distinguish those social protection measures that concern us here—i.e. those closely related to livelihoods—from others, referred to by some as falling in the ‘social sectors’, e.g. health and education.
Farrington et al. (2007)	As per Norton et al. above.	Differentiates between shocks and stresses, that is, between unpredictable usually rapid onset events that damage household wellbeing (flood, accidental death of household member) and more predictable and slower onset events (chronic illness, soil fertility decline).

Sabates-Wheeler and Devereux (2006)	Describes all initiatives that transfer income and assets to the poor, protect the vulnerable against livelihood risks and enhance the social status and rights of the marginalised, with the overall objectives of extending the benefits of economic growth and reducing the economic or social vulnerability of the poor, vulnerable and marginalised groups.	This is a wider view of social protection, going beyond the economic sphere to include attention to social and political dimensions as well. It also favours 'a broader classification of social protection providers, including formal ('public' and 'private') as well as informal ('collective' or 'community-level') sources.
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### Rationale of social protection approaches

The rationale of social protection consists, on the one hand, of using public support directly for raising the standard of living, rather than waiting for economic growth to do this (by increasing private incomes and providing resources for public support). It is the direct use of public support in expanding the capabilities of people, not qualified by achieved growth that characterizes the distinct nature of this strategy (Drèze and Sen 1989: 226). In recent years, one the other hand, it has become increasingly argued that while much of the poverty-focused policies have concentrated upon means to reduce poverty incidence, social protection policy and programs should aim to prevent and address vulnerability as one of the causes of poverty and impoverishment (Le Bach Duong et al. 2005).

Social protection measures today play a growing role in reducing the vulnerability and protecting the welfare of the vulnerable poor. Some risks and shocks, such as chronic poverty, harvest loss, natural disasters, or even animal diseases can affect the whole society and larger groups; others, such as the illness of family members, loss of the breadwinner's job, unemployment, low incomes, or disabilities affect individual households severely, especially those that are close to or under the poverty line. It is *"important to know how prevalent each of these problems is and how they interact in attacking the vulnerable, as each should be addressed with different interventions"* (Le Bach Duong et al. 2005: 84).

Independent from the specific point of view taken, it is useful to distinguish between two basic aspects of social security, i.e. *protection* and *promotion*. The former is concerned with the task of preventing a decline in living standards as might occur in, say, an economic recession, or—more drastically—in a famine. The latter refers to the enhancement of general living standards and to the expansion of basic capabilities of the population, and is primarily seen as *"a long-run challenge"* (Drèze and Sen 1989: 16). But there are some approaches for social protection that are broader in their concept and underlying principles based on the definitions above. The Social Risk Management (SRM) framework, for instance, aims at preventive, mitigation and coping strategies as part of social protection interventions in response to risk (Holzman and Jørgensen 2000). In this context, the World Bank's social protection concept postulates that: (a) the poor are typically most exposed to diverse risks ranging from natural to manmade; and (b) the poor have the fewest instruments to deal with these risks. These risks can be categorised as: (i) idiosyncratic (micro risks affecting an individual or household); (ii) covariant (risks affecting groups of households or communities); and (iii) macro risks affecting regions or nations. Thus, according to this definition, social protection consists of public interventions to assist individuals, households, and communities to better manage risk; and to provide support to the 'critically poor'. This view of social protection entails not only the protection of the poor and of their basic livelihood, but also the

creation of conditions which may act as a springboard to participate in development activities and to get out of poverty. At the centre of the SRM-based social protection policy are prevention strategies (to reduce the probability of an adverse risk), mitigation strategies (to reduce the impact of a future risk) and coping strategies (to relieve the impact of risk once it has occurred) (Le Bach Duong et al. 2005).

Social protection is usually provided by the State, i.e. government institutions. A majority of governments and agencies in developing countries now take an action approach to social protection policies, seeing it as a collection of measures to manage risks and improve or protect livelihoods (Le Bach Duong et al. 2005). In this, the focus on growth is important because it demonstrates a strong linkage between social protection and livelihoods. In relation to productive sectors, social protection can enhance resilience in the face of threats (whether climate related or not), limit disinvestment and, by reducing perceptions of high risk, promote investment by the poor themselves (Farrington et al. 2007). As such, it can play a critical role in building or maintaining livelihoods. Such promotive interventions are also part of forward-looking disaster risk reduction and adaptation approaches (see the later section on disaster risk reduction).

In areas or countries where governance is weak, then, informal institutions are more important, such as traditional social networks and other systems for assisting the poorest or most vulnerable.

### **Critiques of social protection approaches**

Current frameworks and approaches to social protection have been criticized from various sides over time, with Standing (2010: 57ff.) providing some valuable insights into the debate:

- The first critique concerns the early states of the debate where, by the early 1990s, economists, particularly in the World Bank, IMF, and OECD, urged governments to develop a 'social safety net' for the 'really poor'. Unfortunately, according to Standing (2010: 57), in reality the term has been a euphemism for 'selective', 'targeted' measures, usually 'means-tested', supposedly intended for those deemed to be the 'most needy'. One could argue that it has been a ruse to cut public social spending, and one is inclined to tell those who use the term that a feature of the net is that the holes are so large that many of the victims fall through it. Hence, as Standing (ibid.) argues, "*the term safety net should be avoided*".

- A second critique concerns a common assertion in social protection thinking which is that a primary objective should be to increase the 'coverage' of social protection, the implicit suggestion being that more people should be 'covered' by schemes protecting them from contingency risks. But it is unclear what 'extending coverage' means. For example, as Standing (2010: 58) contends, "*suppose a country is operating a social-insurance system to which only ten percent of the population are making contributions. If the government abolished it and replaced it with a wholly means-tested social-assistance scheme, by definition the whole population would be 'covered'. Would that be a great achievement?*"

- Third, one should not consider social protection without mentioning that the two most fundamental words of all are ambiguous and contested. Rarely are the words 'poverty' and 'need' defined in any detail when discussing social protection. As various analysts have recognised, requirement of a politics of need interpretation is high, which could be constructed in three stages, according to Fraser (1989): a) a struggle to validate a need as a politically legitimate one, or to have it defined as a non-political matter; b) a discourse on what is needed to satisfy the need; and c) a struggle to have the need alleviated: a resource struggle.

- Fourth, another point of critique is that while social protection is supposed to compensate for risks, it is not clear what types of risk should be included. Analysts have differentiated

between idiosyncratic and covariate risk, and between risks, shocks, and hazards—which, according to Standing (2010: 58) “*all becomes a little confusing*”. But the key point is that different systems of social protection cover different types of situation needing some form of social protection (ibid.): “*Local bureaucrats are given the quiet nod to decide on who should receive benefits, who should not, and what conditions on which those chosen should be given the benefit. It is all very paternalistic, leaving the inequalities unchallenged.*”

- Finally, the author puts notion on the term ‘targeting’ which “*is another word intended to invite automatic approval*” (Standing 2010: 60). The author recalls that the term came into vogue with supply-side economics and structural adjustment programmes in developing countries. The image was (and still is) that policy should focus on the groups most in need, rather than being universal or untargeted, and it goes with the notion of ‘selectivity’. Here the image is that people should receive support from the state only if they have insufficient means to support themselves. The means ‘usually means income’. But what counts as income?, Standing asks. Above all, means testing and other schemes based on selectivity criteria fail to satisfy any principle of social justice worthy of the name, because they tend not to reach those most in need of income support, a fact which research around the world has consistently demonstrated.

### **Conclusions on links with climate change adaptation**

Climate change puts a new layer of risks on societies, with some groups being more vulnerable than others to occurring and upcoming hazards and changes. For example, climate change is creating new human health risks such as increased mortality due to heat waves, increased occurrence of malaria and diarrheal disease, malnutrition due to local food insecurity, and injuries due to violent weather. Vulnerable people may be disabled by excessive heat or affected by re-emerging infectious diseases such as yellow fever and dengue (Christoplos et al. 2009). This example on health risks shows how close linkages between individual and collective risks are when dealing with climate change. It is critical for determining whether vulnerable groups and people must attempt to cope with hazards on their own or can count on external assistance in times of stress. When such assistance is guaranteed – for instance, where predictable and social security systems provide effective support against shocks – the catastrophic consequences of hazards can be substantially contained (Sabates-Wheeler et al. 2008).

Social protection can be considered a component of adaptation interventions, as it addresses both vulnerability and response capacity, in particular the preventive, promotive and transformative components of social protection. Like climate change adaptation, social protection aims to reduce vulnerability and manage risk, and it does so mainly by building both productive and financial assets (Jones et al. 2010a). Incorporating climate change adaptation into social protection would mean understanding in what ways social protection interventions can potentially contribute to adaptation. This has been developed as a separate approach, called ‘adaptive social protection’ (Davies et al. 2009). For example, social assistance can protect those most vulnerable to climate risks and preventive measures (e.g. weather-based risk insurance) “*can stave off damaging coping strategies, whereas promotive and transformative strategies can better ensure that people are able to withstand shocks*” (Jones et al. 2010a: 19).

The extent to which the objectives of social protection are compatible with the objectives of climate change adaptation is still the subject of much debate, while empirical evidence is limited. For example, could drought-resistant seeds in Africa help people cope with climate change better than social security in the form of old-age pensions? Social protection could potentially assist in delivering adaptation assistance to the poorest and the most vulnerable, whereas with climate change adaptation there is risk that it will not reach the poorest. Much of

the debate on climate change adaptation is currently centred on insurance, in which the poorest are less likely to participate, due to financial and other restraints. Another consideration is the effect that climate change will have on existing social protection systems in developing countries, and what increasingly unpredictable weather means in relation to the demands placed on existing social protection systems and the kind of support they offer poor and vulnerable people. Therefore, achieving greater security definitely *“requires a heightened focus on how insecurity affects the lives and prospects of poor people”* (World Bank 2000: 10).

For the purpose of this study, and in accordance with Le Bach Duong et al. (2005), social protection is generally understood as to reduce vulnerability and managing the risk of low-income individuals, households and communities with regard to basic needs and social services. Social protection describes all initiatives that provide supporting services to the poor and marginalized segments of a society that protect them against livelihood risks and enhance their status, with the overall objective of reducing their social vulnerability. Finally, this comprises both-state assisted support as well as informal approaches.

### **3.4.4 Disaster Risk Reduction**

A major part of the discussion on climate change deals with the issue of disasters. In the present study, it was shown already that natural disasters can result from either slow onset (e.g. drought) or rapid onset hazards (e.g. typhoons) when combined with highly vulnerable populations. Disasters have traditionally been seen as events that affect a large population; but they are in fact any shock that has an impact on communities in case their capacity to cope is overwhelmed (DFID 2004f).

It was also already discussed that ‘natural’ disasters are a product of the social, economic and political context in which they occur. Although hazards that lead to natural disasters cannot be prevented, their effects can be mitigated or reduced (Wisner 1993). To this end, disaster management approaches focus on reducing the risk posed by actual and potential hazards.

The notion of responding to climate change is mostly associated then with the disaster risk reduction approach. Indeed, much can be learned from disaster risk reduction where ‘vulnerability’ has built a centre for a whole research agenda for some decades already. However, the concept of vulnerability is loosely defined and greater precision could be found through analysis of the *causes* of vulnerability—rather than as a vague description of ‘problems for people’ (Cannon 1994). This poses ongoing challenges to a broader understanding of the approach and its application, to the end to defining a sustainable response strategy.

#### **Definitions and objectives of disaster risk reduction**

The UN/ISDR (2005, cited by Jones et al. 2010a) defines disaster risk reduction as the sets of actions *“taken to reduce the risk of disasters and the adverse impacts of natural hazards, through systematic efforts to analyse and manage the causes of disasters, including through avoidance of hazards, reduced social and economic vulnerability to hazards, and improved preparedness for adverse events”*. Twigg (2007) defines it as a *“systematic approach to identifying, assessing and reducing the risks of disaster. It aims to reduce socio-economic vulnerabilities to disaster as well as dealing with the environmental and other hazards that trigger them”*.

Basically, while climate change is commonly presented as a gradual shift in climatic trends, its impacts will be most strongly felt by vulnerable rural communities through changes in the distribution, nature and magnitude of extreme weather events. A direct effect will therefore be increased death and injury from events such as landslides, flooding, and storms (Sperling

2003). Adapting to these hazards will require bolstering disaster risk reduction “*as a first line of defence*” (Sabates-Wheeler et al. 2008: 5).

But risks are also and primarily apparent in agriculture, fisheries and many other components that constitute the livelihood of rural populations in developing countries. This is why a special concern is put on livelihood strategies and their potentials to deal with climate risks (Adger et al. 2003: 179). Preservation of livelihoods is increasingly seen as a central goal of disaster mitigation measures.

### **Concepts of disaster risk reduction**

Certainly, the focus on covariate risks has focused attention on the humanitarian (not just human) impacts of climate change. Climate change adaptation discussions have particularly focused on increasing levels of covariate risk and specifically on the increasing occurrence and severity of weather-related catastrophes. However, as we learn from Christoplos et al. (2009: 9), “*supporting capacity development for idiosyncratic risk reduction is of at least equal importance*”, due to the increase in smaller risks (idiosyncratic as well as idiosyncratic moving toward covariate) that have a larger impact on poverty. This phenomenon has been discussed in the above sections on vulnerability, where I have shown that certain aspects of ‘maladaptation’ on the individual level may lead to constant undermining of the asset base, especially of the ‘chronically’ poor.

Disaster risk reduction refers to “*the broad development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout society*” (Twigg 2004). From an operational point of view, historically, the majority of disaster risk reduction interventions have focused on mitigation, on the one hand, and preparedness, on the other hand, which can be understood as:

- Mitigation refers to actions taken to minimise the extent of a disaster or potential disaster and is used mostly to refer to measures against potential disasters. Mitigation measures can be both structural (e.g. flood defences, dyke system planning) and non-structural (regulating land use and public education).
- Preparedness refers to specific measures taken before disasters strike, usually to forecast or warn against them, when there is a disaster threat and to arrange for appropriate responses (both understandings provided by Jones et al. 2010a).

Although disaster risk reduction initiatives are largely linked to mitigation and preparedness actions, from a conceptual point of view disaster risk reduction’s remit is much broader. Incorporating and expanding on the principles of disaster risk management (DRM), disaster risk reduction is holistic in the breadth of its interventions as it seeks to address a wide range of issues, from policy and governance, education and awareness, to addressing the underlying features of vulnerability and risk to hazards and stresses (Jones et al. 2010a).

In disaster risk reduction thinking, disasters are no longer seen as exceptional events for which responses are limited to ex-post relief and rehabilitation activities. Disasters are increasingly being recognised as “*deep rooted and longer-term problems that must be planned for*” (Twigg 2004), with consequences that can be reduced and mitigated when appropriate measures are taken. In this context, disaster risk reduction has emerged as a critical area for building linkages and addressing the longstanding divide between humanitarian and development work (Maxwell et al. 2009). Against this background, there is also an urgent need to develop national and local governments’ risk reduction capacities (Christoplos et al. 2009).

## Operational implications

Fundamental to the programming of disaster risk reduction is the adoption of a risk management approach, in other words the “*systematic approach to identifying, assessing and reducing risks of all kinds associated with hazards and human activities*” (Twigg 2004: 4). Although disaster risk reduction is more concerned with the present and focuses on near time trends (Sperling and Szekeley 2005), among the wide range of risks that the approach takes into account are future risks, such as climate change and variability. Disaster risk management is the operationalisation of disaster risk reduction approaches and covers the implementation of preparedness, mitigation, emergency response, relief and recovery measures (ibid). Thinking on disaster risk reduction sees disasters as complex problems requiring a collective response from a wide range of stakeholders, including non-governmental organisations (NGOs), other civil society organisations (CSOs), governments at all levels, the private sector and communities (Twigg 2004). Hence, disaster management requires multilevel governance systems that can enhance the capacity to cope with uncertainty and surprise by mobilizing diverse sources of resilience (Adger et al. 2005).

The 2005-2015 Hyogo Framework for Action<sup>55</sup> (HFA) lays out the foundation and sets out a comprehensive guideline for the implementation of disaster risk reduction for a wide range of key stakeholders. The HFA is articulated around five areas, with relevant disaster risk reduction activities outlined as follows (Twigg 2004; UN/ISDR 2005):

1. Governance: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. This might include: establish and support policies; regulations and procedures to reduce risk such as design standards; building codes; health and safety regulations; legalisation of land or property ownership; urban planning regulations and integration with development.
2. Risk assessment: Identify, assess and monitor disaster risks and enhance early warning. This includes: national and local risk assessments; update and dissemination of risk maps and information; vulnerability and capacity assessments at all levels; statistical information on disaster occurrence; impacts and losses through international, regional, national and local mechanisms and early warning systems (EWSs).
3. Knowledge and education: Use knowledge, innovation and education to build a culture of safety and resilience at all levels. Key activities include: public education; communication of information and awareness raising about risk and risk reduction through leaflets and posters; hazard risks and maps; demonstrations; media messages; community training and school curricula.
4. Risk management and vulnerability reduction: Reduce the underlying risk factors. This includes: addressing disaster risks related to changing social, economic, environmental conditions and the impact of hazards associated with geological events; addressing weather, climate variability and climate change through better land-use planning; natural resource management; livelihoods and food security support; social protection and safety nets; financial risk-sharing mechanisms (insurance against disasters) and mainstreaming disaster risk reduction in development activities e.g. in major infrastructure projects, rural and urban development planning and management.
5. Disaster preparedness and response: Strengthen disaster preparedness for effective response at all levels. This includes forecasting and warning systems; taking precautionary measures in response to warnings; contingency planning; strengthening

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<sup>55</sup> See: <http://www.unisdr.org/we/coordinate/hfa> [accessed September 13, 2010]

capacity to deliver timely and effective rescue, relief and assistance; rebuilding livelihoods after disasters; cash for work and food for work initiatives.

Yet governments tend to ignore both sudden and gradual-onset catastrophes, as they see disasters as interruptions to development rather than indications that it is time to consider the effects of development on disaster risk. Countries that experience recurrent drought, for example, often fail to coordinate relief and development efforts, and rather address emergency needs that contribute little to addressing the underlying causes of vulnerability to risks (Christoplos et al. 2009).

An operational example to disaster risk reduction is 'Integrated Flood Management' (IFM). Even though various explanation models exist for what this approach is and what it comprises can be found in the literature, I refer to the brief and very good overview provided by Pham Cong Huu et al. (2009: 5ff.): According to the authors, IFM is a process promoting an integrated approach to flood management. It integrates land and water resources development within the context of Integrated Water Resources Management (IWRM), and aims at maximizing the net benefits from flood plains and minimizing loss to life from flooding. IFM aims to maximize economic net benefits, social welfare and environmental protection from available natural resources use and exploration such as land and water resources. However, IFM aims at maximizing the net benefits from flood plains and reducing negative impacts of floods for life and livelihoods of humans in the flood plains. In IFM, therefore, flood control measures consider negative impact reduction of floods and effective use of available natural resources in an integrated approach for flood plains. On the other hand, economic and human life losses due to inundation are not ignored. Thus, IFM's aim is not only to reduce the losses from floods but also to maximize the efficient use of flood plains. IFM is based on the principle of reducing vulnerability through building resilience and developing a culture of prevention through preparedness rather than reactive responses alone. The multi-dimensional nature of flood management options owing to constraints, risks, uncertainties and conflicting objectives therefore also addresses broader socio-political issues. These concerns can be qualitatively incorporated through the active participation of all stakeholders, including civil society at various decision-making levels and stages. Multi-stakeholder engagement is the key to the success of IFM as it ensures strong stakeholder support and is a catalyst for proactive engagement in flood issues.

In sum, the following Box provides an overview of what are examples of disaster risk reduction interventions.

#### **Box 8: Examples of disaster risk reduction interventions**

*Source: Jones et al. 2010a; adapted from Oxfam 2009*

**Disaster preparedness and early warning:** EWSs, contingency planning, community disaster risk analysis and action planning, capacity building of community disaster management committees.

**Infrastructural interventions:** Relocation from flood-prone areas to higher grounds, building physical defences, improving housing, construction of earthquake- and hurricane-resistant wells and other infrastructure.

**Food security and livelihoods:** Natural resource management for protection (planting trees, grasses); cash or social transfer/safety net programmes, food or cash for work programmes, supporting animal health/extension services, distributions of seeds and tools, promoting resilient livelihood strategies (diversification, drought-/saline-resistant/short-cycle crops), de-stocking or re-stocking livestock.

## **Conclusions on links with climate change adaptation**

The description of disaster risk reduction and an overview of some typical interventions show that the approach can, in many instances, fall broadly under the umbrella of adaptation (Jones et al. 2010a). The linkages and overlaps between climate change adaptation and disaster risk reduction are acknowledged in a number of international treaties and development plans, including the HFA, and the UNFCCC. As Jones et al. (2010a) emphasise, a greater focus on climate change adaptation within disaster risk reduction would place emphasis on a forward-looking component of disaster risk reduction and the capacity to deal with future risks. In addition, threats associated with gradual alterations in temperature and rainfall variability, intensity and distribution have required a shift within the disaster risk reduction community.

Disaster risk reduction emphasises the importance of knowledge and information, as well as including a focus on infrastructure as a key intervention. Similarly, disaster risk reduction places considerable emphasis on action and awareness at local levels. At the conceptual level, approaches have made a substantial shift in terms of acknowledging the importance of addressing climate change within its remit and incorporating actions to deal with gradual and incremental stresses as well as extreme events. However, *“this has yet to transcend into common and consistent practice”* (Jones et al. 2010a: 10).

Climate risk management (CRM) is an approach to climate-sensitive decision making that is increasingly seen as the way forward in dealing with climate variability and change. The approach seeks to promote sustainable development by reducing the vulnerability associated with climate risk. CRM involves proactive ‘no regrets’ strategies aimed at maximizing positive and minimizing negative outcomes for communities and societies in climate-sensitive areas such as agriculture, food security, water resources, and health. The ‘no regrets’ aspect of CRM means taking climate-related decisions or action that make sense in development terms anyway, whether or not a specific climate threat actually materializes in the future (Hellmuth et al. 2007). For effective application of the approach, however, information on climate data, both for decision-makers as well as local populations, is decisive for protecting and improving livelihoods, and for saving lives.

Finally, as Jones et al. (2010a: 17) conclude, *“not all climate change effects can be addressed through adaptive measures, as many communities in the areas worst affected by climate change are already in crisis and are coping simply to survive”*. Hence, while disaster risk reduction can be perceived as an important instrument to support climate change adaptation and which can be applied universally, it does not mean that it provides universal solutions, especially in systems where exposure to risks and hazards is too high.

### **3.5 Summary: The multi-dimensional facets of development when linked to climate change adaptation**

This subsection has suggested that while the global evidence base on adaptation grows, it is important to realise that there is no agreement about the characteristics and indicators that support adaptive capacity. Clearly, though, adaptive capacity is central to deal with the given challenges of climate variability and extremes. Hence, the most promising answer to adapt to the consequences of climate change shall be to increase people’s adaptive capacity by improving people’s living standards in a sustainable way.

Based upon a concept for the analysis of relevant policy approaches and development interventions (and how they unfold their impacts on the characteristics of adaptive capacity) built by Lindsey Jones et al. (2010), the present study puts a focus on livelihood approaches, social protection and disaster risk reduction and how they contribute to adaptive capacity in the case study region.

While one central message is that the consequences of exposure to climate variability and extremes are just one among a number of challenges poor people have to cope with in their daily lives, studies suggest that putting a focus on livelihood approaches, social protection and disaster risk reduction is the most viable option to increase the adaptive capacity of the population, by not leaving other pertaining risks (such as macroeconomic shocks or illness) out of sight.

The present study is therefore based on the assumption that responding to the consequences of climate change is not an ‘environmental’ problem; rather, it is a political problem and one of sustainable development (Hein 1997). Analysing the consequences of climate change, then, consequently means to analyse the broader development trends that are effecting on a system. In other words: Adaptive capacity to climate change can only be analysed usefully within the context of wider development processes, disruptions, and interventions (Jones et al. 2010).

The central insight brought by social scientists to the process of adaptive capacity is that vulnerability is socially differentiated. The level of adaptive capacity is not the same for different populations living under different environmental conditions or faced with complex social, economic, and political interactions.

Putting the notion of ‘adaptive capacity’ as central to any response measure, and making account of the broader characteristics upon which a system is based, some empirical studies have shown that there is a clear need for integration among different scales of management and different sectors. ‘Adaptation to climate change’ consequently means to facilitating a continuous process that is sustainable and oriented towards longer-term and collective security. In order to strive for sustainable development, and rather than implementing so called ‘adaptation projects’ as a primary approach to deal with the consequences of climate change, the focus on building capacities could be a key way to address climate-related and other development problems, such as poverty reduction (Baudoin 2009).

By employing synergies between livelihood approaches, social protection, and disaster risk reduction, as being principle to reducing vulnerability through supporting enhancement of adaptive capacity, the whole of the three approaches will be more than (just) the sum of their parts.

## **4. The Analytical Framework**

This present chapter deals with, firstly, the institutional context of vulnerability and adaptive capacity and, secondly, with the elaboration of the analytical framework that will provide conceptual guidance to my fieldwork.

Based on the previous consideration that any system's adaptive capacity to climate change can be analysed usefully only within the context of wider development processes and interventions (Jones et al. 2010) and in its overall institutional context, the institutional basis of/for adaptation which has been referred to at certain stages of the analysis so far will be considered and discussed in more detail. Addressing the research question of how to reduce social vulnerability to climate change in the particular context of the empirical case study demands for a more detailed analysis of where and how institutions serve as cutting points between poverty and vulnerability, on the one hand, and adaptation and adaptive capacity, on the other hand, in order to formulate a proper and operationalizable framework.

The aim is then to propose and present a framework that: is based on a multi-dimensional approach to poverty (capabilities); comprises both the external dimension (i.e. the direct consequences of climate change) as well as the internal (institutional and socio-economic) dimension of vulnerability; includes a vulnerability framework based on an understanding of exposure, adaptive capacity, and sensitivity; and allows for analysing vulnerability, by dealing with the impacts and contributions from the interventions that potentially may promote features of adaptive capacity.

It is shown that, given the immensity of its consequences, the effective management of global climate change requires dedicated national and sub-national responses within countries. Adaptation is both made up of and constrained by actions through society, by individuals, groups, and governments. These levels of action take place within hierarchical structures where different levels interact with each other. The scales of adaptation also extend to lower elements of the political and jurisdictional scale. Thus, adaptation features 'classical' multi-scale elements which mean that, the most appropriate adaptation responses to climate change will be multi-level responses (Adger 2001: 923; Ostrom et al. 1999).

There is a growing awareness that important linkages exist between levels of decision-making; for example, international and national rules may influence the livelihoods and adaptive capacity of local populations (Adger et al. 2003: 1102). But the factors that determine whether or not an increase in adaptive capacity or efficient adaptation occurs depend on a variety of scales, including how the 'system' being assessed is defined. Different systems are characterized by different scales and, more often than not, will interact with one other; the processes operating within one system may directly or indirectly affect another system or scale (Brooks 2003: 11). Focusing on how institutions at different scales govern access to resources, how different kinds of information and knowledge are used by different actors and how effective cooperation can be fostered, the first part of the chapter on institutional analysis will come up with a number of conclusions that will be important for the later part dealing with the analytical framework and, ultimately, for analysing vulnerability and adaptive capacity in the case study context.

### ***4.1 Integrating institutions into an analytical framework for vulnerability research***

For a wide array of topics, such as globalization and economic development, as well as sustainable development, one of the most lively and interesting debates of recent years in the academic literature has been on governance, the role of the state and its institutional environment. Yet many authors still consider the state to be a major catalyst if not the major

agent of change in the direction of these fields (Risse 2007; Bruyninckx 2005; Eckersley 2004; Frickel and Davidson 2004). Given its wide range of consequences on and interactions with wider aspects of development, climate change will inevitably have considerable implications for all these topics. Accordingly, there is a need to consider how the State can, in many instances, help enhance vulnerable people's capacity to adapt to a changing climate or, at the very least, prevent actions that undermine adaptive capacity (Jones et al. 2010). The state does, of course, have a major role to play in alleviating poverty and reducing vulnerability. The central theme in Drèze and Sen (1989) is that public action has a crucial role to play in eradicating famines as well as endemic hunger. Not every drought is the prelude to famine, malnutrition or educational privation. And not every climate shock gives rise to the distress sale of assets, long-run increases in vulnerability or the spread of low human development traps. This is an area in which public policies and public institutions make a difference. Governments can play a critical role in creating mechanisms that build resilience, support pro-poor risk management and reduce vulnerability. Policies in these areas can create an enabling environment for human development (Watkins 2007: 89).

There is no doubt that most countries are, and will be, able to formulate development policies and plans linked to climate change. What they sometimes lack, though, is either the knowledge to adequately address the problem or the possibilities to implement them (Neufeldt 2009). Understanding the impact of a given policy reform requires an appreciation of the respective country's organisational structures and the institutional rules governing them (World Bank 2004: 6). The study therefore depends upon careful organisational and institutional analysis of the formal and informal rules, the behaviours of key stakeholders who can effect reform outcomes, and the underlying dynamics among them. As Bohle (2001) argues, it is important to firstly understand the root causes of vulnerability for then, secondly, trying to measure it. It is important to understand both the level of vulnerability of a particular population and the factors that determine that level of vulnerability if analysis is to fully inform policy on sustainable adaptation (Adger 2001: 928). In doing so, existing tools and theories can provide the point of departure for building new methods and approaches that will expand understanding and analysing social vulnerability (Warner 2007). A framework for understanding and assessing adaptive capacity is needed to begin to understand how it can be supported through wider development processes at both local and national levels (Jones et al. 2010).

Yet current research suggests that existing institutional frameworks are unlikely to be able to cope efficiently and equitably with climate change outside their range of experience (Tompkins and Adger 2005), particularly in developing countries. Risks are seen as exogenous to 'peripheral' countries who have little capacity for control and much greater potentiality for catastrophe (Beck 1998: 42). Many sectors providing basic livelihood services to the poor in developing countries are not able to cope even with today's climate variability and stresses in a sustainable manner, and the way many state institutions operate in developing countries is already today particularly unfavorable to poor people; for example, poor people frequently do not receive the benefits of public investment in education and health (World Bank 2000: 1).

As we have learned from the previous chapter on poverty and vulnerability to climate change, the widespread failure of basic capabilities relates to a diverse set of entitlement inadequacies. Even if we concentrate specifically on the capability failures related to adaptation, it must be acknowledged that policies have to be concerned with a much wider field of action than response to climate change. Therefore, the domain of vulnerability research also has to be correspondingly broad. Most importantly, some governance issues are seen as closely related to capabilities. As outlined by Amartya Sen, poverty is not just a matter of being economically deprived. It is defined and sustained by a sense of helplessness and lack of self-

respect on the part of the poor. Alexander (2008: 4) argues that “*it is well within the spirit of the capability approach to tolerate certain qualified forms of ‘interferences’ for redistributive purposes and for the provision of public goods so that maximum conditions for basic capabilities can be realized for all citizens*”—particularly when these interventions are capabilities-promoting for everyone and are stipulated to take place under the purview of a fair rule of law and in compliance with human rights (ibid.). Thus, people’s livelihood options are determined not only by their asset base but also by the wider governance environment, or ‘policies, institutions and processes’, which determines access to and control over assets by different population groups and thus their vulnerability and adaptive capacity.

In the understanding of research on adaptation and adaptive capacity, there is a strong need for an institutional environment that allows equitable access and entitlement to key assets (Jones et al. 2010a). Doubtlessly, most countries, sectors, regions and communities are reasonably adaptable to average changes to the local climate and do so on their own initiative (often referred to as ‘autonomous adaptation’), particularly if change is gradual. However, external support is needed at both national and community levels to adapt and make informed transformations in response to changes in climate that may have no recent historical precedent, when local institutions may not have the necessary familiarity or the capacity to cope and adapt (ibid.). We also shall remember that vulnerability is determined by the magnitude of the perturbations that a system can absorb and still retain its overall function; the degree to which the system is capable of self-organisation; and the degree to which capacity can be built for learning and adaptation. This discussion of the appropriate scale of institutions to promote adaptation suggests that broader principles of sustainable development are required to promote equality in the opportunity to adapt. However, not all ways of adapting to climate change are in harmony with existing social norms, institutions, and structures (Tompkins and Adger 2004). But ‘adapting’ means ‘changing’, in particular the nature of decision-making in promoting social goals, self-organisation and, finally, of the capacity to adapt (Adger 2003: 2).

Therefore, while in the previous chapter the three intervention areas of sustainable livelihood approaches, social protection, and disaster risk reduction have been identified in their overall functional importance to promote adaptation and features of adaptive capacity, the political dialogue agreed upon and coordinated at the very country level will be decisive to the course each state will follow to respond to climate change. Pure scientific information will, more often than not, not decide what the way to confront climate change will actually look like (Scholz et al. 2009).

For a research framework, then, dealing with the concept of ‘institutional variables’ is a major exercise when developing a dynamic approach to poverty and vulnerability. Even though it may be that all environmental problems are ultimately matters of governance and institutions (Paavola and Adger 2005), still today, there is no single theory of institutional adaptation to environmental change (Adger 2000: 740), including climate change. Published studies of national-level vulnerability to date generally have been rather characterized by indicators chosen subjectively by the authors, based on assumptions about the factors and processes leading to vulnerability (Brooks et al. 2005). Therefore, it will be important to take a closer view on the level of institutions, and related processes and underlying dynamics.

## **4.2 The Institutional Basis of Vulnerability and Adaptive Capacity**

The following sub-chapter presents an overview of the role institutions play under conditions and processes that can promote (or constrain) features of adaptive capacity. I present some useful understandings and definitions of ‘institutions’ and institutional analysis and ask what is needed to make institutions ‘work’ for adaptation.

### 4.2.1 Overview: The role of institutions

At the heart of vulnerability and the idea on adaptive capacity is the assumption that “*climate policies that fail to take people into account will neither make climate change manageable nor shield anyone from the potentially disastrous impacts*”, as Bruce Champbell, UNFPA representative, put it so aptly at a recent conference.<sup>56</sup> I therefore argue that in order to understand gaps and potentials for enhancing adaptive capacity to climate change, the analysis of socio-economic factors is important, but that great significance should be given to institutional factors. Indeed, as we know from a multitude of study findings, institutional facets act to ‘disempower’ poorer sections of population and prevent their capacity to adapt.

In the wide range of options people—at least potentially—have to respond to climate threats, adaptations have been distinguished in the past, ‘bear losses’, ‘share losses’, ‘modify threats’, ‘prevent effects’, ‘change use’, and ‘change location’ (Rayner and Malone 1998). It is clear that the role of community structures, institutional arrangements, and public policies cannot be overstated for realising these choices (Smit and Pilifosova 2001). Over the past years, many researchers have referred to the role of the institutional basis of vulnerability and adaptive capacity (see, for example, IPCC 2007b; Warner 2007; Tompkins and Adger 2004; Adger et al. 2003; Richards 2003).

It becomes clear that institutions are particularly important to provide for, and secure, the asset base of people on which every adaptation option will depend. Hence, the vulnerability or security of individuals and of societies is determined, not only by the likely responses of individuals, but by the availability of resources and, crucially, by the entitlement of individuals and groups to call on these resources. This is documented across a wide range of political and economic circumstances and development processes (see, for example, Adger 1999; Sen 1999; Ribot et al. 1996).

Basically, then, developing countries are asserted to be more vulnerable to climate change because among other things, of their ‘lack of institutional capacity’ which, usually, is interpreted as a ‘lack of capacity of government’. Yet, many unclarities remain on the role institutions play in specific contexts, with some questions repeatedly arising:

- *What models of governance can illustrate the role of institutions and public policies in the creation or reduction of risks?;*
- *How can policies achieve a balance between allowing the poor access to natural resources during hard times, while also ensuring that this biodiversity is protected for future generations? What kind of institutional arrangements are needed? (Scott 2006); and finally*
- *How well can people, businesses, governments, and communities adapt to the climate changes, especially in countries heavily dependent on food production, in countries with poor educational and technological attainment, poor fiscal or legal systems (Schelling 2007)?*

Despite all efforts undertaken to analyse and to understand the institutional context, scholars have not been able to elaborate a comprehensive ‘criteria check list’ for determining those prevailing institutional factors that are decisive for vulnerability and adaptive capacity (Dietz 2006). Against this background, Jones et al. (2010) propose to moving away from simply looking at what a system has that enables it to adapt, to recognising what a system does to enable it to adapt.

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<sup>56</sup> Speech held at the State of the World Population 2009 launching ceremony, November 19, 2009, in Hanoi/Vietnam.

#### 4.2.2 Some useful understandings and definitions

The institutional rules and behavioural norms that govern how individuals react in the face of shock and changing trends play a large role in adaptive capacity (Dulal et al. 2010). Institutions are important to consider in policy making, but the roles they play are complex and hard to decipher (Young et al. 2008: xiv). Policies related to reducing vulnerability and to enhancing adaptive capacity are neither necessarily attached to only one level of government nor to just one ministry or sector, hence other ways must be found of identifying the set of actors and/or interventions that are important for an analysis (Jones et al. 2010).

The first broad field for providing a number of approaches to this is political science, with a focus on the nature of *state-society relationships*. Shanks et al. (2004: 1) point out that the connection between political studies and development studies “*has waxed and waned over time*”. Some approaches have looked in detail at the nature of the state and its embeddedness in society, sometimes in highly context-specific matters, approaching politics through a focus on political culture and discourse (Shanks et al. 2004). The second level of analysis used by, for example, Bratton and de Walle (1997)—that of *political regimes*—can be described as the sets of procedures that determine the distribution of power. Various attempts have been made to define criteria with which to categorise different types of regime. Other approaches, then, aims at the contours of power relations within a society and locates political regimes along two axes, according to the degree of political *competition* (from monopolistic to pluralistic) and by the degree of political *participation* (roughly speaking, the proportion of the population entitled to more or less equally participate in politics on a more or less equal level). A fourth prominent approach certainly is that to the concept of *governance* and will be presented in some more detail over the course of this section.

Scott (2006) tells that there are areas which are abundant in natural resources but contain high numbers of poor people—what arguably may relate to concerns on institutional features and political power. Institutions embody and reinforce power relationships and their legitimacy, maintaining the status quo position and privilege of the dominant. Whether this is seen as the ‘purpose’ of institutions or whether it is simply the ‘outcome’ of institutional processes depends on the underlying paradigm of analysis (Adger 2000). Hence, a theory of vulnerability to climate change must also encompass the collective nature of vulnerability of a group or community to the impacts of climate change, including the institutional arrangements for preparedness for hazards (Adger 1999).

However, part of the problem of defining a theory of institutional adaptation lies in defining an institution. The theory is a contested one, hence “*there is no single theory of institutional adaptation in the face of climate and environmental change*” (Adger 2000: 740). The process of understanding and analysing vulnerability and, ultimately, building adaptive capacity relates to make people prepare for change, and to increased options for re-organisation following change. Folke et al. (2002) list four factors that confer adaptive capacity and appear to be indispensable when dealing with dynamics during periods of change and reorganisation: 1) learning to live with change and uncertainty; 2) nurturing diversity for resilience; 3) combining different types of knowledge for learning; and 4) creating opportunity for self-organisation towards social-ecological sustainability.

In relation to such a demand for understanding the institutional dimension of change, it must also be emphasised that the focus of the capability approach as a theory of justice is, ultimately, to design society’s economic and political institutions in such a way that “*adequate material and social resources are available to everyone in order to possess and exercise a set of basic capabilities that go to make up a decent life*” (Alexander 2008: 3).

## Institutions as a platform for decision-making

Inherent to vulnerability and the process of building adaptive capacity is the wider field of ‘decision-making’ which can be attributed directly to any climate-related threat and to broader ideas of ways in which societies and individuals want to, or seek to, live. To say it with Parsons’ (1995) words, decision-making can be thought of as a process which proceeds via a series of stages or phases as part of a problem-solving exercise. It is usually a process to which all or some of those individuals or groups who have a vested interest (that is, the stakeholders) may have access and in which they may be able to participate. When undertaken on behalf of society by some authority, decision-making is akin to policy-making (Adger et al. 2003: 1095). Decision-making, which builds a condition for and, at best, also a part of collective action, can be explained as “*all social phenomena (...) in terms of individuals and their properties*” (Robeyns 2008, cited by Alkire 2008). Sen’s analysis of famine as a *political* rather than *economic* phenomenon is a good example for the need for collective action: The process of improving quality of life often requires sustained and collective action. At an individual level people consult, discuss, and negotiate their goals with family and friends, so their very own goals become socially influenced (Alkire 2008: 7f.). Institutions, political and collective action will be therefore vital to create and sustain capabilities over time. Concerning this matter, government policies and individual adaptations are not independent of each other—they are “*embedded in processes that reflect the relationship between individuals, their capabilities and social capital, and the government*” (Adger and Vincent 2005: 400).

The nature of the relationships between individuals is critical in the whole process of decision-making, as are access to and participation in the wider decision-making processes (Adger 2003). The underlying belief systems, which “*value priorities and shape perceptions of important causal relationships*” (Sabatier 1993, cited by Priwitzer 2008)<sup>57</sup>, help to understand the decisions of the various actors. The way by which different decisions are made offers valuable insights into the ‘quality’ and nature of justice in the particular system. Decision-making and collective action for achieving a common good, I argue, will be strongly affected by recognition of, and empathy between, the actors involved and which, principally, is a matter of justice. In Nancy Fraser’s understanding justice is based on “*parity of participation*”. For Fraser, ‘parity’ means “*the condition of being a peer, of being on a par with others, of standing on an equal footing*” (Fraser 2003: 101), and “[a]ccording to this norm justice requires social arrangements that permit all (adult) members of society to interact with one another as peers” (ibid: 36). Parity of participation has two dimensions, a socio-economic (‘objective’) and a socio-cultural (‘intersubjective’) one. Both dimensions are distinct from and irreducible to each other. To meet the requirement of parity of participation there is at least one precondition to be met: “*First, the distribution of material resources must be such as to ensure participants’ independence and ‘voice’. This I call the objective condition of participatory parity. It precludes forms and levels of economic dependence and inequality that impede parity of participation*” (Fraser 2003: 36).

The latter directly prepositions the idea provided by Jones et al. (2010a) in which ‘flexible forward thinking decision-making’ based on a system’s capacity to anticipate change and incorporate relevant initiatives into future planning are central features for adaptation. Informed decision making, transparency and prioritisation all are key elements of acknowledging the role of ‘dynamicism’ of institutions to respond to evolving circumstances in light of climate change.

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<sup>57</sup> Indeed, this striking notion opens the door to a number of more culture-based approaches. However, as Geertz (1973: 14) asserts: “*Culture is not a power, something to which social events, behaviours, institutions, or processes can be causally attributed; it is a context, something within which they can be intelligibly—that is, thickly—described.*”

## The dual facets of institutions

For political analysis, Bratton and de Walle (1997) provide the term ‘political institutions’ which in itself is awkward though, as it is used in at least two different ways. In academic terminology, there is a commonly accepted distinction between *institutions* and *organisations* (or ‘actors’/ ‘stakeholders’) (North 1990). In daily usage, however, the term institution is often used interchangeably with organisation, so that a ministry is also described as a political institution (Shanks et al. 2004). Tompkins et al. (2002: 1099), in this context, assume that *operational* arrangements generally exist at smaller spatial scales, whereas *constitutional* arrangements are often observed primarily at the national level. North (1990) then delineates institutions into three categories: *constitutional*, *operating*, and *normative behavioural*. Similarly, Firmin-Sellers (1995, cited by Tompkins et al. 2002) notes that institutions operate at three levels: constitutional, institutional arrangement, and operational. Moreover, Huntington (cited by Shanks et al. 2004) links institutions and organisations in an interesting manner, defining institutions as “*expected patterns of behaviour*”, which helps to establish the distinction between organisations that are institutionalised (i.e. predictable in their procedures) and those that are not.<sup>58</sup> In line with these authors, we therefore should explicitly accept that the term can be used in both senses.

Institutions can be taken “*to include any government, (...) as well as private sector policy and behaviour. For example, a country’s agriculture, land tenure or land use policies can be instrumental in increasing or reducing vulnerability. (...) These include public services that deal with, for example, agricultural and livestock services, natural resource management, education, law enforcement and justice, as well as banks, systems for providing credit, communication systems and markets. It may also include community-based-organisations (CBOs), associations and unions, as well as informal institutions around social assistance, conflict resolution and land tenure systems*” (Jones et al. 2010a: 15).

Against this background, institutionalist perspectives analyse policy choices and outcomes through the lens of political institutions, seeing the state either as an actor in its own terms and at least semi-autonomous of society, or as an arena for competition between competing social and economic groups. There is much complementarity and overlap between institutionalist analysis and *interest-based* approaches, which focus on the role of political and social interests in shaping policy choices and implementation. Influence is seen largely “*as a function of a group’s capacity to articulate and organise a cohesive identity, pursue collective action, and form effective coalitions*” (Shanks et al. 2004: 4). It is in this context that Adger (2000: 740) deals with two manifestations of institutions: as structures of political power and legitimacy, and as predetermined social commitments and worldviews, in which diverse characteristics and motivations of institutional adaptation can both overlap and conflict.

Moreover, institutions can be either formal or informal. Institutions, both formal and informal, play a crucial part in the generation and dissemination of knowledge related to climate threats, as well as information and communication of opportunities and possibilities to adapt to them (Adger et al. 2003). However, prevailing institutional arrangements will also play a crucial role in constraining knowledge and information related to climate change (Jones et al. 2010a).

However, since it is formal political institutions that devise and implement the legal enforcement of property rights, all societal structures can be conceptualised as dependent on the institutional structure (Adger 1999: 256). But it becomes clear from the above that the term ‘institution’ does not exceptionally focus on public institutions; many scholars also include societal and economic institutions in their research (see, for example, Hyden et al. 2004: 3). Institutional frameworks create a strong impetus for political-societal action in which “*actors*

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<sup>58</sup> According to Shanks et al. (2004), this also helps to frame the analysis of any policy process, to the extent that regularised political frameworks are more accessible than discretionary and unpredictable ones.

*maximize their goals by changing their strategies or by changing the institutional setting that transforms their strategies into outcomes*” (Tsebelis 1990: 96f.). Levels of decision-making are also not independent between formal and informal institutions—they are embedded in social processes that reflect the relationship between individuals, their networks, capabilities, and the state (Adger 2001).

When formal institutions are weak, societal beliefs and practices that are part of the informal institutional context can on the one hand be a source, but also a constraint, of sustainable development. On the other hand, where formal institutional conditions consist that strive for organisational equality, customary practices and discrimination on the basis of gender, ethnicity, race, religion, or social status can also be a source of inequality.

These dual facets of institutions should be taken in mind when dealing with any institution-related research.

### **Governance: Overcoming the dual facets of institutions?**

While institutional approaches seem to be focused on the underlying processes of government and society, governance signifies *“a change in the meaning of government, referring to a new process of governing; or a changed condition of ordered rule; or the new method by which society is governed”* (Rhodes 1996: 652f.). *“The governance concept points to the creation of a structure or an order which (...) is the result of the interaction of a multiplicity of governing and each other influencing factors”* (Kooiman and Van Vliet 1993: 64).

For a few years now, governance as a concept *“has been a catchword in many corners of social science disciplines, such as international relations, public administration and management, political science and economics. Apparently there is a need for such a concept (...)”* (Kooiman 2002: 71). According to Kooiman (2002: 75), the ‘why’ of the growth of the governance approach can be explained by several factors: *“A growing awareness that governments are not the only crucial actor in addressing major societal issues; Traditional and new modes of governance-society interactions are needed to tackle these issues; Governing arrangements and mechanisms will differ for levels of society and will vary by sector: Concomitantly, many governance issues are interdependent and/or become linked”*.

Yet, reviews of the literature generally conclude that the term governance is used in a variety of ways and has a variety of meanings (Stoker 1998). A key lesson is that governance refers to processes—how things are done, not just what is done. Governance refers to the nature of rules that regulate the public realm—the space where state and economic and societal actors interact to make decisions (ODI 2006). In agreement with Mayntz, governance is *“the total of all forms of collective regulation of societal affairs existing side by side: from institutionalized self-regulation of civil society, various forms of co-operation between state and private actors, to the sovereign dealings of state actors”* (Mayntz 2005: 15). Thereby, the state is understood to be a differentiated fabric of actors connected with each other hierarchically only to a certain degree (public officials, public offices, etc.). *“Forms of collective regulation”* means that governance can be understood not only as a structure which regulates action, but also the very process of regulating (ibid.).

Governance is about a ‘reinvented’ form of government which is better managed (Stoker 1998) and which, not only therefore, has been criticised to be normatively influenced (see, for example, von Blumenthal 2005: 1161). Governance includes *“the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interests, exercise their rights and obligations and mediate their differences”* (UNDP 1997<sup>59</sup>). This highlights a feature in many analyses and uses of the concept: governance includes both

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<sup>59</sup> See: <http://mirror.undp.org/magnet/policy/glossary.htm> [accessed August 24, 2010]

government and citizens (Hyden et al. 2004). The emphasis on the usages of governance reflects analyses that consider actors in society, while the number of interactions among these parties also multiplies. As a result, the dividing lines between public and private sectors are becoming blurred. Interests generally are not just public or private, they are frequently shared. Hence it is generally more appropriate to speak of 'shifting roles of government' than of 'shrinking roles of government' that governance is concerned with. Moreover, governance is a process in which government officials and institutions make and implement policies, rules, and regulations while at the same time being accountable to the public. "*Bad policies and poor accountability equal bad governance. Good policies and accountability mean good governance*" (Kerkvliet 2004: 16). However, many equate good governance with a Western model of liberal democracy. To go beyond this perspective, it is necessary to relate good governance to a set of 'universal principles' (ODI 2006). This is what Hyden et al. (2004) do by identifying six 'core principles' that are widely accepted by researchers and governance stakeholders in developing and transitional societies around the world: Participation (the degree of involvement by affected stakeholders), Fairness (the degree to which rules apply equally to everyone in society), Decency (the degree to which the formation and stewardship of the rules is undertaken without humiliating or harming people), Accountability (the extent to which political actors are responsible to society for what they say and do), Transparency (the degree of clarity and openness with which decisions are made), and Efficiency (the extent to which limited human and financial resources are applied without unnecessary waste, delay or corruption).

Particularly in developing countries, governance has entered the policy arena. For the World Bank, still, the concept is at times reduced to a commitment to efficient and accountable government, and where 'governance' means "*the exercise of power to manage a nation's affairs*". Mkandawirde (2010: 266) argues that the concept of good governance originated among African scholars in relation to state–society relations. The term has since been taken up by the international development business, in particular the World Bank—and used by them as a new label for aid conditionality, in particular structural adjustment in all its various manifestations. There was also the view that 'poor' state–society relations only exacerbated political instability. Good governance would therefore have to pay special attention to issues of equity and inclusion. Thus came the question: 'Why is it that even when the recommended policies were implemented, the results hoped for did not materialise?' The answer then generally was 'institutional weakness' or 'bad governance' (Mkandawirde 2010). Others, such as Hyden et al. (2004: 3), base their research on governance and institutions on an understanding "*in reference to how the rules of the political game are managed*", and use the concept more broadly, therefore recognizing the interdependence of public, private and voluntary sectors in developing countries (Stoker 1998).

Perhaps not surprisingly, governance has also been playing an important role in vulnerability research for some time now. However, "*governance creates other dimensions of uncertainty in adaptive capacity*" (Adger and Vincent 2005: 403). Ultimately, governance is concerned with creating the conditions for ordered rule and collective action (Stoker 1998) which includes a wide range of scales and actors, and which therefore still poses conceptual challenges to the research of vulnerability and adaptive capacity, a field that in its current form is younger than the governance debate. Finally, the problem is that existing indicators, more often than not, provide poor measures of key governance processes (ODI 2006), especially when dealing with governance research in developing countries and when being based on a 'narrow' understanding of governance constraints. Maybe, the majority of vulnerability- and climate change-related research is therefore rather concerned with 'institutions' than with governance, in order to grasp a more detailed understanding on the

*status quo* of adaptation-related processes, before dealing with underlying changes in these fields.

### **Rules, entitlements, and access to assets**

While governance describes ‘how the rules of the game’ are managed, institutions can be described to define those rules (North 1990). Institutions are the ‘rules’ that govern belief systems, behaviour and organisational structure (Ostrom 2005). They are used to mean a more or less coordinated set of rules and procedures that governs the interactions and behaviours of actors and organisations (Powell and Di Maggio 1991). Thus, according to Lascoumes and Le Gales (2007: 8), “*institutions provide a stable frame, within which anticipation reduces uncertainties and structures collective action*”. Based upon this definition, a great deal of literature has shown how institutions structure public policies.

Institutions partly determine the way in which the actors are going to behave; “*they create uncertainties about the effects of the balance of power; they will eventually privilege certain actors and interests and exclude others; they constrain the actors while offering them possibilities; they partly determine what resources can be used and by whom. Institutions allow forms of collective action to stabilize, and make the actors’ behaviour more predictable and probably more visible*” (Lascoumes and Le Gales 2007: 9).

Against this background, capacity to adapt to climate change, as we have learned, will always also include autonomy to self-organise (Adger 2006), based on availability and access to key assets. But access to and control over assets is mediated through institutions and entitlements, or claims (Jones et al. 2010). Communities with well-developed social institutions are typically better able to respond to a changing environment than those with less effective institutional arrangements. Defining a ‘well-developed’ institution is, however, problematic and subjective (ibid.). Institutions include the institutional framework (the totality of institutions) within which environmental decisions are made, and institutional arrangements (particular sets of rules) through which such decisions are implemented. Access to assets depends on a legal structure that defines and enforces private property rights or on customary norms that define common property resources (World Bank 2000: 34). At the community level, then, these are generally ‘informal’ local-level institutions or rules, and may include: land tenure rules, such as claims to common property resources; the ways in which farmers share knowledge; family, clan and church networks through which assets are shared; and informal (unwritten) ‘rules’ governing the rights of women (Jones et al. 2010).

Institutions can therefore, as Jones (2010) explains further, not be measured solely according to asset distribution, since people’s livelihood options are determined not only by their asset base but also by the wider governance environment, or ‘policies, institutions and processes’, which determines access to and control over assets by different population groups and thus their vulnerability or resilience. Dimensions such as participation in decision-making; how institutions empower or disempower people; and the extent to which individuals, groups and communities have the right to be heard may prove key in determining both the degree to which a community is able to adapt, and the direction in which it does so. Social barriers to adaptation and the norms, rules and behaviour are all shaped by informal institutions, and can in many instances influence how individuals choose to cope and adapt to climate variability and change (ibid.). At a more pragmatic level, institutions play a role both in causing and in mitigating environmental problems (Adger et al. 2003). They shape the perception of and professed solutions to such problems. The impact of institutions on environmental problems and decisions, therefore, varies from one context to another.

After having worked on ‘polycentric governance systems’ for many years, Ostrom (2001) defines institutions as systems of rules that are institutionalized across various scales. She emphasises that examining the vulnerability of social-biophysical systems to external shocks

is not only an important policy question, but also a stimulus to the development of better explanatory theories relevant to governance more generally. Ostrom, based on a series of studies of resource governance systems, proposes “seven broad types of institutional rules that are employed in governing the use of water systems, forests, fisheries, pastures, and the atmosphere for disposing of waste” (Ostrom 2001: 1). The Box below lists these rules.

**Box 9: Rules and Institutions**

*Source: Adapted from Ostrom (2001)*

1. *Boundary rules*, that specify who is allowed to use resources and under which conditions;
2. *Position rules*, that specify the broad capabilities and responsibilities of users and officials;
3. *Scope rules*, that specify which outcomes are allowed, mandated or forbidden;
4. *Authority rules*, that specify the actions that participants in positions may, must or must not do;
5. *Aggregation rules*, that affect how individual actions are transformed into final outcomes;
6. *Information rules*, that affect the kind of information present or absent; and
7. *Payoff rules*, that affect assigned costs and benefits to actions and outcomes.

Based on Ostrom’s list of rules, it will be possible to identify whether, and if so, how, an institutional environment allows equitable access and entitlement to key assets. This ability to ensure equitable access and entitlement to key resources and assets is certainly a fundamental characteristic of adaptive capacity. Given that entitlements to elements of adaptive capacity are socially differentiated along the lines of age, ethnicity, class, religion and gender (Adger et al. 2007), an institutional environment that permits equitable procedural and distributional opportunities for all groups, and those most vulnerable to the impacts of climate change, is essential to building the capacity to adapt (Jones et al. 2010a).

### **Institutional adaptation and performance**

Adaptive capacity can exist within institutions, individuals and groups, and it can be influenced by the institutional environment as well as individual choice and behaviour (Tompkins and Adger 2005). Institutions both mediate and are influenced by vulnerability and adaptation processes. In some cases, the notion of good governance found entrance into the debate on adaptation to climate change: ‘Good’ laws and legal frameworks are considered essential to how to reduce the risks: “*Good legislation has the power to help communities become less vulnerable. (...) Weak legal frameworks and policies, on the other hand, can put people closer to harm’s way*” (IFRC 2010: 2). In this sense, some sources emphasise that state governments and institutions for public administration remain the most important actors in promoting and furthering good governance for adaptation. Particularly in communities in which there is less cohesion or more centralized planning of community life, the structure of government institutions may be an important factor (Tompkins and Adger 2004).

In addressing risk and vulnerability, the issue once again is whether public interventions and institutions work well—and in the interests of poor people (World Bank 2000: 40). Adaptation interventions themselves can be approached as an integral part of ‘good development’. The premise here is that addressing the underlying drivers of poverty and vulnerability will help people and communities to respond to changing shocks and trends more generally, including climate change (Riché et al. 2009; Bapna and McGray 2008). ‘Inclusionary coastal management’, for example, may empower individuals and groups

through the process of devolving power, but if the institutional structures are not in place to fulfil raised aspirations, then participatory management cannot follow through towards sustainable management. Hence the need for a wider focus on the institutions, their networks, and scales (Tompkins et al. 2002: 1096).

Analysing institutions and governance might as Stoker (1998: 26) puts it “*be just a simplifying lens to a complex reality*”, but such an analysis is crucial “*for understanding changing processes of governing, characterised by processes of adaptation, learning and experiment*”. Any analysis must look both at the ‘technical’ capacity of institutions and the power relations behind decision-making. How imbalances are reflected in any specific society will influence the capacity of individuals to adapt to changing shocks and trends (Jones 2010).

Defining a ‘well-developed’ institution is problematic and subjective (Jones et al. 2010), though. On the one hand, it has been argued that “*decision-making and governance that is flexible, collaborative and learning-based may be responsive, adaptive and better able to cope with evolving circumstances*” (Smith et al. 2003, cited by Jones et al. 2010). On the other hand, responsiveness and ability to cope is, more often than not, only hard to predict. Institutional arrangements dictate social and political acceptability of different policies, they structure worldviews, and they determine the provision of resources. The ability to respond to climate change is both enabled and constrained by institutional conditions (Tompkins and Adger 2005). Power relations are embedded within these institutions and reflected in long-term processes of social and political marginalization of certain population groups, and thus the creation of vulnerability (Jones et al. 2010a). The ‘dominant worldview’ of an institution, then, is itself a product of power, and is not fixed. Institutions are not precast, nor do they operate according to a single objective. And, because of the plethora of interlocking social, economic, and cultural influences on such institutions, worldviews are themselves constantly in flux (Adger 2000: 741).

Therefore, the concept of institutional adaptation is a contested one. It is said to apply “*both to structures of power and relationships as made manifest by organisations with leaders, memberships or clients, resources and knowledge, and to socialised ways of looking at the world as shaped by communication, information transfer and the pattern of status and association*” (Jordan and O’Riordan 1995: 1). The decisive question therefore must be ‘How institutional frameworks can become purposefully changed?’. On a conceptual level, there are two prevailing positions dealing with the ‘transformative perspective’ (Jann 2005: 26): The first one presumes that it is possible to create a design of rules through conscious action. Another theory is based on reflections that are oriented more on evolutionary aspects of transformation and stems from the assumption that it is very difficult to change institutional arrangements through conscious action (Olsen 1992). DiMaggio and Powell (1983) formulate a theory of ‘institutional isomorphism’ and argue that ‘new’ concepts of structures and procedures in governing are able to spread globally by emulation. However, recent studies have shown that emulation is generally not taking place through a manner of simple diffusion or copying. In fact, reforms are taking place in a process of “*translation, editing and adaptation*” (Christensen and Laegreid 2004: 16). Thus, the dominant academic opinion is that many institutional changes are taking place only at the surface. Changes then become stamped by a symbolic character; they are ‘window dressing’ (Jann 2005: 27).

When there is a ‘real’, i.e. more profound, institutional change occurring, it will be socially mediated and differentiated and can take place through a variety of mechanisms, including social learning and habitualised behaviour for informal institutions (Adger 2000). In parallel, adaptation by state institutions has been characterised as ‘policy learning’—an approach that explains adaptation to external change as the means by which state institutions or actors retain and strengthen their own objectives. These include the “*maintenance of institutions and the socioeconomic structures they dominate*” (Adger 2000: 740). Changes in the risk and hazard

landscape challenge these institutions and their constitutions of reality. Reaction to such threats, however, is rarely based solely on institutional self-interest or clearly defined goals (March and Olsen 1996).

It has been assumed that while it is difficult to deliberately change institutional patterns, it may be more promising to focus on the institutional *outcomes*. For example, policy reform can affect institutions by changing organisational structures, roles, and responsibilities, or rules and incentives, as well as by altering incentives for those involved. In the economic domain, for example, this can happen by removing price distortions or encouraging competition. These reforms in turn affect the behaviour of interest groups and stakeholders, and thereby economic outcomes—including distribution and poverty reduction (World Bank 2003: 6). In terms of sustainable development, then, performance of institutions is a key topic in a study provided by Young et al. (2008). According to them, the criteria best suited for evaluation of institutional performance by policy makers are efficiency, equity, and sustainability. Related to this, Adger et al. (2005) argue that “*elements of effectiveness, efficiency, equity and legitimacy are important in judging success in terms of the sustainability of development pathways into an uncertain future*” (Adger et al. 2005: 77).

Finally, it becomes clear that institutions incorporate structures of political power and legitimacy; standard operating procedures; as well as predetermined social commitments and worldviews (March and Olsen 1989). These characteristics of institutions allow examination of how adaptation occurs at the various levels. Adaptation can therefore be observed through changing formal institutional structures and through examination of the perceived legitimacy or a lack thereof. Perceptions of the external world and perceptions of risk and vulnerability form a central element in understanding institutional change. As Cantor and Rayner (1994: 69) state: “*perceptions and cultural attitudes are (...) primary determinants of political action.*” The scale of institutional analysis is obviously important within this domain although individuals are constrained by institutions within the dominant political framework (Adger 1999).

#### **4.2.3 ‘Making institutions work’ for adaptation**

Institutional analysis is on the cutting edge of the social sciences today. Institutions have been critical forces in shaping ‘real world’ environmental governance systems, and therefore are significant not only for scientific but also for policy advances (Young et al. 2008). As the previous section has highlighted, institutions are defined as systems of organisations, stakeholders, but also rights, rules, and decision-making procedures. The studies indicate that institutions play a decisive role in both causing and addressing problems that arise from human-environment interactions but that the nature of this role is complex.

Dealing effectively with adaptation to climate change at different scales will involve new and challenging institutional processes (Adger et al. 2005). Antecedent research from all traditions contributes to framing vulnerability to global change in two ways: First, it demonstrates that institutions adapt to environmental risk. Given resources and favourable circumstances, this adaptation will ultimately reduce the impact of perturbations on marginal sections of society and enhance resilience. Second, it shows that there is a close interdependence between environmental risk and institution building (Adger 2006).

A major challenge in institutional research is to understand that policies can affect different groups among different levels in very different ways (World Bank 2003: 6). Adaptation actions may disadvantage some groups (Eriksen and Kelly 2007). Building dams or irrigation systems to stabilize water supply, for example, may lead to ‘mal-adaptation’ due to putting additional stress on some groups that, due to the new infrastructure, lose access to important water resources that they have previously used in coping with drought (Nelson et al. 2008).

Another underlying cause of vulnerability is the inability of the state or community to develop mechanisms to reduce or mitigate the risks that poor people face. Certainly, people have rights as well as needs in the wake of climate-related risks but legal barriers can hamper preparation and recovery (IFRC 2010: 6), particularly for those who should build the centre of concern, i.e. the most vulnerable population groups. Irrigation, infrastructure, public health interventions, honest police and a fair legal system, public work schemes in times of stress, micro credit to tide people through the aftermath of an adverse shock, social networks of support and insurance, famine relief in extreme circumstances—all reduce vulnerability for poor people (World Bank 2000: 37). But solutions that cater only to singular needs such as finance, technology, or infrastructure, but that do not address ‘agency’, i.e. the capability to deploy such resources when needed, “miss a significant piece of the puzzle” (Perch 2011).

It may therefore seem intuitively obvious what ‘key indicators’ enhance adaptive capacity. But the objectives of adaptation across different areas of adaptive capacity are not necessarily given, or shared, on the sub-national level. Poor and landless households have limited resources, yet failure to adapt can lead to significant deprivation, displacement, or even mortality. Subsistence farmers do not have the same adaptation options as commercial producers. Adaptations in water supply and irrigation may involve landowners, private traders, local authorities, water-dependent businesses, and government agencies. Each stakeholder has distinct interests, information, risks, and resources and hence would consider distinct types of adaptive responses (Smit and Pilifosova 2001). Any attempt to adaptive capacity building is a function of the underlying objectives of governance across various scales. There are inevitably discrepancies between governments whose aspirations are to maximise the welfare of their citizens, compared to those governments which seek to maintain control of their citizens, or those that seek to reduce the vulnerability of the most vulnerable groups. These different aspirations lead to different weightings of the elements of adaptive capacity (Adger and Vincent 2005: 403), such as investing in short-term adaptation projects than in tackling the underlying social sources of vulnerability. Haddad (2005) has shown empirically that the ranking of adaptive capacity of nations is significantly altered when governmental aspirations are taken into account.

### **Institutional approaches for adaptation and institutional adaptation approaches**

There are many classifications of adaptation options, based on their institutional structure, their specific focus, and their modes of implementation. An interdisciplinary body of research encompassing economics, political science, sociology, and anthropology has demonstrated under what circumstances governance institutions are likely to be effective. It has also identified a number of design principles that characterise successful governance and institutions (Paavola and Adger 2005: 354). Clearly, adaptation demands for better communication and integration among different scales of government administration, actors from both within and outside the government, as well as between different sectors, particularly livelihood approaches, social protection, and disaster risk reduction.

The current perception is that better policies and/or institutions are required to reduce the consequences of climate change for the poor (DFID 2004). In some cases climate change adds urgency to current activities to improve policies that impact on the poor. In other instances there may be a case for changes in planning or institutional reform to take account of climate risks. But there is no optimal level of institutional reform and organisation from which to address the problem. Rather, levels are identified through a political framing process, a process that itself changes the nature of the problem, the menu of possible solutions, and the way in which the results are evaluated (Young et al. 2008). This holistic view has increasingly been adopted across scientific disciplines. It is also based on the understanding that decision-making about climate change is difficult because of the scientific uncertainties, the long time frame for impacts to occur, and the global nature of the problem.

Making decisions about ‘what to do’ about climate change is complicated by uncertainties related to the size and distribution of the possible impacts, and consequently to the risks attached to making maladaptive responses (Tompkins and Adger 2004). Probability-based decision-making frameworks are of little use only as there are no known probabilities of different climate change impacts occurring at different times, places or in the form of specific hazards (Tompkins and Adger 2005: 563).

Yet it seems clear that the state plays a central role—by providing both institutional ‘outcomes’ such as basic social services, infrastructure, or legal frameworks, and for steering the ‘rules of the game’. Surely, individual sectors which provide policies, programs and interventions on specific issues are limited in their ability to guide adaptation. A public sector agency may, for example, ignore the environmental or developmental effects of an action because they can be externalized in the decision-making process so that they become ‘somebody else’s problem’ (Adger et al. 2005: 81). As a result, climate policy responses taken today more often depend on individual decision makers’ attitudes toward risk (Schneider 2002). It is clear that public institutions need legitimacy and harmony with wider social goals if adaptation is to be sustainable. In effect, all forms of adaptation will require “*government structures that are empowered to make collective decisions*” (Brown et al. 2002).

Empirical studies on barriers to adaptation show that there is a clear need for integration among sectors, among government departments, and across different scales of management. Some of the impediments could be removed through better communication among these involved and a more integrated planning process (Tompkins and Adger 2005: 567f.).

Effective multilevel governance systems, then, are critical for building capacity to cope with changes in climate, disease outbreaks, hurricanes, global market demands, subsidies, governmental policies, and other large-scale changes (Adger et al. 2005). In this context, another important term that recently has raised some consideration is ‘institutional interplay’ which occurs when the operation of one set of institutional arrangements affects the results of another or others. Given the rapid growth of institutional arrangements at all levels of social organisation, interplay is an increasingly common occurrence, one that can produce positive as well as negative results for environmental governance (Young et al. 2008: xvi). A final important component of the institutional environment is the capacity of institutions themselves to be flexible, and in some cases evolve, to allow communities to adapt (Jones et al. 2010).

Most importantly, there needs to be an institutional structure that is “*inclusive and permits public participation in decision-making*” (Tompkins et al. 2002: 1100). Decision-making will better be based on shared responsibility among different scales and sectors. Community participation in decision making about natural resources can be beset by many problems, though, and may not always be in the best interests of those involved (or not involved) or of the resource being managed (Cooke and Kothari 2001). Participatory and inclusive management refers both to ‘interactive’ and to ‘active’ participation (Pimbert and Pretty 1994). These terms reveal the role of community self-mobilisation and the importance of communities being able to take control of decisions (Tompkins et al. 2002). In this context, Rauch et al. (2001: 52) distinguish between five modes of participation, i.e.

1. *Widening self-determination*; i.e. participation that is designed in a way which leaves maximum choice to the local level (e.g. unconditional grants or credits, multi-purpose funds),
2. *Unilateral articulation*; i.e. decisions of agencies are based on improved information on the local level (e.g. opinion polls, referendums, complaint channels),

3. *Dialogue*; i.e. decisions between agencies and local population based on mutual information exchange (e.g. informal group meetings, planning workshops, consultations with representatives),
4. *Application and contract procedures*; i.e. service agencies and the local population are aligned in a legally binding manner (e.g. contracts on contributions), and
5. *Co-determination*; i.e. the local population is entitled to be part of the decision-making body (e.g. membership in board of directorship or councils).

Based on these various modes of participation, it becomes clear that simply describing the *proportion* of the population that can participate in politics is thus a necessary but not sufficient perspective on the inclusiveness of a given political regime (Shanks et al. 2004). Taking a look on the field of resource management, for example, reveals that a central feature of the literature on institutions is the importance of social discourse and the need for integration of diverse stakeholders' interests into collective decisions (Davos 1998). Especially when seeking for sustainability, the notion of participation implies that all relevant institutions (stakeholders) are taking part in deciding upon, planning, and implementing in those tasks that promote adaptive capacity. Otherwise, there is the risk that public spending and collective activities will already be abandoned after a short time (Bliss 2005).

Therefore, as global experience reveals, participation is central to adaptation approaches. Participation can contribute to empowerment and self-reliance, yet it has been long recognised that the primary benefits of participation may not be instrumental in terms of outcome, but rather in the building of social capital (social capability) through the processes of empowerment (Tompkins et al. 2002). But even if empowerment is a centrally intended or unintended outcome of participatory decision-making, the structures of governance and delivery for sustainable management need to be in place (Tompkins et al. 2002). Thus the need “*to understand the institutional forms and networks that facilitate inclusive decision-making at various scales*” (Tompkins et al. 2002: 1098f.). Efforts to support capacity development for responding to climate risks will need to strengthen local institutions and social capital in addition to strengthening formal national mechanisms (Christoplos et al. 2009).

Although not a *panacea*, community engagement may offer a means of reducing vulnerability to the natural hazards associated with climate change (Tompkins and Adger 2004). One reason why co-management has gained outstanding popularity in recent years is that it can combine local relative advantages with the relative advantages of the state in environmental governance (Paavola and Adger 2005). Co-management is one form of collective action whereby resource stakeholders work together with a government agency to undertake some aspect of resource management (Tompkins and Adger 2004). Collective action in this context is the coordination of efforts among groups of individuals to achieve a common goal when individual self-interest would be inadequate to achieve the desired outcome (Ostrom 1990).

As an example of the importance of institutional approaches to adaptation, it was the 2004 Asian tsunami tragedy that demonstrated that formal and informal institutions with the capacity to respond to rapid change in environmental and social conditions are a key to mitigating the social effects of extreme natural hazards (Adger et al. 2005). Since then, many examples have shown that rather than attempting to reduce or eliminate inherent change and variability (the conventional engineering approach to ‘control’ risks), institutional systems ranging from the government through to local systems can provide for lasting solutions.

### **The role of livelihood approaches, social protection, and disaster risk reduction**

Finally, by coming back to the three approaches of sustainable livelihoods, social protection and disaster risk reduction, it shall be reiterated that all approaches seek either to provide,

protect or recover assets or to strengthen or create enabling institutions at multiple levels that allow for entitlements to those assets that will be needed for keeping vulnerability low (Jones et al. 2010a); from this perspective, therefore, they have the potential to contribute towards adaptive capacity through promoting responsive and equity-based institutions. Livelihood approaches, for example, aim to ensure that policies and institutions are responsive to the needs of the poor (ibid.). Hence, supporting adaptation needs to go beyond simply supporting livelihood strategies on the *operational* level and also needs to address *institutional* and policy (*constitutive*) constraints encountered in the adaptation process. Furthermore, in order that they can be pursued over time, strategies need to be environmentally sustainable (Davies 1993) and not damaging to the livelihoods of others.

Moreover, on the operational level, when appropriate disaster risk reduction strategies are in place on the different scales of government, for instance, where community-based disaster risk management committees are operational and where, for example, financing and erection of sea wall defenses which do not undermine the resource base for sustainable development is guaranteed—the catastrophic consequences of disasters can be substantially contained (Jones et al. 2010). Therefore, without undermining anyone’s resource base on the path to adaptation, the importance of both formal and informal institutions is emphasised in each of the three approaches, including traditional social networks or safety nets and functioning government services. Box 10 illustrates this and provides some examples.

<b>Box 10: Assets, policies and institutions targeted by livelihood approaches, social protection and disaster risk reduction</b>		
<i>Source: Jones et al. 2010</i>		
	<b>Assets – main focus</b>	<b>Policies and institutions</b>
<b>Livelihood approaches</b>	Physical, natural, human, social, financial assets	Community-based organisations/ committees at local level, social networks, markets, agricultural services, natural resource management
<b>Social protection</b>	Physical and financial assets and some natural and physical assets at community level	Social relations/ networks, government institutions: safety nets, credit/microfinance, public works, anti-discrimination policies
<b>Disaster risk reduction</b>	Protecting, preparing and replacing lost physical assets; awareness and knowledge; addressing underlying causes of vulnerability and risk to extreme events	Natural resource management, early warning systems, contingency planning, insurance, education, access to information

### **4.3 Development, Climate Change, and Vulnerability: The Adaptive Capacity Framework**

Based on the aims of this study, I contend to follow an interpretation of adaptation policy which still must be characterized as ‘young’ in the adaptation discourse but which, at the same time, has gained increasing interest: By sharing the argumentation provided by Schipper (2007) that a disproportionate focus on the impacts of climate change are obscuring opportunities for addressing vulnerability and that, moreover, an isolated adaptation discourse is unhelpful, I argue for the perspective ‘reducing vulnerability through sustainable development’ rather than ‘reducing vulnerability through adaptation’. Schipper has argued that approaches to adaptation have mainly focused on the direct exposure of natural and social systems to climate change so far by leaving out mainly that adaptation also implies that the factors lying *behind* a society’s vulnerability to climate change. It is particularly these factors in the long term that are required to be addressed.

The study presents an analytical framework with understanding and respect for autonomous adaptation as the starting point for adequately addressing the human dimensions of climate change. In line with Christopolos et al. (2009), I suggest that adaptation should be built on efforts to more effectively support households and communities to deal with their very concerns of securing their livelihoods, and that this should be done with a deeper awareness of the social, political, and economic factors that frame their actions (and that build limitations for action, as well). Taking a look through the ‘development lens’—rather than through the ‘adaptation lens’—this study argues that vulnerability must be reduced first through climate-aware development practice in order for adaptation to take place. In the long term, this consequently means both supporting and providing a pathway for socio-economic development based on the principles of sustainability.

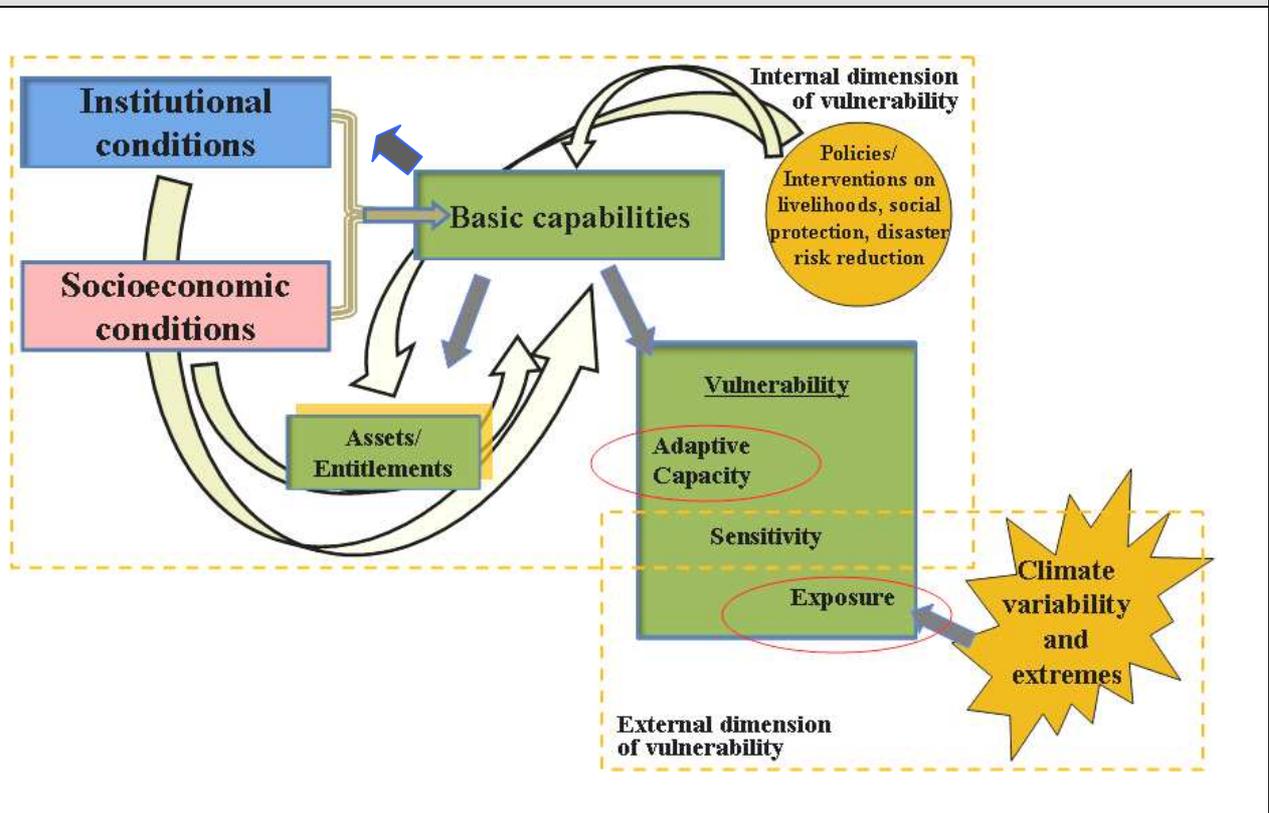
Over the past decade a multitude of studies has been conducted aimed at understanding how climate change might affect a range of natural and social systems, and at identifying and evaluating options to respond to these effects. These studies have highlighted differences between systems in what is termed ‘vulnerability’ to climate change, although without necessarily defining this term (Ionescu et al. 2005). The conceptual framework that I apply is also for demonstrating (and capturing) the complex nature of social vulnerability. Based upon these considerations, the analytical framework is constructed on the assumption that present day climate variability and extremes as well as offsetting and interlocking socio-economic and institutional facets result in a given (and observable) state of vulnerability.

In this study, I use a conceptual framework—as well as tools for assessment—that are differing from an understanding that is mainly based on the biophysical exposure of climate change in order to analyse vulnerability. Yet, however, I must point out that the analytical framework outlined in this study cannot operate in isolation without input from what Adger and Kelly (1999) describe as ‘more traditional approaches’ that focus on the very exposure to climate change. Therefore, a social science driven approach should be considered as one essential perspective on a problem that, more often than not, must be described ‘multi-dimensional’. In this way, a vulnerability reduction approach represents a holistic approach to poverty and vulnerability. In fact, it is multiple drivers, including climate change, that exert influence on a population, place or system (Nelson et al. 2008). The selection of indicators was done through the capabilities approach and the vulnerability definition provided by the IPCC.

### 4.3.1 Analytical Framework

Based on the above discussion and the presentation of theoretical foundations on research of vulnerability and adaptation, the following figure depicts the analytical framework upon which my research approach is based.

**Box 11: Conceptual framework for analysing vulnerability and adaptive capacity**



### 4.3.2 Vulnerability: Adaptive capacity, sensitivity and exposure

For this study, I base my definition of vulnerability on the IPCC:

*“Vulnerability is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. It is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.”* (IPCC 2001b: 995).

This often-cited, yet underrepresented definition which sees vulnerability as being both influenced by biophysical exposure and the capacity to adapt is central to the conceptual approach applied. Vulnerability is determined both by exposure to the climate-related hazards, and by ability to manage the risks (Sabates-Wheeler et al. 2008).

Vulnerability can be explained by a combination of social factors and environmental risks; where risks are *“those physical aspects of climate related hazards exogenous to the social system”* (Adger 1999: 251). Vulnerability to climate change involves changes in these parameters over time. Change in social vulnerability from its baseline level incorporates notions of socio-economic development and conditions, as well as *“adjustments to livelihoods based on adaptation to climatic conditions, and changes in institutional and political structures”* (ibid.).

*Adaptive capacity* represents the potential to implement adaptation measures that help avert potential climate-related impacts (Gbetibouo and Ringler 2009). It is “*the ability of a system to adjust to climate change to moderate potential damages, to take advantage of opportunities or to cope with the consequences*” (IPCC 2001b: 982). Adaptive capacity is therefore a central component of vulnerability (Adger and Vincent 2005: 400). Adaptive capacity of human systems (in particular to extreme events) is low when at the same time vulnerability is high and climate change impact events become more frequent (Georg 2009). In a broader sense, the adaptive capacity of a human system represents the potential of the system to reduce its social vulnerability and thus to minimise the risk associated with a given hazard. Since Bohle et al. (1994: 37) define vulnerability as “*an aggregate measure of human welfare that integrates environmental, social, economic, and political exposure to a range of harmful perturbations*”, challenges for adaptive capacity will comprise all these multiple dimensions. Based on Sen’s capability approach, adaptive capacity can be defined as ‘meta capability’ that is constituted by the multiple dimensions of capability in the natural, economic, social, and political domains. While many factors will determine a system’s capacity to adapt to a variety of existing or anticipated hazards, other aspects of adaptive capacity will be hazard-specific (Brooks 2003: 13)

*Sensitivity*, in its general sense, is defined by the IPCC (2007b) as the degree “*to which a system is modified or affected by an internal or external disturbance or set of disturbances*”. The notion of sensitivity is important, because it presupposes that any adaptation is not about returning to some prior state, since all social and natural systems evolve and, in some senses, co-evolve with each other over time (Tompkins and Adger 2004).<sup>60</sup> Hence, sensitivity in the present study, and in accordance with Füssel and Klein (2006), will be defined as the cutting point between the adaptive capacity and the exposure of a system.

*Exposure*, then, can be interpreted as the direct danger (i.e. the stressor), and the nature and extent of changes to a region’s climate variables. Exposure relates to the degree of climate stress upon a system; it may be represented by either long-term changes in climate conditions or changes in climate variability, including the magnitude and frequency of extreme events (O’Brien et al. 2004).

Based on these definitions, two central components of vulnerability can be identified: first, the effects that an event may have on humans (social vulnerability), and second, the risk that such an event may occur (exposure) (Adger 1996). Thus, vulnerability refers to both *internal* and *external* dimensions. The internal dimension relates to defenselessness and insecurity, as well as the capacity to anticipate, cope with, resist, and recover from the impacts of a hazard. The external dimension involves exposure to climatic variability and extremes. In this study, the internal and the external dimensions of vulnerability will be understood as a) institutional and socio-economic conditions as internal dimension within which vulnerability is mediated and policies and interventions for reducing vulnerability are implemented, and b) biophysical and location-specific determinants that constitute the external dimension of vulnerability. Such an approach is based on descriptions of vulnerability as “*both eventbased and a product of political and economic structural factors*” (Adger et al. 2003: 190).

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<sup>60</sup> The term ‘resilience’, in this context, can be understood as being closely related to ‘sensitivity’. Holling (1973) defined resilience as a ‘measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables’. Resilience is the amount of change a system can undergo without changing state (IPCC 2001b). However, broader discussions on resilience will be left out here, because it is the central theme of the study that change will be both inevitable and must therefore be expected.

### 4.3.3 The internal dimension of vulnerability

Adaptive capacity to climate change can only be analysed usefully within the context of wider development processes and interventions (Jones et al. 2010). Therefore, I identify distinct yet interrelated determinants that are conducive to adaptive capacity. At the center of the internal dimension of social vulnerability are the capabilities of individuals and communities to handle and to cope with risks. Capabilities will be affected by determinants such as institutional and socio-economic conditions that may constrain and limit the capacity to respond to climatic stresses. Other factors influencing adaptive capacity are the asset base and the set of policies and interventions aiming at livelihood approaches, social protection and disaster risk reduction (yet, vulnerable people may also have direct influence on and command over both institutional conditions and the asset base in case their level of capabilities allows them to do so).

The basic statement for the analysis of the internal dimension of vulnerability is that peoples' livelihoods depend on their capabilities to adapt to internal and external shocks and stresses. The implications of focusing on capabilities in the analysis of vulnerability and the potential reduction thereof, respectively, will become clearer as we go along. One particular consequence relates to the need to broaden attention from the notion of 'adaptive capacity' to more substantial and basic capabilities that have a substantial impact on vulnerability. This is to say that a person's adaptive capacity to cope with newly emerging or already existing climate variability and extremes may depend not merely on a particular risk at stake, but also on the person's human capabilities (such as health, education, drinking water, to name but a few), or his or hers economic, protective, political, and social capabilities.

These multi-dimensional factors can be indicated and measured based on the capability approach, including human, economic, protective, political and socio-cultural capabilities (see chapter 2.3). Nonetheless, based on the framework I propose to produce unit-less indicators that can be employed to judge the relative vulnerabilities of diverse systems to multiple stresses and to their potential interactions. The importance of availability and interplay of key assets needed to respond to evolving circumstances in a changing climate cannot be overstated. Key assets are made up of a number of elements that constitute the various financial, physical, natural, social, political and human capitals that are "*necessary to best prepare the system to respond to a changing climate*" (Jones et al. 2010a: 7). This has proven to be a useful starting point for an asset-based approach that I will apply in my study.

Lack of assets such as land, livestock, income, social networks and political links influences vulnerability (Jones et al. 2010: 3). The asset base can be defined as the ability of a community to cope with and respond to change depends heavily on access to, and control over, key assets (Davies et al. 2009). Assets include both tangible capitals (natural, physical and financial) as well as intangible ones (human and social) (Prowse and Scott 2008). Clearly spoken, a capability is 'vulnerability-related' if and only if it directly links with adaptive capacity. While many capabilities are 'vulnerability-related' in this sense, some will be more important than others in a specific context. My primary concern is with those vulnerability-related capabilities that are crucial to human well-being ('basic capabilities'). In total, then, this set (or 'bundle') of capabilities and the improvement of living conditions as related to increasing the quality of these capabilities at stake in the following will be seen as the conceptual basis for what previously has been outlined as the initial statement of 'reducing vulnerability through sustainable development'.

Some researchers, then, regard the adaptive capacity of a system as a function of availability of and access to assets (Kelly and Adger 1999). Following Drèze and Sen (1989: 13ff.), a person's capability to avoid becoming affected by climate risks may depend on the person's access to services provided by public action, such as health care, medical facilities,

elementary schools, water pumps, etc. Access can be taken to mean “*involving the ability of an individual, family, group or community to use resources which are directly required to secure a livelihood. Access to those resources is always based on social and economic relations*” (Blaikie et al. 1994: 48). Access to services such as education, health care, agricultural services, justice systems, conflict resolution mechanisms and other resources<sup>61</sup> are key features of vulnerability (Jones et al. 2010: 3); yet, they are also a part of capabilities.

In this very context of ‘access’, Sen (1999) emphasises the importance of ‘entitlements’ that households and individuals have in order to expand their choices of socio-economic and political opportunities for their overall well-being in a sustainable manner. Entitlements relate to the assets people own, but also to the accountability and effectiveness of institutions and, for many population groups, structural inequalities that bar access to basic capabilities (Georg 2009), including long-term processes of social, economic and political marginalisation (Jones et al. 2010: 3). Thus, power relations that may determine adaptive capacity at the local level have to be taken into consideration and lie within the analytical range of this framework. The purpose of the analysis of institutional conditions is to draw out how they determine social vulnerability. Thus those institutional aspects of individual and collective vulnerability are explained in greater depth through qualitative analysis of institutional conditions. In particular, the analysis considers the role of institutions and institutional dynamics, both formal and informal, in mediating capabilities. To overcome the difference between ‘formal’ and ‘informal’ institutions, Shanks et al. (2004: 3) link institutions and organisations in an interesting manner, defining institutions as “*expected patterns of behaviour*”, which helps to establish the distinction between organisations that are institutionalised (i.e. predictable in their procedures) and those that are not. The framework therefore deals with two manifestations of institutions: first, as “*structures of political power and legitimacy*” and, second, as “*predetermined social commitments and worldviews*” (Adger 2000: 740). In line with Shanks et al. (2004), I agree that this helps to frame an analysis of the policy process, to the extent that regularised political frameworks are more accessible than discretionary and unpredictable ones.

Based on these considerations, a list of ‘rules’ provided by Ostrom (2001, see chapter 4.2.2) on vulnerability and polycentric governance systems will be approached for analysing those institutional facets which are assumed to be decisive for adaptive capacity. Generally speaking, these rules allow for framing those actions and processes that actors must follow and obey to within a given institutional setting and which may facilitate or constrain adaptive capacity. In accordance with Risse (2007), these rules will be analysed in how far they are constituting to achieving a given objective (what, in this case, is the objective of dealing efficiently and sustainably with the individual and collective risks of climate change). These rules therefore provide a frame for result-oriented processes. Based on this understanding, rules are the “*institutionalized modes of collective coordination for action which target at the creation and implementation of binding regulations*” (Risse 2007: 4).

Finally, in order to further understand how features of livelihood approaches, social protection and disaster risk reduction contribute to promoting adaptive capacity in light of climate change, the framework is sensitive to analysing these types of state assistance. Although not conventionally associated with interventions aimed at facilitating adaptive capacity, elements of livelihood approaches, social protection and disaster risk reduction may ultimately impact on aspects of the various features; be it positively or even negatively.

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<sup>61</sup> Resources can be described as “*a vector that represents the asset base from which adaptation actions can be made*” (Adger and Vincent 2005: 400). “*Although resources are not an adequate space for assessing quality of life, indicators of resources – of time, of money, or of particular resources such as drinking water, electricity, and housing – are still highly relevant to quality of life measures, and often are used to proxy functionings (adjusted for some interpersonal variations in conversion of resources into functionings)*” (Alkire 2008: 3).

#### **4.3.4 The external dimension of vulnerability**

It is essential to stress that one can only talk meaningfully about the vulnerability of a *specified* system to a *specified* hazard. The term hazard is, at best, used to refer specifically to “*physical manifestations of climatic variability or change, such as droughts, floods, storms, episodes of heavy rainfall, long-term changes in the mean values of climatic variables, potential future shifts in climatic regimes and so on*” (Brooks 2003: 3). Hazards are also referred to as *climate events* that can put stress or risk on a system or population.

The essential feature of a model of social vulnerability to climate change is that it focuses on the social aspects of the phenomenon. An approach to vulnerability based on human welfare leads to climate changes gaining particular significance when they have an impact on the relative and absolute well-being of individuals and groups. For example, an individual or a community will be vulnerable if it is open to harm as a result of climate change or sea level rise (Eriksen and Kelly 2007). Exposure will depend on where populations choose to (or are forced to) live, how they construct their settlements, livelihoods and lives. Moreover, environmental variables will vary in response to human activity (Brooks 2003: 5), as populations exploit resources and manage the environment for their benefit in the short or long term.

While exposure to some climate hazards will be comparatively easy to observe (such as prolonged drought), there will be others where this is more problematic. As Brooks (2003: 3) argues, floods are particularly problematic, as their magnitude is mediated by anthropogenic factors such as river engineering and land use. A flood associated with a heavy rainfall event may be more usefully viewed as a primary impact or outcome of that rainfall event, just as coastal floods are often the outcome of storm surges. In these cases it is the rainfall event or storm surge that constitutes the principal hazard. Hence, it will be debatable (and surely case-specific) whether floods should be seen as a climate risk or not.

#### **4.3.5 Final considerations**

Although the roots of the conceptual framework outlined here are in approaches that look at underlying drivers of poverty and vulnerability, it is merely a framework for looking at change, not a theory of change—same as, for example, in the works undertaken by Jones et al. (2010). The main difference to other approaches—including those by the latter authors—is that it puts an in-depth notion on those political and institutional conditions, including ‘rules of the game’, that often have been left out in previous studies, and which follow distinct approaches and determinants of adaptive capacity.

The framework includes both the conditions of exposure and the socio-economic conditions of the local population that allows to or restraints them from adapt. As such, it is an integrated approach to analysing and assessing social vulnerability and adaptive capacity. It makes notion of the fact that the impacts of a climate hazard on an exposed system are mediated by that system’s vulnerability.

What must be finally clear then, in accordance with Adger and Kelly (1999), is that based on the framework given states of social vulnerability to climate change will not equate directly to the level of poverty or any other single economic or institutional phenomenon as there are many factors involved, not least the climatic and topographical factors which define the dimension of exposure to climate-specific hazards, variability and extremes. The determinants of vulnerability will depend on how a system is defined—and where its boundaries are drawn—but may include social, economic, political, institutional, environmental and geographic factors.

#### **4.4 Summary**

It becomes clear from the above that while the adaptive capacity of households depends primarily on its asset structure, living conditions will also be shaped by many other factors at different levels, ranging from macro policies to community practices, government policies, and the overarching institutional context. Direct assessments of adaptive capacity are not feasible, however, and so it becomes necessary to identify the characteristics or features that influence it.

I therefore argue that in order to understand gaps and potentials for enhancing adaptive capacity to climate change, the analysis of socio-economic factors is important, and that great significance should be given to institutional factors. Indeed, as we know from a multitude of study findings, institutional facets act to disempower the poorer sections of population and prevent their capacity to adapt.

Clearly, then, the institutional context is a dominant determinant of vulnerability. Institutions, in the context of the present study, and in compliance with Ostrom (2005) will be conceived as the rules that govern belief systems, behaviour, and organisational structure. Creating synergies between sectoral approaches that are based upon enabling institutional structures therefore are key to enhancing adaptive capacity.

Based on these considerations, and in addition to focusing on capabilities and on sectoral approaches, a framework provided by Ostrom (2001) on vulnerability and polycentric governance systems will be applied for assessing institutional facets which are decisive for adaptive capacity. Generally speaking, the framework describes a number of general *rules* that actors must follow and obey to within a given institutional setting and which may facilitate or constrain adaptive capacity (governance, in this context, is understood as a process which is both influenced by and influencing internal and external drivers and which includes all those institutions and (inter)actions that impact on, or are impacted by, respectively, all the relevant characteristics of vulnerability. Governance, as a theory, has mainly come up in order to theorise and analyse ‘new’ forms of government and changes of governing; hence, while it is certainly useful to understand governance in its basic prominence to institutions, and due to the evaluative nature of my research concern, the concept does not play a major role in my study).

The conceptual framework that I develop is mainly for demonstrating (and capturing) the complex nature of social vulnerability and the importance of the institutional context. Based upon these considerations, the framework is established on the assumption that present day climate variability and extremes as well as offsetting and interlocking social, economic and institutional facets result in a given (and observable) state of vulnerability.

## **5 Methodology and Research Design for the Field Study**

This chapter presents the methodology and overall research design for the field study. Starting with a brief overview, the chapter presents and discusses the case study approach, both in its central characteristics and in the broader framework of evaluation research which is one central part of my empirical work. It then deals with the ‘counter-factual’ and cause-effect relationships which are two central aspects and concerns related to my kind of study. After this, some practical considerations for field work will be outlined which include my unit of analysis, and the approach to data collection and analysis. Some further specification on the application of the methodology in the context of the actual fieldwork will be outlined in more detail in chapter 7.2.

### **5.1 Overview**

Vulnerability, same as poverty, represents a complex and multi-dimensional phenomenon. The challenges for vulnerability research based on closed conceptual relationships between vulnerability and poverty are thus to develop robust and credible measures, to incorporate diverse methods that include perceptions of risk and vulnerability, and to incorporate research on the mechanisms that mediate vulnerability and promote adaptive capacity (Adger 2006). Same is due to monitoring and evaluation of strategies that strive for an increase of adaptive capacity.

The methodology to the underlying study is based on two initial considerations inherent to the aims of the study, i.e. that, firstly, an analytical focus will be put on the dynamics of poverty, vulnerability and adaptive capacity of selected population groups in the context of climate variability and extremes in Vietnam and, secondly, that there will be an analysis of different policies and interventions on these groups and within the broader internal as well as external context of their living conditions. To these ends, the methodology is based on the premises of a case study and, more exactly, it employs a systematic evaluation of the alteration of levels of vulnerability that can be attributed to the underlying processes and conditions.

However, case studies, just as evaluation systems, are characterized by an enormous institutional, conceptual, terminological, and, finally, methodological heterogeneity (Borrmann and Stockmann 2009). Concerning the topic of poverty and vulnerability, also within the context of climate change, one can recognise many methods in assessing the phenomenon. Major methods of data collection in these fields, though, are qualitative and quantitative versions of observation, interviews, questionnaires, focus groups, and secondary or existing data, and thus are within the frame of ‘classical’ social science research. Within the body of literature related to vulnerability, then, there is a number of major research streams that include questions of methodology, such as measuring and assessing vulnerability, finding appropriate indicators for various aspects of vulnerability, up- and downscaling methods, and participatory methods (Villagran de León 2006). A central question is, however, what combinations of methods work best for which kinds of research questions (Johnson 2008)?

Definitely, key to the understanding of the two agendas then is to elaborate a methodology procedure upon which interlinkages can be identified and analysed, and upon which mutual changes and alterations in levels of poverty and vulnerability can be explained. As it is already clear from the previous chapters, there is much common ground between the climate change adaptation and poverty reduction agendas. Both poverty and vulnerability are complex phenomena; yet, poverty and vulnerability to natural hazards, just as to climatic variability and extremes, are closely interlinked and mutually reinforcing. Actions for adaptive capacity building (e.g. enhancing social security structures or strengthening local institutional

networks) are mainly the same as those needed for poverty reduction. Similarly, sustainable development policies aimed at, for example, basic needs supply, improved governance, and environmental resource management are key not only for poverty reduction, but also for increasing adaptive capacity (Richards 2003). This fundamental reciprocity must be taken into account and be reflected not only in the theoretical assumptions, but also in the methodological context applied.

## **5.2 Case Study approaches and evaluation research**

### **5.2.1 The Case Study approach**

The present analysis takes the form of a case study; a term that, according to Gerring (2007), actually refers to many things. Certainly, case studies continue to be used extensively in social science research, and they are especially preferred in studying contemporary events. The method is also a frequent mode of thesis and dissertation research, and mainly comprises two sources of evidence: direct observation of the events being studied and interviews of the persons involved in the events (Yin 2003). In general, the term case study connotes a study whose analytical objective is larger than the case under research. While most methodological work on case studies understands this topic as “*a study of a case where the objective is to discover something about a broader population of cases*” (Gerring 2006: 707), the aim of many case studies do not assume this ‘nomothetic’ goal; rather, their aim is to investigate a bounded unit in an attempt to elucidate a single outcome occurring within that unit. Robert Yin (2003), in his well-known textbook ‘Case Study Research: Design and Methods’ provides a number of elementary and convincing guidelines for undertaking case study research. Useful as case studies may be, he says, a common concern about them is that they provide only little basis for scientific generalization. ‘How can one generalize from a single case?’ is indeed a frequently heard question, even within the domain of social sciences. One could discuss this question in lengthy detail, but the short answer is that case studies are mostly generalizable to theoretical propositions and not to populations or universes. Hence, the understanding of the case is an ‘idiographic’ one implying that a study focuses on the unique qualities of a case (Gerring 2006: 710). This is referred to as ‘single-outcome study’ to distinguish it from the usual genre of case study and which comprehends investigation of a bounded unit in an attempt to elucidate a single outcome occurring within that unit. The latter is one of my primary concerns and is explained by Gerring (ibid.) as follows: “*A single-outcome study (...) refers to a situation in which the researcher seeks to explain a single outcome for a single case. This outcome may register a change, thus something happens.*”

Many studies, though, operate at both the level of the case and the broader level of generalization, and purport to say something about a more general subject as well as about the specific contours of the case under study (Gerring 2006). Single-outcome studies make extensive use of necessary and sufficient conditions—deterministic ways of understanding causal relations. This requires “*to work hard to define and operationalize the outcome*” (ibid: 713). In order to come to broader generalizations, by contrast, researchers usually assume probabilistic causal relations. As such, case studies can be conducted and written with both motives, including the detailed presentation of individual cases or the desire to arrive at broad generalizations based on case study evidence (Yin 2003). These sorts of studies are both case studies *and* single-outcome studies. As Gerring (2006: 712) argues, “*there is nothing wrong with mixing and matching in this fashion; indeed, it is quite typical*”. What is essential, however, and often neglected, is to separate clearly between these two motives: “*Only in this fashion can the reader evaluate an author’s claim*” (ibid.).

In general, then, case studies are the preferred strategy when ‘how’ or ‘why’ questions are being posed. ‘How’ and ‘why’ questions are explanatory by nature and likely to lead to the

use of case studies as the preferred research strategy (Gerring 2006). Johnson (2008) refines these overall considerations further by bridging a gap between ‘how’ and ‘why’ questions, over to a ‘what works’ question, and then to the question of ‘what works, for whom, in what contexts, and how does it work’. These ideas coincide well with the aim of my present study which is to assess the various features that promote adaptive capacity in the case study area, and whether those impacts unfolding at different levels and from different sides may lead to helping local people and communities to cope with climate vulnerability and extremes, and how and why this happens.

As Yin (2003) continues, a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. In other words, one would use the case study method because one deliberately wanted to cover contextual conditions. Again, this argument is believed to be highly pertinent to the present study, since the aims include an appraisal and understanding of the broader socio-economic and institutional processes and conditions which facilitate, but which also may constrain, the building of adaptive capacity in the case study area.

Another rationale for a single case, according to Yin (2003: 41) is to identify and to decide on a ‘representative’ (or a ‘typical’) case in order to capture the circumstances and conditions of an everyday or commonplace situation. For example, the case study may represent a typical geographical or project site among many different geographical or project sites. The lessons learned from this case are assumed to be informative then about the experiences of the average of all sites (or at least of those being assumed—though being unstudied—to experience similar conditions).

A final rationale for a single-case study then is the ‘longitudinal’ case: studying the same single case at two or more different points in time. The theory of interest would likely specify how certain conditions change over time, and the desired time intervals to be selected would reflect the presumed stages at which the changes should reveal themselves (Yin 2003: 42). As will be shown below, considering this final rationale is useful in designing a methodology that is appropriate for evaluation research in which it is particularly interesting to put a focus on changing conditions; i.e. processes of change.

### **5.2.2 Evaluation research**

A crucial aspect to the present methodological design is that case studies are increasingly commonplace also in evaluation research (Yin 2003), and particularly in order to get to know ‘how’ or ‘why’ a specific policy, programme or intervention had led to a particular result (or not), in addition to the question of ‘what’ has been achieved. With evaluations being done about decisions, programmes, implementation processes, and organisational, institutional and societal changes, case studies have a distinctive place in evaluation research, due to at least four different applications (ibid.: 15f.):

- Firstly, the most important application is to explain the presumed *causal links* in ‘real-life interventions’ that are too complex for survey or experimental strategies. In evaluation language, the “*explanations would link programme implementation with programme effects*”.
- Secondly, another application is to describe an intervention and the real-life *context* in which it occurred.
- Thirdly, case studies can illustrate certain *topics* within an evaluation, again in a descriptive mode.

- Fourthly, the case study strategy may be used to explore those *situations* in which the intervention being evaluated has no clear, single set of outcomes.

Generally, though, evaluation systems suffer from a lack of comparative empirical evaluations, both within—and among—sectors and countries, as well as between different organisations and institutions that make use of this specific kind of research (Borrmann and Stockmann 2009). Therefore, I consider useful a more detailed understanding of what are the distinctive aspects of evaluation research as well as what are the essential criteria of undertaking evaluations.

Among different organisations and institutions, and particularly in the field of international development policy and cooperation, the evaluation of publicly supported programmes, such as international, national, as well as sub-national ones, has become a common topic of case studies. The Millennium Declaration (1999) and the Millennium Development Goals (MDGs, 2000) as well as the Paris Declaration on Aid Effectiveness (2005) are of particular relevance here: Political decision makers from the international down to the local level are increasingly concerned with the ‘impacts’ of their development actions, assuming that policy change can have a direct attribution on the welfare of the poor or other disadvantaged groups. While the term ‘impact evaluations’ is multifaceted and “*enigmatic*” (Caspari and Barbu 2008: iii), its aims are quite clear though: The Evaluation Gap Working Group of the Center for Global Development (CGD) defines impact evaluations as “*studies that measure the impact directly attributable to a specific programme or policy, as distinct from other potential explanatory factors*” (CGD 2006: 10). Understanding the impacts of policy change on different groups can, therefore, inform further and ‘better’ design of policy in these fields (World Bank 2003). However, despite all evaluation efforts, questions such as ‘what changes did a particular intervention bring?’ or, more simply spoken, ‘what works when, how, and under which conditions?’ have rather stayed unanswered yet (Caspari and Barbu 2008: 2). By far, though, these and related problems have already been well-known for more than two decades: According to Bickman (1987), for example, analysts do frequently confuse the *theory* of the programme (for example of how to make a particular programme more efficient) with the theory of programme *implementation* (i.e. how to implement an efficient programme).

Hence, one criterion that is getting neglected in conducting evaluations is consideration of a distinctive epistemological perspective. Theory-based research certainly may help to answer question such as ‘Why did a certain intervention or programme produce (which) impacts?’, and ‘What did an intervention contribute to whom, and under which conditions?’. By reviewing the available literature and research on evaluations, it is quite striking indeed to see that most, if not all, of the work conceptually concerned with the conduction of evaluations point out to the necessity of developing a robust theoretical background: “*A good evaluation design starts with a theory-based approach which clearly identifies the channels through which the programme is expected to operate*” (NONIE 2008: 3). Theory-based approaches are therefore considered as important in evaluation research, and particularly in order to understand, on the one hand, what exactly is to be evaluated and, on the other hand, to understand the results better. Giving closer attention to the substantive and underlying theory and assumption then may also help to explain where, why, and how a certain ‘failure’—which is when an intervention did not lead to an assumed change (Caspari and Barbu 2008: 20f.)—has occurred (Baker 2000: 12). To further point it out in a simple way, in the present case study, a strong relation will be drawn between poverty and vulnerability by applying a multi-dimensional and process-related understanding of the two concepts and, therefore, an evaluation will be made in terms of different forms of interventions, and their effectiveness as related to the promotion of adaptive capacity. A direct consequence that arises from this theoretical context, is that the focus of the empirical part of the study is put on the ‘theory of the programme’ (i.e. ‘how can vulnerability be reduced, and why?’) instead of a ‘theory on

programme implementation' (i.e. 'what needs to be done to install a programme that reduces vulnerability?').

Having said that, at the core of the methodology is an evaluation of the livelihood, social protection and disaster risk reduction approaches, by applying a case study on the sub-national level. In principal, there can be no doubt that the evaluation of such interventions is a challenging task both due to conceptual and empirical reasons, and to the wide range of (often competing) sectors and actors involved. Yet, as Neubert (2005) emphasises, 'impact evaluation is feasible', by anticipating, again, that much will depend on formulating a sound and robust methodology as a framework for application. In terms of evaluation of almost any development-related strategy and programme, then, much can be learned from the experience gained in development science and practice over the last decades from which it becomes quite clear that in order to conduct evaluations, the development of adequate methods is indispensable in order to collect sufficient evidence to prove or disprove attainment of a specific strategy and to specify whether, in general, a desired outcome has occurred. Sound methodological guidelines are thus needed to ensure that data to support or disprove goal attainment are valid and reliable (Feldman and Wilt 1996). In this context, Stockmann (2010: 2ff.) lists up a number of recommendations for the evaluation of interventions in development assistance that are also helpful for an impact assessment of state assistance, including the following (selected) ones:

- a) Undertaking impact assessments should be based on a theory-based concept within which the different interventions, impacts, as well as the surrounding conditions are analysed;
- b) The selection of an appropriate methodological design is not only based on the overall problem or question, but should also involve reflection of the specific kind of programme as well as the surrounding conditions;
- c) More often than not, it will be necessary to apply both quantitative and qualitative approaches for data collection and empirical analysis;
- d) In those cases where a more profound and fundamental impact 'theory' is available, more elaborated evaluation methods can be additionally applied (such as approaches based on statistical analyses); and that (in accordance with Neubert 2005)...
- e) ...There is no way for 'no way', and that impact evaluation is feasible indeed based on an appropriate methodology.

### **5.3 The 'counter-factual' and cause-effect relationships**

By explicitly dealing with the issue of exposure of local population groups to climate variability and extremes ('external conditions'), and by putting an explicit focus on the living conditions within which a wide range of state interventions are expected the poverty reduction strategy is expected to lead to certain results ('internal conditions'), the present study grasps upon two further key aspects inherent to the theory of evaluation research, i.e. the 'counterfactual' and 'cause-effect relationships'.

#### **5.3.1 The 'counter-factual'**

Dealing with the 'counterfactual', according to Caspari and Barbu (2008: 20), is one of the central problems that state-of-the-art discussion is dealing with in evaluation research. As the authors complain, 'causal contribution' of the results of interventions—i.e. attributing results of an intervention to changed conditions, without adequately considering other possible explanations—is still widely common in evaluation research. Therefore, they rather recommend dealing with evaluation in terms of 'causal attribution' which aims "to

*demonstrate whether or not the evaluated intervention is one of the causes of observed change. Contribution analysis relies upon chains of logical arguments that are verified through a careful confirmatory analysis*” (NONIE 2008: 2). To considerate explicitly the ‘counterfactual’ as a central task of an impact evaluation is therefore not only emphasised by Caspari and Barbu, but by a wide range of other authors as well (see, for example, NONIE-SG1 2007; CGD 2006; White 2006; Ravailon 2005; Yin 2003; Kapoor 2002; Baker 2000). Without effectively dealing with the counterfactual, as Yin (2003: 112) emphasises, inevitably there might come up a number of rival explanations which are opposing those propositions (and conclusions) made.

Indeed, without having a general analytic strategy, as Yin argues, “*case study analysis will proceed with difficulty*” (Yin 2003: 115). Parallel, a strong belief in the assumed validity of a programme theory could make the researcher unintentionally blind to the side-effects or negative effects of the intervention (Friedman 2001). For instance, the typical hypothesis in an evaluation is that the observed outcomes (or impacts) were the result of an intervention supported by public or other funds. The simple or direct rival explanation would be that “*the observed outcomes were in fact the result of some other influence besides the intervention (...)*” (Yin 2003: 115). Being aware of this direct rival, the case study will thus include attempts to collect evidence about those possible ‘other influences’ on the ground. Furthermore, data collection about them will be pursued vigorously in order to “*stacking the deck*” (Patton 1990: 462) in favour of the original propositions. Overall, as I understand the purpose of this broad discussion, the purpose must be to address and reject all upcoming rival explanations in order to place more confidence in the findings. To this end, the analytical framework developed over the course of the present study that allows for rigorously addressing those ‘other influences’ and allows for an analytical description of the surrounding conditions as well as the socio-economic and institutional conditions that could provide rival explanations of what has been increasingly identified as ‘cause-effect relationships’ in evaluation research. As Ionescu et al. (2005) emphasise, such a formal framework is a prerequisite for any approaches to the assessment of climate-related vulnerability.

### **5.3.2 Cause-effect relationships**

Establishing cause-effect relationships in evaluation research has become increasingly useful in recent years in order to deal with methodological problems arising from the counterfactual as well as from possible rival explanations, especially in doing impact evaluations. Developing a process-based analytical framework stipulates a “*complex chain of events over time*” (Yin 2003: 127). The use of ‘logic models’ as an analytic technique consists of matching empirically observed events to theoretically predicted events (ibid.). In this situation, the development of a theory of how a programme is supposed to work is essential to the design of the evaluation. Many years before discussions in development science started about ‘how to make impact evaluations right’, Wholey (1979, cited by Caspari and Barbu 2008) was among the first scholars in developing logic models as an analytical technique. He was among the first to promote the idea of a programme logic model, tracing events when a public programme intervention was intended to produce a certain outcome. The ‘intervention’ could initially produce activities with their own immediate outcomes; these immediate outcomes could, in turn, produce some intermediate outcomes; and, in turn, the intermediate outcomes were supposed to produce final or ultimate outcomes. Years later, then, these considerations became further refined in development-driven evaluation research, by introducing four closely interrelated steps (see, for example OECD/DAC 2006: 5; OECD 2002): The first step in ‘modern’ evaluation designs comprises ‘inputs’ that are directly related to an external intervention, and which comprise, for example, works, material, equipment, or training. The second step then consists of ‘outputs’, meaning the immediate and

direct results. The third step then comprises ‘outcomes’ that are those direct achievements made from the direct results for specific target groups, followed by the fourth step which is the impacts (long-term results).

The programme logic model strategy, according to Yin (2003: 128), can be used in a variety of circumstances. A key ingredient is the claimed existence of repeated cause-effect sequences of events, all linked together. Overall, the analysis of any of such causal relationships hinges on the assumption that “*without X (or with more or less of X), Y would be different*” (Gerring 2004: 350). The more complex the link, the more definitively the case study can be analysed to determine whether the underlying propositions can be affirmed.

Finally, George and Bennett (2005) argue that causal mechanisms are central to causal explanation, and that case studies are the method best able to examine the operation of causal mechanisms in detail. As the authors write: “*The process tracing method attempts to identify the intervening causal process—the causal chain and causal mechanisms—between an independent variable (or variables) and the outcome of the dependent variable*” (George and Bennett 2005: 206). Also, as the two authors add, the process tracing method requires considerable amounts of data in order for causal mechanisms to be identified at every step of the process of interest.

## **5.4 Unit of analysis and the number of cases**

Selection of the appropriate unit of analysis and number of cases is another aspect to be considered while accurately specifying the primary research questions to the present study. Gerring (2004) proposes to define the case study as an intensive study of a single unit for the purpose of understanding a larger class of (similar) units over some delimited period of time. To clarify this definition, terms that are relevant to this present study, for example, are the ‘units of analysis’, while each unit is observed at discrete points in time, comprising ‘cases’. To get a clearer picture of what constitutes the ‘case’ and what has to be studied in the case to answer the research questions, it seems useful to distinguish between the case as the setting and the units of analysis within the case which need to be examined to answer the research questions (Hillger 2009). Then, considering all data collection options inherent to the relevant units and cases, as well as their strengths, weaknesses and uses within the selected unit of analysis and among the number of cases are important to be explored in more detail, but can be only done if clarity exists about the unit of analysis, and the cases within that unit.

### **5.4.1 Unit of analysis**

As Yin (2003) stipulates, if the research questions do not lead to the favouring of one unit of analysis over another, the questions are probably either too vague or too numerous—and one might have trouble conducting the case study. Against this background, a major challenge in evaluation research (and in my study as well) is to understand that both vulnerability to climatic stresses and related risks and interventions to promote features of adaptive capacity can affect different groups among different levels in very different ways.

Eriksen and Kelly (2007) argue that recently, nations, cities, agricultural systems and organisations have been viewed through the vulnerability lens. However, the need to aggregate up to, say, the national scale can lead to the loss of information about vulnerability ‘on the ground’ and may distort overall conclusions as detail is lost in the process of averaging or accumulation. The key point to note here is that within all these spaces under previous research it is the local level—involving villages, communities, individuals and households—that is particularly vulnerable to stresses (Wisner 1993). This means that, although climate change is a global issue, the impacts of climate change are felt locally. It is at this level that an understanding of vulnerability needs to be reached because, as Drèze and

Sen (1989) show, a lack of vulnerability at the national and sub-national level does not preclude extreme vulnerability at the individual level.

Working on the local level, investigators have frequently confused case studies of ‘villages’ with case studies of ‘communities’, same as having confused ‘communities’ with ‘households’. In methodological accounts, as Yin (2003) argues, the question of how a government programme produces certain impacts will run the risk of leading to different answers when either focusing on the village level or by making the household the actual centre of research. This illustrates a further fundamental challenge in doing case studies: Is the case study about the programme; is it about the dynamics of society such as in a village, a community, of different households, etc.; or is it about individual poor people among these entities? Thus, identifying the main unit of analysis is, once more according to Yin (2003), indispensable for the research design. Comprehensive as this may be, though, identifying the adequate unit of analysis on the local level is, by and large, impossible if an evaluation design is applied as the principal methodology of a case study, especially when focussing on those impacts derived under a larger evaluation of any development- or state-driven strategy, such as in the case of the present case study. As Caspari and Barbu (2008: 33) argue, it is particularly sector-wide (‘non-targeted’) programmes that are “*hardly delimitable as they are not automatically focussing on a specific target group*” which makes it difficult, if not impossible, to draw a parting line between different groups and individuals (for example, in those cases where streets are built or where a village becomes connected to the municipal power grid). Moreover, the heterogeneity that is inherent to many interventions makes it difficult to isolate individual interventions from others, so that the problem of spillovers and contagions has to be adequately dealt with (for example in those cases where new medical stations are built in a particular village under one particular budget line of the overall programme while training of medical staff happens under a second budget line) (Caspari and Barbu 2008). However, as the two authors argue, this heterogeneity can be used and can itself be turned into an area of research interest.

As a result from this discourse, hence, the present study will aim to analyse those impacts of the various livelihood approaches, social protection and disaster risk reduction interventions that alter the level of vulnerability on the *local* level, and by defining the community level as an appropriate unit of analysis. Yet, I will make notion of different societal groups, households, and individuals within these communities and will relate them to the overall research findings. This selection of the research unit matches well with the suggestions made in the majority of vulnerability research: In distinguishing processes that shape vulnerability, local-level studies form a useful starting point (Wilbanks and Kates 1999). Indeed, the fact that vulnerability will be mostly felt on the local level is a strong argument for putting the focus of the case study on the *micro level*. It is mainly here where the sum of external and internal conditions as well as any impacts derived from a particular programme intervention frames the living situation and well-being of individuals, households, and of specific social groups<sup>62</sup>.

However, what is particularly important in evaluation research is that managing the consequences of climate change—at least in programmatic terms—is by large a national issue, taking place within state-led governmental structures at the national and at the sub-national level. Processes operating at broader spatial scales do contribute significantly to patterns of vulnerability at the local level (Eriksen and Kelly 2007). It is here, on the very *macro-level*, where political decisions are made, and where the conditions for dealing effectively with policies and programmes on livelihood, social protection and disaster risk reduction programmes are set.

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<sup>62</sup> See GIGA (2010): Forschungsteam Armut und Verwundbarkeit: <http://www.giga-hamburg.de>

A level that has certainly raised some confusion in the past is the *meso-level*, i.e. the level where further amendments and refinements are made in order to correctly implement those decisions that were taken on the national level. Due to pragmatic reasons, mainly, but also due to the institutional context of Vietnam, in this study the meso-level will be defined as the provincial level. The provincial level is important to the overall aims of the study, since it is here where facilitation of policies and programmes become enforced. The processes, structures, stresses and phenomena that shape government-societal linkages therefore do operate on a range of different geographic and societal scales and that may have different effects at different levels by ultimately feeding back to the local level where vulnerability is manifest. Hence, it is necessary to capture this interplay between large-scale processes and local patterns of vulnerability in any set of indicators (Brooks and Adger 2004) and methodological approaches taken (Eriksen and Kelly 2007).

Finally, the selection of the unit of analysis thus results in a *multi-level* analysis where, on the macro-level, decisions and the design of the various policies and strategies as well as an understanding of reducing vulnerability will be taken into account, where, on the meso-level, the process of facilitation and implementation will build some core of the analysis and where, on the micro-level, the impacts from the implementation of the interventions will be analysed. Box 12 provides an overview of the levels of investigation as well as the main methodology for data collection employed.

<b>Box 12: Units of analysis to be considered in the case study</b>		
<i>Level:</i>	<i>Level of intervention:</i>	<i>Data sources (see 5.4):</i>
Macro-level (National)	Policies, decisions, programmes	Informal expert talks: open; factual; purposive selection.
<i>Meso-level</i> (Provincial)	Facilitation; Implementation	Stakeholder analysis; Semi-structured interviews; qualitative-hermeneutic
Micro-level (Communities and households)	Implementation, Impacts	Standardised interviews; formal survey; workshop discussions; field visits

**5.4.2 Number of cases**

The case study method is correctly understood as a particular way of defining cases, not a way of analysing cases or a way of modelling causal relations (Gerring 2004). By approaching different authors who have worked on the topic of what constitutes a case study, we can learn that, in general, that its method is rather qualitative and small-N (Yin 1994); that the research is characterized by process-tracing (George and Bennett 2005) and ‘in the field’ (Yin 1994); and that the research investigates a single phenomenon, or example (Gerring 2004). However, according to Gerring, the latter is simply wrong, because “*case studies always employ more than one case*” (Gerring 2004: 342).

Therefore, when using a case study-design, a further question to be encountered is the number of cases that are deemed necessary or sufficient for the study. However, because a sampling logic—as being applied in statistical analysis—should not be used, the typical criteria regarding sample size are also irrelevant. Instead, as Yin (2003: 51) argues, “*one should think of this decision as a reflection of the number of case replications that one needs or would like*

*to have in one's study*". Conducting a small-n comparison within a case study offers some certain advantages, since it offers the opportunity to analyse the local conditions in detail. Hence, multiple-case designs may be preferred over single-case designs (which, in my present study, will mean to incorporate more than one local research site (i.e. more than one community) into the case study design while focusing on one particular province). As Yin (2003) emphasises, those analytical conclusions—Independently arising from more than one site—will be more powerful than those coming from a single site alone. Moreover, the contexts of different sites are likely to differ—such as in exposure, socio-economic or institutional conditions, and the way interventions are implemented—to some extent.

To conclude upon these considerations of the unit and the cases, in this study I have chosen to define the 'local level' as the unit of analysis, though being framed by higher levels of intervention, including policies, decisions, programmes, programme facilitation and implementation. Within this unit, there are communities and community dynamics constituting the cases.

## **5.5 Data collection and analysis**

Data collection procedures in case study and evaluation research are not routinized (Yin 2003: 58). However, the use of *multiple* sources of evidence allows addressing a broader and more detailed range of issues than by solely relying on one data collection procedure. The most important advantage presented by using multiple sources of evidence is the development of what Yin (ibid.: 98) calls "*converging lines of inquiry*", a process of triangulation mentioned repeatedly in methodologies of social science research and in the conduction of evaluations.

While much of the poverty and livelihood research has for a long time been rooted in social systems, vulnerability analysis mainly requires qualitative analysis using tools such as statistical analysis—although this has considerably changed in recent years and also includes more descriptive ways of qualitative analysis now. However, as a related but important note, the case study strategy should *not* be confused with 'qualitative research', because case studies can include and even be limited to quantitative evidence. In fact, the contrast between quantitative and qualitative evidence does not distinguish the various research strategies. Instead, case studies can be based on any mix of quantitative and qualitative evidence:

*"Some argue that the axioms of positivism and social constructivism render the two approaches mutually exclusive (...). Such an either/or position is not beneficial to proponents of either standpoint, as both research traditions and the research methods they are most closely linked to (quantitative vs. qualitative), are suited to answering very different types of research questions"* (Prowse 2007: 3).

Also in evaluation research, method-mixed research has become a preferred research strategy, since "*both quantitative and qualitative methods are necessary for a good evaluation. The two approaches strongly complement each other*" (Ezemenari et al. 1999: 28). In other words:

*"Good evaluations are almost invariably mixed method evaluations. Qualitative information informs both the design and interpretation of quantitative data. In a theory-based approach, qualitative data provide a vital context (...)"* (White 2006: 20).

### **5.5.1 Data collection**

In my understanding, a strategy to conduct an analysis against the background of vulnerability and a possible alteration thereof incorporates a significant range of parameters in building quantitative and qualitative pictures of the processes and outcomes of vulnerability, the

consequences of climatic variability and extreme events and the impacts of interventions from outside on creating adaptive capacity in the case study area.

Concerning the analysis of capabilities, Alkire (2008: 6) argues that capabilities can be analysed and represented using a plethora of kinds of data, methodologies and techniques. Capabilities can be analysed using quantitative, qualitative, participatory, and subjective data, and using administrative, census, survey, and institutional data.

Therefore (and by taking into account covariate and idiosyncratic vulnerability and the need to apply respective methods for data collection), I decided to apply the following five sources of information and data collection in the study:

### **1. Documentary Information:**

As Yin (2003: 87) explains, for case studies, the most important use of documents is to corroborate and augment evidence from other sources. Because of their overall value, documents play an explicit role in any data collection in doing case studies. Documentary information, as being likely to be relevant to every case study topic, is made use of in the present study and comprises, but is not limited to, the following variety of documents: a) relevant administrative documents—policies, programme papers, progress reports, and other internal records; b) formal studies or evaluations concerning the case study area and its broader context (i.e. Vietnam, the Mekong River Delta, and Soc Trang Province); c) newspaper clippings and other articles appearing in the Vietnamese and in foreign mass media or in community newsletters in the research site.

Additionally, it is clear that I conduct in depth documentary research and analysis of primary documents and sources on specific areas within the theme of my research. Sources include, but are not limited to, the following: 1) The Comprehensive Poverty Reduction and Growth Strategy (CPRGS) of Vietnam; 2) The Socio-Economic Development Plan (SEDP) of Vietnam, both the national as well as the sub-national one; 3) Policies and strategies concerning social protection and disaster risk reduction; 4) National vulnerability assessments, and the National Strategy to respond to Climate Change; and 5) A number of records from national statistical agencies, government departments, development organisations, and research institutes.

However, as Tansey (2006) observes, important political processes, as well as results achieved, often lack an accompanying body of documentation, for a range of reasons. Written materials are sometimes not created to document important processes, as participants either feel their actions are not important enough to merit recording them, or instead feel they are too sensitive to document in written form. In these cases, interviews will be a preferred form for data collection.

### **2. Interviews:**

Interviewing, and especially elite interviewing, is highly relevant for process tracing approaches to case study research. Particularly in political science, process tracing frequently involves the analysis of political, socio-economic and institutional developments at various levels of government, and interviewees will often be critical sources of information about the political processes of interest (Tansey 2006). Thus, interviews are generally among the most essential sources of case study information.

Interviews, in general, contribute towards the research goal of triangulation, especially on the micro-level, where they can increase the credibility of findings from the other sources of data collection. Conducting interviews with local elites can therefore serve the purpose of confirming the accuracy of information. Elite interview data, according to Tansey (2006) is rarely considered in isolation, and the goal of collecting such data is often to confirm

information that has already been collected from other sources. However, elite interviewing can also follow its own underlying purpose: *“One of the strongest advantages of elite interviewing is that they enable researchers to interview first-hand participants of the processes under investigation, allowing for researchers to obtain accounts from direct witnesses to the events in question. While documents and other sources may provide detailed accounts, there is often no substitute for talking directly with those involved and gaining insights from key participants. The nature of interviewing also allows interviewers to (...) gather information about the underlying context and build up to the actions that took place”* (ibid: 5).

On the macro- and on the meso-level, the actual stream of questions in my interviews will be likely to be *fluid* rather than *rigid* (as recommended by Rubin and Rubin 1995), even though a consistent line of inquiry will be pursued (stressed out by Yin 2003: 89). Interviewing done this way will allow to ask open-ended questions and to enable the respondent to talk freely, without the constraint of having to answer according to fixed categories (Tansey 2006). As a result, case study interviews on these levels are of an open-ended nature, in which key respondents will be asked about the facts of a matter as well as their opinions about certain processes and events (Yin 2003). On the micro-level, then, I will apply ‘focused interviews’—which are a special form of open-ended interviews—where respondents (mainly local stakeholders and decision-makers involved in those processes that I consider relevant to my research) are interviewed for a short period of time (around one hour, in my case) and where I follow a certain set of questions deriving from the main issues of interest. Moreover, the focal interviews will prove to be ideal for discussing topics or issues in more detail, and for collecting historical and institutional information. The overall technique applied to interviewing hence will be flexible since new lines of questioning and inquiry can be opened at any time during the interviews.

### **3. Formal survey:**

A third type of data collection applied in my case study entails more structured questions, along the lines of a formal survey. Such a survey produces quantitative data as part of the case study evidence. The difference to other types of data collection would be the survey’s role in relation to these other types, as Yin (2003) points out. For example, while individual residents’ subjective perceptions of living conditions will be taken as a measure of actual decline or improvement of well-being and vulnerability, they would be considered only one component of the total assessment. In the questionnaires, the focus is on gaining an individual perspective from residents in the selected communities, and on how they deal with these changes and how they secure their livelihood. I therefore apply this method of data collection on the household level. As a particular advantage of formal surveys, questionnaires offer some particular strengths, since they allow for asking also about more sensitive questions such as income—whereas this would not be considered helpful in my fourth form of data collection, i.e. participatory workshop discussions. The questionnaire is attached as Annex I to this study.

### **4. Participatory workshop discussions:**

Participatory workshops built on the methodological premises of focus group discussion constitute the backbone of my case study research. Today, there are many forms and types for conducting workshop discussions that substantially all arose around the discussion on ‘Participatory Rural Appraisals’ (PRAs) that started from the mid-1990s.<sup>63</sup> Due to a number

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<sup>63</sup> Participatory rural appraisal (PRA) is a label given to a growing family of participatory approaches and methods that emphasise local knowledge and enable local people to make their own appraisal, analysis, and plans. Developed by academics and NGOs in the late 1980s, PRA rapidly gained popularity in the early 1990s. As method, approach, attitude and commodity, PRA has spread far and fast, taking multiple forms.\* PRA uses

of theoretical and practical reflections, I have chosen to select ‘MAPP’ (Method for Assessing Poverty-related Projects and Programmes) for data collection. There is extensive documentation available on this tool and how to use it (in particular, see Neubert 2007; 2005; 2004). What is central about MAPP is that it builds an actor-centred method for impact monitoring and assessment. Originally being devised by the German Development Institute (GDI) in 2002, a wide range of development organisations and NGOs presently apply MAPP (mainly German ones, such as GIZ, and Deutsche Welthungerhilfe) for the monitoring and evaluation of project- and programme-related impacts. The method takes place in the form of participatory and organised workshops with target groups of a specific programme or project, and normally gets applied on the commune or village level. What is different to other evaluation approaches is that there is a deliberate view taken which takes into account the programme ‘environment’ by explicitly dealing with other internal as well as external factors that are influencing the local site. MAPP consists of a number of fixed and consecutive steps that allow for dealing with the given local conditions in a flexible way. Important to be noted is that working on a ‘before-after’ comparison of local conditions is fundamental to the method. MAPP, by dealing with the process of implementation and results, is taking this note into account, since it is based on an ‘ex-post’ evaluatory understanding which means that it analyses interventions that have been finalized in terms of implementation and where results and impacts may be expected. In order to get a picture of how the situation was ‘before’ specific interventions took place, it employs collective memory of the workshop participants. MAPP, its overall approach and its ‘five steps’ are outlined in more detail in Annex II to this study.

The participatory workshop discussions will be applied primarily to find out about community dynamics, both socio-economic and institutional ones, as well as perceptions and influences from climate variability and extremes in the context of the overall local living situations. The research is based on present day risk rather than scenarios of future risks. The research type thus considers and links the household level with the wider community and the village. As in Jones’ words (2011<sup>64</sup>), “*it is important to realize that adaptive capacity is as much about what a community does that enables it to adapt, as what a community has that allows it to adapt*”. Hence, I will investigate how communities perform against the prevalence of assumed vulnerability to these changes, and which adaptation strategies they apply. It is clear, though, that communities are not homogenous, and that “*it is important to understand the differentiated social impacts of climate change based on different groups*” (Tanner and Mitchell 2008, cited by Davies et al. 2009). Based on the analytical framework, this tool is also capable to take account of the broader context within which livelihood, social protection and disaster risk reduction interventions are implemented. In addition, the tool is also responsive to the fact that these interventions are likely to have impacts on more than one dimension of capability and through more than one ‘channel’. Conducting capability research, researchers and analysts tend to select dimensions using a repeated *deliberative or participatory exercise*, which engages a representative group of participants as reflective

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group animation and exercises to facilitate information sharing, analysis, and action among stakeholders. The method has been frequently associated with the use of visualisation methods, such as maps and matrices, for analysis by and with participants (IDS 2000). Defined by a variety of tools, there are some key tenets that constitute PRA, including: (i) Participation; (ii) Teamwork; (iii) Flexibility; (iv) Optimal ignorance; and (v) Triangulation. However, many PRA pioneers refused to set down rules and methods in manuals, encouraging the mood of innovation out of which the approach was born. The maxim ‘use your own best judgement’ gave licence to creatively explore what PRA might offer, generating new and unforeseen possibilities. This gave rise to a diversity of emphases and practices—and to different ideas as to what ‘doing it properly’ might involve. Although originally developed for use in rural areas, PRA has been employed successfully in a variety of settings. In this context, PRA can be described as “*as diverse in the way it is adopted as the cultures we have*” (IDS 2000: 1). [\*see: <http://web.worldbank.org>]

<sup>64</sup> See <http://www.odi.org.uk/resources/download/4945.pdf> [accessed November 11, 2010]

agents in making the value judgements to select focal capabilities. In a supportive and equitable environment this process seems to be ideal for choosing dimensions (Alkire 2008). However, since any quality of life measure will select certain dimensions or capabilities and exclude others, there is no single list of capabilities that is uniquely valid. Rather, the capability approach is applied differently depending on the purpose of the measure (ibid.). Though potentially very broad, in practice, the scope of relevant capabilities depends upon the purpose of the evaluative exercise. A credible measure will include dimensions that are of *special importance* to the society or people in question (ibid.). In practical terms, aspects of well-being will be categorised into five initial dimensions, all of relevance to households, communities and their distinct levels of vulnerability: a) human (such as housing); b) economic (such as income, credits); c) protective (such as social protection; mutual forms of assistance); d) political (such as participation in decision-making); and e) socio-cultural (such as membership in social networks that increase access to information or resources).

Policy changes can have a direct or indirect impact on these capabilities, and it will be here, on the local level, where residents will know about what has happened in their surroundings. Participatory workshop discussions are effective in identifying social norms and accepted views, pinpointing special interest groups, and knowing collective views and feelings. Besides, they allow for a continuous validation of what is said. When their emotions carry participants away, other participants frequently correct them and put things back into perspective.

### **5. Direct observation:**

A final type of data collection applied in the present study is ‘direct observation’ which consists of making one or more field visits to the case study sites. Concerning this tool, Yin (2003: 92) argues that given that “*the phenomena of interest are process- as well as context-related to given local conditions, some relevant behaviour or environmental conditions are available for conservation. Such observations serve as yet another source of evidence in a case study*”. Less formally than the other forms of data collection, direct observations are made throughout field visits, including on those occasions during which other data, such as that from interviews and workshops, were collected. For instance, the condition of buildings and community facilities such as homes, schools and medical stations, the condition of agricultural fields, the protection and dam facilities, irrigation channels, streets, roads, etc. provided for a number of important insights into the ‘real life’-situation.

In total, then, deploying all these five types of data collection will allow for gaining a ‘full’ picture of the case conditions on the local level and in the context of those aims and propositions made in the study.

### **5.5.2 Analysis of collected data**

As a result of the analysis of collected data, a mode of generalization will be applied, in which the analytical framework is used as a ‘template’ to analyse the empirical results of the case study. This mode can be best described as ‘analytic generalization’, and thus matches with Yin’s proposed method for working with and analysing empirical data (Yin 2003: 32). By no means, though, the data will be used for coming up with a ‘holistic’ research and/or, subsequently, results. Rather, the case study conducted across my particular research area calls on what Yin (ibid.: 52) terms as an “*embedded design*”. For working in the Mekong River Delta, for all communities that I analyse such an embedded design is used because views and opinions from the different sites are needed to address the research questions in an adequate fashion. However, the results of each analysis and survey may leave some space for becoming ‘pooled’ across the various sites in order to generate data that allows for some generalization of results. But the results will also be part of the findings for each individual

site, or community, hence providing an overall interpretation of the operations and their potential ‘success’ at the given sites.

Moreover, analysis of the data collected will rely on those theoretical propositions (the hypothesis) made during the first steps of the study. As such, my theoretical context and orientation is guiding the case study analysis and the analysis of the collected data. Application of the different types of data collection will be outlined in more detail in chapter 7.2.

## **5.6 Summary**

Given the fact that climate science is still struggling to provide ‘safe’ analyses of future impacts of climate change, especially for regional areas such as the Mekong Delta, the main emphasis of the present research is put on analysing *present-day* vulnerability to climate vulnerability and extremes.

Certainly, a credible measure of poverty, vulnerability, and adaptive capacity is a type of evaluative exercise, and the initial propositions and questions of my study demand for an evaluation as a specific form of case study research. Most importantly, perhaps, is that before conducting this evaluation in the research site, I must ensure that the evaluation framework is based on a firmer understanding of the characteristics and indicators of adaptive capacity (Jones 2011). Selecting a methodological approach that is most feasible to my research, then, I propose that the notions of poverty, vulnerability, and adaptive capacity should be considered in the space of *capability* (see chapter 2.).

Policy analysts typically conceive of evaluation as a four-step process: (a) identifying the goals of a particular policy, project, or program, (b) developing criteria to assess their achievement, (c) implementing an evaluation strategy, and (d) measuring progress. Because this four step process assumes that measures of progress will be used for further refinement of goals, it can be applied fruitfully to the evaluation of state efforts to address climate change. (Feldman and Wilt 1996). But it is far from certain that many of the policies and wider development interventions that I assume to play an essential role for adaptive capacity have been designed with climate change in mind. Hence, ensuring that the framework is based on a firmer understanding of adaptive capacity will be the most promising approach to undertake an evaluation as my proposed exercise for case study work.

Features of vulnerability can be observed through both qualitative and quantitative indicators of the causes and consequences of such vulnerability. Social vulnerability encompasses disruption to livelihoods and loss of security and for vulnerable groups is often related to the underlying economic and social situation. But vulnerability also encompasses access and entitlements to resources and the power relationships in the relevant institutions in geographical areas and systems. This is what a methodological approach to analysing poverty, vulnerability and adaptive capacity needs to be able to take into account.

The methodology to the case study will be based on a mixed method approach that includes both quantitative and qualitative elements. Case study analysis will be undertaken based on a single-outcome study (i.e. adaptive capacity) with appropriate selection of underlying units of analysis. Methods for data collection comprise documentary information, interviews, a formal survey, participatory workshop discussions, and direct observation (i.e. field visits). Application of the methodology will be outlined in more detail and specific to the case in chapter 7.2.

## 6 DEVELOPMENT AND CLIMATE CHANGE IN VIETNAM: PROSPECTS AND CHALLENGES

Effective management of global climate change and its impacts requires dedicated state-level and sub-national responses within countries (Feldman and Wilt 1996). However, in order to understand the local situation in the case study region of the Mekong River Delta, it is important to bear in mind the national context of Vietnam, as well as the political and socio-economic goals of the Vietnamese government, which directly influence the situation at the local level (Wehrli 2006). This is by no means particular to Vietnam, since “*efforts to improve the ability of whole populations to [prevent, and to] recover from loss are more often tackled through public policy intervention at the national scale*” (Adger et al. 2005: 79). Thus, formulation and promulgation of policies and development programmes on climate change adaptation, as well as on livelihood improvement, social protection, and disaster risk reduction belong to the domain of central government. This is why the analysis of the local situation has to rest upon the overarching national context.

Basically, in the process of socio-economic development, economic growth and poverty reduction have dialectic relations. During more than two decades of renovation, thanks to high economic growth rates, Vietnam has achieved outstanding success in hunger eradication and poverty alleviation (Vu Thi Vinh 2009). For the Vietnamese government, economic growth is perceived as an important condition to eradicate hunger and alleviate poverty; while poverty reduction is perceived as an element that ensures sustainable economic growth.

It is not possible to cover all relevant aspects of recent development in Vietnam in only one chapter; therefore, the chapter aims at generating a better understanding of the prevailing situation to tackle important prospects and challenges faced by Vietnam today. Policies and programmes will be examined for understanding the current situation of the legal environment, and to identify gaps that need to be addressed for dealing with climate change. The chapter will also explain the extent to which risks and disadvantages faced by a number of population groups are created and deepened. It will become clear that in an increasingly open economy, responsiveness and accountability are vital for the legitimacy of the Government. Painter (2002) suggests that such legitimacy depends on the success of the state in regularity and fair process such as transparent systems of revenue collection, the adequate provision of public goods and the effective regulation of market failures that, more often than not, lead to damaging social consequences.

The launching of *doi moi*, the process of renovation, by the Communist Party of Vietnam (CPV) in 1986, has not only been a turning point in the history of Vietnam but equally in the volume of scientific publications concerning Vietnam<sup>65</sup>. The shift from the former centrally planned economy to a ‘market economy with socialist direction’ implies many outstanding changes. Yet it appears clear while the role of the public sector has become weaker in the

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<sup>65</sup> Bonschab and Klump (2004) explain that in the modern history of Vietnam, a targeted strategy for the country’s development was only possible after the country’s reunification in 1975. Despite concerns even from within the Communist Party, this development strategy was based on the implementation of the socialist system of North Vietnam in the south. Over the course of reform, all land was collectivised, markets were gradually abolished, and prices controlled, and it was attempted to erect an orthodox socialist economy with strict central planning of production and investment following the model of the Soviet Union. These measures resulted in a decline of Vietnam’s *per capita* income, and the necessity for fundamental economic reforms became evident. In this critical situation the Sixth Congress of the Communist Party of Vietnam (CPV) approved a more comprehensive reform agenda under the name of *doi moi* (renovation) in 1986 (Bonschab and Klump 2004). Since then, Abuza (cited by Shanks et al. 2004) argues, “*People began to link the regime’s legitimacy to economic performance and, importantly, their own standard of living. Political legitimacy was no longer rooted in the national struggle, but in economic growth and poverty eradication*”.

national economy (Le Bach Duong et al. 2005) and in all aspects of daily life, it is certainly still strong. Thus, development and policy dynamics in Vietnam has generally been an attractive research topic for scientists who aim to understand the transition of “*one of the last remaining socialist or Communist-Party ruled states in the world*” (Wehrli 2006: 2).

The chapter concentrates on the period since the introduction of economic liberalisation and provides a brief summary of the Vietnamese development processes since then. The second part of this chapter explores the evolving nature of state policies over poverty, its causes and consequences, and the mechanisms that the state has employed to tackle poverty-related issues. The programmatic approach to poverty reduction (signalled most strongly by the National Target Programme on Hunger Eradication and Poverty Reduction Programme (NTP on HEPR) and Programme 135) dominated the Government approach to poverty throughout the 1990s and up to today. Moreover, the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) has attracted a great deal of attention in the poverty agenda (Shanks et al. 2004). The political agenda on social protection and disaster risk reduction will also be presented. Against this background, the third part of the chapter deals in more detail with the discourse on and current response efforts to climate change in Vietnam. The final part provides an overview of institutional patterns and public administration of the Vietnamese State before concluding on the presently given prospects and challenges to dealing with climate change in the country.

## **6.1 Economic development, sustainability and poverty**

This first part of the chapter deals with Vietnam’s development achievements, concerns on sustainability under the era of *doi moi* and market integration, and provides an outline of the situation of ‘the poor’, particularly the rural poor, in the country.

### **6.1.1 Development achievements since *doi moi***

Almost 70 years ago, Ho Chi Minh declared a lasting commitment to the Vietnamese people’s ‘right to live and pursue happiness, to strive for development for and by the people’. Over the last 25 years, the Government of Vietnam (GoV) has introduced significant and ambitious macroeconomic reforms which generated unprecedented national economic growth and development (see, for example, Le Bach Duong et al. 2005; Vu Tuan Anh 2004; Bonschab and Klump 2004).

#### **Major changes brought by *doi moi***

Following the country’s reunification in 1975, and the promulgation of *doi moi*—the era of change, renovation, and newness—that was officially launched in 1986, Vietnam has steadily progressed in reaching the goals that Ho Chi Minh once formulated. With ushering in the era of *doi moi* the Government aimed “*to build a wealthy nation, a powerful country and to establish an equitable and civilised society*” (NCSSH 2001, cited by ADPC 2003). Vietnam made a shift from a highly centralized planned economy to a socialist-oriented market economy which uses both directive and indicative planning (based on Ten- and Five-Year Socioeconomic Development Plans, SEDPs).

The main reforms and achievements under the reform era can be summarized as follows:

- Transition from central planning to a ‘market economy with a socialist orientation’.
- Implementation of an ‘open-door policy’ to facilitate Vietnam’s participation with non-socialist countries and in global trade.
- State owned enterprises (SOEs) and the State sector were undergoing commercialization and equitization.

- Legal status was granted to private and family enterprises and households were given more market autonomy and granted with the right to establish market relationships.
- The promulgation of a Land Law (1987, amended 1993 and 2003) which established private land use rights for farmer households and which liberated agricultural cooperatives from state control.
- A new Constitution (1992) which officially recognised the ‘multi-sector economy’.

In allowing for some simplification, Vietnam’s growth experience since the start of *doi moi* can be distinguished into three phases (Bonschab and Klump 2004). The first phase (1986-1991) ended with the macroeconomic stabilization that paved the way for a reintegration into world markets. This happened with great success and highest growth rates in the second phase (1992-1997), lasting until the outbreak of the Asian crisis. Since 1998 a new phase of growth has begun in which further development of internal sources of growth has received more attention while external liberalization continues. Vietnam joined the ASEAN free trade area (AFTA) in 1995, became a full member of the Asia-Pacific Economic Cooperation Forum (APEC) in 1998, ratified a bilateral trade agreement with the USA in December 2001 and entered membership to the World Trade Organisation (WTO) in early 2007.

### **Overall growth rates**

The innovation that began to be implemented in 1986 has created a clear turning-point for economic development in Vietnam. Since 1991, Vietnam has achieved an average gross domestic product (GDP) growth rate of 7.5 percent per year. Between 1993 and 1998, GDP rose by an average of 8.9 percent per year (Conway 2004). From 1990 to 2004, the average annual growth rate was 7.5 percent. According to the World Bank, only five countries were able to achieve that rate over the same period. In 2007, Vietnam’s growth reached 8.5 percent<sup>66</sup>, making it the third consecutive year (2005-2007) above the 8 percent benchmark. The business climate continued to improve, with the investment rate reaching 40.4 percent of GDP.

Parallel to the overall growth rates, GDP *per capita* also increased significantly. The average income increased from USD 140 in 1989 to USD 835.9 in 2007. From 1993 to 2002, the average GDP per capita rose by 5.9 percent per year; from 2002 to 2007, average GDP per capita went up by 9.2 percent (Vu Thi Vinh 2009).

Yet the year 2008 then created a significant break for the country’s growth aspirations. Due to the global economic crisis and a number of domestic fiscal challenges, Vietnam achieved a GDP growth of 6 percent over the first six months of 2010 (Vietnam News, June 25, 2010). Despite this deceleration, in 2010, the GDP reached USD 104.6 billion, with GDP per capita of USD 1,218. Therefore, Government development plans from the early 2000s stating that the national GDP per capita should be USD 1,000 by 2010 (ADPC 2003) were more than achieved.

### **Distribution and contribution of various sectors to economic growth**

Since *doi moi*, Vietnam has been able to gain rapid market share in the world’s export market. Based on the overall accounts, the economic structure of Vietnam has changed considerably over the last years and is expected to continue to do so. A crucial reform step was administrative and fiscal decentralisation which was followed by ‘socialisation’, the delegation of work to the private and non-governmental sector (Priwitzer 2008). Especially, there have been deep changes in the rural commodity market over recent years. Policies supporting open international economic integration together with development promotion

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<sup>66</sup> Voice of America (VOA) (December 10, 2009): ‘Vietnam fights rising sea levels, protects economic growth’, see <http://www.voanews.com> [accessed December 10, 2009].

programmes, especially infrastructure programmes, have facilitated the rural commodity market to develop and expand (Tu Van Binh et al. 2004).

The private sector was able to grow, based on policies encouraging foreign investment and access to foreign markets for Vietnamese industries. The private labour market has also expanded considerably, with freer movement and individual choice for labour (ADPC 2003). Small and medium-sized enterprises (SMEs) throughout the country are now contributing significantly to the nation's economic growth. Excepting some nationwide trademarks, almost all Vietnamese enterprises are SMEs, according to the Vietnam Chamber of Commerce and Industry (VCCI). In 2005, SMEs contributed 53 percent to the GDP. Their industrial value grew from 24.6 percent of the country's total industrial value in 2000 to 37 percent in 2005. Up to 90 percent of new jobs in the country in the last five years are the result of SMEs. Based on these numbers, Vietnam has been ranked number one in the world in private-sector employment growth, with a 14 percent increase in 2007 (while global average was up 4 percent). Since the Enterprise Law was introduced in 2000, there have been over 180,000 new private businesses established, employing more than 5 million people (Vietnam News, June 11, 2008).

A comparison of GDP composition by sector reveals that the economic structure is continuously changing (shown in Box 13 below). This is in line with the Government's plans to strive for an 'industrialised and modernised economy'.

<b>Box 13: Changes in GDP by sector for the years 2000 and 2007</b>			
<i>Source: <a href="http://earthtrends.wri.org/index.php">http://earthtrends.wri.org/index.php</a></i>			
Year \ Sector	Agriculture (in percent)	Industry (in percent)	Services (in percent)
2007	19.5	42.3	38.2
2000	24	37	39

Over the long-term term, the contribution of the agricultural sector to the GDP is aimed to be around 10 percent (by the way, Government plans also reveal that more than 80 percent of national GDP production shall be concentrated in the river deltas and coastal areas—which are and will continue to be the country's most severe disaster prone areas (ADPC 2003). Over the short- to mid-term, though, Government policies recognise the need for enhancing and intensifying agricultural productivity and promoting agro-industrial development, including aquaculture and shrimp farming.

The following provides a brief overview of the dynamics in the major market sectors:

**- Agriculture:**

The results of doi moi have been dramatic for the farming sector, with Vietnam now being a leading agricultural export nation. Up to 70 percent of Vietnam's population live in rural areas, mostly living on agriculture. Vietnam's rice cultivation area is now around 4 million hectares, accounting for one-eighths of the country's territory. Paddy production rose by 26 percent between 1987 and 1989, and Vietnam went from a 750,000 ton grain deficit in 1986 to become the world's third largest exporter of rice by 1992 (Conway 2004). Around 36

million tonnes of rice are produced each year on average, including 4-5 million tonnes for export.<sup>67</sup>

In 2007, agricultural companies generated nearly VND 200 trillion (USD 12.5 billion) in production value, a year-on-year increase of 4.6 percent. This was USD 13.6 billion more, or 16 percent higher, than the yearly target, and up by 18.7 percent from 2006 (Vietnam News, May 31, 2008). By 2008, Vietnam has been the world's second-largest rice exporter, after Thailand, but the world's largest producer.<sup>68</sup> Rice shipments in January 2009 reached the highest monthly export volume level ever, standing at some 300,000 tonnes worth USD 130 million, up 129 percent in volume and 152 percent in value over last January.<sup>69</sup>

During the 2006-2010 period, the agricultural sector achieved an average growth rate of 3.4 percent each year, exceeding the Government's target of 3-3.2 percent. Vietnam exported about 25 million tones of rice during the past five years, earning a turnover of more than USD 10 billion (Vietnam News, August 25, 2010). According to the Ministry of Agriculture and Rural Development (MARD), this strong development of agricultural companies over the last few years helped speed up the transformation of the economic structures towards industrialisation and modernisation, particularly the industrialisation of rural areas (Vietnam News, May 31, 2008).

The contribution of agriculture which has made great leaps in 25 years of renovation cannot be overemphasised, with the sector now having achieved a major export status not only in rice but in a range of other commodities as well. *"In the past we didn't produce enough rice for local consumption but now we export rice and many other agricultural products, such as rubber, coffee and cashews"*, Dao The Tuan, Chair of the Sciences for Rural Development Association, said (VietnamNetBridge July 10, 2008). Dr. Nguyen Tho, permanent vice chairman of the Vietnam Plant Protection Association (VNPPA), says that *"the plant protection sector has greatly contributed to the agricultural production in the past years, transforming Vietnam from a country short of food to a major exporter of many kinds of farm produce (...)"* (Vietnam News, August 17, 2010).

Overall, it is expected that the expansion of irrigation infrastructure may further increase agricultural production (Few et al. 2006) in some parts of the country.

#### **- Aquaculture and agro-forestry:**

While rice is the major product of Vietnam's commodity agriculture, parallel to the high growth rates in rice exports is the rise of aquaculture<sup>70</sup> and agro-forestry production markets. With a growth rate of 17.7 percent, the agro-forestry and fishery/ aquaculture industries were expected to bring in around USD 11.68 billion, or 19.1 percent of total export revenue in 2008 (VietnamNetBridge July 15, 2008).

Aquaculture products such as shrimp and catfish were expected to increase sharply during 2010, according to seafood export experts. Vietnam exported 200,000 tonnes of shrimp in 2009, earning a total of USD 1.52 billion. These figures represent a 7.4 percent increase in volume and 0.73 percent in value compared to 2008. Vietnamese shrimp is particularly popular among Japanese importers while South Korea is also an important export market for

<sup>67</sup> Vietnam Economic Times, Issue 173, July 2008: 'Still smiling, for now'.

<sup>68</sup> Inter Press Service (IPS) (October 2, 2008): 'Vietnam may end up being one of the national worst hit by climate change', see <http://www.ips.org> [accessed October 2, 2008].

<sup>69</sup> Thevietnamnation (February 16, 2009): 'Vietnam seeks ways to boost farm product exports'.

<sup>70</sup> Aquaculture is defined by Food and Agricultural Organisation (FAO) as 'the farming of aquatic organisms, including fish, mollusks, crustaceans, and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. It also implies ownership of the stock being cultivated'. Aquatic organisms that are exploitable by the public as a common property resource are included in the harvest of fisheries (see <http://earthtrends.wri.org/index.php>).

Vietnamese shrimp (Vietnam News, January 7, 2010). Overall, Vietnamese shrimps are exported to 82 countries.

Concerning agro-forestry, to further increase gains from this sector, the industry is currently in need to “*find new markets, promote trade and boost production to achieve its export target*” (which was USD 12.5 billion for the year 2010), Deputy Minister of Agriculture and Rural Development Luong Le Phung said (Vietnam News, July 2, 2009).

#### **- Industry and construction:**

The GoV’s special attention to investment, infrastructure in particular, is an important factor to rural development planning. About 9-10 percent of annual GDP is invested in traffic, energy, telecommunication, water and hygiene, which is a high rate compared to international standards (Vu Thi Vinh 2009). In order to stimulate economic growth, roads and highways are constantly built.

Nationwide, industry and construction have sharply increased their contribution to GDP, from 28.8 percent in 1995 to 41.05 percent in 2005 (Taylor 2007), and to 42.3 percent in 2007. According to the Ministry of Industry and Transport (MoIT), construction and industrial goods would earn the country USD 36.5 billion in 2008, a year-on-year increase of 25.3 percent. The figure represents 59.7 percent of the country’s total export revenue (VietnamNetBridge July 15, 2008).

In sum, the above numbers impressively demonstrate why Vietnam has been celebrated as a ‘success story’ and even a ‘new Asian Tiger’ in terms of economic achievements. As Bonschab and Klump (2004) argue, the development strategy was adapted to the particular needs of Vietnam. However, the country could take into account experiences from China where economic reforms had already demonstrated success since the late 1970s as well as from the ‘Asian miracle’ economies in North East and South East Asia. Vietnamese leaders gained various insights from their successful Asian neighbours, including: (1) sustainable growth in a market economy has to be based on outward orientation, macroeconomic stability and investment in people, (2) market economies can be compatible with authoritarian control of the society, i.e. the ruling elites can sell economic success as their own achievement, and (3) growth with equity is feasible in the sense that market economies do not necessarily result in the evils of mass poverty and exploitation.

Finally, besides striving for further facilitation of growth-led commodity markets, the Public Administration Reform (PAR, see below) is now the Vietnamese government’s priority programme in order to facilitate economic development (Nguyen Hai Thi Thanh 2008).

### **6.1.2 Prevailing challenges to sustainability**

At the core of the country’s overall planning is the Strategy for Socio-Economic Development (SEDP), which is based on five and ten-years planning ranges. The 2001-2010 SEDP’s overall goals are ‘to bring our country out of underdevelopment; improve noticeably the people’s material, cultural and spiritual life; lay the foundations for making ours basically a modern-oriented industrialised country by 2020. To ensure that the human resource, scientific and technological capacities, infrastructure, and economic, defense and security potential be enhanced; the institutions of a socialist-oriented market economy basically established and the standing of our country on the international arena be heightened’ (GoV 2001). Among a list of specific goals, the first and foremost is ‘to ensure that by 2010, GDP will have at least doubled the 2000 level’ what incorporates the further goal that ‘the leading role of the state-economic sector is to be enhanced, governing key domains of the economy; state enterprises are to be renewed and developed, ensuring production and business efficiency’.

In the context of achieving its economic goals, it has become clear from the above section that important to Vietnam's economic renovations is the market transition. Yet there is a flipside of the coin of economic achievements. There are some serious concerns that the country is not developing in a sustainable way, including concerns on macro-economic issues, 'rural modernisation', aquaculture, and the environment. These concerns are briefly discussed in the following.

### **Challenges to macro-economic sustainability**

Globalisation has increasingly exposed Vietnam to multiple risks of macroeconomic shocks (Le Bach Duong et al. 2005). The economic crisis shaking the country from 2007 on has put into question the efficiency of the country's domestic growth markets. Reforms didn't always lead to efficient outcomes, as some economic woes have brought into view:

While economic growth has been achieved as outlined in the overall Government's growth rates until the year 2006 (see above), from 2007 on, the country's economy showed signs of overheating. Inflation accelerated from 6.6 percent (year on year) in December 2006 to 15.7 percent by February 2008. To some extent, this reflected the rapid increase in international prices, especially for food, oil, and construction materials (Vietnam News, April 19, 2010). With the Vietnamese Dong (VND) loosely pegged to the US-dollar and a very open economy, changes in world prices were rapidly reflected in domestic prices. Higher domestic oil prices also reflected the removal of government subsidies to local distributors. On the other hand, there was rapid acceleration in credit growth, from 25.4 percent in 2006 to 50.6 percent by November 2007. Towards the end of 2007 and in early 2008 the central bank took contractionary measures resulting in a severe lack of liquidity what led to a sharp increase in overnight interest rates that peaked at 40 percent (World Bank 2008)—and which was unaffordable especially for the agricultural sector where concerns already started at an interest rate of around 14 percent (Vietnam News, April 19, 2010).

Throughout 2008, as highlighted in a Government's 'Resolution on a number of socio-economic issues in 2008', the country's socioeconomic situation saw weaknesses and huge challenges such as: indications of slow down of economic growth, inflation continued to soar much higher than the projected level; much turbulence in the financial and monetary market; and there were emerging factors which adversely affected production, and businesses.<sup>71</sup> In early 2008, the authorities announced a new policy package containing a mixture of monetary and fiscal measures designed to cool the economy while minimizing the effect on growth (World Bank 2008). However, an annual inflation rate of 27 percent in July (19 percent over the whole year) and a surging balance of payments deficit estimated at USD 15 billion in the first seven months of the year led to further strains. The price of rice surged 72.7 percent year-on-year in July. Vietnam's GDP growth dropped from over 7 percent in 2007 to 6.2 percent in 2008 (Vietnam News, June 9, 2009), while private sector analysts said growth was expected to fall as low as 5 percent (Asia Times Online August 7, 2008).

Most SMEs faced capital shortages due the State credit tightening policy. According to Ho Chi Minh City's Business Association, up to 70 percent of SMEs lacked the requisite capital 'to boost production'. Other challenges included shaky access to bank loans (Vietnam News, June 23, 2008). There was a forecast made that about 20 percent of SMEs in Vietnam may be in danger of bankruptcy due to the financial crisis and the unstable macroeconomic situation (Vietnam News, November 27, 2008). However, SMEs keep struggling at different front lines, not only macroeconomic ones: Though the number of labourers had increased the quality of their skills is still low: "*The number of unskilled or poorly-trained workers is high*

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<sup>71</sup> British Broadcasting Corporation (BBC) (June 23, 2008): 'Vietnam assembly issues new resolution on socioeconomic issues', see <http://www.bbc.co.uk> [accessed June 23, 2008].

*and we lack skilled workers for industrial and high-tech zones as well as for labour export”*, MoLISA Deputy Minister Dam Huu Dac said (Vietnam News, June 30, 2008).

In 2009, like other countries, Vietnam was seriously affected by the global financial and economic crisis, and was facing *“great difficulties and challenges”* (Vietnam News, June 9, 2009). The year continued to witness many complicated issues in the domestic economy, causing huge difficulties for businesses and production and people’s lives. However, the Government managed to maintain certain levels of economic growth and macroeconomic stability to some point. Inflation continued to be high, and prices of foodstuff, oil and gas and other commodities increased sharply, pushing up local prices. Due to the situation, the Government focused its priority on curbing inflation and stabilizing macroeconomy. The results were that since the middle of 2008, inflation has been curbed and the price hike rate was reduced to 6.5 percent over 2009. Vietnam was one of the few countries in the region which had a positive growth rate, reaching 5.3 percent (which was the lowest over the past ten years) (Vietnam News, July 2, 2009). To realize its targets, the Government was focusing on the tasks of, first, to improve macroeconomic stabilization and second, to put more efforts into the goal to boost investments (Vietnam News, January 1, 2010). The Government continued to tighten monetary policy and initiated some fiscal measures. These steps ultimately moderated inflation from 2009 on, but led to weaker external demand and pulled back growth. The production still held growth, thanks at least partly to a USD 8 billion stimulus package (Vietnam News, July 2, 2009). Deputy Prime Minister Nguyen Sinh Hung emphasised that localities should implement the Government’s stimulus packages right in the first quarter of 2009 (Vietnam News Agency, December 28, 2008).

Based on the ongoing difficulties, the Economist Intelligence Unit<sup>72</sup> has forecasted that Vietnam's economic growth would slow from an average of 7.9 percent from 2002-2007 to 5.1 percent for the decade spanning 2011-2020 as *“vested political interests may impede reform, thereby preventing the necessary restructuring”* of the macro-economy. Slower growth, however, will inevitably lead to more difficulty in providing jobs and potentially more social unrest, others predict (Asia Times Online August 7, 2008). - For 2010, growth rates have been predicted to reach 6.5 percent in 2010 (Vietnam News, May 18, 2010a).

In total, based on an article of the Asia Times (Asia Times Online August 7, 2008), Vietnam's emerging economic crisis *“appears to demonstrate that more than 20 years of market-oriented reforms have outgrown the capacities of the one-party communist-led political system”* while it is argued that extraordinary growth rates may be attributed to the sudden change from communism to capitalism as the organising basis of economic life, and not to improvements in the efficiency of investment, productivity of labour or enhanced national competitiveness.

However, the future direction of the Vietnamese economy remains undoubted: Vice President Nguyen Thi Doan said to create a sustainable economic growth model in the future, it was important to keep focusing on renovation, to improve the quality of the human resources while applying advanced science and technology (Vietnam News, June 25, 2010).

### **Challenges to sustainability in times of ‘rural modernisation’**

The socio-economic conditions of Vietnam are currently undergoing a radical change. Doi moi, over the long term, aims at building an ‘industrialised and modernised economy’ while, over the short term, the country still relies on the labour-intensive agricultural market in which around 73 percent—or more than 65 million of the Vietnamese people (Vietnam News, August 25, 2010)—are employed.

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<sup>72</sup> See <http://www.eiu.com>

Vietnam remains an agricultural country where the agricultural civilisation is very close to the initial country's development (VietnamNetBridge May 16, 2008). Farmers have historically played a central role in the economy and in the political vision of Vietnam. 'Rural modernisation' must therefore be put in context of a longstanding policy orientation. In recent years, rural modernisation has included the mechanisation of agriculture, rural electrification and infrastructure programmes, improvements to irrigation, drainage, and flood control, research and development into new farming techniques, the introduction of new seed varieties and breeds, and agricultural extension. These programmes have aimed to increase the productivity of rural areas and stabilise living conditions for farmers (Taylor 2007). Especially *Tam nong* ('agriculture, farmers and the countryside') is a hot issue at present. As Le Huy Ngo—who held the post of Minister of Agriculture and Rural Development for ten years (1997-2007)—explains: "*In an agricultural country like Vietnam, where over 73 percent of the population is farmers, farmers are always the foundation of the country's political stability. Whenever farmer-related problems are solved, others may be handled too.*" However, "*the state can't take care of them better than they themselves. We have to change rural economic structure from only agriculture to agriculture-industry-service. We have to invest in infrastructure to serve farmers. How can we keep youth and how can intellectuals work in the countryside if they don't have clean water and electricity. (...) The bigger thing in our approach (...) is [that] every policy must put the farmers in the central role and to make farmers the subjects who make decisions about their own matters*" (VietnamNetBridge July 12, 2008).

But as the nation's economy continues to industrialise, the sensitive issue of land rights threatens the very existence of rural communities and could put farmers on a collision course with the government over their future, argues Long Le (2010). In the long run, it is clear that the relative importance of agriculture to the economy will decline as improvements in productivity allows a small portion of the population to provide for the country's agricultural needs. These processes of structural transformations are facilitated, on the other hand, by investments in the agricultural sector to increase productivity (ADPC 2003). The market transition and accelerated integration of the national economy into regional and global markets have also resulted in increasing exposure to greater risks, particularly for the farmers, as they become more dependent on supply, demand and price in the world market. In fact, because of the world prices of agricultural products have dropped, agricultural incomes have stagnated and even declined (Le Bach Duong et al. 2005).

Despite all efforts to 'modernise' the sector, Vietnamese agriculture is facing many challenges: small production scale, low labour productivity and low quality of agricultural products, agricultural land being narrowed, and shortages of agricultural labourers because of migration from the countryside to urban areas (VietnamNetBridge July 10, 2008). At the same time, the process of mechanising agriculture is criticised to remain "*unplanned and desultory*" and poor rural infrastructure and a shortage of agricultural processing units "*have prevented the sector from achieving its potential*" (Vietnam News, April 22, 2010).

One further issue is land agglomeration. As Pham Khoi Nguyen, Minister of Natural Resources and Environment, says: "*Vietnam is now an agricultural country. In order to develop the country, we need to develop industries, and in order to develop industries, we have no other choice than using some agricultural land. In fact, agricultural land, which has turned to serve industrial purposes, can bring much more economic profit than agriculture production. However, with the particular traits of the country, we need to consider when and how to take back land in order to ensure the lives of the farmers whose land is reclaimed and ensure national food security*" (VietnamNetBridge May 7, 2008). In other words: Many of the agricultural plots remain too small to justify using modern machines (Vietnam News, March 14, 2009), thus putting farmers working on small plots potentially at risk to losing their

land. In this context, a Party official stated: *“At the moment, it is quite clear that large areas support large-scale production, priority should be given to large scale producers who can employ others. These employers should be allowed to accumulate large areas of land for cultivation, I see them as entrepreneurs, they are responsible for paying wages and should be encouraged. If young people cannot earn money from the land, they will leave their homeland to find jobs in other areas. Agriculture production will be relegated to the elderly, leading to the reduction of productivity, quality and quantity. Moreover, the 7<sup>th</sup> Party Central Committee Resolution on agriculture, farmers and rural land has emphasised the proper reallocation of rural labourers, if people are capable, they should move into other industries, otherwise they can continue farming. The resolution will create new change in the process of industrialisation and modernisation. It’s expected to create impetus for improved agriculture production, and in line boost other sectors”* (Vietnam News, August 11, 2008c). Yet many farmers who have sold their land have only received small amounts of cash compensation for their farming lands, while poor planning have prevented them from finding alternative sources of income.

Today’s farmers understand, and generally are not against, the gradual shift toward industrialisation in which agricultural production as a percentage of GDP is on the decline, according to Long Le (2010). Nevertheless, agriculture still accounts for approximately a quarter of the country’s GDP. Worrisome for the millions of ordinary rural households is that they are being crowded out by state-run factories and non-tradable goods like real estate development—and even golf courses. The latter has been a hot topic and is extensively debated in the Vietnamese media, since they ‘create few jobs and will only exacerbate rural-urban migration and ecological damage’. For example, as reported recently in the New York Times<sup>73</sup>, if Vietnam were to complete all its licensed golf courses, it would have more than 150. Yet each golf course displaces as many as 3,000 people and consumes 177,000 cubic feet of water a day which is enough for 20,000 households. What is even worse, each golf course may provide jobs for only about 30 local residents.

Overall, Vietnam’s total number of workers will increase by 10.4 million by 2020, which means there will be an average of 800,000 workers being added to the market every year, a report released by the Ministry of Labour, Invalids and Social Affairs detailed (it is at least questionable though if those parts of the rural population that lose their lands due to agglomeration and other purposes are counted into these numbers). At least, under a new Government scheme over one million people will be trained each year in rural areas until 2020. The project on ‘Strengthening Training for Industrialisation and Modernisation in rural areas from 2008-2020’ was set up by the MARD. Job training is seen as a top priority to raise farmers’ incomes (Vietnam News, June 30, 2008)—still, the question is what will happen with those that have been left behind and sold their land. It is clear that creating a quality education system that is innovative and responsive to the demands of the market, and to the needs of those that need to become integrated into the market, is essential to sustainable development (Vietnam News, June 28, 2010).

### **Challenges to sustainability in the aquacultural sector**

Over the last twenty years, aquaculture has changed the rural landscape in many areas of the country. It is mainly shrimp farming that has brought new income opportunities to many people, especially in the Mekong River Delta. In parallel with the shrimp aquaculture development, however, severe adverse environmental, economic and social impacts have been reported in Vietnam (Nguyen Dang Anh Thi 2008). Ecological and environmental

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<sup>73</sup> New York Times (October 19, 2009): ‘A Harvest of Golf Courses From Vietnam’s Farmland’.

consequences weigh heavy due to loss of mangrove forests and water pollution. These ecological problems urgently call for solutions to achieve more sustainability in the sector.<sup>74</sup>

Certainly, aquaculture farming is a delicate balance. Shrimp thrive in brackish waters, with salinity levels between 12 percent to 25 percent. Too much or too little fresh water can throw these ratios off, leading to shock, slow growth or death of the shrimps. Usually, shrimp farms return a high yield only in the first 3-4 years but then experience decreased output as pollution takes its toll (Bolte 2011). This holds true not only for the pond areas themselves, but also includes surrounding farming lands where soils are getting more and more meagre. Salinity levels needed for shrimp farming are generally too high for rice strains to grow, thus turing large areas of land into shrimp pond over time.

Yet, aquaculture is seen as an attractive goal both for private investors as well as to the national and provincial governments to achieve economic development goals.

### **Challenges to environmental sustainability**

Like many other developing countries, Vietnam relies extensively on its (ever-depleting) natural resources. Losses in resources caused by increased over-use and depletion will pose many difficulties to future socio-economic development and puts into question the growth-oriented development path of the country. While doi moi has brought significant improvements in terms of macroeconomic growth, this has raised conflicts and compromises by placing stresses on the environment such as deforestation, land degradation, flooding, water pollution, and waste (Few et al. 2006). In recent years, negative environmental and social impacts caused by industrial parks mushrooming in many places have shown that there are direct relationships between envisaged economic growth targets and a failure in sustainable development.

An expanding economy heavily based on agriculture, coupled with a dense population, forces Vietnam to confront increasingly severe environmental problems. Water pollution by pesticides, herbicides, and fertilisers, and soil reclamation is a large concern (ADPC 2003). Local farmers depend entirely on surface water for drinking, irrigating their crops, fishing, and aquaculture. Overuse of pesticides and fertilisers has also reduced the fertility of farming land. The damage inflicted by intensive farming on the environment and human health has become an issue of concern. The use of chemical pesticides and fertilisers in order to boost yields has become excessive over the past few years, a MARD official said (Vietnam News, August 17, 2010). In addition, land and water environments in rural areas have been seriously polluted. The agriculture ministry estimates that around 75,000 tonnes of agro-chemicals are used in violation of technical guidelines. This has caused serious soil and water pollution in many areas and an imbalance in the environment (Vietnam News, October 18, 2009).

Logging and slash-and-burn agricultural practices contribute to deforestation and soil degradation; water pollution and over-fishing threaten marine life populations; groundwater contamination limits potable water supply; growing urban industrialisation and population migration are rapidly degrading environment in and around Hanoi and Ho Chi Minh City. However, the climax of environmental pollution has not been reached for a long time yet. Associate Professor Phan Dang Tuat from the Research Institute for Industrial Policy and Strategy points out that Vietnam's environment pollution level will be 4 to 5 times higher than current levels in the near future if the country does not have measures to cope with (VietnamNewsBrief November 26, 2008).

Deforestation, especially in the mangrove belt along the coastline is another problem. The process of destruction was accelerated in the wake of doi moi, when more and more private

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<sup>74</sup> See: <http://www.wisdom.caf.dlr.de/en/content/mekong-delta-%E2%80%93-shrimp-farming-output-2004-2007>

investors and companies began to establish shrimp farms where mangroves had thus far existed (Bolte 2011). *Melaleuca* forest area has been drastically reduced already before the renovation period, from an estimated 400,000 hectares in 1940 to 140,000 hectares in 1992, but then was further reduced over the 1990s and early 2000s. The destruction of the forest has clearly threatened the ecosystem and environment along the coast. Of the 65,000 hectares of mangrove forests which protect sea dykes, nearly half has receded. Several causes besides aquaculture have been identified as causes for the damage, of which population growth and poverty are also emphasised (ADPC 2003).

Vietnam still has one of the world's richest biodiversities and some of its rarest and most valuable animals, according to Deputy Minister of the Ministry of Agriculture and Rural Development Hua Duc Nhi. However he said the "*priceless resource*", which helped ensure environmental balance, has seriously deteriorated in recent years (Vietnam News, May 25, 2010). Despite a wide range of policies on environmental and biodiversity protection, the Government is still blamed for loose management and environmental protection. Yet it seems awareness is growing among Vietnamese politics that continuing on the present path will lead into a stalemate. Ha Nghiep, Assistant to the General Secretary of the CPV, recently expressed that "*Economically, these problems may lead us up a blind alley. While the environment may be destroyed with no development, it may be more destroyed with development. This is what concerns the strategic planners and policy makers in our country*".

Some of the mostly discussed approaches to meet the challenge of ongoing environmental degradation include business solutions and environmental taxes, the opening of protected areas and national parks, and an ambitious forest protection programme:

- Concerning business solutions, to cope with the given problems, the Government envisages changing agricultural mechanisms, with farmers being made aware of biotechnology solutions that "*help boost productivity in a sustainable manner*" (Vietnam News, August 17, 2010) while certain chemicals should be banned "*because of international standards and quality expectations*"<sup>75</sup>. Parallely, the development of brand names for some agricultural and marine products and services, including seafood, minerals and tourism, would play an important role in assuring more environmental-friendly and sustainable development (Vietnam News Agency, March 20, 2010). Meanwhile, a number of pilot approaches have been followed: Citi bank recently agreed to provide loans for business projects that are developed in a socially responsible manner and according to sound environmental management practices. However, "*We are only in the early stages*", Tran Thuc, director general of the Vietnam Institute of Meteorology, Hydrology and Environment, said (Vietnam News, May 18, 2010).
- Concerning environmental taxes, the Government has now started to work on a draft Decree which is expected to come into force in 2012. Discussions so far have focused on the specific products that should be taxed, who should pay, and what is the appropriate rate. The draft Decree, however, only deals with sources that pollute the air, but 'in order to make the law more effective, there should be also tax regulations for each cubic metre of waste water and solid waste produced' (Vietnam News, February 13, 2010).
- Concerning the opening of protected areas and national parks, Vietnam is about to create 16 sea and shore protected area zones between 2010 and 2015. At least 0.24 percent of the country's coastal area would lie within the zones and about 30 percent of those zones would be put under strict control by 2015 (Vietnam News, June 15,

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<sup>75</sup> thevietnamnation (February 16, 2009): 'Vietnam seeks ways to boost farm product exports'.

2010a). In particular, the Government has recognised marine protected areas (MPAs) as an effective and cost efficient integrated tool to maintain and manage coastal marine living resources, to protect biodiversity, and to meet other marine conservation targets, as well as coastal livelihoods. With support of some donor agencies, Vietnam has been developing an MPA network consisting of an envisaged 15 sites, four of which have been established by now (Thomsen 2009).

- Finally, concerning forest protection, it was already by 1992 when Vietnam imposed a ban on the exports of logs and raw timber. In 1997 the ban was extended to all timber products (except wooden artefacts). During the 1990s, Vietnam began to reclaim land for forests with an ambitious tree-planting campaign: Ten million hectares of natural forest are to be placed under protection, and a Five million hectare afforestation programme is to be accomplished by 2010.

Finally, everyone agrees that Vietnam must take corrective actions on its economic growth model. It seems, though, that the bulk of corrections is planned to be achieved in the country's macroeconomic pillar. Director of the Central Institute for Economic Management (CIEM) Nguyen Dinh Cung said in order to renovate the growth model, it needs *“three principles: First, the consideration of economic restructuring as a regular and continuous process; second, a balance between quantitative and qualitative growth must be achieved; and third, a policy that promotes economic development in all regions across the country must be promoted”* (Vietnam News, July 25, 2010).

The Government is targeting economic growth of 7.5-8.5 percent per year during 2011-15, under the socio-economic development strategy being drafted for the period. Deputy Minister of Planning and Investment Cao Viet Sinh urged the adoption of a plan that would *“balance high growth with the need for sustainable development”* (Vietnam News, May 18, 2010a). While Deputy Prime Minister Pham Gia Khiem said the Vietnamese Government has taken measures to create favourable conditions for sustainable development in the coming years (Vietnam News, June 9, 2009), it is clear that real options for sustainable development will largely remain dependent on political will—which, more often than not though, is sidetracked by aspirations on short-sighted economic growth.

### **6.1.3 The ‘rural poor’ in the development context**

Basically, *“growth has really come to the poor in the past innovation period”* (Vu Thi Vinh 2009: 39), with the number of poor people having reduced significantly. However, although considerable progress has been made, the economic and social development of Vietnam is still constrained by macroeconomic imbalances and structural problems. Among the major challenges is to achieve ‘growth with equity’, hence redistributing the results of economic growth equitably among different social groups (Le Bach Duong et al. 2005). The present section provides an overview of the ‘rural poor’ in the development context, highlighting some major achievements and challenges Vietnam is facing.

Generally, one of the basic problems in measuring (not only rural) poverty is to assess who is poor and where to put the poverty line (see also Chapter 2). In Vietnam, there are three different ways applied to define and understand poverty:

1. The MoLISA provides a number of income *per capita* thresholds (varied between urban, rural and mountainous areas), called the ‘poverty line’, below which families (not individuals!) are classified as poor.
2. The General Statistical Office (GSO) calculates two poverty lines; the food poverty line and a (higher) general poverty line. The food poverty line is calculated according to the expenditure required to deliver 2,100 calories per person per day. The general

poverty line is calculated on the basis of a ‘basket of goods essential for well-being’, combined with expenditure sufficient to meet the standard of the food poverty line (AusAid 2004). Households are poor when they cannot afford this basket. This approach is in line with the ‘expenditure approach’ suggested by the World Bank to the measurement of poverty (Le Bach Duong et al. 2005).

3. The National Academy for Social Sciences uses a Human Development Index consisting of three measures: life expectancy at birth, education attainments, and gross domestic product (GDP) *per capita*. This approach is equal to the one applied by the UNDP.

According to the first Vietnam Living Standards Survey (VLSS) conducted in 1992-1993 based on the expenditure approach, the average income *per capita* over the whole country was approximately an amount equal to about USD 200 (Vu Tuan Anh 2005). 58 percent of the population were defined as poor. Around the same time, though, the MoLISA used a lower poverty line that was based on income *per capita* per month, and assessed that 26.4 percent of the rural population and 9.8 percent of the urban population were poor in 1994 (*ibid.*). This sharp difference makes clear why—up to today—accounts on poverty in Vietnam are rather confusing at times.

In addition to the methodological differences between MoLISA’s and the GSO’s approach, the poverty line has been frequently changed and adapted over time—with the poverty line being used as standard guideline both for MoLISA and the GSO. According to government’s regulations, from 2006 and up to mid-2008, a rural family earning VND 200,000 per month (which was USD 12.5 by that time) was considered a needy family. That amount of money was sufficient to buy rice and vegetables in 2007, but not enough in 2008 because food prices increased by 1.5 to 2 times over the year (VietnamNetBridge May 16, 2008).

Since late 2008, a household is considered as poor if its monthly income falls below VND 390,000 (USD 22 by that time) in urban areas and VND 300,000 in rural areas (Vietnam News, October 16, 2008). Moreover, it is planned to rise up the standard to VND 500,000 for urban and VND 400,000 for rural families from 2011 on. Under the new standard, there would be an estimated 25 percent increase of people considered poor in the country. While discussions are ongoing on lifting the standards, MoLISA will not begin an updated national survey on poor households until the Government approves new standards (Vietnam News, September 9, 2010).

Finally, then, provincial governments in Vietnam adopt varying poverty definitions, and reliability of local figures becomes contested from time to time, either by scholars, sector ministries<sup>76</sup> or even by delegates from the National Assembly<sup>77</sup>. While provincial level data is

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<sup>76</sup> According to a national survey on household living standards in 2006, approximately 52 percent of the 46,000 households interviewed were not listed as poor even though they were actually living below the poverty line (Vietnam News, October 5, 2009).

<sup>77</sup> At one of the National Assembly’s meetings in late 2009, many deputies doubted the authenticity of the existing poverty reduction figure. As the Vietnam News, writes: “*Deputies Nguyen Van Sy from Quang Nam Province, Nguyen Hong Nhi from Nghe An Province and Hoang Ngoc Thai from Ninh Thuan Province said that the 11 percent figure did not reflect the country’s actual poverty level. However, some experts suggested taking a multi-dimensional approach to measuring poverty in the future, instead of simply using an income-based poverty line. “Poverty will need to reflect the household’s ability to attain an average living standard, rather than an absolute benchmark figure,” said Dang Kim Chung, deputy director of the Institute for Labour Science and Social Affairs (ILSSA) under the MOLISA. Measuring poverty would, thus, include household’s access to primary education, nutrition, health care, accommodations, environmental sustainability and access to safe drinking water, Chung said. The poverty line itself was not comprehensive enough, he said. Setting up a multi-dimensional approach to poverty is of great importance because it will help the Government to identify residents living in impoverished conditions so that it can help them escape poverty, according to Chung*” (Vietnam News, December 15, 2009).

sometimes less reliable for general statistical comparisons, it does form the basis for distribution of resources and assistance to the poor under Government poverty programs. The NTP on HEPR programme coordinated by MoLISA (see 6.2.1) includes a supplementary survey implemented in communes using a questionnaire that focuses on household income (AusAid 2004).

Thus it becomes clear that some caution must be put when using, or quoting, respectively, poverty accounts for Vietnam.

### **Achievements in poverty reduction**

While the first goal of the 2001-2010 SEDP of Vietnam is GDP-related, its second goal is 'to raise substantially our country's Human Development Index (HDI)' (GoV 2001). The improvement in HDI of Vietnam over time has generally reflected the achievement of that goal: The HDI rose from 0.590 in 1985 to 0.620 in 1990; from 0.672 in 1995 to 0.672 in 2000, 0.704 in 2004, 0.733 in 2005 and to 0.750 in 2007. Among the indexes that constitute the HDI for Vietnam, the education index achieved the highest result (0.815), the life expectancy index ranked second (0.812), and the income index ranked last (0.572) (Vu Thi Vinh 2009).

Doi moi resulted in an impressive reduction of income-related poverty in Vietnam. No matter what poverty measure is applied, all figures indicate that after the implementation of economic reforms poverty has more than halved in only one decade (Bonschab and Klump 2004) and is now a fifth of what it was two decades ago. The poverty rate dropped sharply from more than 60 percent of households across the country in 1990 to about 58 percent in 1993, 37 percent in 1998, 27 percent in 2003, 24.1 percent in 2004, 14.8 percent in 2007, and 12.8 percent in 2008, to about 12 percent in 2009, according to GSO numbers. In the period 2006-2008, the annual poverty reduction rate was 2.6 percent (Vietnam News Agency, October 3, 2009). The State hoped to decrease the number of poor households to 11 percent by 2010 (Vietnam News, December 15, 2009).

Based on the poverty definition of the VLSS, this goal is already achieved by now: The overall poverty rate has reduced from 58 percent in 1993 to 37 percent in 1998, 28.9 percent in 2002, 25 percent in 2003 (Conway 2004), to about 10 percent in 2010 (Vietnam News, August 27, 2010b). Food poverty has reduced from 24.9 percent in 1993 to 15 percent in 1998 and 11 percent in 2003 (Vu Tuan Anh 2005).

In addition, many people experienced major increases in well-being across a large number of dimensions. Since the 1990s, the poor (like most Vietnamese) have had better access to health services, education and transport. Rural development and infrastructure have promoted private sector development and created job opportunities (AusAid 2004). The average income of 20 percent of the poorest group in 1994 was 63,000 VND per person per month. In 2001, it was 107,000 VND and 184,300 VND in 2006 (Vu Thi Vinh 2009). Income per capita was raised about 2.3 folds during the past ten years (Vietnam News, August 27, 2010b). Moreover, life expectancy of the country's population has increased substantially over time, and infant mortality has declined. Adult literacy has been maintained high (Le Bach Duong et al. 2005).

Hence, while the reduction in the influence of the state has led to increased incidence of poverty in many former centrally-planned economies (Adger 1999), it is clear that Vietnam is considered a successful case of poverty reduction among developing countries and as "*one of the greatest success stories in economic development*" (Vu Tuan Anh 2005). Recently, John Hendra, UN resident coordinator, appreciated the country's remarkable achievements in poverty reduction to become "*the first country in the world to achieve the first Millennium Development Goal on eliminating extreme poverty and hunger*" (Vietnam News, May 26,

2010). According to the UN, Vietnam has completed ahead schedule the Millennium Development Goal of reducing by half its population living with not more than USD 1 per day (Vietnam News Agency, October 3, 2009).

### **Persisting challenges to poverty reduction**

As the poverty headcount has been progressively lowered, the profile of poor groups, the factors causing poverty, and the structural changes that need to be addressed to ensure continued sustainable poverty reduction have all changed considerably. The economic growth that started in the late 1980s was mainly based on an economy in which the initial distribution of key assets within society—most notably the physical asset of land, but also human capabilities such as education and health care—was remarkably equal (Shanks et al. 2004). While some groups benefited more than others from *doi moi*, almost all benefited, and most benefited to a significant degree. Inequalities widened but remained in international terms low. Over time, however, differences became more pronounced, as further economic growth resulted in assets and power becoming concentrated along various dimensions, and at various levels. Indeed, as Conway (2004: 10) argues, “*it would be surprising if this did not occur*”.

A direct implication of the economic renovation phase therefore is that it has led to widening inequalities and vulnerabilities among the population. In this context, liberalisation of markets and agriculture has led to great income inequalities and to an undermining of rural livelihoods of disadvantaged groups. Exposure to global markets and the emphasis on increasing export commodity production have led to declining profits, indebtedness and land loss (Taylor 2007) for disadvantaged groups.

Economic growth has generated increases in income inequality which gives Vietnam one of the highest GINI coefficients in Southeast Asia (Fritzen 2002: 635). Thus, inequality appears to be rising sharply and constitutes “*a thorny problem*” (Le Bach Duong et al. 2005: 76). In 2002, a report by the National Centre for Social Sciences and Humanities (NCSSH) indicated that Vietnam’s GINI coefficient had risen from 0.350 in 1995 to 0.357 in 1998 and to 0.410 in 2002.<sup>78</sup> Moreover, researchers around the Vietnam Inequality Report 2005<sup>79</sup> stated: “*A hard core group of poor (...) coexists uneasily with a newly arising class of the superrich, and this may threaten socio-political stability (...)*”. Yet, the GINI coefficient slightly reduced since then, from 0.37 in 2004, to 0.39 in 2006, and to 0.38 in 2007. Vu Thi Vinh (2009) shows that this gap of income between ‘rich’ and ‘poor’ households in Vietnam tended to increase year after year; it increased by 6.99 times in 1995, 7.31 times in 1996, 7.65 times in 1999, and 8.1 times in 2002. In 2007, the income gap between the rich group and the poor group was 8.2 times in the urban areas and 6.5 times in the rural areas. Consequently, while the majority of economists would unanimously agree that economic growth is necessary for poverty reduction, yet some economists—and much more social scientists—will question whether it is sufficient for poverty reduction. Vietnam enjoyed rapid economic growth over the past 25 years, but the increase in equality during that time shows that those that remained poor in Vietnam benefited ‘only little’ from that growth (Hai-Anh Hang Dang 2005).

Another challenge of the changing nature of poverty is that, although the national poverty and hunger rate continuously declines, the number of households falling back into poverty and the number of newly poor households increases (Nguyen Thi Song An et al. 2004). MoLISA records that each year there are about 20,000-25,000 households falling back into poverty (Vu Tuan Anh 2005). Many Vietnamese families who climbed out of poverty over the past several years are under threat of slipping below the line again due to the consequences of the global

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<sup>78</sup> The GINI coefficient shows the income distribution among a given population in a certain country or region, with 0=perfect equality; 100=perfect inequality.

<sup>79</sup> See: <http://www.spp.nus.edu.sg/Handler.ashx?path=Data/Site/SiteDocuments/fritzen-brassard-inequality.pdf> [accessed January 4, 2011]

economic crisis. People's income has not kept pace with inflation. As more people in rural areas lose their land and other sources of income, they are forced to hire their labour out in urban areas (Thanh Nien News, November 20, 2009).

Moreover, despite the praise Vietnam has earned for its poverty reduction achievements, most commentators note that socio-economic rifts have opened up between rural and urban areas (Wehrli 2006) and between regions and ethnic groups (Taylor 2007; Le Bach Duong et al. 2005). From 1993 to 2002, the poverty rate in urban areas went down from 25.1 percent to 6.6 percent, but it reduced at half that rate only in rural areas—from 66.4 percent to 35.6 percent. The poorest regions, such as the Northwest Mountains and the Central Highlands have the lowest rate of poverty reduction (Vu Tuan Anh 2005). Poor households are mainly in the rural, mountainous and remote areas with the proportion of 90 percent amongst overall poor households of Vietnam (Tran Thi Tuong Van 2008; Vu Thuan Anh 2004). Rural households, including farmers and landless households, are typically five times more likely to live under the poverty line than urban households (2002 estimates from VLSS), and poverty in rural areas has declined much slower than in urban areas (Few et al. 2006). According to a report by the Ministry of Labour, Invalids and Social Affairs, by the end of 2006, there remained 58 districts in 19 provinces where the proportion of poor households was higher than 50 percent of the local population. In 2007, the number of districts with more than 50 percent of local households considered poor even climbed to 60 districts (Vietnam News, July 9, 2008). In total, then, even though it has not the highest poverty rate, the overall number of poor people as per region is the Mekong River Delta.

Alongside with regional poverty disparities is the 'ethnic dimension'. Ethnic minorities make up an increasing rate among the poor in Vietnam. In the past years, while the poverty rate in ethnic groups has continuously reduced—especially for those living in the valleys, lowlands and wet-rice cultivating areas—the poverty rate among the ethnic groups is now much higher than that of Kinh people (Vu Thi Vinh 2009)<sup>80</sup>. It is 'by no means accidental', as Le Bach Duong et al. (2005) argue that the poorest regions are geographically overlapped with native soils of the ethnic minorities. Poverty remains high across most if not all of the ethnic minorities. According to a multi-dimensional approach applied, a recent study found that there are overwhelming differences between ethnic minorities and the Kinh, including in education, mobility, access to credits and financial services, access to land, agriculture and forestry, and access to markets, trading, and off-farm employment (World Bank 2009). In addition, trend analysis shows not only these groups will remain poorer compared to the Kinh, their share of poverty will even increase in the years to come. For example, an estimation made by the World Bank (2004) projects that by 2010, more than two thirds of those living in hunger could be ethnic minority people. In 2002, the incidence of poverty among ethnic minorities was already over twice that of rural population as a whole (Taylor 2007). In 2007, 52 percent of ethnic minority people lived under the poverty line. That rate in the Kinh people was 10 percent (Vu Thi Vinh 2009). Therefore, there is a real danger that as poverty rates amongst the majority Kinh fall, poverty becomes primarily associated with ethnic minority groups (Shanks et al. 2004).

In sum, it can be maintained that although progress has been achieved in eliminating hunger and reducing poverty in Vietnam, there are still many difficulties in raising living standards (Vietnam News, October 16, 2008). There are some serious concerns that many of the region's poor are getting left behind (Vietnam News, October 14, 2008) in the process of transition and economic development. Thus, if the ambitious goals of the Vietnamese Government can be met not only depends on a continuation of the positive growth record, but

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<sup>80</sup> Vietnam is a multiethnic country with the Kinh majority as the dominant group. Vietnam has 53 ethnic minority groups, accounting for 12.6 percent of the total population (Bonschab and Klump 2004).

also on future trends in inequality (Bonschab and Klump 2004). Obviously, some forms of deprivation may not simply be inherent results of market transitions, but are the outcomes of poor macroeconomic management and policy choices (Le Bach Duong et al. 2005).

Finally, with over 70 percent of the population living in the countryside, the major challenge to the Vietnamese government is to provide viable and sustainable livelihoods for the rural inhabitants. While the urban population can enjoy consistent economic growth, farmers' incomes have been greatly affected by continual price land agglomeration, few labour choices, but also by price fluctuations and natural calamities (Le Bach Duong et al. 2005).

## **6.2 State policies, interventions and assistance: Poverty reduction, social protection and disaster risk reduction**

In Vietnam, while the economic transition and modernisation process gives room for new economic liberty and entrepreneurial spirit, it also has led to a situation in which social stratification becomes a contentious issue (Garschagen 2010). It has been argued recently by Vu Thi Vinh (2009) that the task of poverty reduction is facing great challenges in the country, comprising,

- first, challenges to economic growth and poverty reduction; despite rapid economic growth, the quality of growth, the efficiency and competitiveness of the economy are low;
- second, unsustainable poverty reduction alleviation; with a high danger of people becoming poor again;
- third, the rate of poverty reduction tends to slow down, while the rate of poor households remains high; and
- fourth, the gap of income tends to widen.

Over the 2000s, it has become more obvious that rural and mountainous areas were not equally participating in the modernisation and economic growth process. Vietnam's ethnic minorities now have a poverty rate more than five times that of the majority. Minorities remain overwhelmingly poor, despite the government's success in reducing poverty elsewhere.<sup>81</sup> It also became clear that "*economic growth alone would not solve these problems*" (Priwitzer 2008: 3). It is against this background that the draft 2011-2020 SEDP says 'economic growth must harmoniously combine with social progress and equality' (GoV 2010), with human development now recognised as a key area (Vietnam News, June 28, 2010).

While there are overarching development objectives outlined in the SEDP, that are both related to the economy and the country's HDI, complementing the growth-led achievements in poverty reduction are a number of policies and interventionist strategies *directly* addressed to poverty reduction and to assist the poor. These poverty reduction policies of the Vietnamese Government, as well as social protection and disaster risk reduction approaches, will be addressed in the present section. It is important to indicate that all three intervention areas have been increased in terms of their overall amount of spending; Vietnam increased expenditures for national poverty reduction efforts by 20 percent in 2008. During the year, the government spent approximately VND 20 trillion (USD 1.2 billion) on social security and granted over 40,000 tonnes of rice to victims of natural disasters. MoLISA reports that more than one million poor households were provided with soft loans nationwide. Hundreds of thousands of poor people received training in farming techniques, and 14 million people benefited from free healthcare services (Vietnam News, December 30, 2008).

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<sup>81</sup> Agence France Press (AFP) (June 2, 2009): Stereotypes linked to minority poverty in Vietnam.

## 6.2.1 Policies and approaches on poverty reduction

A well-established form of policy-making in Vietnam is through targeted interventions and programmes. Poverty reduction is considered by the State as one of the key long-term tasks in the national socio-economic development strategy; the Government's ideology that provides a strong underpinning to pro-poor policy-making in general includes within it a discourse of socialist ethics and morality (Shanks et al. 2004). President Nguyen Minh Triet argued that hunger elimination and poverty reduction were priorities during the country's development process and that the alleviation of poverty should be sought in three ways:

- (1) Increasing the poor's access to public services, especially health, education, vocational training, legal aid, housing and potable water;
- (2) Promoting policies that secure productive land, preferential credits, encouraging both agriculture-forestry and aquaculture and developing crafts; and
- (3) Developing infrastructure for disadvantaged communes, hamlets and villages (Vietnam News, August 27, 2010b).

Indicators of poverty reduction have to be a component of the socio-economic development strategy and plan at every governmental level (Vu Tuan Anh 2005). Targeted programmes have been the main mechanism through which the Government sought to realize policies on poverty reduction and to address the needs of poor areas and vulnerable groups throughout the 1990s and 2000s. Critically, such programmes also represent one of the main redistributive mechanisms through fiscal transfers from the national budget.

Before the 1990s, there was no special national action programme for poverty reduction. The Seventh Congress of the CPV in 1991 recognised that poverty was a serious barrier to development and called the government to pay more attention to supplying better social services and improving infrastructure in poor regions. In 1993, MoLISA promulgated the national poverty line to guide the identification process of poor households. During the period 1992-1995, the Government took various actions for poverty reduction within a framework of fourteen national development programmes, such as: programme for reforestation, job creation, provision of preferential credits, eradication of illiteracy, reduction of child malnutrition etc. Special funds for poverty reduction were created for most of the country's provinces in 1995. A special financial service institution—the 'Bank for the Poor' (now renamed the Vietnam Bank for Social Policies, VBSP)—was established in the same year.

The definition of poverty applied by the Vietnamese government refers to the concept of 'absolute' poverty. The concept of relative poverty is sometimes raised by researchers but does not have practical significance in the drawing up of policies. Poverty is understood as 'the situation where a part of the population cannot satisfy the basic needs of life' (Vu Tuan Anh 2005). Besides this, the Government makes notion of the concept of 'poor areas' or 'areas faced with extreme difficulties'. A poor area is a locality with a much higher ratio of poor households and much lower living standard than in the average locality.

The two most important programs targeting the rural poor are

- (1) the *National Targeted Programme on Hunger Eradication and Poverty Reduction* (NTP on HEPR) (also known as Programme 143), and
- (2) the *National Programme for Socio-economic Development in Communes of Special Difficulties in mountainous and remote areas* (PDCED, also known as Programme 135).

By the early 2000s, these two programmes were linked to the major Comprehensive Poverty Reduction and Growth Strategy (CPRGS) under Vietnam's Poverty Reduction Strategy (PRS) initiative.

### **The PRSP and CPRGS**

A Poverty Reduction Strategy Paper (PRSP) for Vietnam was completed in 2002, called the *Comprehensive Poverty Reduction and Growth Strategy* (CPRGS). This paper mentions a number of major policies and measures to promote sustainable growth and poverty reduction. The CPRGS is closely linked to the fulfilment of the MDGs in Vietnam and provides guidance and orientation for achieving these goals—which remains an overarching policy priority for the country (OECD 2010). Deputy Prime Minister Pham Gia Khiem was quoted as saying that Vietnam gives top priority to poverty reduction and is taking strong measures to achieve eight Millennium Development Goals (MDGs) by 2015.<sup>82</sup> *“Vietnam was recognised by the UN and other development partners as having recorded successes in realising MDGs. Some targets have been achieved or surpassed and it is very likely that we will fulfill the remaining targets ahead of 2015. (...) Social progress and equity is now incorporated into development plans and policies. Eight MDGs have been translated into twelve Vietnam Development Goals (VDGs) and included in national and provincial social and economic development plans”* (VietnamNetBridge September 27, 2009).

The CPRGS was produced through a highly consultative process, managed by an inter-ministerial committee headed by the Ministry of Planning and Investment (MPI) and comprising senior Government officials from MPI and other ministries. The CPRGS is considered as an integrated part of the Ten year, Five year, and annual socio-economic development plans at the national, sectoral, and provincial levels.

### **The NTP on HEPR**

Hunger elimination and poverty reduction is an essential part of the national programmes of the Vietnamese government since the 1990s (Tran Thi Tuong Van 2008). In 1998, the Government approved a National Targeted Programme on Hunger Eradication and Poverty Reduction (NTP on HEPR) for the period 1998-2000 with the aim of co-ordinating poverty reduction actions and mobilising more resources to fight against poverty.

The target group is made up of poor households as defined simply by the poverty line. Total capital for the 2001-2005 period was about VND 21 billion of which 14.28 percent came from central budget, 11.9 percent from local budget, 7.14 percent from communities, 9.52 percent from contribution of other programs and 57.12 percent from credit. The NTP is managed by MoLISA that steers a national committee that comprises other ministries and agencies such as MPI, MoF, MoLISA, MARD, MoH, MoET, CEM, etc (Vu Tuan Anh 2005). To administer the programme, provinces and districts established Poverty Reduction Boards (PRB) made up of officials from relevant departments. At the commune level, HEPR committees were formed by local officials. The programme is executed by a number of central Government agencies and local people's committees. Under the 2001-2005 programme framework, there were six policies and twelve projects. The strategy was amended for the implementation phase 2006-2010 and now consists of two components (one on poverty reduction and one on labour promotion) and a number of supporting policies. The Box below provides an overview of the NTP on HEPR.

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<sup>82</sup> The MDGs require countries to halve the poverty rate among the proportion of the population living on less than USD 1 per day between 1990 to 2015. In Vietnam, the program aims to bring the national poverty rate down from 22 percent in 2005 to 10 or 11 percent by 2010. The program was estimated to receive nearly VND 43.5 trillion (USD 2.44 billion) in total funding, VND 3.5 trillion of which was allotted directly to localities (Vietnam News, October 5, 2009).

**Box 14: The National Target Programme on Hunger Eradication and Poverty Reduction (NTP on HEPR), 2006-2010**

*Source: GoV 2005*

<b>Project description</b>	<b>Implementing agency</b>
<b>Poverty reduction component</b>	
1. Credit project	State Bank, Bank of Social Policies
2. Extension services project (business, agriculture, fisheries, forestry, etc.)	MARD
3. Establishment and replication of HEPR models in poor communes	MoLISA
4. Basic infrastructure for poor communes	MARD
5. Production assistance and promotion of trade/off-farm occupations in poor communes	MARD
6. Training HEPR staff	MoLISA
7. Resettlement of new economic zones	MARD
8. Sedentarization for ethnic minorities	MARD
<b>Job Creation Component:</b>	
9. National credit fund to support small scale employment projects	MoLISA
10. Strengthening of employment service centres	MoLISA
11. Labour market survey & information system	MoLISA
12. Training for staff involved in employment management	MoLISA
<b>Support policies:</b>	
13. Low cost, easier access and better quality medical care for the poor	MoH
14. More opportunity for education	MoET
15. Special support for ethnic minorities in poorest regions	Provinces
16. Special support for vulnerable people (those affected by natural disasters, migrants)	CEM
17. Support for housing improvement	Provinces
18. Support with production tools and cultivated land.	MoLISA

### **Programme 135**

The National Programme for Socio-Economic Development in Communes faced with Extreme Difficulties in mountainous and remote areas (PDCED, which is more commonly called Programme 135) was established by Decision 135/1998/QD-TTg of the Prime Minister in 1998. The Programme focuses on poverty reduction in the poorest regions of Vietnam.

Although Programme 135 is not listed as one of the policies under the NTP on HEPR, it is considered a national focus programme. In terms of budget it is double that of HEPR's poverty reduction component. It is a national socio-economic development programme to technically and financially assist poor communes, especially in remote and mountainous areas. Its resources have been used for irrigation, schools, construction of commune centres etc. The Programme also consists of grants that finance small-scale infrastructure investments in poor and remote communes (Bonschab and Klump 2004). In 1998, Programme 135 was implemented in 1,715 communes. From 2001 on, the Programme has expanded to 2,362 communes. Funding is mainly allocated from the central state budget and in parts from provincial funds. The number of targeted communes accounts for 22 percent of the total number of communes in the country.

Similarly to the NTP on HEPR, the managing agency of Programme 135 is a National Steering Committee with the Vice Prime Minister as chair and leaders of related governmental agencies as members. From 1998 to 2008, the State Committee for Ethnic

Minorities (CEM) was in charge of co-ordination and management at the central level. Managing Boards of Programme 135 have been created at local levels (provincial, district, and commune) (Vu Tuan Anh 2005).

From 2000 to 2005, Programme 135 aimed, firstly, to reduce the poverty rate rate in communes faced with extreme difficulties to less than 25 percent, secondly, to ensure to provide adequate clean water, ensure that 70 percent of school-age children attend school, to provide further training on production for poor people, to promote disease control, to build roads to inter-commune centres, rural market development. Programme 135 consists of five main components that include:

- (1) Construction of infrastructure at the village and commune level (roads, clinics, schools, irrigation systems, safe water supply systems, markets, etc.);
- (2) Construction of infrastructure at village level;
- (3) Settlement of ethnic minorities;
- (4) Agricultural/ forestry extension, and
- (5) Training of commune cadres, especially for the management and monitoring of construction works.

Most of the funds (95.5 percent) were invested in construction of infrastructure. Less than four percent of the funds were used for capacity building (technical extension) and training of cadres. 0.5 percent of the funds were used for the settlement of households of ethnic minorities (Vu Tuan Anh 2005). Only a tiny fraction of the money went into non-farming activities (Bonschab and Klump 2004).

For the Programme's second phase (2006-2010), the Prime Minister agreed to give more funding to Programme 135. The Ministries of Finance (MoF), and Planning and Investment (MPI) have been entrusted to manage capital resources to allocate to the programme as well as to guide and supervise the implementation of its projects. The second phase targets an overall number of 1,640 poor communes and 2,500 poor villages in ethnic minority areas (VietnamNetBridge, August 14, 2008).

Basically, the Programme is perceived as highly successful and important for improving living conditions in poor localities. Yet the programme has faced significant challenges in capital disbursement over the first two years of its second phase. In 2007, some 4,700 projects in 1,800 communes received investment from Programme 135, with disbursed capital of nearly VND 1.8 trillion (USD 112.5 million), which met less than 80 percent of the programme's envisaged target. The two most important parts of the programme, infrastructure and production development projects, were carried out at a slow pace only. The programme's capital disbursement was not only slow, but a small part of it was also directed at the wrong recipients or places. However, some local officials complained guidance from the central level was not comprehensive, and assistance offered under Programme 135 was insufficient what led to confusion among local authorities (Vietnam News, October 14, 2008a). Thus, these two difficulties made clear the various shortcomings of the Programme which—same as the NTP on HEPR—is organised in a rather top-down oriented style.

Based on growing awareness of the Programme's bottlenecks, MoLISA drafted a 'report on new support policies for the poor' to raise the effectiveness of Programme 135 between 2009-2015. The Commission for Ethnic Minorities and Mountain Areas (CEMMA, which is the former CEM) will be the main managing agency. Ngo Truong Thi, the deputy head of the Social Support Department of MoLISA said the new policies were set to overcome previous shortcomings of Programme 135: "*So, with these new policies, our goal is to cut the number of poor households to under 30 percent*", said Thi (Vietnam News, August 20, 2008). Under

the new policies, the state will raise total investment for the 61 poorest districts to VND 22.47 trillion (USD 1.4 billion). Specifically, each commune will receive VND 1.5 billion (USD 93,750) a year compared to VND 800 million (USD 50,000) under the old scheme. Districts have now been earmarked for new infrastructure such as schools, hospitals, roads, fresh water and electricity. The state will provide each commune with a VND 500 million (USD 31,250) annually to set up Community Development Funds (CDFs). Complicated procedures will also be simplified to boost the pace of project implementation (Vietnam News, August 20, 2008).

Yet the currently driven approach to decentralised implementation of the Programme shows that it is not implemented equally efficiently and successful in all provinces. The lack of knowledge in handling implementation and budget issues by local level staff is an ongoing area of concern. This certainly calls for improved education levels and more capacity building for State employees at the sub-national levels.

### **Outlook**

In sum, the Government's attention to poverty reduction, especially in the context of market-oriented economic reforms which "*used to leave the poor outside development flow*" (Vu Tuan Anh 2005) has led to an ongoing improvement of basic living conditions in most of the localities receiving support.

Yet it appears clear that as markets develop, government programmes aiming at poverty reduction such as the NTP on HEPR will also need to change, requiring different types of interventions and support (Tu Van Binh et al. 2004). In this context, Prime Minister Nguyen Tan Dung has approved a project to develop the country's rural areas until 2015, where every commune nationwide shall have a more tailored socioeconomic framework to follow. According to a recent report from the Ministry of Construction (MoC), of the 9,100 communes nationwide, only 23 percent have long-term development plans (Vietnam News, January 14, 2010). This means that local realities have been mostly left out under the implementation of the poverty reduction programmes. Development literature on Vietnam, mostly written by international donors for programmatic purposes, converges in similar conclusions of key features of rural poverty in the country. While astounding achievements of Vietnam in poverty alleviation are highly praised, its driving force—the progressive redistribution of land to rural households—is being worn out (Le Bach Duong et al. 2005).

Moreover, it seems standard growth strategies miss out the particular needs of these groups that belong to the poorest in Vietnam. Special funds that CEMMA channels to 'ethnic minority areas' quite often do not reach the minorities but rather Kinh majority households living in that area (Bonschab and Klump 2004). Despite implementing socio-economic development programmes in disadvantaged, remote and mountainous areas and that the Vietnamese government has invested trillions of VND on poverty reduction, the poverty rate among ethnic minority groups in Vietnam remains high (World Bank 2009), or is even growing (Bonschab and Klump 2004).

This situation is critical in some mountainous areas, with improvements remaining limited in scale. Yet some positive experiences can be found. By implementing the Government's decrees on allocation of additional land to landless households, the provinces in the Northwest Mountainous Region supported ethnic minority households in their exploitation of new land and increasing of production intensification. In the Central Highland Region, state-owned farms have had to reallocate a part of their land to landless households of ethnic minorities. During the period 2002-2004, approximately 5,140 hectares of agricultural land was given to 10,455 households. However, based on growing pressure on land resources it is clear that this is not a long-term solution.

Finally, a recent report conducted by the United Nations Development Programme found that the poverty reduction programmes described here have components or sub-components in quite similar areas, such as support in production, education and access to training. The current 41 different activities and policies and hundreds of relevant decrees with inadequate co-ordination were posing a big challenge to effective poverty reduction. *"Doing more of the same will not be good enough"*, said John Hendra, UN resident coordinator in Vietnam (Vietnam News, May 26, 2010).

There is no doubt that the target programmes remain a very important element of pro-poor policy-making, embedded in an established political tradition and its associated institutions. Over recent years, though, some tensions also arise between the need to put into effect coherent sector specific policies to assist the poor (Shanks et al. 2004). According to Nguyen Xuan Thang, vice president of the Vietnam Academy of Social Sciences (VASS), Vietnam shall attempt to develop a more contemporary outlook on the subject of poverty. *"A more sustainable system is needed. It's not only a matter of how to reduce the number of poor households, but how to stop people falling back into to poverty"*, he added (Vietnam News, June 2, 2010b).

### **6.2.2 Policies and approaches on social protection**

To date, social protection in Vietnam is mainly provided from fixed government budgets and, in times of risks and hazards, through a number of special funds. Social protection not only plays an important role in case of both individual and general risks, but in Vietnam is also considered an important instrument to ensuring socio-economic stability and sustainable development (Vietnam News, August 27, 2010b), and for keeping the level of income inequalities low. Vietnam envisages building up an efficient and properly financed social protection system for the country's broad population over the mid-term. Deputy Prime Minister Nguyen Sinh Hung said care for the poor was a key task of the Government (Vietnam News, July 9, 2008).

Social protection is mainly the responsibility of MoLISA. MoLISA's Department of Social Protection is in charge of social assistance, disaster relief, child protection and collaborates with other agencies in the NTP on HEPR. Other departments of MoLISA deal with social insurance, labour policies and labour training. Other programmes in the Vietnamese context, such as those related to education or health assistance, are responsibilities of other Government agencies (Le Bach Duong et al. 2005). Most of social policy implementation is financed by the central and provincial/city governments' budgets.

Overall, it must be clear that discussions about social policy and social protection in Vietnam will run the risk of being over-simplistic if the discussions ignore the consequences of more than 30 years of war and still the low level of development of the country (Le Bach Duong et al. 2005). At present, there are hundred thousands of wounded soldiers, families of perished combatants and people recognised by the Government as making outstanding contribution to the past revolutions. The Government has always emphasised that these are priority groups in the Government's social policy. And as most of these people are in the more difficult situation, different programmes and activities, be they officially declared as social protection or not, have been designed for them (ibid.).

Against this background, one has to understand the general conflict of objectives in regard to social protection services in Vietnam. On the one hand, some policy-makers in Vietnam are eager to advance the country's 'economic miracle'. On the other hand, the Communist Party has the legacy of socialism, which commits it to a certain level of equality in society (Priwitzer 2008). But there are signs that attempts of the Government to introduce an universal health insurance scheme are gaining momentum; not least that there is certainly a

more urgent need to support those parts of society that have not yet seen any benefits from the modernisation of the country. Moreover, it becomes increasingly obvious that the growing gap between rich and poor is endangering the social and political stability of the country.

Yet more than fifty percent of the population are not health insured, less than twenty percent are covered by the pension scheme, and there is no reliable risk insurance for farmers. The lack of sufficient social protection in Vietnam in the era of renovation has been increasingly observed over the last decade (Le Bach Duong et al. 2005) in which the shift from a planned to a mixed economy has eroded the coverage and effectiveness of state-provided education, health care and social protection services (Shanks et al. 2004). Even those that have access to insurance coverage have to pay high additional sums from their own pockets; and there are not many Vietnamese that can afford being insured. Moreover, the informal sector has been completely left out thus far from the insurance scheme.

### **Vietnam's social insurance system**

Overall, the Government spares around three percent of the annual GDP to maintain and pay for this the country's social security system. There are some 2.4 million retired people living on pensions and 37 million people who enjoy health insurance and support for maintaining basic living conditions. Yet the majority of the population, including farmers, small business owners and the self-employed are not covered by insurance. In 2009, the Ministry of Labour, Invalids and Social Affairs' drafted a social security strategy for 2011-20, which promises to extend coverage. Under the new social insurance strategy, there is a voluntary social insurance option for people who are not covered at their workplace. This fund will include capital from taxes and voluntary contributions; people who pay more into the fund will benefit more. To ensure the equality of the system, the new social security strategy "*must be systematic and clear to avoid the redundancies of the current system*", said Bui Xuan Du, head of Social Security Policy Studies at the Institute of Labour Science and Social Affairs under MoLISA. Targets of the draft of the 2011-2020 social security system are that 70 percent of unemployed people get job skills training, 90 percent of these get an allowance to find suitable jobs, 100 percent get access to health insurance, 100 percent of victims of natural disasters and other risks get support, and 100 percent of disadvantaged people get regular relief (VietnamNetBridge May 1, 2009).

Against the background of reforming the insurance system, three categories of social insurance—compulsory, voluntary and unemployment insurance—are applied in the existing insurance scheme now, with considerable results: 1. The number of people buying compulsory insurance increased, from 4.8 million in 2001 to 9.4 million in 2009 (18 percent of the total work force); 2. About 96,000 people have bought voluntary social insurance since it was introduced in late 2007 and the number of unemployment insurance buyers is expected to reach 5.8 million this year; 3. The State fund for regular assistance and the number of its beneficiaries have increased from VND 113 billion to more than 180,000 people in 2001 to VND 4,500 billion for more than 1.6 million people in 2010 (Vietnam News, August 27, 2010b).

Even though there is a majority of people that do not benefit from the official insurance system, specific compulsory approaches on health care, education, and relief exist.

### **Health care and insurance**

Health care is one of the major areas of social protection in Vietnam, with various progress and challenges that have been emerging over time. Priwitzer (2008: 4ff.) explains that during the first phase under doi moi, user fees for health care services were introduced (Decision

45/1989) and private health services were allowed ('socialisation').<sup>83</sup> As a consequence, many patients were able to get better services due to efficiency gains and increased competition in the health sector; however, as this policy also increased out-of-pocket payments, certain groups in society were left behind and inequality increased. In the second phase, the mechanism of health insurance was introduced in 1992 (Decision 299/1992). This compulsory scheme was directed towards active and retired workers in the public sector and private enterprises with more than ten workers (the contribution rate of three percent of wages comprised two percent paid by the employer and one percent by the employee). Even though this health insurance scheme was widely advertised in the newspapers, workers and employers showed little interest in registering. Some even denied having a health insurance card when going to see the doctor in order avoid extra payments (Priwitzer 2008).

From the 1990s on, the CPV pushed harder for universal health insurance schemes<sup>84</sup> and the Health Care Fund for the Poor (HCFP), a government funded programme to finance health insurance cards for the poor (Priwitzer 2008). The Fund was established under Government Decision 139 in 2002. Beneficiaries of the Fund are those living in households recognised as poor, in communes under socio-economic difficulties in remote and mountainous areas, and ethnic minorities in the Central Highland and the six northern mountainous provinces (Le Bach Duong et al. 2005). In 1994, the Government issued the Decree 95/CP on charging patients only part of hospital cost. Exemption of hospital costs was granted to patients from mountainous or highland communes (recognised by the Committee on Ethnicities) in 2002 with the Decision 139/2002/QD-TTg.

To a large part, these approaches on health insurance are implemented, managed and financed under the NTP on HEPR. Some of its programmes are targeted to poor households directly, other are targeted to poor communes. Examples of the first kind are the provision of poor household certificates and of health insurance cards that both give entitlement to free medical treatment in public hospitals. Vu Tuan Anh (2005) explains that, depending on the context of each province, up to four types of health care benefit provided to the poor exist:

- (1) Hospitals exempt the poor from treatment fees in accordance with the budget framework of hospitals. The MoH recorded that 7-8 percent of patients in state-owned hospitals paid either a reduced fee or were exempted due to being poor. Provincial government then allocate an additional budget to hospitals to cover the real treatment costs of the poor.
- (2) Provincial governments provide certificates of free health care to the poor and cover the medicine and equipment costs of their treatment; hospitals provide other costs (health examination, hospital beds).
- (3) Health insurance cards assuring for free treatment are provided to the poor.
- (4) Other forms of health support for the poor have been implemented in provinces, such as charity clinics providing free treatment for the poor, mobile medical brigades that are constantly send to poor areas, providing treatment for some vulnerable groups (invalids, children, etc.), and voluntary contributions from business, agencies and local communities for food, medication, etc.

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<sup>83</sup> The 'socialisation' policy as framed in Government Resolution No 90/1997/CP and Government Decree No. 73/1999/ND-CP2 especially affected the area of health, since it encouraged private agencies to provide social services that had previously been provided solely by the socialist state of Vietnam. Local governments, firms and NGOs were encouraged to support poor and vulnerable groups of society. However, due to financial and administrative restraints, this often did not happen (Priwitzer 2008).

<sup>84</sup> Presently, all students (from grade one to university) and people who are working for state or non-state companies are compulsorily required to have health insurance. Other citizens have the option to purchase health insurance on their own volition (Vietnam News Agency, March 15, 2010a).

Besides the poor, however, it needs to become reiterated that there are many millions more in Vietnam that live close to the poverty line and who benefit to a minor degree only from government policies. The rate of these people living near poverty line who buy voluntary health insurance, is still low at present (Vietnam News Agency, March 15, 2010a).

In sum, Vietnam has improved health standards significantly in recent years and is on track to meet sector-related MDGs, but there are still gaps in access and quality of care between urban and rural areas, among regions, and among different groups in society. Yet initiatives undertaken such as the HCFP are signs of growing responsibility of the Government for poor spending (Vietnam News, June 23, 2010a).

### **Schooling assistance**

Since the beginning of doi moi the legal framework for educational activities has changed. Over time, the country has moved away from providing fully subsidized social services toward a greater role for non-public schools. The public education system introduced fees for students in 1989, although in principle no school fees are charged for primary education. Of particular importance were the Law of Universal Primary Education and the Law on the Protection and Care of Children, both passed in 1991.<sup>85</sup>

Generally, education is an area that has always received priority from the Government. The literacy rate in Vietnam is among the highest in the developing world, and ranting assistance to disadvantaged population groups has always eben a pillar of the social security system of the Community Party. Besides general education policies, such as building schools, training teachers, raising salaries and allowances of teachers who work in exceptionally difficult areas, there are policies with direct support for poor students (Vu Tuan Anh 2005). Schooling for the poor is supported by three legal documents: Decision 1121/1997/QD-TTg of the Prime Minister on scholarships and social assistance to students of public schools, Decision 70/1998/QD-TTg enacted by the Prime Minister, and the Inter-Agency Circular to guide the implementation of the 1997 Decision (Le Bach Duong et al. 2005). These policies allow students from mountainous and remote regions to enrol in schools without having to take admission exams. A system of scholarship is made available for students at boarding schools of ethnic minorities. For schooling levels higher than primary education where generally no fees are paid, tuition waiver or reduction is granted for students who are handicapped or of poor families.

Under the relevant NTP on HEPR programmes, it is said that the education fee exemption programme within HEPR has a high coverage rate. It reaches almost one seventh of all poor and a fifth of the food-poor (Worldbank 2004) and it has a statistically significant effect on school enrollment among the children of the beneficiaries (Bonschab and Klump 2004).

As reported in the national MDG report of 2005, net enrolment rate at the primary education schools increased from 90 percent in the early 1990s to 94.2 percent in 2004. However, in many poor areas education challenges remain (Le Bach Duong et al. 2005) while, more recently, drop-out rates have increased in some parts of the country.

### **Compensation, subsidy, and tax exemption as elements of social support**

As depicted above, groups such as rural farmers are rarely integrated into compulsory insurance schemes and, in cases where they are (for example when they are former combatants), coverage is limited (Le Bach Duong et al. 2005). Yet in some cases they benefit

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<sup>85</sup> Basic education consists of five grades of primary education and four grades of secondary education. Then come either three years of upper secondary education or some time of vocational or technical training. Higher education can range from three to six years.

from a number of indirect support instruments, such as purchase guarantee<sup>86</sup> and compensation for crop failure<sup>87</sup>, subsidy on loans<sup>88</sup> and a number of tax exemptions<sup>89</sup>. These examples show that while the situation for rural farming households in many situations is indeed worrisome, it does not look as bleak as has been described by a range of scholars. However, the Government, on its way to a ‘modernised’ state economy and administration, envisages to constantly cutting these sources of support.

### **The private insurance market**

As described above, the current Government’s views on social policy have changed dramatically. Social policy and social protection is not regarded anymore as a sole responsibility of the State but that of the entire society (Le Bach Duong et al. 2005). Based on the Government’s decision for ‘socialisation’ in the country, the change is also from *de facto* egalitarianism to private market solutions

In this context, Vietnam’s farmers are a major potential market for agricultural insurers, but *“to tap this market companies will have to consolidate a small and scattered agricultural population”* (Vietnam News, January 16, 2009). Phung Ngoc Khanh, deputy head of the Insurance Department under the Ministry of Finance said. It is clear from a number of facts that Vietnamese agriculture is risky. Production faces risks from poor weather, epidemics, market fluctuation, and the State’s limited protection policy, according to Jason Hartell, from Global AgRisk, an American insurance company. *“This is why Vietnamese agriculture is a good market for agricultural insurance”*, Khanh says. Dao Van Hung, a member of the Consultancy Council for National Monetary Policy, opines that agricultural insurance at the micro-level had a lot of potential. *“Our surveys in the Mekong Delta showed that many farming households are ready to buy agricultural insurance to ensure the safety of their livelihoods”* (Vietnam News, January 16, 2009).

There remain heavy constraints on the private insurance market, though. Vietnam Insurance Company and the wholly French-owned Groupama Corporation pioneered agricultural insurance in Vietnam in 1992. At first, they offered insurance services covering cultivation, breeding, rice and other areas, but later had to cut back due to lack of demand from farmers. The small-scale production and low income of farmers were also seen as high risks by

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<sup>86</sup> For example, in late 2008, the Government instructed relevant bodies to buy one million tonnes of rice from farmers that otherwise would not have been sold (Vietnam News, December 5, 2008).

<sup>87</sup> In many cases, compensation is still paid to farming households, even in the liberalised agricultural markets. For example, in 2010 MARD has ordered provinces to provide details of areas that have infected by rice diseases and to provide support to farmers in worst-affected areas. The available budget would compensate farmers who lost rice crops in the southern region to the tune of VND 4 million (USD 210) per hectare. Meanwhile, farmers would also be given VND 100,000 (USD 5.2) per head per day to protect their crops against diseases (Vietnam News May 25, 2010a). This can be seen largely as an advantage to the local population in order to secure their livelihoods in times they cannot sell their products due to market constraints; yet, this approach clearly creates artificial market structures, it is costly, and undermines the market economy. In this connection, the primary contextual challenges that need to be taken into consideration are Vietnam’s transition from a long-time mode of State subsidy and the resource constraints of a poor developing country (Le Bach Duong et al. 2005).

<sup>88</sup> In 2009 the Government planned to support 100 percent of interest rates for loans for buying equipment for agricultural production purposes and 4 percent for buying construction materials in rural areas. The support was part of the Government’s economic stimulus package aiming at investment and consumer spending (see above, chapter 6.1.2) (Vietnam News, February 18, 2009).

<sup>89</sup> Farmers enjoy an exemption from agricultural land use taxes. The policy, effective since 2003, has helped around an estimated 11.2 million farmer households saving VND 50,000 (USD 3) as per hectare annually. The ministries have targeted to not collect this tax till after 2020 (Vietnam News, September 9, 2010): No tax on farmers for agricultural land). Agricultural land use tax collections amount to only about VND 1.8 trillion (USD 94.7 million) per year—equal to just 0.02 percent of gross domestic product—yet the taxes would place “a huge burden on small farmers and needed to be eliminated as part of the nation’s drive to eliminate poverty”, said Vietnam Farmers Association Vice Chairman Nguyen Duy Luong (Vietnam News, April 23, 2010).

insurers. Even today, many insurers say that farmers do not follow professional cultivation methods, making it more difficult for companies to assess and control risk.<sup>90</sup>

Hence, the agricultural insurance market remains stagnant, despite the country's large dependence on farming as part of its economy. Only one percent of livestock and cropland are insured, according to the Ministry of Finance. The importance of acquiring such insurance was highlighted recently after the 2008 prolonged flooding of Hanoi and provinces in the northern region where total agricultural losses amounted to VND 6.316 trillion, according to local authorities (Vietnam News, November 17, 2008). It was recently shown that farmers indeed want coverage for these high-risk ventures, but, more often than not, will not be capable to pay the necessary insurance fee. In total, the example of Bao Viet Insurance Corporation which has a leading position in the private non-life insurance market in Vietnam shows that there are still obstacles for the private insurance industry to gain ground in the country; benefits have reached approximately VND 200 billion (USD 11.4 million) in 2008 (Vietnam News, January 16, 2009) what is a very low amount compared to other markets in the Southeast Asian region.

### Summary

In sum, since starting renovation and socialisation, the Vietnamese State has had less control over the financial resources and practices of many institutions of social welfare, which was a key feature of the old welfare system (Le Bach Duong et al. 2005). As a result of the economic renovations, the state has been steadily reducing its fundamental role in provision of social protection and social services. The introduction of user fees or pay-for-services in health care and the increasing commercialisation of education and training have reflected the introduction of the market principle to elements of social welfare policy over the 1990s.

While, basically, social protection in Vietnam can be seen as a redress to market failures (Le Bach Duong et al. 2005), the system of social security has not strongly developed yet in order to protect and help the poor overcome the risks in the market economy and other social risks. (Vu Thi Vinh 2009).

With ongoing transition, the State envisages minimising direct aid to poor households, confirms Le Bach Hong, Deputy Minister of Labour, Invalids and Social Affairs. Hong said some changes in poverty reduction policy will aim to *"better help poor people and reduce welfare dependency, while giving poor people more of a chance to help themselves"* (Vietnam News, October 16, 2008). Yet this demands for successful implementation of the poverty reduction programmes. But those supported under the state's welfare schemes continue to suffer many disadvantages from the integration processes. Certainly, enhanced social insurance would give them and their families' security against certain risks (VietnamNetBridge June 12, 2008).

In this context, even MoLISA representatives agree that social insurance is low compared to the rise of living standards, and payment is tardy (VietnamNetBridge June 12, 2008), despite that people had no way of escaping poverty and had to rely on support from the State (Vietnam News, May 29, 2010). Therefore, Nguyen Tien Phong, head of the Poverty Reduction Unit of UNDP in Vietnam, suggests *"the Government should re-examine their social protection policies in order to ensure that these are applied fairly. A comprehensive social welfare system must be further improved, so that no one was left out"* (Vietnam News, December 15, 2009).

Certainly, the issue and development of appropriate social protection schemes will keep the Government busy over the near future.

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<sup>90</sup> Vietnam News, (November 17, 2008a): Farmers need help to cover insurance costs, say officials.

### 6.2.3 Policies and approaches on disaster risk reduction

In terms of natural disasters, Vietnam is able to build on a long history of strong institutional responses to events like storms and floods. The location and topography make Vietnam one of the most disaster-prone countries in the world (VietnamNetBridge August 14, 2008).

Vietnam is located in the typhoon centre of the South China Sea, and on average, it is hit by four to six major storms and typhoons per year that concentrate on the period between May to January. The last major storm was ‘Ketsana’ in September 2009, where devastation was depressing in the country’s central region. With its tropical monsoon weather, the seasonal distribution of rainfall is closely related to the monsoons. Rainfall intensity can be high, producing a rapid run-off rate and serious flooding. The uneven distribution of rainfall is one of the main causes of river flooding (ADPC 2003). Natural disasters affect particularly the coastal regions but also include flash floods in upland areas and a range of hazard types in the Mekong River Delta, as the typology in Box 15 shows.

**Box 15: Typology of climate-related natural hazards by region in Vietnam**  
*Source: Chaudhry and Ruyschaert (2007)*

Region of Vietnam	Disaster Zone	Principal Disaster Hazards
North	Northern Uplands	Flash floods, landslides, earthquakes
	Red River Delta	Monsoon river floods, typhoons, coastal storm surges
Centre	Central Coastal Province	Typhoons, storm surges, flash floods, drought, saline water intrusion
	Central Highlands	Flash floods, landslides
South	Mekong River Delta	River flooding, typhoons, high tides and storm surges, salt water intrusion

There is evidence of dykes having been built in the north and central regions over one thousand years ago (IPS October 2, 2008). Apparently, neither storms or flooding are new phenomena in the country: Today, physical protection from typhoons, floods and rising sea water levels is provided by an extensive system of dykes—5,000 kilometres of river dykes and 3,000 kilometres of sea dykes. Dykes are present mainly in the northern and central parts of the country. Along the Red River in the north, same as in the central region, many river dykes and seawalls have been put in place.

But still, impacts from these occurrences weigh heavy on the country. According to the Central Steering Committee on Floods and Storms Prevention and Control, there were 96 flash floods (which primarily occur in the northern mountain provinces) between 2000 and 2009 in Vietnam. More than 880 people were killed or went missing due to these flashfloods alone, 1,500 people were injured, more than 6,000 houses were swept away and 132,000 hectares of rice and subsidiary crops were destroyed. The total damage caused by these floods was an estimated VND 6 trillion (USD 315 million) (Vietnam News, August 17, 2010a). In

total, it is estimated that every year natural disasters kill around 700 people in the country, with the death toll since 1997 at 9,600, and cause losses equal to a fifth of the country's GDP (Vietnam News, February 12, 2009). Despite the dyke system, breaching or over-topping of protective dykes in the event of storm surges from typhoons and tropical storms causes agricultural land to be flooded by salt-water and thus be rendered unproductive for several years (Few et al. 2006).

It is said that natural disasters are key causes of the nation's failure to achieve its poverty reduction goals (Vietnam News, December 30, 2008). For example, Trinh Quang Trinh, director of the DoLISA of Lao Cai Province in the northern mountainous region says the provincial administration has set a target of reducing the poverty rate by 2.5 - 3 percent a year. But a powerful storm swept across the province in August 2008, causing huge damage, and it consequently raised the poverty rate, notably by 1.2 percent in Bac Ha and Sa Pa districts (Vietnam News, May 3, 2009).

Yet some of the consequences of natural disaster are blamed to environmental degradation that has contributed to Vietnam's exposure to storms and cyclones in recent years (Few et al. 2006). Some of the past crises have been due to the expansion of settlement and production in areas that are ecologically fragile, such as the upland and coastal forests, or those governed by complex seasonal flows. Coffee and rubber plantations in the highlands and the expansion of shrimp farming and commercial fishing along the coasts have destroyed local ecosystems, depleted resources beyond the point where they can naturally regenerate, and instigated resource-based conflicts (D'Haeze et al. 2005). All these aspects have therefore increased exposure to typhoons and floods (Taylor 2007; Adger 2000).

In the following, a brief review of policies, programmes and action plans on disaster risk reduction, and modes of implementation and actors involved will be made.

### **Policies and action plans on disaster risk reduction**

Vietnam has adopted a wide range of national strategies and programs related to disaster and risk prevention, management, and control. Based on international frameworks—such as the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) and the Hyogo Framework for Action (HFA) 2005-2015 which includes the programme 'Building the Resilience of Nations and Communities in Disasters' (and which identifies a number of priorities for governments to integrate into existing policy frameworks and legislation) and which provides 'Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Recovery Assistance of 2007 (IDRL Guidelines)' (recommends a number of legal measures to be implemented by governments to facilitate and improve the effectiveness of international assistance in disaster response)—the Vietnamese government has set up important strategies and programmes over time.

Currently, while there is no law existing on disaster risk reduction in Vietnam, the most important document concerning this issue is the Second National Strategy and Action Plan for Disaster Mitigation and Management in Vietnam (NSADPM) 2001-2020, which was prepared by MARD in 2007 in order to replace the first NSADPM in order to replace the first NSADPM 1990-1999. This first strategy was focusing almost exclusively on water-related hazards and neglected long-term trends, in particular climate change. The new Strategy integrates some of the topics that were rather neglected by the former one.

The National Strategy's specific objectives are to:

- enhance forecasting, improving building codes and integrating disaster risk management (DRM) into development,
- human resource development of DRM staff and increased public awareness,

- complete relocation of people living in disaster prone areas,
- improve search and rescue capacity,
- improve sea dykes and embankments,
- improve safety of reservoirs,
- complete shelters for shipping,
- improve communication systems with offshore fishing boats, establish new regional sea rescue treaties (MARD 2001).

Finally, the strategy also proposes to formulate a DRM law, consolidate DRM organisation structures and ensure there is sufficient budgetary resources for DRM.

Financing for these strategies is to a large part provided by the Government's national fund for disaster relief which is worth two percent of the country's GDP (Vietnam News, February 12, 2009) and under which VND 9.2 trillion will be set aside from 2006-2015 to "*assist people displaced by natural disasters or other special circumstances*". The money will benefit people who have to be evacuated from areas hit by natural calamities or under special circumstances—these are especially located on coasts and islands, along borders, or in restricted areas in forests. The families who qualify for assistance receive between VND 10 million to VND 132 million as support in transport costs and production start-up. Additional subsidies will be considered for ethnic minority families in special difficulties. Based on the Strategy, the government provides partial investments in basic infrastructure facilities in new resettlements as well as support in vocational training (VietnamNetBridge June 12, 2008).

The strategy and action plan is flanked by a number of socioeconomic goals that include to "*striving hard on the effort to eradicate hunger and reduce poverty, (...) preventing and counteracting hurricanes, floods and epidemics; having policies to ensure a sustainable living standard for (...) households in the mountainous areas and people in areas under difficult circumstances or areas that are affected by natural disasters and epidemics; ensuring that the provision of basic social services are accessible by poor people; (...) especially in those areas that are severely affected by natural disasters or epidemics*" (Resolution on a number of socio-economic issues in 2008).

A strong focus of the strategy is put on resettlement programmes, based on the Prime Minister's Decision 193 which was signed in 2006. About 350,000 households in disadvantaged areas, border regions, islands, important ecological locations and natural disaster areas will be relocated until 20105, according to Deputy Minister of Agriculture and Rural Development Ho Xuan Hung. "*The project is part of the master socio-economic development plan, primarily relating to agricultural and forestry development and construction of infrastructure, irrigation works, health care and education in the regions where the population are relocated*" (Vietnam News, August 17, 2010a).

However, it was criticized that while the Strategy prioritises increased awareness raising and participation, minimising loss of life and assets, and stresses the importance of co-existence with floods in situations which demand it, it is principally designed to focus on post-relief measures, rather than on risk prevention (Chaudhry and Ruyschaert 2007). In this context, it was argued that calamity funds have been only made accessible in a reactionary way and "*to which you had access only after disaster. You needed an official state of calamity before there was money for preparedness. The consequence was that far too little was done at community level*" (IFRC 2010: 10).

Therefore, Deputy Prime Minister Hoang Trung Hai requested ministries and localities to implement their relocation plans in a timely fashion in order to mitigate the loss of human

lives: *“Prevention should be a key task”* (Vietnam News, August 17, 2010a). According to Hai, priority should be given to repairing reservoirs, monitoring construction projects and educating the public about how to protect themselves against flash floods and landslides. In addition, localities should regularly organise disaster drills in order to prepare residents living in these vulnerable locations. Hai said in the past inefficient management at the district level, limited funds and a lack of digitised maps had stalled progress on the initiative. To this end, the Government will increase the annually allocated budget to provinces *“so that the relevant authorities can execute the relocation plans based on the Prime Minister’s Decision”*.

Besides, then, there are a number of related policies and plans for disaster risk management. Box 16 lists these. These are reflected in successive national strategy plans for the country (Few et al. 2006).

#### **Box 16: Policies related to disaster risk management**

*Source: Few et al. (2006)*

- Land policy and land use management
- Policies for forest planting, protecting and forest management and exploitation
- Policy on managing natural resources and exploitation management
- Water resources management policy
- Policy on environmental protection, sustainable development, and environmental management
- Policies for flood diversion and retention and dredging riverbed for flood release
- Policy for overcoming the aftermath of disaster in disaster-prone areas
- Policies for ‘living-with-flood’ areas

#### **Institutional framework and implementation**

Vietnam already has an extensive long-standing institutional response system for natural disasters such as floods and typhoons, reflecting the country’s vulnerability to these events.

Principally, disaster risk management activities are coordinated by the Central Committee for Flood and Storm Control (CCFSC, founded in 1955), chaired by the Minister of Agriculture and Rural Development. Members of the CCFSC include relevant line ministries, the Department of Dyke Management and Disaster Control (acting as Standing Office) (Few et al. 2006), the Disaster Management Centre<sup>91</sup>, the Hydro-meteorological Service, and the Vietnam Red Cross (VNRC)<sup>92</sup>. Moreover, the Natural Disaster Mitigation Partnership (NDM-P) is made up of Government, NGOs and donors to promote dialogue and common ways of

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<sup>91</sup> Few et al. (2006) provide a description of the Vietnam Red Cross (VNRC) which is the major agency operating in DRM across the whole of the country. The VNRC has a range of activities operating at the country, province, district and commune level. The activities of the VNRC are related to minimizing impacts of disasters by raising awareness in communities on disaster preparedness, and organising works of prevention and response to disasters as well as works of relief and recovery. An important project of the Vietnam Red Cross relating to disaster risk reduction is mangrove re-plantation in the coastal zone.

<sup>92</sup> The Disaster Management Centre (DMC) operates under MARD. As Few et al. (2006) explain, the task of the DMC is to coordinate with the National Hydro-meteorological Forecasting Centre and provide information for flood and storm disaster mitigation. It also supports CCFSC in reservoir operation. The DMC issues warnings and directions for disaster management (Decision No. 180NN-TCCB of MARD, January 1997).

working, and support coordination for implementation of the Second National Strategy and Action Plan for Disaster Mitigation and Management (Chaudhry and Ruyschaert 2007).

At the national level, each sectoral ministry has a ministerial Committee for Flood and Storm Control that cooperates with the national central committee and offices at provincial level. Central government structures are complemented by a management system extending to provincial and local levels (Chaudhry and Ruyschaert 2007; Few et al. 2006).

At the provincial<sup>93</sup>, district and commune levels, local committees for flood and storm control (CFSCs) are responsible for: Helping the equivalent People's Committee to implement flood and storm measures in the territory; organising dyke protection, flood and storm preparedness and mitigation; and flood recovery and rehabilitation (Few et al. 2006).

During the flood season, then, dykes are monitored 24 hours per day. Warnings are broadcasted through TV and radio and in smaller communities through loudspeakers in the streets based on forecasts by the National Centre for Hydro-Meteorological Forecasting (Few et al. 2006). This system has been permanently modernised and updated over recent years.

In times of an impending storm, flood or drought, 'Natural risk management is everybody's business', is the Government's slogan, and there is a wide range of actors involved on the local level, including commune rescue teams, businesses that provide private funds and shelter<sup>94</sup>, border guards and the army, relevant government departments, agencies and authorities that guide the whole process and, particularly, central committees for flood and storm control.

For funding on the ground and to support communities in the aftermath of a disaster, emergency assistance and relief is provided through Decree 07/2000/ND-CP (March 9, 2000) of the Government, and Circular 18/2000/TT-B LDTBXA (July 28, 2000) of MoLISA to guide the implementation of the Decree. As provided by these provisions, 'assistance is for people or households affected by natural calamities, loss of proactive means, fall into hunger, as well as pre-harvest hunger'. Resources for emergency assistance are drawn from the Government's budget on annual basis as well as from local governments. People's Committees at commune, district and provincial levels prepare lists of people eligible for emergency assistance. The delivery of assistance is carried out mainly by commune People's Committee. Funds are also provided for treatment of wounded people, burying the dead, partly compensating households whose houses are damaged or destroyed, environmental clean-up and disease control, as well as support for the resumption production (in the form of tax exemption for specified periods of time, and waive tuition fees for students in these areas) (Le Bach Duong et al. 2005).

## Summary

Vietnam has a long history of dealing with climate extremes, and has installed a largely effective institutional structure for preparing and responding to risks in the country's more recent history. Immediate relief efforts, Few et al. (2006) argue, are well-organised and effective, but rehabilitation efforts could be improved, particularly for the poor. There is a marked lack of integration between disaster risk reduction policies and wider policies for rural development, livelihood and social protection policies, and poverty reduction, and there is not much that would show, either in policy or in practice, that the different sectors are integrated or well-coordinated (Chaudhry and Ruyschaert 2007).

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<sup>93</sup> Main authorities involved at the provincial level are: Department of Dyke Management and Flood Control; People's Committee; and Department of Agriculture and Rural Development (Vietnam News, May 31, 2010).

<sup>94</sup> Businesses that offer financial support for victims of natural disasters may expect that they can enjoy a tax cut over the mid-term (Vietnam News, October 21, 2009).

Overall, strategies focus on emergency responses to short-term climate extremes and reconstruction following them (Vietnam News Agency, November 24, 2008), but some stronger focus has now been put on prevention. “*When people in disaster-prone areas are equipped with basic knowledge of disaster prevention and infrastructure in the areas is improved, I believe the impacts of disasters would be reduced to a minimum*”, says Dao Xuan Hoc, Deputy Minister of Agriculture and Rural Development (Vietnam News, February 12, 2009).

Principally, though, it is expected that natural disasters would continue to become more complex with unforeseeable development, State President Nguyen Minh Triet stressed, urging members of the public and local committees tasked with flood and storm prevention and control to continue to join hands to tackle the issue (Vietnam News, May 24, 2010). Climate change will certainly challenge the existing disaster risk reduction approach and system.

### **6.3 Responding to climate change: The national discourse, approaches, and challenges**

Just as developing countries need to prepare their own mix of policies to reduce poverty, responses to climate change will not be universal by any means, and therefore, more often than not, reflect national priorities and local realities. Choices will depend on the economic, socio-political, structural, and cultural context of individual countries (World Bank 2000: 7). Moreover, attitudes to risk and uncertainty are clearly important in explaining why regions of the world have adopted different approaches to managing the potential threats of climate change (Tompkins and Adger 2005). Countries, or regions, perceiving themselves at risk from impacts are investing in adaptation (ibid.). Doubtlessly, there is a tendency that developing countries will be particularly anxious to stress the importance of adaptation to climate change as they are disproportionately exposed to its consequences (Scott 2006; Adger et al. 2003). Vietnam is no exemption from this: “*Adaptation policies seem mandatory because Vietnam is the country most heavily affected by climate change*”, Deputy Prime Minister Hoang Trung Hai said recently (Vietnam News, April 30, 2009).

As outlined in chapter 3.3 of the present study, there are both conceptual as well as instrumental differences between ‘adaptation’, on the one hand, and ‘adaptive capacity’, on the other hand. While the central concern of the present study is on the analysis of adaptive capacity, I consider it nonetheless important to identify and analyse the prevailing framework on adaptation, since adaptation itself can lead to enhanced levels of adaptive capacity. At the programmatic level, each of the approaches operates at, and complements work at, both micro (household and community) and macro (national) levels. At the macro level, policies—not only related to climate change adaptation *per se*—play a significant role in enhancing adaptive capacity (Adger and Vincent 2005).

However, climate change response in Vietnam must still be seen as a ‘young’ political concern, and empirical evaluation of the results of this framework, in terms of impacts ‘on the ground’, is still not feasible at this point of time. Rather, the present section provides an overview of main ideas and concepts on behalf of the Government of Vietnam as discernable from the political and scientific discourse related to the overarching topic of climate change.

#### **6.3.1 The national climate change discourse**

Discussions and concerns about the consequences of climate change for Vietnam started as early as the mid-1990s, but have received greater attention since 2007 when the IPCC in its Fourth Assessment Report identified mega-deltas around the world that are at risk from climate change; the IPCC (2007b) put the two large delta regions in Vietnam (Red River Delta in the north, and Mekong River Delta in the south) on the list. Subsequently, then,

Desgupta et al.'s (2007) report and forecast on Vietnam to be among the five most affected countries in the world<sup>95</sup> created a further momentum for putting the topic on the political agenda. Findings were largely supported by other reports then. The World Bank's Global Monitoring Report (2008) estimates that Vietnam would be most affected by a 1 m rise in sea level, predicting that the whole nation would lose 28 percent of its wetlands and 10 percent of its GDP. Therefore—although a preliminary assessment of the impact of climate change on Vietnam was carried out for the Initial National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (Chaudhry and Ruyschaert 2007) and coastal zone vulnerability to sea level rise was investigated in the 1990s (ibid.)—these two reports fostered the discussion and brought the topic to the forefront of debate and concern.

Today, it is officially recognised that climate change impacts are emerging in Vietnam, with weather conditions set to become both more extreme and unpredictable. The most severe problems comprise changes in temperature and rainfall, changes in floods and droughts, changes in typhoon patterns, and sea-level rise (Chaudhry and Ruyschaert 2007). About 74 percent of Vietnam's 82 million citizens live in the low-lying coastal areas potentially at risk from rising sea levels and storms (ICEM 2008).

Moreover, while 73 percent of the country's population depend on agricultural production for their livelihood, it is assumed that climate change will "*hardest hit these people*" (Vietnam News, June 28, 2010). Therefore, climate change is expected to posing 'a real danger against the country's growth targets and people's living conditions' (UNDP 2007). Recently, Deputy Minister Nguyen Van Duc said the changes would have "*negative impacts on Vietnam's poverty reduction, MDGs and sustainable development*" (November 20, 2009). Climate change is threatening to drag millions back into poverty in Vietnam (Vietnam News, November 22, 2008). Therefore, although Vietnam has only played a small part in creating the problems of global environmental change<sup>96</sup> and faces many other challenges, it cannot avoid the impacts of climate change. Implementing adaptation policies seems mandatory (Waibel 2008). It appears clear that the variety of challenges makes the communist government increasingly worried, based on recent official statements and announcements made by a number of government and sector representatives.

While the government is mainly concerned with future impacts of climate change, what has been discernable by now is that environmental changes are constantly emerging in the country. For example, over the past 50 years the sea level has already risen by 20 centimetres along Vietnam's coast.<sup>97</sup> Worsening droughts caused by climate variability and saltwater intrusion in many places were already causing problems for agricultural production (Vietnam News, May 14, 2010). In late 2008, the highest tide in 48 years submerged many parts of Ho Chi Minh City (Saigon Times Daily, November 14, 2008). At the same time, the worst floods for 25 years swamped Hanoi, with rainfalls lashing the capital for more than 10 days and making clear that challenges are not just given in some remote and rural areas. In total, over recent decades, the damage due to natural disasters has increased drastically. This trend may continue as climate change is expected to alter the current storm system and precipitation measures (VietnamNetBridge August 14, 2008).

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<sup>95</sup> The report by Dasgupta et al. (2007: 28) states that: "*10.8% of Vietnam's population would be impacted by a 1m SLR. (...) Vietnam's impacted population would reach 35% with a 5m SLR.*"

<sup>96</sup> According to scientists, while Vietnam's CO<sub>2</sub> emissions have increased from 21.4 million to 98.6 million tonnes, its annual carbon dioxide emissions per capita amount to 1.2 tonnes per year, less than the worldwide average of 4.5 tonnes per year (VNA/VietnamNetBridge June 5, 2008).

<sup>97</sup> Agence France Press (AFP) (July 13, 2010): 'Vietnam's Mekong paddies dry up', see <http://www.afp.com> [accessed July 13, 2010].

### **The discourse on ‘what to adapt to’**

Today, as in many other countries, the question for Vietnam is ‘what to adapt to’, i.e. the question of ‘how bad’ climate change will actually be. This question has raised considerable amounts of important discussions over the last four years. Firstly, though, it is agreed that the aim is to focus on scientific research to establish a basis for measures to cope with the effects of climate change (Vietnam News December 22, 2008). Vietnam is actively conducting research in effective measure to cope with climate change.

The Initial National Communication of Vietnam to the UNFCCC (MoNRE 2003) has identified key sectors that are vulnerable to climate change, and where adaptation is at least potentially needed. A Vulnerability and Adaptation assessment was carried out for the following seven sectors: Water resources; Agriculture; Forestry and land-use; Aquaculture; Coastal zones; Energy and transport; and Human health. Seven different regions were identified, for which the elements temperature, rainfall and sea-level rise were analysed for the periods 2010, 2050 and 2070. A number of adaptation options have been identified in these assessments, but neither did they come up with programmes to implement adaptation measures were described (Few et al. 2006) nor did they include socioeconomic and vulnerability analysis (Chaudhry and Ruyschaert 2007). Moreover, the Initial National Communication only explored climate change impacts and necessary adaptation measures in a preliminary way.

More recently, the Government has appointed the MoNRE to develop a detailed climate change scenario (Vietnam News, July 17, 2010). MoNRE then assigned the Vietnamese Institute of Strategy and Policy on Natural Resources and Environment Strategy and Policy Institute (ISPONRE) to complete a report to assess climate change in Vietnam. The Vietnam Assessment Report on Climate Change (VAARC) was published in 2009.

Based on the results, Vietnam is now envisaging three scenarios (low, medium, and high global emissions) in order to work out suitable counter-measures. Speaking at a conference held by the ministry to release these scenarios, director of the institute Tran Thuc said: *"These scenarios will provide an initial basis for ministries and localities to assess the possible effects of climate change on socio-economic development and work out plans to mitigate climate change in the future"* (Vietnam News, August 21, 2009). The Institute has worked out the scenarios based on anticipated global economic development, world population and consumption levels, living standards, energy consumption and energy reserves, technology transfer, and land usage. The scenarios detail three factors, namely temperature, rainfall and sea levels. According to the medium scenario, temperature rises will range from 1.6-2.8 degrees Celsius in different climatic regions. The increases will be greater in northern and northcentral provinces than in southern provinces. Winter temperatures will rise more rapidly than summer temperatures. By the end of the century, rainfall nationwide will increase on average by five percent compared to the 1980-99 period. Rainfall patterns are also predicted to change. The dry season will be drier in the southern region, and the rainy season will have more rain, especially in the northern region. Sea levels are likely to rise 30 centimetres by the middle of this century and 75 centimetres by its end compared with the 1980-99 period (ISPONRE 2009).

At a workshop following the conference, Hoang Manh Hoa, climate change coordinator from the MoNRE, emphasised the need to choose a climate change scenario that established a basis ‘to develop efficient measures to cope with climate change-related matters’. However, Vietnamese scientists and decision-makers were rather unsure about which climate change scenario to choose. It was even said by a workshop participant that the three scenarios were too broad and Vietnam would have to build ‘detailed scenarios for each decade, from 2020, 2030, 2050 to 2100’.

After some subsequent discussion, decision-makers have now widely agreed that in order to formulate sustainable adaptation approaches, a focus will be put on the medium emission scenario out of the three possible scenarios for climate change. By the end of the 21st century, Vietnam's average temperature is therefore expected to rise by 2.3 degrees Celsius above the average temperature recorded during the 1980-99 period. The scenario predicts a sea level rise of 75 centimetres by 2100, which would flood 19 percent of the Mekong River delta and 18 percent of the Red River Delta.<sup>98</sup> *"These scenarios take into account average parameters only because there's considerable uncertainty about climate change"*, Thuc said (Vietnam News, August 21, 2009).

What becomes clear from this review is that Vietnam is actively striving for measurable accounts as a basis for decision-making on adaptation to climate change—with demands for making the unforeseeable foreseeable rightly preposterous from time to time. It has been criticized internally, for example, that the country has yet to be able to provide a long-term forecast. However, a government official said, *"The National Hydro-meteorological Forecast Centre can currently only release weather 24-36 hour weather reports. Such reports are insufficient"* (Vietnam News, July 17, 2010). It appears that despite the Government is recognizing that the nation's socio-economic situation is threatened to experiencing many difficulties and challenges from climate change, there are only some who accept the consequences of climate change as rather unpredictable variables.

However, with persisting ambiguities on how the selected scenario, when becoming 'real', will affect the country over the mid- to long-term, there is more research currently ongoing and a stronger interest has now been put on the sub-national level. For example, MoLISA has currently started to conduct comprehensive research on migration caused by natural causes, Bui Ton Hien from MoLISA's Institution of Labour Science and Social Affairs told (Vietnam News, July 21, 2010). In addition, there are a number of research institutes that were opened over the last years for the purpose of sub-national research on climate change. Recently, for example, the Delta Research and Global Observation Network (DRAGON) institute opened up at the University of Can Tho.

### **The discourse on policy response and adaptation to climate change**

Besides ongoing discussion on the scientific framework for adaptation, there is a more policy-oriented discussion on what should be the actual features of adaptation in the country, and how it should look like, and how it can be financed.

Basically, there is a general view upheld by Government officials that Vietnam has been one of the most successful countries in lifting people away from the clutches of poverty. *"So they are optimistic in their rhetorics that the country will also be able to adapt to the devastating effects of climate change"* (Vietnam News, November 22, 2008). For example, the government has emphasised that the scenarios upon which predictions are made represent the threat, *"if no measures are taken in the coming decades"* (Vietnam News, September 24, 2009). *"We need to be very clear that these losses can be reduced. We need to be very clear also that it is in our power to control many of the factors that lead to disasters – not, of course, the hazard events themselves – but certainly the human elements, such as how we manage our land, where we develop our cities, and how we build our houses"*, according to Pham Khoi Nguyen, Minister of Natural Resources and Environment (Vietnam News, October 8, 2009). Many government officials then believe that climate change would not be such a problem if the Government begins to draft plans to cope with it now (VietnamNewsBriefs August 31, 2009).

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<sup>98</sup> Deutsche Presseagentur (dpa) (December 8, 2009): 'Vietnamese Prime Minister calls for more renewable energy', see: <http://www.dpa.de> [accessed December 8, 2009].

In this context, climate change is mainly discussed within the broader scope of macro-economic development (Vietnam News, June 9, 2009). Natural Resources and Environment Deputy Minister Nguyen Cong Thanh said that climate change is not only an environmental issue but, most of all, a development issue (UNDP 2007). However, there are also some more fundamental votes to be heard. As Khain Hoan (2007) puts it, “*climate change is unavoidable and it requires Vietnam to avoid the unmanageable, to take concerted action and to manage the unavoidable so as to ensure sustainable development*”. And also the President said climate change was “*complicated and unpredictable*” (Vietnam News, May 21, 2008).

Hence, the discourse certainly provides generic guidelines for appraising multiple climate threats in the country; it does not, however, address what Wisner (1993) was alluding to: namely differentiated social vulnerability under different threats and under different economic and institutional circumstances.

Planning on adaptation policies and programmes has been particularly started after COP12 in Nairobi (2006) and COP13 in Bali (2007) when Vietnam called for global support for adaptation. The message that Vietnamese delegates communicate at the international climate conferences is clear: As a peninsula in Southeast Asia tropical monsoon area, Vietnam is identified as one of the countries which will suffer the most from the negative impacts of climate change. At the climate talks held in Poznan in late 2008, for example, Deputy Prime Minister Nguyen Thien Nhan emphasised the need to boost international cooperation in response to climate change, saying developed countries should take the largest share of responsibility for reducing greenhouse gas emissions, accelerating necessary measures, and providing effective assistance for developing nations in this field. He suggested that developed countries should make financial contributions and enable these funds to start operation soon (Vietnam News Agency, December 12, 2008). In addition, MoNRE Minister Pham Khoi Nguyen told at the Fifth Global Oceans Conference held in Paris in 2010 that Vietnam, being a coastal nation, was among the hardest hit by climate change and thus needed assistance from more well-off nations (Vietnam News, May 10, 2010).

Doubtlessly, Vietnam faces a serious financial crunch in its response to climate change. As shown in a recent newspaper article (Vietnam News Agency, December 12, 2008), the country’s expected elevation to a middle income country soon means that general official development assistance (ODA) funds would decline. However, there is a strong likelihood that future donor support to Vietnam may be linked to climate change<sup>99</sup>. For example, Vietnam may access financial resources from the Global Environmental Facility (GEF), an official funding mechanism of the UNFCCC, and the adaptation fund under the Kyoto Protocol<sup>100</sup>. Yet it appears clear that in order to finance the many billions of dollars expected to work on sea level rise and other climate change effects, Vietnam cannot rely solely on ODA, but must also raise investment capital domestically (Vietnam News Agency, December 31, 2009).

### **6.3.2 Institutional and conceptual response to climate change**

Vietnam’s extensive and long-standing experience with natural disasters such as floods and typhoons has created institutional and conceptual response that is largely extended now for responding to climate change (Chaudhry and Ruyschaert 2007). Both in the area of disaster

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<sup>99</sup> A representative of the UNDP said that Vietnam meets adequate conditions under the UNFCCC to continue receiving new and additional ODA through aid and preferential credits for climate change adaptation and green house gas cuts. Both bilateral and multilateral donors are interested in financing projects on climate change in Vietnam (Vietnam News, October 9, 2009).

<sup>100</sup> The UNFCCC and Kyoto Protocol were ratified by Vietnam on November 16, 1994 and September 25, 2002 respectively. Though Vietnam signed the Kyoto Protocol in 2002, climate change efforts are centred on adaptation, not curbing of emissions.

risk reduction and climate change adaptation, groups have been formed to better coordinate related activities of government and donors (Few et al. 2006). Over recent years, Vietnam has also adopted ambitious goals for adaptation to climate change. Both the institutional and the conceptual response will be briefly presented in the following.

### **Institutional response**

At a meeting in January 2006 between members of MoNRE, MARD, VNRC and donors, it was agreed that a Thematic *Ad-hoc* Working Group would be formed on the topic of climate change adaptation. The International Support Group on Natural Resources and Environment (ISGE) provides a forum for dialogue and should promote coordination for climate change adaptation measures (Chaudhry and Ruyschaert 2007). The group is headed by the Deputy Director of the International Cooperation Department at the Ministry for Environment and Natural Resources, MoNRE. Therefore, MoNRE plays an institutional key role in formulating and planning for adaptation; the more so as the Ministry was already assigned by the GoV as a national authority for implementation of the UNFCCC and Kyoto Protocol, and National Focal Agency for the Clean Development Mechanism (CDM). Groups of technical experts from several sectors, including one for vulnerability and adaptation to climate change, have been established to assist MoNRE in the implementation of climate change projects.

In parallel fashions, the Ministry of Agriculture and Rural Development (MARD) has also set up a steering board to deal with climate change-related matters. The board's mission is designing and implementing action programmes against climate change in the agricultural and rural development sector. The board consists of 14 members, who are top officials of the MARD, the Institute for Irrigation Sciences, the Planning Institute and the Institute for Agricultural Sciences of Vietnam. Its head is the Deputy Minister of MARD (VietnamNetBridge December 17, 2007).

Presently, therefore, there are numerous actors involved across the various scales of government from national to provincial level, including, for example:

- At the National Level: MARD, MoNRE, CCFSC (Committee for Flood and Storm Control), Ministry of Construction (MoC), Ministry of Industry (MoI), Ministry of Planning and Investment (MPI), Ministry of Finance (MoF), Ministry of Labour, Invalid and Social Affairs (MoLISA);
- At the provincial level: all the related province departments of the ministries, the Provincial People's Committees and the Provincial People's Councils and sectoral committees.

Within the range of this multitude of actors, then, MoNRE and MARD are the two most important institutions, with both playing a key role in coordination of activities related to climate change.

### **Conceptual response**

Vietnam has recognised the problem of climate change and begun to address it, perhaps faster than any other developing country, it has actually developed a number of strategies to start responding. The country has a long tradition in dealing with natural hazards and disasters, so the existing strategies to deal with climate change can only be understood in the government's perspective to associate climate change as heightened levels of 'risk'.

Yet it must be clear in analytical terms that adaptations are not isolated from other decisions, so it can be difficult to separate climate change adaptation decisions or actions from actions triggered by other social or economic events (Adger et al. 2005: 79). Some adaptations in Vietnam can be clearly classified as being triggered by climate change, and those decisions are clearly purposeful and directed. Adger et al. (ibid.) point out, however, that some

adaptation occurs without explicit recognition of changing risk. Clearly, then, attributing adaptations to climate change is not a simple process.

Overall, the Government envisages including climate factors in the Ten Year Socio-economic Development Plan 2011-2020 (Vietnam News, August 12, 2009). This broader view on ‘integrating climate change’ is also implicit to the Vietnamese poverty reduction strategy and its related objectives in various ways, and where the issue of climate change has been incorporated, at least indirectly. For example, the 2002 CPRGS aims to halve the number of people falling back into poverty due to calamities and climate risks by 2010 (GoV 2002).

Climate change adaptation measures have also been included in a number of recent strategies, such as the National Strategy for Environmental Protection (2005), which includes measures for reducing the impact from sea level rise in coastal zones (Chaudhry and Ruyschaert 2007).<sup>101</sup> Concerning the former, though, it is particularly dyke system planning that has emerged as a technical solution to the natural occurring floods in many of the country’s regions. One of the most urgent tasks to follow dyke building, according to government plans, is also to recover, protect and to develop mangrove forests to diminish the losses caused by sea level rise (ADPC 2003).<sup>102</sup> In this context, former President’s Ho Chi Minh edict that ‘forests are gold’ still stands prominently on the agenda—and is implemented through targeted programmes aimed at reforestation and forest protection. The major public sector investments in forestry over the last two decades have been through two large nationwide target programmes (Programme 327<sup>103</sup> since 1993, and the 5 Million Hectares Programme<sup>104</sup> from 1997 onwards) that have dominated sectoral planning in this area. Implementing sustainable forest management in Vietnam to fight climate change now tops the agenda in the country (Vietnam News, August 19, 2009). In terms of policy, a strategy on forestry development by 2020 has been approved (Vietnam News Agency, April 24, 2008). Moreover, the Ministry of Agriculture and Rural Development has launched a VND 2.49 trillion campaign to save coastal mangrove forests. The project aims to restore damaged forests and prevent further destruction due to natural and man-made causes. About 97,500 hectares of forest will be replanted, bringing the country’s total area of mangrove forests to 307,200 hectares by 2015. These two programmes are good examples of how approaches once targeting other areas than responding to climate change have now been located into the centre of response strategies.

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<sup>101</sup> Specific Objectives of the Second National Strategy for Environmental Protection are: To prevent and reduce impacts from typhoons, floods, erosion and sea level rise in coastal zones, particularly in the central provinces; To limit emissions of greenhouse gases; To strengthen education and awareness on climate change and other environmental issues “amongst the general publics, communities, enterprises, decision makers and managers at all levels”; To promote economic growth in coastal areas based on integrated coastal zone management, including national resource extraction and aquaculture management, and livelihood improvement for coastal communities; To maintain ecological balance through conservation of natural ecosystems, and expand conservation areas (including national parks, reserves, protected areas) by two percent; To incorporate environmental protection with sectoral development policies and plans, particularly for agriculture, forestry, fishery, and the rural economy (ADPC 2003).

<sup>102</sup> Non structural measures include mangrove re-plantation and windbreaks along buildings. Mangrove restoration has been demonstrated to improve conditions substantially, as mangrove offers protection from the storm surges which accompany tropical storms and cyclones.

<sup>103</sup> Programme 327 was not specifically a forestry program but one aimed at wider socio-economic goals, incorporating intentions to support farm households living in forest-dependent areas. However, from an early stage it became associated primarily with forestry policies. Evaluations of Programme 327 revealed that while the program achieved considerable success in several provinces in reversing the trend of deforestation, there were critical managerial and technical weaknesses in implementation.

<sup>104</sup> The 5 Million Hectares Programme—or the ‘Project on forest plantation on sandy soil in the coast of the Southern Central Vietnam’—aims at planting 5 million hectares of new forest, of which 60,000 hectares of coastal protective forest, during the period of 1998-2010. Its main purpose is preventing sand movement in the central coastal zones (Few et al. 2006).

MARD and MoNRE have now started to elaborate and to follow comprehensive conceptual approaches to facing climate change. While the central policy instrument of MARD is the Second National Strategy and Action Plan for Disaster Mitigation and Management 2001-2020, the MoNRE implements its activities based on the National Target Programme to respond to Climate Change.

### **The Second National Strategy and Action Plan for Disaster Mitigation and Management**

Concerning the Second National Strategy and Action Plan for Disaster Mitigation and Management in Vietnam (NSADPM, 2001-2020), the strategy was prepared by MARD in order to replace the first NSADPM 1990-1999—which was focusing exclusively on water-related hazards and which neglected long-term trends, in particular climate change (see also chapter 6.2.3 for reference). The strategy aims at minimizing the number of people killed and injured, reducing economic losses, establishing a disaster fund worth two percent of the country's GDP, and putting a strong emphasis on preparedness and forecasting. Concerning climate change, the Strategy states: *“Major consideration will be given to potential changes in weather patterns both globally and regionally. Any global climate change will have adverse and severe effects on Vietnam. The global temperature continues to increase, and all efforts for seeking measures to reduce carbon dioxide levels in the atmosphere are still unsuccessful. The result may be that disasters such as storms, floods, inundation, flash floods, drought and all such disasters will occur more frequently and will be more severe for Vietnam in the future”* (CCFSC 2001, cited by ADPC 2003). The Strategy hence reports what changes in climate are expected for Vietnam.

The fact that climate change is being recognised as a threat in long-term natural disaster risk management is generally considered encouraging for the integration of climate change adaptation among other long-term issues into disaster risk management approaches (Few et al. 2006). Under the Strategy, climate change adaptation and mitigation projects would be piloted in provinces most at risk of sea level rise. From 2011-2015, these projects will be adopted nation-wide (Vietnam News, May 26, 2008).

For example, the MARD submitted a proposal to the Government on flood prevention in Ho Chi Minh City. The project's first phase focuses on building drainage and dyke systems in the suburbs and dredging canals running southwards from the city center. The next two phases involve irrigation projects and drainage systems. The project is designed *“to control flooding in the most urbanised parts of the city specifically and in preparation of rising sea levels more generally”*. Total cost is VND 11,500 billion (USD 718 million) (Vietnam News, August 11, 2008d).

### **The National Target Programme to respond to Climate Change**

A national-level target programme integrating climate change issues into socio-economic strategies and plans was announced by the MoNRE in late 2008 (Vietnam News Agency, December 22, 2008). The programme is devised *“to improve the country's capability of responding to climate change in each concrete period to ensure national sustainable development and help stabilize people's life”*. The programme emphasises the necessity to give top priority to raising people's awareness to cope with climate change and rising sea water (Vietnam News Agency, June 5, 2008).

Under the programme, the MoNRE will develop climate change scenarios, as well as solutions and plans of action to cope with climate change and raise public awareness of the situation. Around 80 percent of population and 100 percent of State officials are envisaged to have 'basic knowledge' about climate change by 2015 (Vietnam News, August 12, 2009). In this context, the national-level target programme aims to strengthen and improve the capacity of institutions and policies involved with the issue (Vietnam News, December 22,

2008).Some pilot projects will soon be started to be carried out (Vietnam News Agency, December 31, 2009).

Yet the main focus of the Programme is on agricultural production and food security. The Government wants to maintain land for rice cultivation and promote research on an agricultural production system that would be compatible with climate change (such as developing new strains of rice that can withstand deep persistent flood or brackish land) Under the policy, the role of forests would also be stressed with the hopes of increasing coverage from 37 percent in 2005 to 43 percent by 2010 and 47 percent by 2020. The need for maintaining fresh water supply is also considered under the Programme (Vietnam News, April 30, 2009a).

The Programme is divided into three phases: 2009-2010: starting up; 2011-2015: implementation; after 2015: update and development of appropriate steps. Box 17 provides a more detailed overview of the programme and its targets:

<b>Box 17: Vietnam’s National Target Programme to respond to Climate Change</b> <i>Source: GoV (2008)</i>		
<b>Objective</b>	<b>Targets completed by 2010</b>	<b>Targets completed by 2015</b>
Assessment of cc impact	Scenarios based on existing data; pilot projects for assessment.	Update/ completion
Identification of response measures	Implement pilot/ test projects in different sectors and locations	Wide scale implementation based on lessons learned
Organisational structure and institutional capacity	Develop framework of legal documents and mechanisms; coordination amongst ministries, sectors and localities	Mechanisms to prioritize cc activities
Awareness raising and human resources development	Over ten percent of population and 65 percent of Government’s staff with basic knowledge	Over 80 percent of population and 100 percent of Government’s staff with basic knowledge
Mainstream into planning	Guidance documents and classification of measures	Mainstreaming into future planning; assess implementation for period 2010-2015
Action plans	Ministries and local authorities complete action plans (MoIT; MoC; etc.)	Action plans being implemented

**6.3.3 Taking stock of achievements and ongoing challenges**

Overall, it is clear that climate change poses a number of significant challenges to Vietnam, and to the way the central Vietnamese government as well as sub-national and local government operate. Much has been achieved so far; yet, a number of serious challenges remain.

## Achievements so far

Climate change as a challenge for Vietnam has definitely now come to the political agenda. In addition to those aspects related to climate change in a number of approaches related to environmental- and forestry-related aspects as well as disaster-related elements, Vietnam now presents an agenda for climate change adaptation (and will start implementation as by 2011).

Today, a range of policy actions to address climate change, from adaptation to mitigation, and from the least to the most expensive measures, are available. The National Target Programme to respond to Climate Change presents a number of more detailed aspects of how to come up with solutions. Interestingly enough, while the Programme has not made it to the operational level yet, the document repeatedly refers to the necessity of further poverty eradication and the role the CPRGS plays in the adaptation process (GoV 2008). Future activities related to climate change and development will need to conform to the goals of the CPRGS.

The Government has certainly progressed impressively in recent years on the topic: First, it believes that human development should be a key goal in all policy frameworks and plans to deal with natural disasters and climate change. The agricultural sector, and rural development more broadly, are considered ‘critically important for the majority of the Vietnamese population’. Since the early 1990s, Vietnam has made progress in forest management in terms of reducing the national levels of deforestation as well as registering actual growth in its forest stocks (Scheyvens 2010). Recently, the government office required the MARD to prepare activities related to payment for environmental services (PES) for the forestry sector. Very recently, then, Vietnam has propelled itself to the forefront of the race to capture international support for its Reducing Emissions from Deforestation and forest Degradation (REDD) preparedness activities. Yet issues still to be resolved could delay the process (ibid.).

There is some debate observable about whether target programmes and interventions are the most effective strategy for tackling the emerging forms of poverty; or whether, for instance, revision and strengthening of basic social safety-net and insurance policies and systems would be more appropriate (Shanks et al. 2004). These discussions, it is conceivable, may also be linked to responding to climate change more generally.

Despite all uncertainties, conditions for institutional regulations towards sustainable development appear to grow in depth and number. Seriousness about addressing the effects of climate change shows that initiatives mean certainly more to the government than a merely ‘window dressing’. Moreover, ecological and forest protection are acknowledged in the overall framework. The key question is then which areas of poverty reduction provide the largest potential to help accomplish national adaptation goals. In other words, where might efforts and resources be focussed? After a couple of years of discussing the issue, it was clear in the beginning of 2011 that the Government of Vietnam will have trillions of VND—or hundreds of millions of dollars—available as annual budget to work on climate change (VietnamNetBridge March 6, 2011), both from ODA sources as well as from domestic budgets.

As regards overall management of strategies, Few et al. (2006) ascertain that these are positive examples of coordination to build upon. Dr Vu Trong Kim of the Institute of Policy and Strategy for Agriculture said that while there was “*a shortage of a master co-ordination mechanism and regulations*”, there is “*no need to combine the current programmes*” (Vietnam News, May 26, 2010). Pilot climate change adaptation projects have now emerged in the central region, but also in other areas.

Hence, overall risk reduction efforts are under way in Vietnam and may be reducing vulnerabilities for the long-term, including those associated with climate change (Few et al. 2006). Though progress remains limited, specific advances relating directly or indirectly to

integration of climate adaptation and disaster management have emerged in strategic policy, vulnerability and adaptation assessment, institutional coordination and projects sponsored by external agencies. Therefore, as regards vertical approaches, it is increasingly clear that policy-makers and local communities must cooperate to reduce the potentially devastating effects of climate change in the coming years (Vietnam News, November 13, 2009). In this context, most project activities focus on local levels (province, district or commune) and are linked to or integrated within ongoing support by donors and international NGOs to national entities and communities for drought, flood and typhoon preparedness and response (Chaudhry and Ruyschaert 2007). *“To make response effective”* under the National Target Programme, it was said that *“it is necessary to identify what communities do need, and the poor themselves have to actively participate in the programme”* (Vietnam News, May 3, 2009). Moreover, policy makers have a greater understanding of the ethnic groups and there are some initiatives that try to find new paths than to apply a *“one size fits all policy”*.<sup>105</sup>

Finally, there is substantial international exchange with experts coming from countries with different (more integrated and non-structural) planning paradigms and approaches (such as the Netherlands or Germany). Therefore, good chances remain that strategies and concepts in Vietnam will be re-considered over the next years, leading to a more integrated adaptation approach that literally *“opens up structural control strategies and that takes uncertainties, possible failure of physical protection systems and functional as well as spatial reorganisation of exposed elements into account”* (Garschagen 2010: 6).

### **Challenges**

Despite considerable achievements have been made, challenges to planning and implementation remain.

The first challenge concerns the very process of implementation: *“The country is already adapting, but more needs to be done. One priority is to strengthen the overall adaptive capacity, including stepping up efforts to raise public awareness, conduct more research to better understand climate change and its impact, and enhance policy and planning coordination.”* (Vietnam News, November 13, 2009). Despite an array of legislation relating to climate change adaptation, the system has some gaps, according to an EC delegate. Institutional arrangements are not fully decided upon yet, the institutional capacity for implementation of the programmes is still weak, and budget schemes have not been fully approved yet.

As regards sector-related policies, Deputy Minister of the Ministry of Agriculture and Rural Development Hua Duc Nhi claimed the environmental policies to be ineffective because this was because of a lack of co-ordination in related sectors, inadequate co-operation and unclear mandates (Vietnam News, May 25, 2010). Concerning the social security system, the task is also to perfect policies and develop a flexible system of social assistance that can respond to disasters and accidents, boost prevention and response to natural calamities and the impact of climate change, especially in the regions regularly hit by storms and floods (Vietnam News, August 27, 2010b).

Moreover, as regards vertical implementation, an official of the Southern Institute for Irrigation planning noted that despite Ho Chi Minh City’s strategy for climate change adaptation and city planning has been approved by the MoNRE, it could not be prioritized because the work needed to be coordinated by the Ministry for the whole region, including the Mekong River Delta provinces—which to date do not have formulated such strategies (Vietnam News, June 15, 2010c). Therefore, the plan lacks flexibility (Vietnam News, August

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<sup>105</sup> Agence France Press (AFP) (June 2, 2009): ‘Stereotypes linked to minority poverty in Vietnam’, see <http://www.afp.com> [accessed June 2, 2009].

22, 2008). Nguyen Huu Loi, vice chairman of Can Tho City People's Committee, agrees: *"Provinces in the region have not cooperated with each other and there [is] no coordinated response to natural disasters"* (Thanh Nien News, August 22, 2010).

The second challenge is to integrating strategies to responding to climate change into broader policies and programmes. Overall, Vietnam appears to have limited institutional or regulatory capacity in coordination of plans, and there is a need to strengthen capacities at many levels to develop and apply instruments to reduce climate vulnerability (Vietnam News Agency, December 31, 2009). Tensions regularly arise between the need to put into effect coherent sector specific policies on the one hand, and the need to promote greater complementarity and coordination between sectoral policies and approaches, on the other hand. Weak coordination, management, supervision and monitoring of programmes is a recognised cause for concern (Shanks et al. 2004).

While, for example, disaster risk reduction is said to be strong in the aftermath of climatic extremes, the approach is not well-integrated into broader policies for sustainable rural development and poverty reduction (Vietnam News Agency, November 24, 2008). The policies of different ministries that are working in disaster risk reduction, rural development, poverty alleviation and land-use regulation appear to be not well integrated yet. An important reason for this is that the main governmental body that deals with disasters, the Central Committee for Flood and Storm Control (CCFSC), is only actively coordinating between different ministries in the event of a disaster (Few et al. 2006). This lack of integration between climate change/ rural development/poverty alleviation and disaster risk policy is increasingly criticized (Nguyen Huu Ninh 2007).

A third challenge is that Vietnam's young political discourse on climate change adaptation is not (yet) very explicit on envisaged measures and paradigms, but that in combination with *"the overall control-oriented vision (...) this lack of explicit paradigm formulation gives reason to suspect that climate change adaptation will literally build on a rather conventional approach favouring strong belief towards physical protection and control"* (Garschagen 2010: 6), despite government officials stating repeatedly the need to envisage new approaches. Hence, what Garschagen finds especially problematic with respect to climate change challenges, is the Government's believe in up-scaling and in intensification of conventional/ traditional measures to cope with risks. As one observer has noted, the prevailing policy orientation *"makes manifest a technocratic and materialist view of the environment and development that is pervasive among state officials in Vietnam (...), a conviction that nature will be progressively subdued and turned to human advantage by technology"* (Taylor 2007:10).

As a result, sustainable development is not yet explicitly addressed in the climate change adaptation policy in Vietnam. For example, the National Target Programme to Respond to Climate Change appears very vague on the question on how to achieve its goals (Garschagen 2010). This also holds true for the national disaster risk management strategy under MARD. *"Most officials of the MARD are technicians who lack understanding of rural areas"*, says Dao The Tuan, Chair of the Sciences for Rural Development Association, former director of the Vietnam Agricultural Science Institute. Therefore, the country's general development will be unsustainable (VietnamNetBridge July 10, 2008). While the notion of climate change is mostly associated with a prevailing discourse on structural response to disaster risk reduction, this poses challenges to a broader understanding and a more sustainable response strategy. In addition, based on a government official, *"The state needs to have a comprehensive rural development policy, not only focusing on agriculture. This job should not be the task of the Ministry of Agriculture and Rural Development only."* This view has been shared by another Government official: *"We need to build real livelihood options and develop the social welfare systems for farmers"* (VietnamNetBridge July 10, 2008). Often, though, planning has been

blamed for not taking into account climate variability's impact on the poor. Vietnam's planning processes must therefore been criticised to fall short to account for the impacts of the current climate. *"Today, if we cannot find feasible solutions for people in flood-stricken areas, relief efforts such as providing them with instant noodles will turn out to be fruitless and costly"*, a Government official said (Vietnam News, May 18, 2010).

Fourth and finally, there are a number of quite specific challenges both related to sectoral and overall concerns and which include:

- a) Experts say that Vietnam's primary approach—the hugely expensive construction and reinforcement of thousands of kilometres of dykes—would bring its own set of problems.
- b) There is still a neglect of social aspects such as participation, local knowledge and experiences of local people, such as in dyke system planning. Dyke system planning has mainly focused on hydrological and technological aspects to control floods, to protect and develop agricultural production rather than to meet the livelihood needs of rural people (Pham Cong Huu et al. 2009).
- c) With roughly 25 million Vietnamese people living in or around the nation's forests (Vietnam News, April 22, 2008), it is clear that without the people reforestation will not work. Thus, aspects of integrating civil society will also hold true to approaches in the forest sector.
- d) Finally, ways to improve and modernise the land management system would be essential (Vietnam News, April 22, 2008).

## Summary

While the Government of Vietnam has built an ambitious framework for climate change adaptation over the past few years, with implementations set to start in 2011, at least one overall question remains: Is climate change an environmental problem, is it a development problem, or is it rather a problem to be tackled by means of disaster management? One could tend to summarize that climate change is an opportunity for Vietnam to develop agricultural and rural areas in a sustainable way, given the strategies on hand. It seem, however, the latter is and will be prioritized on the policy level—even though other positions are audible on the discourse level (Natural Resources and Environment Deputy Minister Nguyen Cong Thanh said that climate change is not only an environmental issue but, most of all, a development issue (UNDP 2007)). Climate change appears to be perceived strongly as a 'technical' problem to 'dominate nature', with response options based on technical solutions. But yet the question is how the government will balance economic growth and sustainable development, while—or, better: for—coping with climate change.

Approaches are based on the physical dimension of climate change on sectors such as agriculture and only to a minor degree are feasible in the area of differentiated social vulnerability and adaptive capacity. This is in spite of the Vietnamese government's work towards redefining development and to place an increasing focus on human development. The existing framework on climate change adaptation therefore depicts that broader aspects of sustainability remain by and large unconsidered. While the Government and sector-related agencies now fully concentrate on matters of horizontal and vertical coordination and financing mechanisms, some more fundamental challenges are left beside. The Government's key concern is on aspects of collective security from macro-risks, while putting less concern on idiosyncratic elements of capacity to protect livelihoods. This entails a larger set of critical implications.

Scott (1998) has argued that attempts by centralized states to impose on rural area one-size-fits-all solutions, are inevitably doomed to failure because of the fatal simplifications they impose on invariably complex processes. Rather than implementing so called ‘adaptation projects’, the focus on building capacities should be a key way to address climate change. By enhancing the capacities of poor countries regarding climate change issues, a sustainable development would be better targeted (Baudoïn 2009). It is in this context that Prof. Vo Dai Luc, former director of the Hanoi based Institute for World Economy said, institutional reform will be most fundamental in the process: “*Institutions must be modernised*”, he said (Vietnam News, June 25, 2010).

## **6.4 Institutional patterns of government and administration**

To reiterate about the importance of the institutional context, Adger (1999: 56f.) has emphasised that poverty, the use of resources, and the distribution of assets and income within a population are all institutionally determined, and hence central to an analysis of vulnerability. Against this background, then, adaptation to climate change has to be a continuous process that is sustainable and oriented towards longer-term livelihood security and that demands for institutional flexibility and adaptation. This also includes some more crucial elements of government and administration. Hence, reducing vulnerabilities and improving the systems ability to deal with (external) disturbance and (internal or external) stress “*depends on political, social and legal institutions (comprising paradigms, perceptions, laws, formalized organisations, planning and management structures) to mediate between actors and their interests and to shape decisions and strategies*” (Garschagen 2010: 2).

In describing Vietnam’s regime type—especially for the purpose of institutional analysis—it seems helpful to complement a focus on participation and competition with attention to accountability and representation (Shanks et al. 2004), based on institutional patterns and organisations, as well as overall features of government and administration. Masina (2006) argues that in many East Asian countries the state remains a central role in development initiatives, with a discerning combination of special attention to the rural world and social protections with gradualist movements towards neo-liberalism. Certainly, Vietnam’s research conditions have improved substantially during the past decade, with scholars able to reside in the countryside, some archival materials rendered accessible, and back sets of hundreds of local periodicals readily available (Kerkvliet and Marr 2004). Yet governance—being inherently political—proved more difficult to research in practice than economic, social or cultural topics.

Against this background, the present section presents an estimation of Vietnam’s ability and opportunity to deal with present and forecast climate disturbance in the broader field of social vulnerability.

### **6.4.1 Institutional patterns and organisations: Overview**

In Vietnam, integral to the political system of the country is the Communist Party which—despite having implemented a number of reforms since its ‘policy of renovation’ (*doi moi*) some 25 years ago—is still today said to ‘rule rather than to govern’ (Fforde 2005). Politics are based on ‘soft authoritarianism’, and are still set on central planning.

It is very hard to describe Vietnam as either clearly centralised or clearly decentralised in nature. In formal terms, authority is centralised; in practice, provinces enjoy much discretion in the implementation of policies and allocation of state resources (McCarty 2002: 65). Today, each of the 59 provinces and five municipalities has a fairly high level of autonomy. The degree to which policy-making has been centralised has varied over time, being closely related to the ebb and flow of national political change (Shanks et al. 2004), including some

institutional change at least. Most importantly, the ‘nascent’ civil society is increasingly analysed and discussed in its role to potentially making significant inroads into formal political structures and hence reinforcing collective decision-making.

Mostly related to the overwhelming part of Vietnam’s rural population, it has been argued that despite all recent economic success “*the Government needs to step in to resolve prevailing problems related to agriculture, creating efficient institutions, and adopting policies to increase livelihoods of farmers to obtain technologies and create stable market conditions for agricultural produce*” (Vietnam News, January 4, 2010). Yet the Government struggles to cope with the diversifying institutional and economic management processes (Walsh et al. 2002). The impact of *doi moi* in Vietnam has been certainly impressive, both in terms of economic growth and poverty reduction. However, it appears, there remains a dichotomy between the introduction of a dynamic, open economic management system and a political system that changes only slowly; and between socialist ethics (e.g. with regard to equality) and the market economy (Shanks et al. 2004). Over recent years, it has seemed to external observers that the political leadership is deeply undecided about how far and how fast it wishes to proceed with political reform, and the degree to which it perceives this as necessary in order to achieve continued economic and social progress (ibid).

Certainly, developing any insight into the nature and influences on the policy-making process in Vietnam requires a solid understanding of the official institutions which provide the basis for policy-making (Shanks et al. 2004).

#### **6.4.2 Government and administration in Vietnam**

The Communist Party (CPV) is the only party allowed to participate in Vietnamese politics and has considerable authority. But in Vietnamese language, the CPV is not included in the meaning of government (*chinh phu*) (although sometimes people do speak of the (Communist) party government, *chinh phu dang*). English speakers often talk about the Communist Party government (Kerkvliet 2004).

Although the relationship between Party, State and Government has changed and continues to change, the Party does still remain central to the policy process. In 2000 the Party had approximately 2.3 million members, with more than half of those are recruited through the Youth Union (ADPC 2003), but there are concerns about decreasing levels of membership. The governing principle of ‘democratic centralism’ under the top-down decision-making process of CPV is laid down in the 1992 constitution (Article 6, GoV 1992) and the Resolution of the Seventh Party Congress which state that centralism depends on the Party’s supervision of macro-economic decisions. The 1992 constitution represented a modest downgrading of the role of the CPV in relation to the 1980 constitution: nonetheless, the Party remains by far the most important force in Vietnamese politics, with the Government, the military and the administration effectively subordinate to its guidance.

The Party’s strategic leadership body—the *Politburo*, currently comprised of 18 members—is elected by the 150-member Central Committee at national Party congresses (held approximately every five years), and largely sets Government policy (Shanks et al. 2004). The overlap between Party and State remains pronounced. The top political figures are all Party members and involved in Politburo discussions about strategic decisions. Koh (2004) refers to the ‘party-state’ as the national ruling organisation in Vietnam and argues that as the state is controlled by the CPV “*it is meaningless to distinguish between the two*”.

‘Government’ refers to particular institutions identified in Vietnam’s constitution to make and implement policies and law and may refer specifically to the prime minister, deputy prime ministers, and ministers and deputy ministers of national ministries and departments (Kerkvliet 2004). The Central Government is comprised of 17 Ministries, 5 Ministry-type

organisations, and 26 other agencies (McCarty 2002). The executive branch of the national Government of the Socialist Republic of Vietnam is effectively headed by a three-person collective leadership, comprised of the General Secretary of the Communist Party of Vietnam (CPV); the Prime Minister<sup>106</sup>; and the President<sup>107</sup>. Important pronouncements by any one of these are vetted by the others (Shanks et al. 2004)—which is an aspect of the consensus approach to policy-making described in more detail below.

The legislative—the uni-cameral National Assembly (NA, *quoc hoi*)—is elected to a five year term by a popular vote based upon country-wide election which is characterised by universal adult suffrage. The NA typically meets twice a year for ordinary sessions; it can also establish committees to help advise on new issues and policies. The autonomy of the NA was increased to some part in the 1992 Constitution, while stating explicitly that there should be “*close cooperation and coordination*” between the Government and the CPV (McCarty 2002). Overall, observers “*remain divided regarding the degree of real independence enjoyed by the NA*” (Shanks et al. 2004: 18).

The Supreme Court, then, covers the State’s judicial functions.

The People’s Council (*hoi dong nhan dan*), People’s Committee (*uy ban nhan dan*), and People’s Court (*toa an nhan dan*) serve legislative, executive, and judicial functions, respectively.

The Fatherland Front (*mat tran to quoc*) and its associated mass organisations such as the Women’s Union or the Farmers’ Union, as explained by Shanks et al. (2004), play an ambiguous role in Vietnamese politics. They are sometimes classified as expressions of civil society. However, given their close affiliation with the CPV the mass organisations are more accurately classified as *socio-political* organisations rather than civil society organisations: while they serve to communicate citizens’ interests from the grassroots to the political leadership, they are also used to mobilise social groups in support of the political project of the Party, and to assist the Government in the implementation of policy decisions.<sup>108</sup> The mass organisations do provide a channel by which members’ concerns and criticisms can be channelled to the state and Party, and serve an officially-mandated legal function in the formulation of policy. To some degree the mass organisations maintain the policy debate at every level. The Fatherland Front’s management board at the commune level also plays an important role in the supervision and monitoring of projects.

‘Government’, besides the above described understanding, can also refer to the whole governing structure, which then would also include, for instance, local governments. In

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<sup>106</sup> The Prime Minister appoints deputy Prime Ministers drawn from the pool of NA members. The Prime Minister proposes a Cabinet, which is then appointed by the President, subject to the ratification of the NA.

<sup>107</sup> The President is elected by the National Assembly (NA) from amongst its members, and serves a five-year term. The President appoints the Prime Minister from among the members of the NA.

<sup>108</sup> Mass mobilization contributed considerably to building the Communist Party of Vietnam. “*One of the achievements is that mobilization has helped consolidate the people’s confidence in the Party leadership and the Government management*”, Party General Secretary Nong Duc Manh states. He said mass mobilization had been consolidated from the central to grass root levels. Thanks to this, all Party and Government policies and guidelines were well implemented. He lists five major tasks for the Party Central Committee’s Mass Mobilisation Commission: First, to gather and mobilize people from all walks of life to unite and maintain political stability while actively participating in national construction and defence. Second, movements must link closely to the country’s socio-economic development, the poverty reduction programme and improving the livelihood of people living in disadvantaged areas. Third, to conduct more communication campaigns to raise awareness that “*the revolution is the cause of the people, led by the people and for the people*” and the guidelines “*people know, people discuss, people implement, and people check*”. Fourth, to strictly follow regulations laid down in the process of doi moi. And finally, to communicate that mass mobilization is the responsibility of the whole political system based on the ideology that “*the people are the roots*” (Vietnam News, January 12, 2010).

Vietnamese, the latter are often *chinh quyen dia phuong*, which can be translated as ‘local government’ but also as ‘local administration’ and ‘local authority’. Authority and administration, though, are not necessarily the same as government (Kerkvliet 2004). ‘Local’ here means four sub-national levels of residence and administration:

- 1) province (*tin*) and city (*thanh pho*);
- 2) district (*huyen* in rural areas, *quan* in cities), provincial city, and town (*thi xa*);
- 3) commune (*xa*) and small town (*thi tran*) in rural areas and ward (*phuong*) in cities; and
- 4) village (*thon*) and hamlet (*xom, ap*) in rural areas.

All these institutions described above, i.e. Committees, Mass organisations, and authorities and administration, are also found in the provinces (including cities) and districts (including towns and small cities). In addition, many national ministries and departments have branch offices at these levels. However, the lowest level down, the communes and villages, have no such institutions, nor courts.

Civil, criminal, and other legal issues that arise at the village or commune level are taken to district People’s Courts, or resolved locally without involving the judicial system. Handling law enforcement matters in provincial and sub-provincial levels are usually local officers of the Public Security police (*cong an nhan dan*) (Kerkvliet 2004).

Of these four levels of administration, the lowest has probably been the most contentious unit (and has therefore experienced an increasing focus of interest from social and political science research in recent years). While the Commune remains the lowest level of government, hamlets and villages are recognised as local representative units, and interact with paid Government staff of the Commune administration (Shanks et al. 2004). Often a commune includes two to five villages. For this reason, Kerkvliet (2004) explains, communes often have developed internal agreements for distributing important positions among the villages.

### **Administration and decision-making**

An agenda for research on decision-making, as Adger et al. (2003) propose, argues for reconciliation between the objectives of efficiency, effectiveness, equity and legitimacy. This is certainly a tall order in the case of Vietnam.

Reference is still often made to Vietnam being a highly centralised system. It is certainly true that—as compared with many other countries—there is a deep and capable bureaucracy with strong vertically integrated planning systems reaching down to commune level (Shanks et al. 2004). A defining characteristic of the country’s political system is the way in which policies and decisions are arrived at through an inter-play of complex processes of vertical and horizontal decision-making based on consensus building (McCarty 2002) that is based both on policy guidance and instruction as well as on accountability at all levels. Norlund (2003: 24) has suggested that the blurred division between the administration and the Party results in ‘consensus governance’ where discussions and agreement have to take place at all levels before a decision can be made. This may appear to be an untransparent and laborious system, but is, she suggests, in many senses, democratic. Others, however, have suggested that it is the very process of consensus-seeking which—in the given nature of Vietnamese politics to avoiding conflict—is a feature of deeply-rooted authoritarian processes upon which the State is founded.

Yet the horizontal–vertical dynamic is central to the political thinking that lies behind the ongoing reform process. For instance, the rationale given for the accelerated administrative reforms in the Socio-economic Development Strategy for 2001-2010 includes to “*strongly decentralise powers within the administrative system coupled with raising the centrality and*

*uniformity in promulgating institutions. To clearly define the responsibilities and powers of each level, organisation and individuals, as well as to separate out the public authority administrative agencies from public service delivery organisations*". In this situation, it is important to avoid applying simplistic conceptions of *top down* or *bottom up* policy-making and planning systems (Shanks et al. 2004). Policy-making in Vietnam rather consists of a multifaceted process of negotiation between various levels and spheres of Government, and the progressive clarification of rather *broadly* conceived policy frameworks and directives into locally *specified* planning recommendations and provisions.

Central documents then sometimes reveal the Party/State's order for allegiance. As mentioned above, the Vietnamese state maintains a central role in development initiatives in a manner similar to other East Asian countries, with a discerning combination of special attention to the rural world and social protections with gradual movements toward neo-liberalism. According to Taylor, "*the hand of the state is certainly visible in several of Vietnam's rural development programs*" (Taylor 2007: 5). As a more specific example, in early 2008, the government, concerned by the global economic crisis which was about to undermine the Government's growth efforts, urgently ordered [sic!] to implement five key tasks for the whole year. These encompassed

*"striving to obtain high and stable development towards eradication of hunger and reducing poverty; focusing on investments in infrastructure construction; developing human resources; pushing forward administrative reforms and continuing the task of fighting against, and preventing, corruption"*.<sup>109</sup>

Moreover, according to a special resolution issued in 2008 on the implementation of the SEDP, for example, the

*"government and ministries, departments, people's committees at all levels must, according to their function and responsibility, successfully coordinate and implement the 2008 socioeconomic development plan. The National Assembly Standing Committee, the Ethnic Council, the Committees of the National Assembly, the National Assembly delegations, the National Assembly deputies, the People's Council and the People's Council representatives at all levels are bound to supervise the implementation of this resolution. The Central Committee of the Fatherland Front of Vietnam, the member organisations of the Front, according to their function and responsibility, are bound to implement and encourage people at all levels to effectively implement and supervise the implementation of the National Assembly's resolution"* (Resolution on a number of socio-economic issues in 2008, which was approved by the Twelfth National Assembly).

For decision-making, all major policy decisions passed at national level are further reviewed and approved at province/city level through locally specified decisions and guidelines for implementation. Form and type of decision-making then also depend on each sector's peculiarities. Each sector (or ministry) has a very different institutional structure—and it is crucial to understand this structure in order to identify and engage with the appropriate unit that is taking the lead on a particular area of policy (Shanks et al. 2004). Policy drafting committees are *ad hoc*, which means that their composition and the lead agencies and lead individuals vary.

It is important in this context that the issue of dealing with climate change can be seen as a major challenge for the system of decision-making, due to the multitude of scales and sectors

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<sup>109</sup> British Broadcasting Corporation (BBC) (July 21, 2008): 'Vietnamese government reviews key measures addressing socio-economic issues', see <http://www.bbc.co.uk> [accessed July 21, 2008].

to be involved. President Nguyen Minh Triet has told all Vietnamese to be prepared for the effects of climate change. In a letter presented at the 62nd national day for dyke management, flood prevention and control of storms and disasters, he said “*the disaster was complicated and unpredictable, so all ministries, sectors and localities must educate people about the situation and create programmes to handle it*” (Vietnam News, May 21, 2008). The way of consensus-seeking as a central element then also makes clearer why relevant government actors were so urgently hastening to select one of the emission-based scenarios on climate change presented by the ISPONRE (2009) as a basis for further planning. Putting the notion of ‘uncertainty’ into the decision-making process eventually would have led to a major bottleneck of decision-making.

The restructuring of the relation between central government units and local authorities has been a key element in Vietnam’s public sector reform throughout the 1990s and 2000s. Decentralisation is Vietnam’s most important strategy to overcome bureaucratic barriers and over-centralisation in a country with highly diverse natural, economic and ethnic conditions (Vasavakul 2002). The objective behind the public administration reform (PAR) programme is to transfer to local authorities more fiscal and administrative responsibilities so as to facilitate a local implementation of the ambitious targets of Vietnam’s poverty reduction programmes. This ‘rolling out of the CPRGS to the provinces’ is hoped to be achieved by means of reducing government bureaucracy, and simplifying administrative procedures (Bonschab and Klump 2004).

At the commune level, the chair of the commune People’s Committee (PC) has become the centre of the decision-making process. The PC, according to law, is the executive arm of the council at the local level. The chair of a provincial People’s Committee, for example, has considerable powers. He (or, rarely, she) can “*suspend or annul the wrong decisions*” and dismiss the chairs and deputy chairs of lower level People’s Committees (Kerkvliet 2004). The ‘ineffective system’ (Tran Thi Thu Trang 2004) of dual accountability between commune councils and PCs at the local level has in many cases led to concentration of power within the PC. This has not contributed to local democracy, though; rather it has shifted power from a centralized party-led government to individual authoritarianism at the local level (Tran Thi Thu Trang 2004). Kerkvliet (2004) points out that concentration of power often affects the local elections that are often contested and where sometimes favoured candidates are rejected, and that there is evidence that ‘selection is more significant than election’ (Kerkvliet 2004).

### **Summary**

The key features of the Vietnamese political system can be summarised as follows. As a one-party state, political competition in Vietnam is constrained, and the legislative remains weak compared to the executive. Yet it would be a mistake to assume that the Party/State simply enforces its will in any straightforward manner (Shanks et al. 2004). Decision-making is akin to consensus-seeking and is mediated through a range of inter-plays between national, provincial, commune and sometimes even local levels.

The latter involves society then; in the past, state-society relationships in Vietnam have traditionally required the state to demonstrate its legitimacy and to negotiate policy with society in order to be effective.

### **6.4.3 Challenges to institutional adaptation and flexibility**

After 25 years of *doi moi*, at the centre of the socio-political challenges remains the Communist Party of Vietnam. As regards challenges to overall institutional adaptation and flexibility, the following two citations underpin what Fforde (2005: 1) has alluded to: “*The Party continues, at roots, to rule rather than govern*”, namely:

*“The Communist Party of Vietnam, the vanguard of the Vietnamese working class and loyal representative of the interests of the working class, the working people and the whole nation (...) is the force assuming leadership of the State and society.” (GoV 1992: 2)*

*“Political stability is the most important factor that will lead to improving the country’s comprehensive renovation process in an effective and sustainable way.” Party General Secretary Nong Du Manh (Vietnam News, June 25, 2010).*

At the same time, as the Health Minister recently stated, *“We are convinced that joining forces is the only way to sustainably improve people’s lives”* (Vietnam News, July 10, 2010b). Yet, ruling single-handedly, Wischermann (2010) points out, the Party’s ability to govern appears to be quite limited. *“Forms of political and social exclusion, lack of intersubjective-sociocultural recognition and economic discrimination call into question core principles of a socialist republic, i.e. equality and justice, espoused by the Communist Party of Vietnam”* (ibid.: 1).

In order to put these considerations on the role of the CPV in a broader picture of institutional analysis and considerations, we can come up with three important findings, at least:

Firstly, concerning state-society relations, Shanks et al. (2004) explain that, on the one hand, any attempts to work outside the system are hard. This inevitably limits the scope for policy debate, and for consideration of policy alternatives. On the other hand, though, there are many examples where widespread ‘everyday forms of resistance’ to unpopular policies have forced the Government to change direction. For example, in late 1997, a large number of Vietnamese peasants displaced by official land seizures struck back through widespread protests that rocked the ruling Communist Party. The demonstrations raised questions about the party’s commitment to improving the lot of the rural masses and prompted intra-party soul-searching for ways to make the government more accountable to the people.<sup>110</sup>

Secondly, concerning the institutional dimension of the reform process, Priwitzer (2008) suggests that in order to understand the reforms happening under *doi moi* one has to first consider all aspects of the institutional setting which are characteristic for Vietnam: a lack of clear administrative responsibilities, a lack of financial means and a high level of decentralisation in at least some sectors. Moreover, one has to understand the general conflict of objectives in decision-making in Vietnam. On the one hand, some policy-makers in Vietnam are eager to advance the economic miracle, which has increased incomes and the standard of living for many Vietnamese in the last 20 years. On the other hand, political actors such as the CPV have the legacy of socialism, which commits it to a certain level of equality in society (Priwitzer 2008). Finally, there is the ‘technocratic’ approach to dealing with economic development, poverty reduction, and with risk in general.

Thirdly, the rhetoric level of governing: It is an important feature of the Party/State that its rhetoric advocates good governance (even though, criticisms inside and outside the country range from saying that officials are not doing enough to contending that good governance under Communist Party rule is impossible) (Kerkvliet 2004). This rhetoric is encapsulated in such well publicized slogans as ‘the people know, discuss, implement, and evaluate’ (*dan biet, dan ban, dan lam, dan kiem tra*), or government ‘for the people, by the people, and of the people’ (*cho dan, do dan, vi dan*).

Against this background, Vietnamese officials acknowledge considerable shortcomings of state administration. To improve the situation, they have taken numerous measures, among them national campaigns against corruption and for local democracy. Yet, although the

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<sup>110</sup> Asia Times Online (August 7, 2008): ‘Vietnam at reform crossroads’, see: <http://www.atimes.com> [accessed August 7, 2008]

Vietnamese government will always claim the country is independent and follows its own course, they very closely study the policies of neighbouring countries, especially China. These experiences teach the Vietnamese to take democratisation slowly (Steinglass 2008). The idea that political liberalization is necessary to ensure sound economic management is still a dangerous one among many if not most of the Party members, including a conservative camp that fears even the slightest political opening could develop into a people's power style revolt against one-party rule (Asia Times Online August 7, 2008).

### **Institutional adaptation and flexibility**

Generally, as regards the Party/State system's flexibility to institutional adaptation, despite its high levels of bureaucracy, Conway (2004) argues that it is fundamentally able to recognise and respond to instances of policy failure (most notably when mass defection from collective agriculture brought the economy close to collapse, prompting a leadership change and the introduction of economic reforms). Party-affiliated mass organisations do serve as elements of a corporatist state, mobilising society in pursuit of Party policies; however, they also provide channels for different groups (farmers, women, etc.) to communicate their views to the political leadership. Consensus-based policy-making may be slow (and opaque to outsiders), but ensures broad internal consultation and makes it more likely that policies will be both feasible and implemented. Checks and balances help ensure that an authoritarian developmental state does *not* evolve into a self-serving dictatorship. Yet there is a strong case for arguing that a gradual opening up of the policy process to more open debate involving organisations other than Party/State-affiliated mass organisations would be more responsive and effective. Managing this process is however politically difficult for the Government and the Party (Shanks et al. 2004).

The central Government has since the late 1990s attempted to respond to problems of accountability (problems which were exposed most clearly by the Thai Binh protests against corrupt local officials in 1997). Official policy has encouraged the streamlining of transparency mechanisms, most obviously in the form of a) the Grassroots Democracy Decree (Decree No. 29) and b) the Public Administration Reform (PAR) process, including c) decentralisation of the poverty reduction strategy. These efforts are briefly described below.

- a) The legislation on Local Democracy (from 1998 onwards) aimed to increase the accountability of local Government authorities and executive agencies to the people. This legislation also sets out the supervisory role that local people should have, through their elected representatives, on the workings of the local Government authorities. The Grassroots Democracy Decree (Decree No. 29), which has accompanied attempts to decentralize and give local authorities more decision making powers in relation to other intermediary levels of Government, promotes the rights of citizens to be informed, to participate in decision making process and to supervise the performance of cadres (Shanks et al. 2004). However, a study conducted by the Ho Chi Minh National Political Academy in 2001 found that after several years of implementing the reforms, "*there has been no great change brought into these institutions (party apparatus, government agencies, and social organisations)*" (Tran Thi Thu Trang 2004: 141). The reforms failed largely because cadres were not qualified, not adequately paid, undemocratically selected, and the division of power between the People's Council, the People's Committee and the party was ambiguous (Tran Thi Thu Trang 2004).

In November 2008, the government proposed a pilot programme to allow direct elections for some local leaders. For example, the pilot programme included a proposal to elect People's Committee chairmen directly. But a couple of weeks later, already, the National Assembly rejected the plan. Some deputies worried that if the

chairmen were directly elected, there would be no ways to ensure Communist Party control. This, of course, is the point of democratic governance: to increase popular interest, rulers must give up (at least some) control. And yet, this appears to be a troubling idea to many in Vietnam's Communist Party. Vietnamese lawyer Cu Huy Ha Vu says any reforms will fail unless they open the elections more widely while the director of Vietnam's Institute for Sociology, Trinh Duy Luan, says more fundamental change is needed (Steinglass 2008).

- b) The 1992 constitution aimed to increase the oversight powers of the NA and emphasised the processes by which state authorities are supervised. The 1992 constitution clarified the areas of control of the state executive by introducing clearer lines of accountability and emphasising the notion of the 'rule by law' in state affairs. The overall stated objective is to build 'a democratic, clean, strong, professionalized, modern, effective and efficient public administration system (...)' (Shanks et al. 2004). In this context, the ambitious Programme on State Administrative Reform (2001 to 2010) represents an attempt to address the systemic constraints arising from, and having an impact on, the reform process. The establishment of 'One Stop Shops' in public administration institutions and the requirement that any fees for procedure should be made public are other concrete example of attempts to improve service delivery and increase transparency. Other reforms encouraging transparency include the open publication of policies and the decisions of courts and tribunals (GoV 2001).

Recently, Prime Minister Nguyen Tan Dung has approved a project to spread knowledge of the laws among rural residents and ethnic minorities. "*Disseminating laws is not easy because the education level of many rural residents is low. They need laws that are easy to understand, and law documents with pictures that illustrate situations*", said Do Hoang Yen, deputy manager of the Department for Law Dissemination and Education under the Ministry of Justice (MoJ). "*Besides, provincial authorities do not have much experience in the matter*", she added. The aim of the project is to give at least 70 percent of rural residents and ethnic minorities knowledge of the country's laws (Vietnam News, May 11, 2009).

In the same context, then, the Judicial Reform Strategy through 2020 in Resolution 49-NQ/TW of the Politburo of the Communist Party aims 'to build a capable, ethical, democratic justice system that protects people's rights'. Capacity development is aimed to be at the core of the program—strengthening the capacity of justice institutions and actors to engage in reform, apply the law, and seize on the protection and opportunities the law provides, according to the ministry. A MoJ representative suggested the programme also "*pays attention to enhancing the capacity of grassroots legal aid workers who often help the poor and needy with only little knowledge of the law*" (Vietnam News, April 23, 2010).

- c) The process of decentralizing power and allowing local units more participation in planning has long been an essential part of Vietnam's reform policies. However, given this policy commitment it is once again surprising that there is no coherent strategy dealing with the issue. As a result many decentralisation efforts stop short or fail due to administrative barriers, and hence the officially announced 'rolling out CPRGS to the provinces' in fact proceeds at a slower pace than it could be (Bonschab and Klump 2004). The lack of information is another factor reducing the efficiency of poverty reduction programmes. "*We have not paid particular attention to disseminating policies on poverty reduction to beneficiaries, so intensive communication campaigns will be launched in the near future*", says a MoLISA official. "*We want to share experiences with the media and non-governmental organisations to make communications more effective*" (Vietnam News, May 3, 2009). Praising the new

approach, a MoLISA official emphasised that *“This is a breakthrough in Vietnam’s poverty reduction policy. The State will grant priorities to the poorest regions. In addition, the role of local people and authorities will be enhanced”* (Vietnam News, October 16, 2008). Ratifying the design of projects and cost estimations related to Programme 135 will be the responsibility of district-level authorities instead of higher ones. (Vietnam News, August 20, 2008).

In sum, while the PAR reforms attempt to create a professional civil service, the Grassroots Democracy Decree aims to make Government at the lowest (Commune) level directly accountable to the local population through village meetings and through transparency in local planning and budgeting decisions. Implementation has however been somewhat slow.

Certainly, concerning the National Target Programme to respond to Climate Change and its implementation will have to be based on the success of parallel state reform efforts, including grassroots democracy, public administration reform, and the poverty reduction strategy. In this context, the government is set to deploy the building of three national programmes on the modernisation of rural areas, climate change adaptation and the training of human resources for rural areas in addition to continuing implementing existing national programmes tailored for rural areas. But it is not only the ‘successful’ implementation of the National Target Programme to respond to Climate Change that will be decisive to people’s vulnerability; even more important will be the institutional dimension that mediate local people’s ability to adapt to environmental change. In this context, then, policies and approaches to institutional reform such as striving for grassroots democracy, a more flexible administration, and a poverty reduction programme that provides those being targeted to bring their voice in into the process of planning and implementation should be seen as a welcomed tendency.

### **Challenges to institutional change**

A study by Reidel and Turley in 1999 predicted the country's ongoing reform programme would eventually lead to *“questions about the adequacy of Vietnam's political leadership and institutions”*. The study called for, among other things, more transparency and accountability. However, Painter (2002: 9) claims that *“the existence of regular and accountable mechanisms of control and coordination is (...) alien to many ingrained practices of Vietnamese Government. This is shown by the continued role of the party which results in a duplication of function and lack of clear hierarchy, unclear division of functions, unclear accountability, and opaqueness”* (Shanks et al. 2004).

Inexperience, incompetence, and poor discipline, some studies say, are major reasons why local government and party leaders, especially at commune and district levels, are unable to deal well with problems such as corruption and conflicts over land (Kerkvliet 2004). Yet some papers revealed interesting empirical differences between rural and urban, lowland and upland, and north-centre-south (Kerkvliet and Marr 2004). Moreover, policy overlapping and institutional barriers need to be removed to keep Vietnam's good pace of poverty reduction (Vietnam News, May 26, 2010).

There is evidence that some population groups, including poorer and ethnic minority ones, have only few opportunities to participate in decision-making processes affecting their lives (e.g. Vo Tong Xuan et al. 2004; Nguyen Ngoc De et al. 2004). The Vietnam Development Report (World Bank 2004: 78) reports that there are no formal and regular means in which those affected by laws and regulations can participate in the law-making process and that, until now, transparency and enabling people to make informed choices has not been seen as an important part of the legislation drafting process. While Shanks et al. (2004) observe that there are some official processes for grievance and complaints, there is often uncertainty over who is responsible for addressing the issues and many Government agencies have been inefficient in redressing popular grievances. In many cases formal grievances are only

possible if people have access to political networks. While some groups amongst the poor may have political legitimacy and thus opportunities to voice their concerns, other poor groups may find it harder to have their complaints heard.

Moreover, then, there are some groups which are explicitly favoured by government policy and it could be argued that in some cases this differential treatment at the commune level towards *chinh sach households* (such as veterans, war invalids or in some way connected to the CPV) has resulted in the exclusion of others from accessing limited resources and services (Shanks et al. 2004) and from political control. Tran Thi Thu Trang (2004: 142), who analysed local elections in rural Vietnam, provides a striking example to this: *“The 2001 election of hamlet chiefs in the village illustrates these manoeuvres. I witnessed the election process for the chief of hamlet 2, one of two hamlets in the village. Two controversial matters arose: the selection of candidates, and the voting procedure. In principle, residents can propose their own candidates. In practice, commune and village cadres are usually the ones who nominate candidates, and use various rules to disqualify other people from being considered. (...) As the popular saying goes, y dang long dan (the party proposes, villagers approve), (...) and village cadres succeeded in having the vote taken by show of hands instead of casting anonymous ballots. About one third of villagers voted in favour of the only candidate while nobody opposed him.”*

Concerning the implementation of the Grassroots Democracy Decree, a study undertaken after three years of implementation found that reforms brought little change only *“due to lack of capacity, inadequate remuneration and the undemocratic process of selection”* (Nguyen Van Sau and Ho Van Thong 2001: 10f.). The enforcement of standards, more often than not, relies very much on the will of the local authorities. Jorgensen (2001, cited by Shanks et al. 2004) points out that accountability structures have focus on accountability to elites rather than to the ‘poor’ and that often village leaders felt more accountable to the leading group and the party in the village than to the poorer members. At a higher level, then, renovations and socio-economic transition led to the emergence of a new class of *“business-minded cadres who leveraged their official positions to enrich themselves from Vietnam’s fast expansion, often at the wider population’s expense”* (Asia Times Online August 7, 2008).

As outlined above already, some then see the most concerning challenges being linked to the core of the political institutions and system. Fforde (2008) argues that the formal political system in Vietnam remains Leninist and that this confirmed by various indicators, including linguistic practices and procedures for the Party management elections. It contends that what is commonly referred to as grass-roots communities refers instead to the base of the apparatus, and that statements about ‘policy’ usually refer to concretisations of Party intentions. ‘State’ and ‘community’, in formal practice, thus refer to Leninist implementation mechanisms. This has important negative implications for the viability of modern development ideas, such as the importance of empowered communities and the creation of policy by a state possessing primary political authority. Yet in some accordance with this statement Kerkvliet (cited by Taylor 2007: 6) observes that the Vietnamese government continues to be responsive to rural interests, with an approach to rural development which today embodies *“a mix of deference toward universally applicable laws of development and a paternalistic attitude toward rural people. This attitude is especially evident in depictions of rural people in official development reports as poor, backward, remote, unconnected, unaware, and dependent on the state for their uplift.”* Therefore, it proves difficult to gather and to focus state power for the purpose of coping coherently and deliberately with the various demands which Vietnam faces: *“Capabilities for solving conflicts without resorting to authoritarian and/or even violent means are only slightly developed in the state as well as in the societal sphere”* (Wischermann 2010: 4).

In sum, then, what Vietnamese citizens ‘expect’ from their Government is an issue widely discussed and contested. Bases on my own subjective experience from working in Vietnam, I tend to say rural inhabitants, generally, expect the government to promote further economic development (with unsolved problems sometimes accumulating and aggravating citizens to the point of public protests), with the poorer segments of society being widely uninvolved into political and administrative processes. Finally, then, despite ongoing reforms that also affect the formal institutional level to some point, observers unanimously agree that not much has changed over the last twenty years. According to the Freedom House Indices 2010, the level of institutional freedom in Vietnam is ‘not free’. Political rights are ‘least free’, civil liberties are ‘almost least free’, and there is no freedom of press.<sup>111</sup> Hence, opportunities for broader institutional reform that responds in a more flexible manner to challenges on the ground remain limited in scope and breadth. This brings with itself a number of disadvantages for the institutional determinants of adaptive capacity that are a decisive part of my analysis.

## 6.5 Summary

This chapter has reviewed features of development and climate change in the overall political, institutional, and socio-economic context of Vietnam. In order to understand the local situation in the Mekong River Delta, it is important to bear in mind the political and socio-economic goals of the Vietnamese government, which directly influence the situation at the local level (Wehrli 2006). Formulation and promulgation of policies and development programmes on livelihood improvement, social protection, and disaster risk reduction belong to the domain of central government. This is why the following analysis of the local situation has to rest upon the overarching national context which was described in this chapter.

In Vietnam, integral to the political system of the country is the Communist Party which—despite having implemented a number of reforms since its ‘policy of renovation’ (*doi moi*) some 25 years ago—is still today said to ‘rule rather than to govern’ (Fforde 2005). Politics are based on ‘soft authoritarianism’, and are still set on central planning. Rural inhabitants, generally, expect the government to promote further socio-economic development (with unsolved problems sometimes accumulating and aggravating citizens to the point of public protests), with the poorer segments of society being widely uninvolved into political and administrative processes.

Important to Vietnam’s economic renovations is the market transition, which has had direct implications for environmental conditions. Like many other developing countries, Vietnam relies extensively on its (ever-depleting) natural resources. Losses in resources caused by climate change and sea level rise will pose many difficulties to future socio-economic development.

Another direct implication of the economic renovation phase is that it has led to widening inequalities and vulnerabilities among the population. In this context, liberalization of markets and agriculture has led to great income inequalities and to an undermining of rural livelihoods of disadvantaged groups. Exposure to global markets and the emphasis on increasing export commodity production have led to declining profits, indebtedness and land loss (Taylor 2007), especially for disadvantaged groups.

Policies and programmes to improve livelihoods include both targeted and broader interventions (such as Programme 135 and HEPR) to stimulate economic growth and to eradicate poverty. Social protection is mainly provided from fixed government budgets and, in times of risks and hazards, through a number of special funds while a universal social protection scheme does not exist.

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<sup>111</sup> See: <http://www.freedomhouse.org>

In terms of natural disasters, Vietnam is able to build on a long history of strong institutional responses to events like floods and storms. However, these strategies focus on emergency responses to short-term climate extremes and reconstruction following them, rather than long-term adaptation to climate change. These are still not well-synergized with livelihood and social protection policies. A National Target Programme to respond to Climate Change is in place and implementation is set to begin in early 2011. The ambitious goals for adaptation to climate change, as well as seriousness about addressing the effects of climate change shows that the Programme certainly means more to the Government than a merely ‘window dressing’. But yet the question is how the government will balance economic growth and sustainable development, while—or, better: for—coping with climate change.

Based on the literature review, it appears that climate change adaptation, as well as livelihood approaches, social protection, and disaster risk reduction build *necessary*, though not *sufficient* conditions to promote people’s livelihoods in Vietnam. Findings from the available literature show that improved coordination, as well as better management and communication across government is needed to efficiently increase the living situation of poor and vulnerable population groups.

Beyond realizing the functional value of developing synergies between these approaches, this is primarily an institutional concern. Low financial resources and insufficient educational backgrounds, low levels of transparency and accountability, and mismanagement across different scales of administration have also been mentioned to hinder effective management within each of the three intervention areas. Clearly, then, responses to climate change will require attention to institutions rather than increased investment into poverty reduction.

## **7 A CASE STUDY ON POVERTY, VULNERABILITY AND ADAPTIVE CAPACITY**

Challenges shaping the discussion on climate change on the national level are continued on the sub-national level, and in the Mekong River Delta in particular. The Mekong River Delta, located in the south-western region of Vietnam, has emerged over the last 6,000 years from today Phnom Penh (Cambodia) on a length of 300 kilometres into the South China Sea<sup>112</sup>.

The highly fertile area plays an important role in Vietnam's endeavour to further spur socio-economic development in the country. Yet the Mekong River Delta is a very poor region—most of its population earn less than USD 300 per year. At the same time, though, it has the highest average income of the country's rural sites (Taylor 2007).

Climate change creates an additional set of challenges in terms of ensuring sustainable development in coastal areas in the Mekong Delta region (Vietnam News, February 11, 2009). The question is, though, whether ongoing policies and management initiatives can provide impacts that positively respond to these challenges.

The present chapter will start with a general description and analysis of the physical features and climate-related challenges in the Mekong River Delta. As a background to the case study, then, the socio-economic development situation as well as more specific government plans and policies for the Delta region will be outlined. Starting into the case study, I will provide some concretization on the methodology and implementation of my field study research that builds the base for the aims of my study and to analyse

- a) how different livelihood groups are affected by currently experienced climate variability and extremes;
- b) how vulnerability and features of adaptive are characterized in the case study area;
- c) what are pertaining elements that shape vulnerability and potential reduction thereof; and
- d) which of those policies and programmes under implementation impact positively on adaptive capacity.

Focusing on how local institutions govern access to resources, how different kinds of information and knowledge are used by different actors and how effective innovation can be fostered, the paper makes a number of recommendations on how adaptive capacity can be further enhanced.

### ***7.1 Development and Climate Change in the Mekong River Delta***

More specific information has been available for some time now concerning the nature of future impacts of climate change across the regions of the world (IPCC 2007b). The IPCC's statement (made with 'very high confidence' or 'high confidence') is that in Asia, especially heavily populated mega delta regions in South, East and South-East Asia, will be at greatest risk due to increased flooding from the sea and, in some mega deltas, flooding from the rivers. This turns the Mekong River Delta into one of the places to have one of the highest exposures in the world to the consequences of climate change.

The Mekong River Delta has 700 kilometres of coast and a seawater area of 360,000 square kilometres; its landmass is nearly 40,000 square kilometres in size. The Delta has a population of 18 million, includes 13 provinces and one major city, Can Tho (Vietnam News, August 4,

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<sup>112</sup> Informationsdienst Wissenschaft (idw) (July 8, 2008): 'Küstenrückgang in Vietnam: Kieler Geologen liefern Basisdaten für ein Küstenmanagement'.

2010b). The Delta region is Vietnam's 'agricultural heartland' (Vietnam News, September 16, 2008). About 50 percent of the country's food is produced there (Vietnam News, October 14, 2008), especially rice. Half of Vietnam's rice is produced in the region, both for domestic supply and for export which makes the country the second-largest rice exporting nation in the world. Moreover, the region produces more than half of the country's shrimp, fish and seafood exports.

Yet, Taylor (2007: 24) characterises the region as having "*the worst roads, the lowest levels of schooling, and a low level of industrialisation*". The total amount of poor people is the highest of all of the Vietnamese regions (around four million people, currently, or twenty percent of the delta population) while, paradoxically, overall income is the highest compared to other rural regions in Vietnam.

In addition, mainly related to demographic patterns, ongoing economic growth, intensive agricultural production and escalating levels of shrimp farming, degrading water quality and bio-diversity is an increasing threat to people's health and livelihoods. There is no doubt that economic development on the Mekong River is "*short-sighted and unsustainable*" (Vietnam News, August 4, 2010).

Doubtlessly, the Mekong Delta suffers from a double burden as it is widely considered one of the global 'hot-spots' in terms of climate change-related risks while, at the same time, the region "*experiences dynamic changes in resilience and vulnerabilities owing to comprehensive political, economic and especially ecological transformation processes*" (Garschagen 2010: 1).

### **7.1.1 The Mekong River Delta: A general overview**

The Mekong River is one of the world's ten largest rivers, and the third largest of Asia. The Mekong flows 4,800 kilometres through six countries, i.e. China, Myanmar, Thailand, Laos, Cambodia and Vietnam. The name 'Mekong' originates from Thai language; *Mae Nam Khong*. The river originates in the Tibetan mountains where the river is called 'Rock River'; *Dza Chu*. In China, it is called 'Turbulent River'; *Lancang Jian*. After crossing the Laotian border and reaching the Vientiane Plain, the river becomes the 'Lower Mekong', before emptying into the southern Sea of Vietnam.

The Lower Mekong Basin in Thailand, Laos, Cambodia and Vietnam is home to more than 60 million residents from more than 100 different ethnic groups. Most of them are farmers and fishermen, whose livelihoods are dependent on the river (Vietnam News, August 4, 2010).

In Vietnamese the Mekong Delta is called *dong bang Cuu Long* which means 'Nine Dragons river delta', according to the total number of river arms. The Vietnamese normally use the term 'Mekong River' for the stream *outside* of Vietnam; *song me cong*.

It is difficult to define the strict area of the Mekong Delta due to its topographical vagueness. The border between the Mekong River and the Saigon River is also unclear, especially in the rainy season. Formally, the point of Kompong Cham in Cambodia is recognised as the top of the delta but it is more common to regard the area of Phnom Penh as its top corner (Yamashita 2003) what means that about 26 percent of the area belong to Cambodia and 74 percent to Vietnam.<sup>113</sup>

The Mekong Delta region encompasses a large portion of south-western Vietnam. According to the classification of the Department of Geology and Minerals in Vietnam, the Mekong

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<sup>113</sup> According to a Vietnamese Administrative Atlas (*tap ban do hanh chinh Viet Nam*) edited by the Cartographic Publishing House (*nha xuat ban ban do*) in 2002.

Delta region is a ‘low plain’ with a slight slope from East to West and North to South. Most of the region, though, ranges from 0-4 meters above sea level (Yamashita 2003).

The Delta’s topographic coastline is exposed to constant change, due to ongoing processes of erosion, sedimentation and land accretion. A group of German scientists from the University of Kiel, for example, forecast that fertile parts of Vietnam’s southern coastline would be washed away over the next centuries, but added that sediment from the Mekong River might create some new land further to the west.<sup>114</sup>

The Mekong Delta has a complex weather and water regime. The climate in the Mekong Delta is influenced by both the southwest and northeast monsoons. There are two weather seasons—rainy season and dry season—divided a simple indicator, i.e. rainfall. In general the dry season runs from December to April while the wet season spans May to November. Moreover, the region is affected by the El Niño phenomenon.

### **Floods and saline intrusion**

Water-related occurrences in the Mekong Delta can be divided into ‘flood’ and ‘saline intrusion’ roughly. Both flood waters from upstream basin and saline water intrusion can lead to a ‘flood’. Floods in the Delta region occur during the rainy season, from May to December, and their peak is in September and October. This natural event is an annual one, and its features are quite different from those floods occurring in other regions, such as flash floods in the northern mountain region.

Actually, people in the Mekong Delta have co-existed with the annual floods for ages. Unlike flooding in other regions of the country, in the Mekong Delta the water, in most of the cases, rises gradually and predictably. The annual flooding in the Mekong Delta has led to a fascinating relation between humans and their environment over time. Clearly, people are not only used to flooding, their livelihoods very much depend on the floods. The people refer to this period as ‘the floating season’, and consider it a natural part of life. The flooding brings many benefits. Flood waters deposit rich silt to the fields, clean alum from the earth, wash away harmful insects and create a fat layer of alluvial soil on which to grow next year’s crops. The flood waters also bring large schools of fish from upstream, which live in the flooded rice fields and eat fallen rice grains. These fish multiply quickly and therefore provide people with some extra source of food, income and livelihood. In the wet season almost 50 percent of the Delta is flooded. In the dry season, flow in the Mekong is insufficient to prevent saline intrusion and extensive salination of waterways occurs in the lower Delta.<sup>115</sup>

The coastal sea off the Mekong Delta, the South China Sea, has a large tidal difference in seawater level, which can easily exceed four metres. Under the condition that most of the area of the Mekong Delta is only little in height above sea level, the large tidal movement has great influence on the inland area, especially in the rainy season when the river waters from upper stream also increase (Yamashita 2003).

Saline intrusion is a very characteristic and important phenomenon to understand the natural dynamics in the Mekong Delta. The following Box shows the range of saline intrusion in the Mekong Delta.

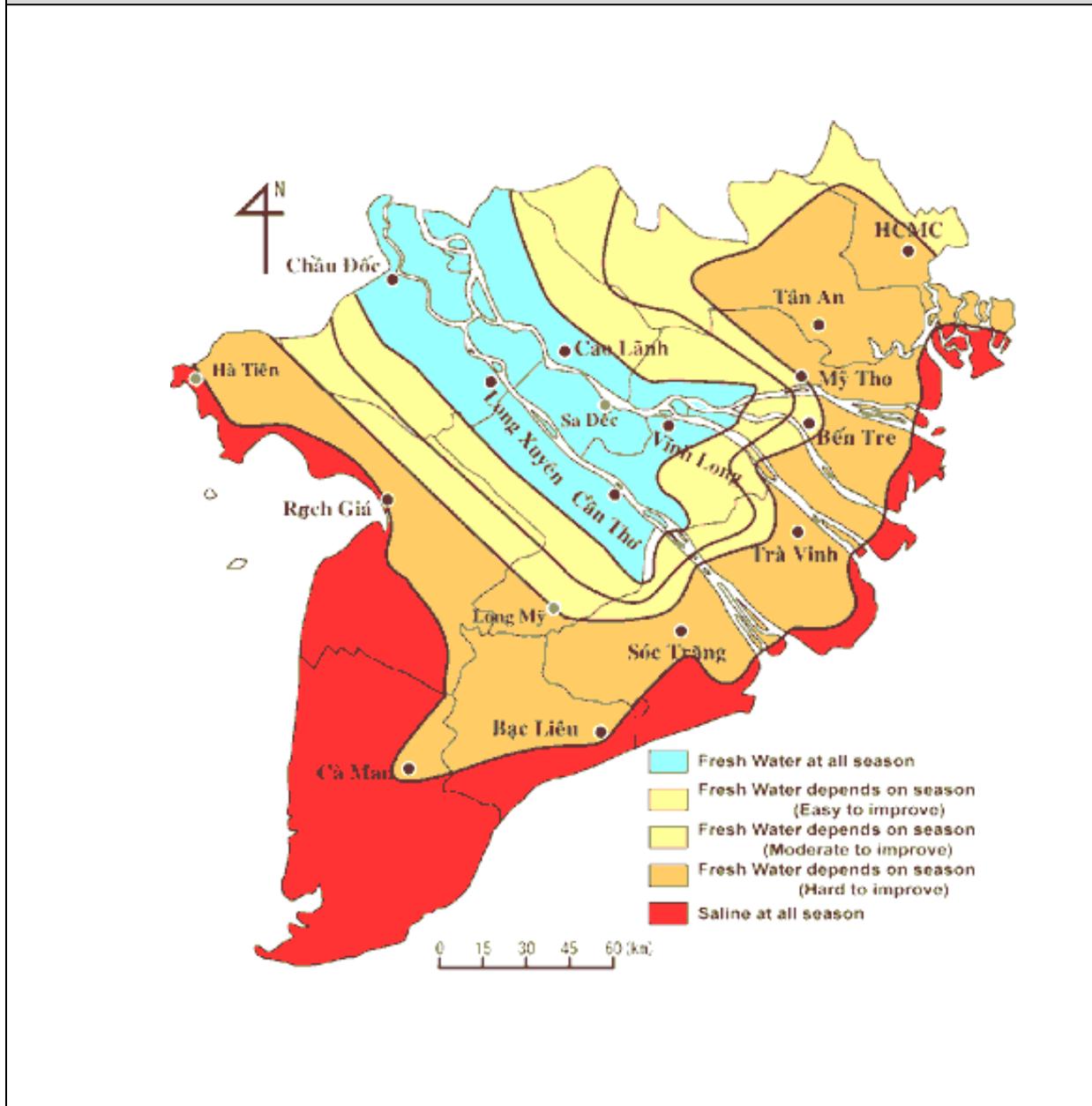
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<sup>114</sup> Deutsche Presseagentur (DPA) (July 8, 2008): ‘German scientists forecast loss of Vietnamese coastline’, see <http://www.dpa.de> [accessed July 8, 2008].

<sup>115</sup> See: <http://www.wisdom.caf.dlr.de/en/content/mekong-delta-vietnam> [accessed January, 2010]

### Box 18: Dynamics of saline intrusion in the Mekong River Delta

Source: Yamashita (2003)



Yet Vietnamese language has two words, *lu* and *lut*, to express a flood. *Lu* means the process of rising water levels in the Mekong (‘nice floods’) which are considered ‘normal’ between half a metre and three metres of depth, while *lut* indicates damages due to inundation from floods that have a level beyond a certain threshold. Generally, Vietnamese call a damage-causing flood *lu lut* (‘ugly flood’). In the Mekong Delta, there are different classifications of flood, according to their generation area and their underlying causes (shown in Box 19). Up to now, the most dangerous form of floods in the Mekong Delta—in terms of the amount of damage and casualties—is the riverine flood. Generally, extended periods of rainfall is the chief premise for the generation of floods (Yamashita 2003). However, as far as the Mekong Delta is concerned, it is very difficult to forecast the actual flow or water level and to come up with proper forecasts.

<b>Box 19: Classification of floods in the Mekong River Delta</b> <i>Source: Yamashita (2003)</i>			
Classification	Generation area	Cause	Main damages
Riverine	Upper main rivers	A rise in river water level	Lives, houses, crops
Tidal	Lower rivers and coasts	Floodtide	Crops, salination
Inland	Whole area	A rise in river water level	Houses, hygiene
Urban	City	Asphalting, downpour	Houses, hygiene

The Delta has a long history of being exposed to ‘ugly’ floods. Between 2000 and 2002, for example, the Mekong Delta experienced nearly 1,000 casualties and substantial economic losses due to floods and storms (Nguyen 2007, cited by Garschagen 2010). These historic floods in 2000 affected around four million people and caused economic loss around USD 3 billion. The flood lasted over three months causing serious disruptions to socio-economic activities. Large floods occurred once again in 2001-2002. Though peak flood levels were lower than in 2000, long lasting inundation affected two million people. These floods were some of the worst in living memory and also were a topic that was repeatedly raised during my field trip. Most notably, it showed that the Mekong Delta residents are used to living with flood cycles, but “*within certain bounds*” (Vietnam News, July 12, 2009).

#### **Forecasted and observed consequences of climate change: The physical dimension**

Climate change implicates two major challenges for the Mekong River Delta: Firstly, the speed and magnitude of many changes in the environmental conditions will be higher than in any respective ‘natural’ changes so far experienced in the region (Garschagen 2010). Secondly, predicting those changes and the resulting impacts is fraught with high uncertainties. It is clear, though, that enhanced levels of awareness and sensitisation on the topic—that is complemented by observed and ongoing changes in the region (such as droughts and salination; some recent experience will be provided in the following)—have increased worries about the coming about of the forecasted catastrophic consequences of climate change.

A scenario on rising sea levels carried out by the Can Tho University’s DRAGON Institute recently showed that if the sea level increased by one metre by 2030 (which is a worst case scenario to date), a large area of the Delta would be submerged (Vietnam News, March 25, 2009). As per current population patterns a one meter sea level rise would directly affect almost one third of the Delta’s area (including roughly 10,000 km<sup>2</sup> of agricultural land) and over one quarter of its 18 million inhabitants (Garschagen 2010). Mekong Delta provinces which will be seriously flooded if sea levels rise by one meter are Ben Tre with 50.1 percent of its areas flooded; Long An (49.4 percent); Tra Vinh (45.7 percent); Soc Trang (43.7 percent); Ho Chi Minh City (43 percent), Vinh Long (39.7 percent); Bac Lieu (38.9 percent), Tien Giang (32.7 percent); Kien Giang (28.2 percent); and Can Tho (24.7 percent) (VietnamNewsBriefs August 31, 2009).

Besides the risk of direct inundation, sea level rise entails the risk of substantially increased levels of salination, potentially affecting agricultural production and freshwater supply (Garschagen 2010). Each year salination gets further inland—up to 70 kilometres currently compared to 50 kilometres in the past. Increasing salinity has threatened Can Tho, once considered ‘safe’ from salty groundwater (see also Box 18), since April 2004, said Ky Quang Vinh, director of the Environment Observation Center of the city’s Department of Natural Resources and Environment (Thanh Nien News, August 22, 2010). From preliminary findings, the rice production in the Mekong River Delta tends to reduce in the future due to the impacts of climate change (Garschagen 2010).

Moreover, climate change is predicted to alter precipitation patterns (increase in amount and even stronger concentration in the rainy season) and aggravate flood risks (Chaudhry and Ruyschaert 2007). Against this background, it was observed already that the length of the Mekong Delta flood season has increased from a three-to-five-month period to a current six-to-seven month period (Vietnam News, June 15, 2010e). Moreover, it was expected that the 2009/2010’s flooding season would see water levels upstream the Mekong River 0.2-0.3 meters higher than average (Thanh Nien News, August 22, 2010).

Droughts would also pose a greater threat to the Delta. Drought has affected more than 1,300 hectares of rice fields in the Mekong Delta province of Kien Giang in early 2010, with 200 hectares turning completely dry (Vietnam News, February 8, 2010). More than 120,000 hectares of forests in the Mekong Delta have been on fire alert after lengthy dry, hot weather that has left forested areas parched in early 2008 (Vietnam News Agency, April 17, 2008). Resulting from an overall rise in air and sea surface temperature, it is further expected that the typhoon activity in the South China Sea—that has so far been of relatively low importance in the southern Vietnam region—is going to intensify (Elsner et al. 2008). The delta has also suffered an increase in the proportion of typhoons in the northwest Pacific, from 0.75 percent for the period 1884-1970 to 2.88 percent for 1956-1997, according to scientists (VietnamNetBridge March 9, 2009).

Certainly, the delta is among the most vulnerable in the world to the fallouts of climate change (Vietnam News, August 28, 2010).

### **River dams: an(other) element of uncertainty**

Predicting climate changes and, more particular, the resulting impacts is fraught with difficulties, but is further aggravated against the background of an ongoing building of river dams in the Mekong upstream region that have potential consequences for river water levels and flows. The Vietnamese government emphasises the role of climate change in disrupting its agricultural environment, but some experts do not rule out an effect from dams upstream in China. That impact could be worsened by the opening of more dams further south in Lao and Cambodia, they say. *"The Chinese dams have made the system fragile, but the impact of the downstream dams will be cumulative"*.<sup>116</sup>

Up to now, three big dams have been built in the upper mainstream of Mekong River in China, and twelve other hydropower stations with capacities varying from 10 to 1,000 megawatts have been built in its tributaries in Laos, Thailand and Vietnam. More than 20 other big dams for hydropower development are expected to be built in the coming time, including twelve dams in the lower Mekong countries<sup>117</sup>, and one in the Mekong’s main stream.

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<sup>116</sup> Agence France Press (AFP) (July 13, 2010): ‘Vietnam’s Mekong paddies dry up’, see <http://www.afp.com> [accessed July 13, 2010].

<sup>117</sup> Ibid.

The question is whether those dams can be built in a manner that will not be harmful to the Mekong waters and levels of the down-stream; but concerns are increasingly raised about the reduction in water flow and quality due to the activities of countries upstream the Mekong (Vietnam News, August 28, 2010). The Mekong River passes through six countries and, principally, no government in the basin can instruct another government what to do with the river in their section. While countries in the lower Mekong Region have been working officially together in the Mekong River Commission since 1995, the two countries located in the upper stream region, i.e. China and Myanmar, only have visitor status. It is clear that the future of the Lower Mekong Basin countries may considerably depend on this issue.

### **7.1.2 Development and Poverty: A regional profile**

Even without climate change, there are tremendous challenges which the Mekong River Delta and its population is already facing by now. Farmers in the Mekong Delta own an average of 0.7 hectares of cultivated land, which is said to be far more than in other localities. According to the Vietnam Institute of Agriculture Engineering and Post-harvest Technology (IAEPT), the Mekong Delta is leading the country in the use of machinery for agricultural production. As a result, farming efficiency is higher than in other regions (Vietnam News, March 14, 2009).

In recent years, as Delta provinces have embarked on urbanisation and land agglomeration, and many farmers sold their parcels, the amount of agricultural land per person has shrunk, and many rural parents haven't been able to afford to send all of their children to schools. *"That's a second big reason for a high percentage of school drop-outs, as much as five percent in some areas"* (VietnamNetBridge, May 7, 2010).

With ongoing economic growth, modernisation, and industrialisation in Vietnam, the internal differentiation between the poor and the better-off population groups is now especially apparent in the Mekong Delta. Inequalities in access to land, sea, riverine, and capital-intensive resources have grown sharply during a period of intensifying exposure and opening to regional and global markets (Taylor 2007).

Challenges also persist in terms of provision of infrastructure, including in the health sector, with its network of hospitals and clinics requiring significant upgrades. According to the Ministry of Health (MoH), the doctor-patient ratios in several Mekong Delta provinces are among the lowest in the country (Vietnam News, September 29, 2009).

Moreover, as recently told in an online article, a conclusion often heard at conferences reviewing the situation of education and training in the Mekong Delta is *"Though the Mekong Delta ranks the first in the country in production and exports of rice, seafood and fruits, it outranks only the Central Highlands in the area of education and training"* (VietnamNetBridge, May 7, 2010).

#### **Prospects on economic growth and sustainability**

While it is true that the Mekong River Delta is not the poorest region in the country, difficulties therefore persist in the social dimension of economic growth, and in providing some fundamental provision of services. To the social costs of economic development must be added the environmental costs—high levels of pollution, depleting water resources and bio-diversity are a growing reason for concern. The following provides a brief regional profile of prospects and challenges on economic development, environmental sustainability and poverty for the region.

Provincial officials seem satisfied with the GDP and per capita GDP growth rates in their provinces which are said to rise annually. While the country's GDP growth rate has been six to eight percent yearly, many Mekong Delta provinces announce growth rates of 14 or 15

percent a year.<sup>118</sup> On average, provinces achieved a 8.5 percent growth in 2007, 10.1 percent in 2008, and 13 percent in 2009. Economically, the Mekong River Delta cannot be seen in isolation from the adjacent Ho Chi Minh City that has been ever-growing and prospering over the last decades. There is a plenitude of economic and social loops and branches between the delta region and the southern economic hub<sup>119</sup> (Vietnam News, June 15, 2010). Increasingly, Can Tho City is also becoming an industrial ‘hub’ and serves as the economic momentum for the entire Mekong Delta<sup>120</sup> (Vietnam News, July 29, 2008). Total development investment capital is estimated at VND 104 trillion (USD 6.2 billion), representing 42 percent of the Mekong delta region’s GDP and a year-on-year increase of 18 percent. The region is expected to obtain an industrial production value of VND 91 trillion (USD 5.4 billion) this year, up 20 percent, and fetch an export turnover of almost USD 5.1 billion, up 22 percent (Vietnam News Agency, December 28, 2008).

There are now approximately 120 industrial zones and complexes covering more than 24,000 hectares in the region and providing about 32,000 jobs (with most being in Long An, Kien Giang, Ca Mau, Can Tho and Hau Giang provinces), covering 24,000 hectares. They are focused on labour-intensive processing industries like food and seafood products, animal feed, drinks, footwear and garments, among others (Vietnam News, August 16, 2010). Land for these zones, though, was given up by farming households for minimal compensation. Although the farmers who gave up land receive cash in compensation, they lose stable means of income. Many farmers, who no longer have land or livelihood, have spent their cash compensation. Vocational training was not generally provided for former farmers to be able to take advantage of the new jobs. *“We were promised vocational training and jobs in the IPs for a higher income in the first place, but promises weren’t delivered”*, many of them complain (Vietnam News, August 16, 2010).

Land is not only taken away for industrial zones, but also for, for example, golf courses and areas planned for tourism. In recent years, the Mekong Delta has made significant achievements in tourism. For example, in 2009 the number of foreign visitors to the region was 1.2 million, three times higher than in 2000, while local visitors hit 8 million compared to 3.4 million in 2000. This produced a revenue of VND 2 trillion (USD 105 million) for the tourism industry. Huynh Vinh Ai, Deputy Minister of Culture, Sports and Tourism, said tourism is envisaged to create create stable jobs and to raise the income of local residents (Vietnam News, May 29, 2010). A major focus of tourism development is put on Phu Quoc, though, the largest island of Vietnam and located west from the Delta.

Historically, though, people in the Mekong River Delta have mostly been farmers. Still today, an estimated 85 percent of the people in the delta live from agriculture. After two waves of hydraulic construction expansion (first under French rule and much more intensively since the 1980s) the largest part of the Delta can today be considered hydraulically controlled through dykes<sup>121</sup>, embankments, sluice gates and pumping stations for irrigation, drainage and flood

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<sup>118</sup> However, it must be added that it’s far from clear where these statistics come from. The Doanh Nhan Saigon Cuoi Tuan magazine tried recently to evaluate indices of poverty and literacy in the Mekong Delta, but found that all the data was ‘estimated,’ often inconsistent, and generally suspect. See: <http://english.vietnamnet.vn/reports/201005/Mekong-Delta-poverty-and-ignorance-seem-worse-than-reports-910400/> [accessed February 13, 2011]

<sup>119</sup> Ho Chi Minh City accounts for more than 30 percent of State budget contributions, 30 percent of national industrial production value, 37 percent of export turnover and 20 percent of Vietnam’s GDP.

<sup>120</sup> Can Tho’s GDP growth reaching 12.66 percent, industrial production up by 16.9 percent and exports revenue by 57.5 percent while its poverty rate fell to less than 8 percent.

<sup>121</sup> Dyke system planning can obtain foreseeable benefits in short term, but can also lead to unpredictable negative impacts on the long-run. Based on work undertaken by Pham Cong Huu et al. (2009), dyke system planning has some advantages as follow: Agricultural production activities and the lives of people are safely protected during the flood season. Floods are actively controlled and used to enhance agricultural production and

control. Canal excavation was the primary structural measure to deal with inundation in the Mekong Delta (ADPC 2003). The underlying paradigm, in particular for the developments since reunification, has been to ‘free’ rice farming from the seasonal conditions with floods and salinity intrusion (Käkönen 2008).

Since then, extensive use of technology in agriculture has helped the Delta region increase yields. The average yield of 5.38 tonnes per hectare is the highest in Southeast Asia (Vietnam News, January 4, 2010). MARD said, in the Mekong Delta provinces the 2008-2009 winter-spring rice crop was 9.8 million tonnes, 90,000 tonnes more than the same period last year (Vietnam News, June 17, 2009). Hence, the Mekong Delta contributes more than 50 percent of the country’s rice output and more than 90 percent of the total rice export volume (Vietnam News, September 13, 2010). Rice exports from the Mekong Delta increased strongly both in volume and value in recent years. However, this happened mostly because of higher prices in the global market, and is not a real increase in value, according to an official of the MARD (Vietnam News, September 13, 2010). It must be added, however, that household-based rice farming in the Delta, as the main unit of production, is normally not suitable for modern technologies that need large-scale production (Vietnam News, December 3, 2009). Yet size of fields available to a household, as well as knowledge, education, means and willingness to invest matters.

By the end of the 1990s, the Mekong Delta shifted increasingly from agriculture to aquaculture development. Since then, aquaculture has experienced a considerable boom that came along with strong growth rates in many provinces of the delta. In 2007, the Mekong Delta produced about 1.5 million tonnes of aquatic products, mainly shrimps and catfish grown in farms (which is 72 percent of the national output of aquaculture). Compared to 2004, the annual output of aquaculture doubled by 2007 within only three years (total output in 2004: 770,000 tonnes; total output in 2007: 1,5 million tonnes). In 2007, the Mekong Delta produced about 315,000 tonnes of shrimps (81 percent of Vietnam’s entire shrimp output).<sup>122</sup> Nowadays, the centre of the delta’s shrimp farming is located in the coastal provinces of Ca Mau, Bac Lieu, Soc Trang and Tra Vinh.<sup>123</sup> Aquaculture in the coastal region for a long time was seen as an important growth sector, since it was providing “*an alternative to reliance on wild fish stocks that are increasingly under pressure from over-exploitation*” (MoNRE 2006, cited by Chaudhry and Ruyschaert 2007). Due to increased awareness of foreign markets on product standards, the future of shrimp-farming in the Mekong Delta is increasingly seen now in more eco-friendly and economically beneficial farming methods (Vietnam News, October 18, 2009)–mostly though for improving quality and hygiene to meet export requirements (VietnamNetBridge March 8, 2009). To date, there are only a few cases where farmers have altered production methods, due to various reasons (that will be discussed in more detail from Chapter 7.3 on).

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the rural road system. Agriculture and aquaculture farming models have been diversified to generate more income for said people. Agricultural farming systems have been transformed from mono-rice farming into integrated agriculture farm models such as rice-upland, rice-fish, rice-shrimp, fruit trees - fish, rice – livestock – fish, and intensive fish culture in the fields. Rural roads and dyke-resident clusters can be developed along canals to support agricultural production and the protection of the local people’s lives. Some high dykes are used to build rural roads. Local people have opportunities to access services within rural areas and cities and exchange agricultural products between rural areas and cities, and children in rural areas have better opportunities to access school. Negative impacts will be discussed over the course of the present and the following sections.

<sup>122</sup> <http://www.wisdom.caf.dlr.de/en/content/mekong-delta-%E2%80%93-aquaculture-output-2004-2007>

<sup>123</sup> For catfish farming abundance of freshwater is an important production resource. Centres of catfish farming therefore are located upstream in the flood prone areas of the delta, encompassing the provinces of An Giang, Dong Thap and Can Tho as major production hubs. In 2007, 1.1 million fish were farmed in the delta, accounting for 73 percent of national output. See Vietnam News (October 18, 2009): ‘Shrimp-rice farms bring hope to Delta’.

However, the rapid development of aquaculture in recent years has worsened environmental pollution in the delta as most waste from aquaculture activities is released directly into rivers and canals. Mud and water from aquaculture activities in the delta generates 456 million cubic meters of waste a year (Vietnam News, August 11, 2008). Even quality of products can be improved, one more particular problem related to aquaculture development must be added here: People have destroyed large swathes of forests for breeding shrimp and cultivation that is heavily dependent on chemicals. By the early 2000s, around 73,000ha of forest were cut to clear land for shrimp farming. In most if not all of the cases where ponds have been left idle after some years, this land still today cannot be cultivated due to high saline level. In addition, the ongoing development of aquaculture has brought some other delicate difficulties to the region. Authorities in coastal provinces are frequently struggling with the decision to open or close their irrigation dykes; *“if they are closed, there won’t be enough water for shrimp farming, while opening them will salinate hundreds of hectares of rice paddies”* (Vietnam News, January 7, 2010).

Besides pollution from agriculture and aquaculture, then, households in the delta release 600,000 tonnes of solid waste and 102 million cubic meters of wastewater annually. The delta’s more than 13,000 companies and approximately 120 industrial parks. They collectively release 47.2 million cubic meters of industrial waste water and 220,000 tonnes of solid waste a year. Most industrial wastewater is not treated as industrial parks do not have a consolidated water treatment system (Vietnam News, August 11, 2008).

Therefore, the region is in dire need of scientific, technological and administrative measures to stop the growing pollution in the area, according to experts (Vietnam News, August 11, 2008). If no fundamental revise of the development plans will be undertaken and if there will be no strive for more environmentally sustainable ways to development, though, it remains highly questionable if real changes really can happen. The case study will analyse and discuss these issues in more detail.

### **Prospects on poverty reduction**

The Mekong Delta has experienced a considerable decline in the rate of poverty since 1998. According to the VLLS, poverty rate for the Mekong Delta in 2002 was 23.4 percent, lower than the country rate of 28.9 percent. On the other hand, there were nearly 4 million people in poverty in the Mekong Delta in 2004, which represented 21 percent of the total number of people in poverty in Vietnam. However, there was considerable variation between the poverty rates for the Provinces, and between the experience of people living in urban and rural areas (AusAid 2004).

According to data of the General Statistics Office (GSO), in 2007, the rate of the poor was 12.4 percent in the Mekong Delta (Vu Thi Vinh 2009). Though they aren’t starving, it’s a fact that people in many areas in the Mekong Delta are very poor. Other numbers show that 18 to 20 percent of the households in the Mekong Delta fall below the poverty line, rising to 35 to 45 percent if the ‘near-poor’ households are added. At this level, it is clear that failure such as of a single crop or an animal disease epidemic can potentially propel a family back into the ranks of the very poor (VietnamNetBridge, May 7, 2010).

Almost two million farmers in the Mekong Delta are facing poverty with little land for agriculture, and no other means to support themselves. These statistics, highlighted in a recent study by the Institute of Policy and Strategy for Agriculture and Rural Development, represent serious concerns for the population living in the biggest farming products producing region in the country (Vietnam News, October 14, 2008). Paradoxically, poverty rates remain high in those provinces with high development potential. The reasons for this finding are certainly complex, but may reflect the view that while economic growth has contributed to

poverty reduction for many poor people, it is insufficient to address poverty for all (AusAid 2004).

The situation is particularly severe for ethnic minorities, including the Khmer that is a large ethnic group in the Mekong Delta. Based on a report by Human Rights Watch (2009), the Khmer in Vietnam face serious restrictions on freedom of expression, assembly, association, information, and movement. There are approximately 1.05 million Khmer people living in the Mekong Delta, accounting for 6.49 percent of the total population of the area (GSO 2002, in AusAid 2004). The Khmer have a higher poverty rate than the average (32 percent of Khmer are classified as poor). Perhaps more significantly, the rate at which Khmer escape from poverty in many localities is significantly lower than the average (AusAid 2004).

Moreover, as mentioned above, the Mekong Delta (besides the Central Highlands), is the most backward in education and health care. The proportion of children going to school in the Mekong Delta is lower than in the northern mountainous area (VietnamNetBridge July 10, 2008). Hence, enrolment rate in the Mekong is one of the lowest in the country. As regards adult population, in 2004 more than 83 percent of the general labour force had completed primary-level education only or had no formal qualifications. The rate among the poor was 96 percent (AusAid 2004).

### **Summary**

In sum, this overview has provided a number of insights I find crucial for an understanding of the context of economic, environmental and societal progress and challenges in the Mekong River Delta. While being highly successful in macroeconomic terms, the Mekong River Delta faces tremendous challenges in reconciling market-oriented land use and economic policies with the vulnerability of local populations, not only to climate change. There are several particular sectors of the economy (for example, in coastal aquaculture and commodity crop production areas) in which contemporary growth is associated with either stagnation in the gains in poverty reduction, or increasing risk and vulnerability for poor and nearly poor households.

### **7.1.3 Development orientations, climate change adaptation, and poverty reduction programmes in the Mekong River Delta**

The Mekong Delta has been a focal point of the state's rural development programmes (Taylor 2007). With over 70 percent of the population living in the countryside, the major challenge to the Vietnamese government is to provide viable and sustainable livelihoods for rural inhabitants (Le Bach Duong et al. 2005). Government policies for the Mekong River Delta have put in place strategies for overall development planning. While long-term strategies aim at moving away from agriculture as the main income source, the region will be a topic of ongoing concern over the mid-term.

Over the next years, the region's top priority will remain on economic growth. According to a joint report submitted by the thirteen provinces of the Mekong Delta to the central Government, *"the country's integration into the World Trade Organisation (WTO) creates many opportunities for the region to develop"*. The report targets an industrial revenue for the region at VND 144 trillion (USD 8 billion) by 2015, and an average growth rate of 17.4 percent a year (!) from 2010 to 2015 (Vietnam News, October 24, 2009).

According to the Government's vision, by 2020 the Mekong Delta will be one of the country's economic drivers in some sectors, including agriculture and seafood. To this end, the government plans for a 'key economic region' that includes the three provinces of An Giang, Kien Giang and Ca Mau provinces and Can Tho city. These areas have a population of 6.4 million. Existing plans show that the region also strives for a transition from an

agriculture-lead industry to a 'modernised one: By 2010 agro-forestry and fisheries should account for 29.4 percent of the region's GDP but the plan shows that by 2020 it would likely drop to 15 percent. The industry and construction sector should make up 28.7 percent of the region's GDP by 2010 and 40 percent by 2020. By 2020 the service industry should account for 45 percent of the region's GDP, as opposed to 41.9 percent in 2010. If it fully taps economic potential, it is hoped the region's GDP for the period 2009-2010 will be "*one and a half times the national figure and 1.25 times during 2011-2010*" (Vietnam News, July 22, 2009).

For the immediate future, provincial leaders from the Mekong Delta asked the Government to channel funds to expand the development of urban areas along the coast line by upgrading coastal roads and rehabilitating national roads linking the provinces of Tien Giang, Ben Tre, Tra Vinh, Soc Trang, Hau Giang and Kien Giang (Vietnam News, July 14, 2008). The Government agreed to continue to invest in development projects in the region such as highways, river ports, seaports and airports for ensuring that the delta will become an international transport hub (Vietnam News, January 6, 2010), and to continuously promote investments in industrial parks and border economic zones (Vietnam News, July 22, 2009).

Moreover, the Prime Minister recommended that there should "*be more investment in people in the delta region so that people can get themselves out of poverty*". This investment should include vocational training for working in local industrial zones and helping farmers apply modern technology to their farming for better productivity. Tourism should also be promoted to bring more opportunities to local farmers. (Vietnam News, October 14, 2008). Meanwhile, the Ministry of Culture, Sports and Tourism has approved a plan to develop tourism as a key economic sector in the Mekong Delta. The plan, which extends to 2020, "*will aid in the country's economic transformation and help reduce hunger and poverty*", according to the ministry (Vietnam News, August 4, 2010b).

### **Facing sustainability through economic development?**

It is clear that economic development on the Mekong River is short-sighted and unsustainable (Vietnam News, August 4, 2010).

But concerns on 'sustainability' are expressed by regional authorities mostly in terms of supporting lasting growth. How to achieve this, however, has become an issue that has spurred some debates. Basically, the absence of overall strategic planning for the entire region is seen by many experts as the main cause that has led to "*messy development practices*" in the Mekong River Delta. Export-oriented industries in the Delta still rely largely on cheap labour and available natural resources rather than technologies that create more added value. "*Instead of developing more industrial parks, the provinces should try to create more added value for their agriculture and fishery produce in processing plants or farms using modern technologies*", says Dr. Vu Thanh Tu Anh, an economist from Ho Chi Minh City (Vietnam News, August 16, 2010).

Concerning agriculture, "*the region needs a modern processing industry and a well-managed distribution system to ensure quality and profits for farmers*" according to a report provided by the MARD (Vietnam News, October 24, 2009). Lately, some efforts have been undertaken to expand the application of Good Agricultural Practices (GAP) in rice production to promote quality and safety.<sup>124</sup> This aims to enable the region to gain wider acceptance in both domestic and international markets. However, progress had been slow so far in applying GAP standards in rice production due to the lack of value chains between farmers and business. "This

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<sup>124</sup> GAP is a collection of principles that apply to on-farm production and post-production processes, ensuring the health of both producers and consumers, reducing environmental pollution, and resulting in the production of safe and healthy food as well as products with easily traceable origins.

discourages farmers from participating in GAP programmes. Small-scale production and a lack of cooperation among farmers, co-operatives and businesses are preventing GAP from expanding further in the region.” Moreover, there are some challenges both for authorities and farmers such as making re-zoning plans for their fields to facilitate application of GAP standards in production (Vietnam News, September 13, 2010). In spite of undertaking further steps for advance in this area, business strategies remain largely based on the usual and long-established strategies on promoting output.

Also concerning the agricultural sector, the Irrigation Department under MARD was instructed to review plans for irrigation in the Mekong Delta to improve its effectiveness (Vietnam News Agency, March 13, 2010). Although the annual surface runoff through the Mekong Delta is about one of the largest in the world, there is still seen a severe shortage of freshwater to flush salt out of the rice fields during the dry season. Building more reservoirs is considered a “*good solution*” to alleviating water scarcity (Vietnam News, June 15, 2010e). To this end, huge pumping stations are being built all over the Mekong Delta region (Vietnam News, July 3, 2010).

Producing new crop strains and finding ways to prolong the shelf-life of products after harvest are also top priorities (Vietnam News, September 16, 2008). Extended flooding season in recent years “*has made it nearly impossible for farmers to plant two crops of rice per year without irrigation works*”, Dao Xuan Hoc, Deputy Minister of Agriculture and Rural Development, said (Vietnam News, June 15, 2010e). Dr Dang Kim Son, director of the Institute of Policy and Strategy for Agriculture and Rural Development, said for sustainable growth, the agricultural sector must use land and water efficiently, especially under the impacts of the global climate change that is predicted (Vietnam News, April 22, 2010).

It is clear that environmental changes—blamed to changing climate conditions or not—will have significant consequences on people’s lives and consequently must lead to a re-thinking of government plans.

### **Facing climate change through dyke planning and resettlement?**

Generally, the topic of climate change keeps provincial governments and administration in the Delta region increasingly busy. To cope with climate change, researchers and provincial government representatives gathering at a seminar in Can Tho City in October 2008 agreed regional provinces should strive to adjust their socio-economic development plans, focusing on adaptation to the changes. Yet authorities appear to expect there still is sufficient time. “*The one-metre rise in the sea around the Mekong Delta will not happen overnight but gradually over the next decades, giving the country time to plan measures to deal with it*” (Vietnam News, September 17, 2009).

For example, the Mekong Delta city of Can Tho has been working to build a set of maps to service its programme on coping with climate change. The maps are expected to be the ground to develop priority programs to cope with climate change and to call for investment and assistance (VietnamNetBridge March 13, 2009). DRAGON institute’s director, Le Quang Tri, said the institute was focusing on researching ways to best deal with this threat. “*It is necessary to carry out projects that raise the community’s adaptive capacity to the rising sea level*”, said Tri (Vietnam News, March 25, 2009).

Yet at the centre of planning are structural planning approaches: “*We cannot move all of the affected households to safer places because of limited means*”, Tran Van Ho from a local People’s Committee said. “*We propose that authorities invest in the construction of a dyke in afflicted areas*” (Vietnam News, August 3, 2008). One central discussion held in the Mekong River Delta is therefore on the role of dykes and dams for responding to climate change. Moreover, there is the opinion that in case of salt water intrusion and drought, there is not

much the authorities can do than to *“instruct provinces in the region to save fresh water for farming in reservoirs and canals and close sluice gates to prevent further salt water intrusion”* (Vietnam News Agency, March 11, 2010). The two latter citations reveal that it is mainly means of disaster mitigation and prevention of collective risks that are envisaged, thereby focusing on technical approaches and leaving the matter of adaptive capacity out of sight.

To cope with ‘natural’ disasters in the Mekong River Delta and along the country’s coastline, MARD is currently preparing an ambitious programme that consolidates the coastal dyke network and protects coastal areas from rising tides. The plan’s primary objective is to protect those coastal areas susceptible to disasters from the ocean. The plan upgrades deteriorating coastal dykes and builds new coastal and estuary dykes as well as sluice gates to secure a fully-consolidated system of dykes from Quang Ngai (central Vietnam) to Kien Giang (south-western Mekong Delta). The project could cost up to VND 19.7 trillion (USD 1.23 billion). It also calls for planting protective forests that prevent soil erosion and act as wind breaks in sandy areas. These forests would *“at first protect dykes and then nearby residential areas and aquaculture enterprises”*. The programme will be divided into phases, with a first phase between 2008-2015 (renovation of key dykes that shield residential areas and important infrastructural facilities). The second phase will be carried out from 2016 – 2020 (Vietnam News, August 3, 2008).

However, there are worries that a dyke system to be built along the Mekong Delta coast to keep out rising seas could let the region be flooded by waste water from industrial zones instead, because rivers carrying the region’s waste water would also be partially blocked. *“Huge losses could occur if a third of the region is flooded by the sea”*, said Vo Hung Dung, director of the Vietnam Chamber of Commerce and Industry’s (VCCI’s) Can Tho chapter. *“But to have the entire region soaked in waste and polluted water is more serious”*, he said. The discussion shows that there is much more to be done to sustainably develop the Mekong delta region against the background of climate change than to solely rely on disaster risk reduction strategies and to rely on ‘hard’ adaptation measures such as building dyke systems. Rather, an integrated approach will be needed that includes more sound environmental protection policies into the plans if strategies shall be avoided to be mal-adaptive for the whole region. Moreover, Dr. Duong Van Ni, a member of the national Steering Committee for Master Planning in the Mekong Delta towards climate change recently said it is not advisable to build dams on river estuaries in the delta: *“Dams will hold seawater that pours onto the land due from flowing back into the sea—and the water will increase salinity on the land”* (Vietnam News, August 28, 2010).

In cases where dykes have lately been built, such as in Can Tho, objectives of dyke planning were mainly to focus on the protection of local peoples’ lives, flood control, water allocation and economic development—while widely ignoring livelihood activities and customs of local people in the flood plains, as shown in an in-depth study by Pham Cong Huu et al. (2009) on the formulation and implementation of dyke systems. *“To sum up”*, the authors write (Pham Cong Huu et al. 2009<sup>125</sup>), *“dyke system planning prioritises hydrological technique aspects over social aspects and livelihood needs of local people”*. Integrating economy, society and environment yet remains a tall order in the Mekong Delta, the authors’ results show. The discussions show that planning dyke systems in an integrated and sustainable manner is a complex matter—and one that appears to exceed government institutions’ capacity. Dyke system planning requires an interdisciplinary cooperation between ministries and agencies from central to local levels. Yet coordination between relevant actors in this field is weak (Pham Cong Huu et al. 2009) what highlights the need for revised approaches.

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<sup>125</sup> See: <http://www.ehs.unu.edu/file/get/4205> [accessed November 3, 2010]

Besides dyke building, the Government has promoted a policy of actively coping with, or 'living with', floods over the last 25 years already. The policy slogan 'living with the floods' reflects a realisation that ever higher dykes in the Mekong Delta are not the answer to seasonal floods, that fields and forests must store flood water instead, and that people's livelihoods must adapt (Chaudhry and Ruyschaert 2007). This policy has seen state investment in facilities to assist people living in flood prone areas and provide them with shelter and basic recovery mechanisms (AusAid 2004). For the Mekong River Delta in particular, the Second National Strategy and Action Plan for Disaster Mitigation and Management in Vietnam (2001-2020) includes measurements and approaches based on the concept of 'Living with Floods' and which comprise structural measures (dykes, embankments, sluice gates etc.), the construction of houses on raised foundations, the building of dyke systems to protect small residential areas, and reforestation in coastal areas.

In this context, Prime Minister Nguyen Tan Dung recently approved the construction of flood-proof residential clusters in the Mekong River Delta under a second phase of a resettlement plan. Under the plan, the Vietnam Development Bank (VDB) and the Vietnam Bank for Social Policy (VBSP) will be responsible for providing loans for households (of about VND 15-18 million (USD 900-1,080) with a three percent annual interest rate) to build houses in newly zoned clusters. In addition, roads, garbage dump sites, water and electricity supply systems, and river dykes and embankment will be built to protect resettlers and their property from floods and landslides. The programme is worth VND 2.387 billion (USD 144 million). In its first phase from 2001-2007, the programme built 1,043 such clusters containing 73,111 houses to accommodate 200,000 families. (Vietnam News, August 29, 2008). Besides this scheme, there is a number of other programmes targeting on resettlements. For example, the Government issued Programme 134, under which it pledges to support Khmer people in the Mekong Delta in terms of production land, housing and safe drinking water (VietnamNetBridge May 16, 2008).

Concerning the latter, Deputy Prime Minister Hung urged localities in the Mekong Delta to implement projects on housing for ethnic minority groups, stressing that "*provinces home to a large population of poor Khmer still must work hard to fulfil their plans*" (Vietnam News Agency, December 28, 2008).

### **Policies and programmes on poverty reduction**

Recently, Deputy Prime Minister Nguyen Sinh Hung called for a concerted effort by all ministries, agencies and localities to speed up the improvement of people's lives in underprivileged communes, helping to ensure equality among the country's regions and areas (Voice of Vietnam April 21, 2009).

Within these 'concerted efforts', there is a number of existing poverty reduction programmes and interventions and state assistance implemented in the Mekong River Delta, that are mainly aiming at 'poor ethnic people' or 'ethnic regions', i.e. districts with a high number of ethnic minorities. Interventions include:

- (1) Subsidies (such as price and fee subsidies).
- (2) Tax exemptions (such as for agricultural land use; implemented since 2001).
- (3) Direct food support/ other direct support.
- (4) Provision of preferential credits.
- (5) Programme 135: infrastructure construction projects in 195 ethnic villages and areas, 43 projects to build inter-village centres in ethnic areas, projects for stabilisation and development of agricultural and forest production in combination with processing and

marketing of agricultural products; capacity building for commune and village cadres; resettlement projects in some areas (Nguyen Ngoc De et al. 2004).

- (6) Programme 134: mainly infrastructure construction, including housing support, water and sanitation; training and capacity building.
- (7) Policies to provide support to eligible students in education and training: identify students for pre-universities, universities, colleges, vocational high schools; exemption and reduction of tuition fees and free offering of notebooks for poor pupils of villages in special difficulties (Nguyen Ngoc De et al. 2004).
- (8) Health care: provision of health insurance cards for poor and some near-poor households; provision of iodine salt and medicine for the poor living in villages in special difficulties; exemption from/ reduction of hospital fees for the poor.

Therefore, interventions are mainly the same, and are following the same principles, as the country-wide programme interventions discussed in Chapter 6.3. Yet it was stressed that implementation of national poverty reduction policies across the Mekong Delta have not been synchronised, which generally limits the sharing of experiences and collaborative problem solving (AusAid 2004).

Other project activities such as ODA- or NGO-financed ones or charity projects are also existing in many places, but they are rather location-specific (mostly located on the provincial level) and differ in their aims and objectives, as well as in their target groups and beneficiaries.

## ***7.2 A Case Study on Soc Trang Province: Concretisation of fieldwork research***

Based on the above findings, it shall be reiterated that: a) it is clear from science data that the delta is under risk from ongoing climate variability and extremes and, according to scientific data, will be highly affected by climate change; b) the highest number of poor Vietnamese people in a single region live here; and c) the Mekong River Delta has been a focal point of the state's rural development programmes while, at the same time, the region finds itself at facing major issues of sustainability and levels of increasing inequality.

Against this background, the present study deals explicitly with a single province for analysis, in order to understand more thoroughly the processes and dynamics which lead to vulnerability and, more importantly, to a potential reduction thereof.

The study's main interest is on analysing the influence of ongoing climate variability, extremes and change on different livelihood groups in an area of high exposure and risk to these challenges in the context of (socio-)economic development. Nevertheless, it is clear that individuals are by no means passive as they act upon processes (Wehrli 2006). Hence, I will investigate how different livelihood groups perform against the prevalence of assumed vulnerability to climate-related changes, and which strategies they (can) apply. This approach turns the way in which citizens deal with these changes and how they secure their livelihood into the focus of research. Based upon this, the main exercise then is to identify ways to enhance their adaptive capacity, with existing policies and programmes becoming the focal point of interest.

The results are aimed at creating a better understanding of the prevailing situation and to tracing the process of vulnerability within the given context.

## 7.2.1 A case study on Soc Trang Province

Soc Trang is one of thirteen provinces in the Mekong Delta region in the south of Vietnam and is located south of the Hau River which is the southern-most of the nine Mekong River arms in the delta. I decided to choose an ‘average’ or ‘typical’ province, based on macro-economic data, size, demography, proportion of ethnic minority groups, etc. An important factor against the background of the aims of my research also was that Soc Trang Province has no strategy to deal with climate change to date. I assume the site to be an ideal case for analysing the features that shape the main interest of my study.

Soc Trang Province covers a total area of 331,000 hectares, of which 220,000 hectares are used for agriculture, 12,000 hectares for forestry and 44,000 hectares for aquaculture (GTZ 2008). The province is divided into eight administrative units comprising seven rural districts and the Soc Trang town district. The coastal zone of Soc Trang Province has a length of 72 kilometres which makes up the research area of the present study on the local level and encompasses three districts: Vinh Chau, Long Phu and Cu Lao Dung. The coastal area includes 11 communes, for a total area of 1,153 km<sup>2</sup> and more than 10,000 hectares of mudflats, mainly located in Cu Lao Dung and Vinh Chau districts (Joffre and Luu Hong Truong 2007). The population within the coastal area is estimated to include 188,567 inhabitants, composed of 38,149 households (Provincial Statistical Book 2005). An orientation on these districts is given in Box 20 below.

**Box 20: Soc Trang Province – Main characteristics of selected coastal districts**

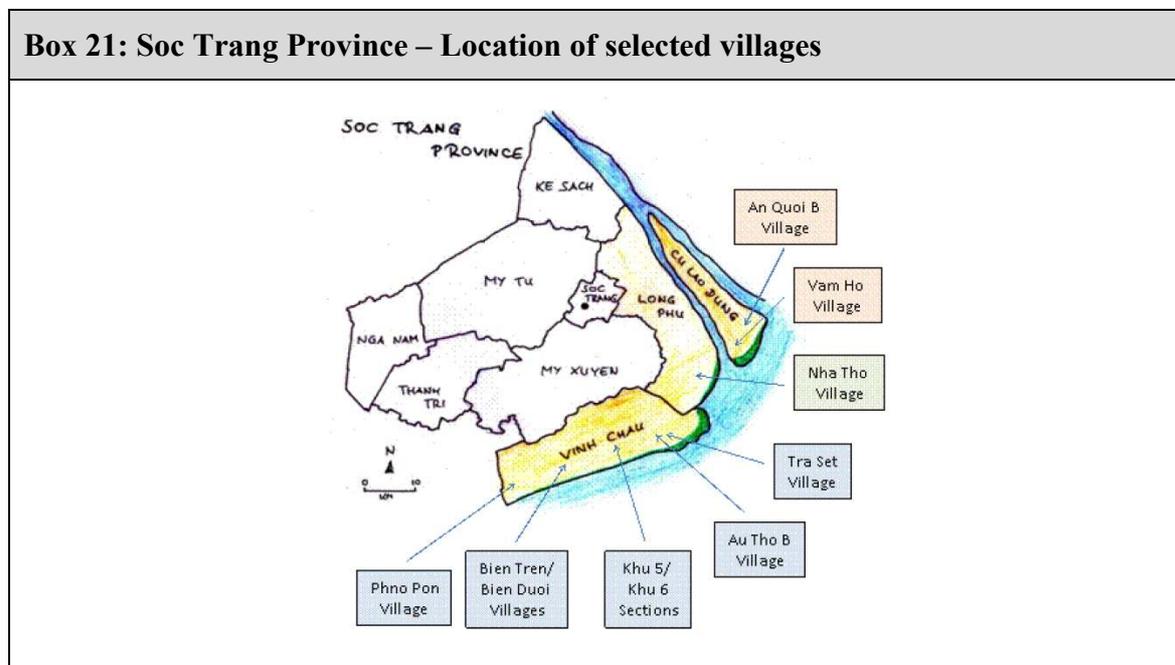
Area	District	Poverty rate	Main Livelihood	Level of coast protection	Level of farming diversity	Remoteness
Western coastal area	Vinh Chau	High	Farming, Aquaculture, Seafood collection	Low	Middle	Middle
Central coastal area	Long Phu	Low	Fishing, aquaculture, SMEs	Middle	Low	Low
Eastern coastal area	Cu Lao Dung	Middle	Farming	High	Middle	High

The population of the province is 1.2 million out of which approximately 0.8 million are ‘ethnic’ Vietnamese (Kinh), 350.000 are Khmer and over 80.000 are ethnic Chinese (GTZ 2008). The three coastal districts are also specific in terms of ethnic group representation. Whereas Long Phu and Cu Lao Dung districts are mainly composed of a Kinh ethnic group, in Vinh Chau District the Khmer community is well represented (52 percent). In some communes, the percentage of the population belonging to the Khmer ethnic group is higher than 60 percent. The density of population is also different between districts with 411 persons/km<sup>2</sup> in Long Phu, 316 persons /km<sup>2</sup> in Vinh Chau and 242 persons /km<sup>2</sup> in Cu Lao Dung.

## 7.2.2 Concretisation of fieldwork research

Overall, I concretised the research topic and a first outline for the field study in summer 2008. In autumn of the same year I established contacts with the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) in Soc Trang Province and with the Southern Institute for Sustainable Development (SISD) in Ho Chi Minh City. Empirical work was conducted from February to April 2009; further talks in Vietnam were held from October to December 2009.

For the empirical phase, I selected villages from the three coastal districts of Soc Trang Province. In Vinh Chau District (located in the western coastal area of the province) five villages were selected. In Long Phu District (in the central coastal area) one village was selected. In Cu Lao Dung District (in the eastern coastal area) two villages were selected. The villages were chosen to cover different geographic and topographic areas along the coastline of the Province including features such as remoteness, poverty rate, protection from hazards from the sea, and the generalized main source of livelihood. The location of selected villages is shown below.



My analytical framework was hence based on the village level, comprising households<sup>126</sup> and differentiated livelihood groups. The methodology aimed to produce qualitative data on village level and provincial level institutional practices, and on livelihood features of households; in order to find satisfying amounts of data and information on different livelihood groups' current exposure to climate variability and extremes, characteristics of vulnerability,

<sup>126</sup> The 'household', as shown by Wehrli (2006) is a suitable point of reference because the vast majority of Vietnamese live in households (or extended households) while 'singles' are an extreme exception in Vietnam, especially in the rural areas. Taking this into consideration, I follow her proposed definition of a household according to which a universal one-size-fits-all definition of household doesn't exist. Yet, as Alkire (2008) points out, many resources such as income, or food availability are measured at the household level, and it is presumed that they benefit all members of the household. Unfortunately, the intrahousehold distribution of resources is not always equitable. Household level data are unable to identify households in which women and children do not enjoy an equitable proportion of the household resources; it would require individual level data to do so.

elements that shape vulnerability and potential reduction thereof, and on existing policies and programmes and their impacts on features of adaptive capacity.

For my fieldwork—based on the methodological concept presented in chapter 5—research tools included participatory workshops with community groups (30 participants as per community, and 240 participants in total), standardised surveys with household representatives (170 questionnaires in total), and semi-standardised in-depth interviews with stakeholders from relevant institutions in the communities (24 interviews). Box 22 provides an overview of the number of participants involved in each locality. Thus, in each of the villages, three methodological tools for data collection were applied: Workshops, household survey, and semi-structured interviews. For triangulation, data were collected from different sources and levels of State management.

**Box 22: Soc Trang Province – Workshop participants, household survey, and interviewees in the selected villages**

District	Village	No. of Workshop participants	No. of questionnaires (HH survey)	Official function of interviewees at the local level (SSI)
Vinh Chau	Phno Pon	30	16	Village Head; Head of Women's Union; Head of Red Cross; Head of Farming Cooperative.
	Bien Tren/ Bien Duoi	30	26	Vice Chairman; Village Head; Head of Militia; Vice Chairman; Head of Farming Cooperative
	Khu 5/ Khu 6	30	25	Head of Section; Head of Section; Head of Forest Protection Group
	Au Tho B	30	23	Village Head; Head of Management Group of Clam Cooperative
	Tra Set ( <i>Pilot Study</i> )	30	4	Party Secretary; Head of Security Forces
Cu Lao Dung	Vam Ho	30	26	Party Secretary; Village Head; Head of Women's Union
	An Quoi B	30	29	Village Head, Party Secretary, Cooperative Supervisor, Cooperative Member
Long Phu	Nha Tho	30	21	Party Secretary
<b>Total</b>		<b>240</b>	<b>170</b>	<b>24</b>

The workshops were based on an actor-centred method for impact assessment which utilised a participatory and process-oriented workshop tool. Over the course of each workshop, a vulnerability assessment was made including a qualitative impact assessment of relevant government programmes and policies against the background of their impacts on potential enhancement of adaptive capacity. The tool allowed for an analysis of programmes and projects in the particular context of the selected villages and revealed whether levels of vulnerability and adaptive capacity were altered. Due to pragmatic reasons, only a period of five years (2004-2008) was covered in the analysis. Composition of workshop participants was carefully arranged in the preparatory phase and, with a slight majority, consisted of participants categorised as 'poor' by the local authorities.

Data from the villages were then supplemented by information gained through semi-standardised interviews with representatives from government agencies in Soc Trang Province, i.e. directors, vice-directors and/or technical officers from various Departments and Sub-departments as well as with the Vietnam Bank for Social Policy (VBSP). A list of those government agencies involved at the provincial level during the course of the research is included below (Box 23).<sup>127</sup>

**Box 23: Soc Trang Province – Government agencies of interviewees at the province level**

- **Department of Planning and Investment (DPI)**
- **Department for Agriculture and Rural Development (DARD)**
- **DARD Sub-Department of Forest Protection**
- **DARD Sub-Department of Aquaculture**
- **DARD Sub-Department of Rural Development**
- **DARD Sub-Department of Exploitation and Aquatic Resource Protection**
- **DoNRE Sub-Department of Environmental Protection**
- **DARD Centre for Agricultural and Fisheries Extension**
- **Viet Nam Bank for Social Policy (VBSP), Soc Trang Branch Office**

### **7.2.3 Pilot Case Study**

Before starting into data collection, a final preparation was the conduct of a pilot case study (in Tra Set village, Vinh Chau district). The pilot case was chosen for several reasons:

- a) to helping me to refine my data collection plans, with respect to both the content of the data and the procedures to be followed. In this regard, it is important to note that the pilot test was not a ‘pretest’. Rather, it was for assisting me to develop relevant lines of question and logical sequence.
- b) to getting a idea of the atmosphere during the workshops, including the level of participation, ‘sensitive’ issues and topics that should be avoided (such as rivalry of resource use), the way to which to ‘perform’ as moderator, how to manage discussion, etc.
- c) to identify potential weaknesses in preparation, logistics, implementation and wrap-up.

In general, in accordance with Yin (2003: 79), convenience, access, and geographic proximity were the main criteria for selecting the pilot case. In total, the pilot case was less focused than the ultimate data collection plan, so some corrections and changes were needed.

The pilot case study was a good way to improve the conceptualisation of different kinds of the assessment against the background of local living condition. The pilot study was done prior to the selection of the specific set of poverty and vulnerability indicators and specific capability dimensions for the final data collection. Thus, the pilot data provided considerable insight into the issue being studied.

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<sup>127</sup> I did not disclose case identities from the interviews and background talks held in Soc Trang and in the villages. However, despite that all interviewees agreed to be named, I avoid attributing any information presented in the case study to a specific person.

In the pilot case, one important logistical question was whether to conduct the surveys before or after the workshops and when to interview local key informants, while procedural questions were more related to the composition of the group of participants at the workshop. Experience from this case was taken into consideration then for progressing with some workshop methodology that was more ‘adapted’ to the conditions.

For example, a more generally applicable way of bringing both the internal and external dimension of vulnerability into the discussion was to make a clear distinction between the physical and social context of the analysis.

It also became clear to me that an assessment should avoid what Brooks and Adger (2001) called ‘the potential pitfall of trying to identify a comprehensive list of capacity indicators’, and that it is more important to understand and to characterise *processes* that lead to vulnerability or adaptation rather in a pragmatic manner and to benefit from the full advantage of participatory workshops and discussions.

Therefore, conducting the pilot study was helpful for starting into the actual field phase some days later.

### **7.3 How are different livelihood groups affected by climate variability and extremes?**

Climate change can be associated with different categories of hazard, and the manifestations of climate change will vary over time. It is not possible to predict the future frequency or timings of extreme events but there is consensus that, in the absence of detailed data from climate models and scenarios, it is not unreasonable to extrapolate from existing conditions. At least in the near-term, climate change is likely to be associated with changes in the frequency and severity of historically familiar hazards. Nonetheless, as Brooks and Adger (2001) point out, such a strategy should be augmented by efforts to gather information on potential climate change as projected by climate models, and also on recent observable climate trends which may act as ‘early warnings’ of further changes to come.

For systems such as agriculture, forestry, water resources, and coastal zone settlements, then, the key climatic stimuli are not average conditions but variability and extremes. It is essential to note that exposure to variability and to extreme events is an important source of vulnerability (Yohe and Tol 2001).

In this context, the case study area selected for my study includes a great diversity of situations in terms of agro-ecological areas, topographic and physical conditions, and socio-economic situations across the sample of selected communities. Communities are not homogenous however, and it is important to understand the differentiated social impacts of climate change based on different groups (Davies et al. 2009).

The following, therefore, provides an overview of findings on climate variability and extremes that directly affect the livelihoods of different groups.

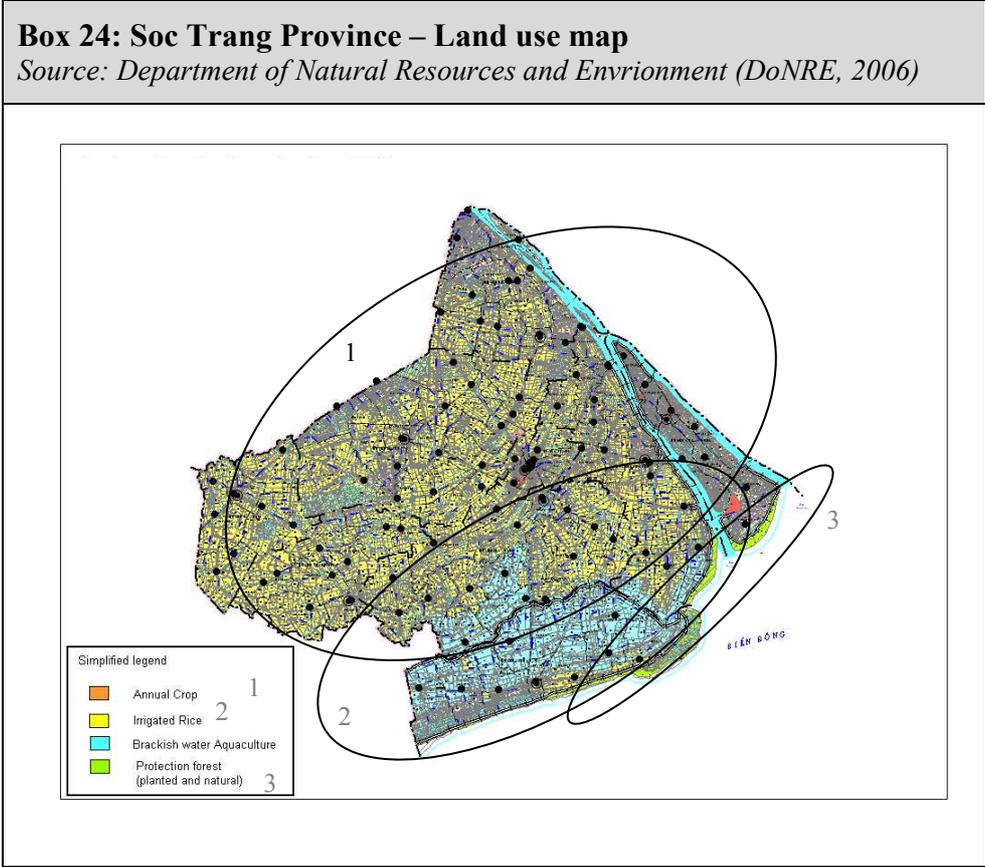
#### **7.3.1 Land use and livelihood groups**

Soc Trang Province has experienced a number of significant socio-economic upheavals over the last 15 years. Basically, 84 percent of the land use is allocated to agriculture, aquaculture and forestry, for a total province area of 3,310 km<sup>2</sup>. Within this proportion, 79 percent of the area was allocated for agriculture (73 percent for rice culture), aquaculture represented 16 percent and forestry 4.4 percent in 2005 (Provincial Statistical Book 2006).

The main movement has been towards wide spread adoption of shrimp farming and an evolution of the aquaculture area from 7,802 hectares in 1995 to 51,706 hectares in 2006, with

32 percent made up of intensive and semi-intensive production systems, especially in the coastal zone. The shrimp production in the coastal districts have grown from 9,999 tonnes in 2000 to 37,705 tonnes in 2005, representing 88 percent of the provincial production in 2005 (Joffre and Luu Hong Truong 2007; Provincial Statistical Yearbook 2006). The total exportation value of the aquaculture sector was estimated a value of USD 286 million in 2004. This economic result highlights the importance of shrimp farming and the aquaculture sector for the economic development of the province.

This development also addresses some changes in the composition of the main livelihood groups. The contribution of agriculture and forestry to the provincial GDP is expected to increase between 2000 and 2010 from 40 percent to 48 percent and from 15 percent to 27 percent for aquaculture and fishery. The Box below shows how land in different areas of the province, including the three coastal districts, is used according to the main three land use features, i.e. rice farming, aquaculture, and coastal protection forest



Within the study area, shrimp is the source that contributes to the province’s GDP, with higher rates in Long Phu District (Nha Tho Village) and in Vinh Chau District (Phno Pon Village) than in Cu Lao Dung District. However, some communes have their own specified production, with a large sugarcane producing area in Cu Lao Dung, and rice, red onion, *derris* roots and salt in Vinh Chau District. Availability of fresh water is the most important factor to determine in which way land is used in the three coastal districts. Cu Lao Dung, Long Phu and the northern part of Vinh Chau District all have access to brackish water from the My Thanh River with lower salinity in the dry season than in other areas, for example in the coastal zone of Vinh Chau District where salinity levels are always high. For this reason, Vinh Chau District has a specific agro-ecological environment: The highland (sand dune used for upland crops and rice) splits the district into two main ‘water quality’ areas, with sea water intrusion in the coastal area and brackish water intrusion from the My Thanh River in the

northern part of the district. This makes clear then that coastal communes of Vinh Chau District do not have access to brackish water in the dry season and rely on sea water with high salinity (Joffre and Luu Hong Truong 2007<sup>128</sup>).

Agricultural land is found in specific locations within the case study area. The two main areas for agriculture are in Vinh Chau District in areas where there are sand dunes that have some higher elevation (Khu 5/Khu 6 Sections; Au Tho B, Bien Tren/Bien Duoi and Phno Pon Villages) and where rice, onions, derris roots and some other crops are cultivated, and in Cu Lao Dung District (Vam Ho Village, An Quoi B Village) with sugarcane farming.

Rice farming is an important livelihood activity particularly in two villages of Vinh Chau District, Tra Set and Au Tho B. Farmers transplant rice in July after soil preparation and the harvest in October. A low yield rice variety is cultivated, which has a high value price (VND 3,500/kg in 2005). The yield varies between 4.5 and 5 tonnes per hectare and the rice crop is also important for straw production used to cover onion crops.

The onion culture takes place during the dry season, from late November to February. This culture requires investment in equipment for access to fresh water (electric or diesel pump). It is considered a labour intensive crop and requires a higher investment than rice. The average yield is between 20 and 30 tonnes per hectare with a selling price between VND 3,000 and 5,000 per kilogramme. After onion production, farmers usually replant at least some parts of their field with onion at high density to produce onion seeds for the next crop.

The culture of *derris* roots—the roots contain a strong insecticide and fish poison—is widespread in some parts of Cu Lao Dung (not in the selected villages, though) and Vinh Chau District (in all villages of my sample). With the development of shrimp culture, derris root culture—the extract is used in shrimp pond—spread over the coastal area. The cuttings are transplanted during the planting season of onion (November). The roots will be harvest 18 months after transplanting. During the crop, around 150 kg of fertiliser per hectare is used and irrigation is needed in the dry season. The roots are harvested and sold to middlemen.

Sugarcane which is harvested annually is the main crop in Cu Lao Dung District. Sugarcane cuttings are sown in May and June and harvested 10 to 11 months later. The total cost per hectare is between VND 20 and 23 million, including investment in land preparation, hired labour, fertilisers, and transport of sugarcane from farm to canals, with a yield varying from 115 to 130 tons per hectare (Joffre and Luu Hong Trong 2007). The farmers say sugarcane is highly profitable, and some have started to convert their shrimp ponds back to farming land for growing sugarcane, despite high investments that have to be taken.

Salt farming (or salt making) is an activity undertaken mainly in Vinh Chau District (Bien Tren/Bien Duoi Villages, and Khu 5/Khu 6 sections, in my sample). It is dependent on favourable weather, relying on high temperatures and periods without rain. The process relies on the capturing of tidal sea water and evaporating the water with sand in a continuous process until, after four concentrations, marketable salt is obtained (Adger 1999). For those households involved in salt farming, it is the primary economic activity. For growing salt, households are organised in cooperatives.

Besides shrimp farming, crop farming, and salt farming which are the main income-generating activities in the three coastal districts, important other livelihood activities exist, including offshore fishing, non-farm employment, aquatic resource collection and other activities.

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<sup>128</sup> The study conducted by Olivier Joffre and Luu Hong Truong in the coastal area of Soc Trang Province provides valuable insights into livelihood characteristics and the composition of various stakeholder groups in the province and will be referred to when deemed appropriate and additional data going beyond the aims of my study are considered relevant for becoming mentioned.

Basically, offshore fishing makes only a small part out of the total aquatic resource and fish production in the province. The total catch of shrimp, for example, has remained stable over the last years, even with an interim increase of fishing boats in the area. Ordinary population groups in the coastal area are left out of this activity, because they cannot afford to purchase boats, people in Nha Tho Village told (*“If you want to go fishing, you need money.”*), saying that the number of boats is around 30 now. Local people are involved in offshore fishing mainly in Long Phu District. Fishing is a livelihood activity which occupies some part of citizens from the selected village in Long Phu District, due to a nearby river port that provides necessary infrastructural conditions for fisheries, but with most fishermen owning small motorised fisherboats only (with engines between 10 and 40 hp). However, hired labour on fishing boats is a source of income for some of the people.

Access to non-farm employment across all selected villages is usually done through oral contracts on a daily or monthly basis with regard to day labouring in construction work, as porters, or as crew members on a fishing vessel. There were just a few people indicating that they had written contracts for these kinds of employment, with contracts covering a one- or two-years period. In addition, then, even though a number of industrial areas have been built in some parts of Vinh Chau District, employment from the industrial areas is difficult to estimate. Some people argued that conditions for day labouring have become better, but most said conditions are bad.

The mangrove forest area along the coastal districts include different livelihood activities. There are also extensive mudflats that are colonised naturally by mangrove in some parts. In the eastern parts of the province, these areas are continually growing due to accretion rates along the coastline of up to 80 metres per year while, generally, mangrove forests are much thinner in the west. This area, and the sand banks located further to the sea, is usually used by landless households to collect aquatic resources (such as molluscs, larvae and crabs) for food supply but, increasingly, income generation also. For example, in Tra Set Village, all 240 households from a resettlement area are dependent on collecting aquatic resources. With the development of high value aquatic resource collection exported to other provinces, some local people started to work as primary collectors directly on collection sites, working as employees for secondary middlemen who trade larger volumes of aquatic resources. This activity requires a certain investment capacity depending on the species collected and which, according to Joffrey and Luu Hong Truong, usually loaned by a secondary middleman.

Finally, in all the villages there are households involved in the service industry (e.g. tailors), small shop owners, and labourers hired for salary employment (e.g. people working in power stations).

Based on these findings of livelihood characteristics, I decided to put the following livelihood groups into the centre of the analysis:

- a) Shrimp farmers;
- b) Rice, onion, and derris roots farmers;
- c) Sugarcane farmers;
- d) Salt farmers;
- e) Fishermen;
- f) Aquatic resource collectors;
- g) Day labourers; and
- h) Salary employees, traders, and people involved in the service industry.

### 7.3.2 Human impacts on the environment and on water resources

It is clear from literature that low-lying coastal communities will have to deal with manifold impacts of climate change, but that particularly impacted will be a number of environmental resources that are already by now highly sensitive to ongoing stresses. At the same time, it is evident that there are a number of other stressors that occur independently of climate changes, such as pressure on available land, deforestation, and soil erosion.

While, on the one hand, greater understanding is needed of how climate change will affect specific groups, it is also important to understand, on the other hand, how these groups, generally, change the physical and environmental landscape that can potentially increase their exposure. In the case study region of Soc Trang Province, the main environmental resources are land for cultivation, fresh water, and the mangrove forests. At the same time, findings from the case study reveal that those ongoing economic and human activities described in the previous sub-chapter have left their mark on the environment.

For example, while there is growing awareness in Vietnam that mangroves shield the coast from erosion, intrusion of salt water and strong winds (Vietnam News, August 11, 2009), species distribution in the mangrove forests offer a range of livelihood options in the coastal zone of Soc Trang. It is clear, though, that these options are only sustainable, if mangrove forests are managed effectively and at the same time protected from human threats. In Soc Trang Province, a short-sighted focus on rapid economic growth has resulted in the large-scale transformation of mangrove forests into shrimp farms. An additional threat is posed by land-less local communities who are dependent on the forests and mudflats for their livelihood and that have also employed destructive methods for the collection of aquatic resources. The more the mangrove area is reduced, the greater the impact from saltwater intrusion and erosion on the previously buffered land areas.

Moreover, in many areas water quality decreases and some water surfaces appear to have turned into huge trash bins. Phno Pon's resettlement area, for example, is affected by waste waters from a private company nearby, and people told that 'everything cultivated dies'. It is obvious from many areas in the region that enterprises and industrial zones use outdated equipment without taking environmental factors into account. Waste treatment and clear production is not taken into consideration; and Soc Trang is no exemption from this.

At the same time, the agricultural sector is demanding more through irrigation while groundwater levels are reducing, and domestic users cry out for clean water (Khu 5/Khu 6 Sections), regular water supply (Nha Tho Village), and over recent years some processing industries have settled in the area which also demand on regular water supply. People from the latter village told the environmental situation is 'very bad', due to bad water quality from salination and contamination from shrimp farms in which fish poison is used excessively. People from other villages where agriculture is dominant added that high amounts of pesticides are used without knowing about the environmental consequences.

Overall, there is a strong relation between saltwater shrimp farms and industrial areas, and environmental pollution and degradation. In villages where there is either no shrimp farming (Tra Set) or where there is freshwater farming (Au Tho B) people report environmental conditions are 'good' or even 'very good'.

Moreover, then, there are signs of over-fishing in the coastal and offshore waters.

Doubtlessly, the coastal system, where a lot of the fisheries have already depleted, where loss of mangroves systems has appeared and where soils and waters are increasingly polluted, any additional stress from climate change is going to have a very quick impact on these resources.

### 7.3.3 Consequences of climate variability

In the case study area, based on the perceptions of community members, the research shows that climatic variability presents an increasing challenge, most particular in terms of water-related challenges and changing precipitation patterns which affect farming methods. The main source of livelihood for the rural population is based on agriculture, aquaculture and aquatic resources. Rain-fed agricultural systems are mostly directly impacted by variability of rainfall and longer-term changes in precipitation patterns. Areas under irrigation also feel the consequences of increased climate variability. The situation of rainfall is somewhat complex, though, depending on location and season. In the dry season, a small decreasing trend was perceived. On the other hand, participants observed some increasing trends for the rainy season.

A complexity to be considered is that urbanisation and irrigation have increased communities' exposure to water shortages. The matter of scale is also important: Human interference in upstream regions has increasingly lead to a delay of flooding in the lower reaches of the Mekong River; annual flooding is sometimes as much as four weeks late. However, changes in the seasonal distribution of rainfall may also be responsible.

The coastal area of Soc Trang Province has a specialised environment which includes inland saline intrusion during the dry season. Water from the South China Sea is conveyed further inland during this time. Water salinity has always varied according to season and tidal amplitude, with the highest salinity concentration recorded in Long Phu district in June (0.3 percent) and then decreasing until December, with a period of fresh water in October and November. In Long Phu, the fresh water period is similar to the southern part of Cu Lao Dung, with two months of fresh water during the year (October and November) and average water salinity higher than 0.1 percent from January to July. In Vinh Chau District, the coastal area is not affected by the fresh water flow and inland saline intrusion is occurring all year, with high salinity over 0.3 percent recorded by farmers in the late dry season (March/April).

Rainfall is directly impacting on and determining the varying levels of salinity. The annual rainfall is 1,558 mm in Vinh Chau Town (Vinh Chau District) and 1,597 mm in Mo O (Long Phu District), with a dry season from November to April (less than 100 mm/month) and a rainy season from May to October (90 percent of the total rainfall) (Joffre and Luu Hong Trunong 2007). Some communities are affected by saline intrusion all year long while salt levels in ground water are season-dependent in others. For example, no problems with water amount and quality were observed in Cu Lao Dung District. "*We have plenty of*", workshop participants stated.

These background informations are important, because "*it makes little sense to talk about a system's vulnerability and adaptive capacity without specifying the hazard to which it is vulnerable and to which it must adapt*" (Brooks 2003: 9). In this context, it would be of little use only to describe Soc Trang Province being affected by drought and salinity as a consequence of climate variability, because this is an essential part of the natural system and climate patterns and, as such, part of 'average' conditions.<sup>129</sup>

But then, in terms of climate variability, it is also important to understand that the system is increasingly marked by changes. Exposure to climate variability is discernable in most of the

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<sup>129</sup> Another factor to be considered in terms of climate variability is El Niño, or El Nino-Southern Oscillation (ENSO) phenomenon, which is a climate pattern occurring across the tropical Pacific Ocean on average every five years. When El Niño occurs, there is a tendency for heavier droughts, floods and other weather disturbances emerging in different parts of Vietnam (Nguyen Van Viet 2002). There were some forecast expecting the phenomenon to occur in the Mekong River Deltan in 2010 while it was clear that the region was under influence from the phenomenon in between 1997 and 2002. Over the course of the period of investigation covered in my study, though, there were no indications for El Niño between 2004 and 2008.

research sites. This is mainly due to water-related challenges, such as salination of irrigation water and low levels of groundwater in urban but also in rural sites in prolonged periods of drought. Consequences therefore include reduction in water availability in already water-stressed areas; precipitation patterns, moreover, have become more fluctuating—it rains when it should be dry and remains dry when it should rain. More urban parts are now facing a severe shortage of clean water during the dry season. Dry weather is lowering ground water levels. This was confirmed from all sides and also became a theme that was covered by the national media (Vietnam News, April 7, 2010). Recently, experts have urged Mekong Delta provinces to urgently survey the delta's groundwater resources because levels had dropped to 'dangerous levels'. The level of groundwater has fallen by 12-15 meters in some areas, according to the University of Irrigation (Vietnam News, June 29, 2010c). Based upon this, agriculture and Rural Development Minister Cao Duc Phat has ordered an all out effort to limit salt-water intrusion and the consequences of drought in the Mekong Delta (Vietnam News Agency, March 13, 2010).

In 2008, intense heat has caused prolonged drought in the western part of the case study area. An earlier onset of the dry season and the resulting drought has caused saline water from the East Sea not only to affect the case study area, but to enter as much as 40-50 kilometres inland through rivers in the Mekong Delta. The salinity in some areas has been measured at 0.2-0.7 percent, according to the Irrigation Department. About a third of the delta's residents were facing a shortage of fresh water (Vietnam News, May 22, 2010). Hence, Soc Trang Province, just as other provinces in the delta region such as Tien Giang, Bac Lieu, and Ca Mau, is already suffering from this abnormal levels of salt water intrusion (Vietnam News, April 3, 2009).

Moreover, communities mentioned increasing and 'abnormal' temperatures impacting their livelihoods, by causing more soils drying more quickly and therefore linking to reduced agricultural production, and drying of ponds. Unseasonable rain, though, is the most significant hazard mentioned by the community members.

In sum, in terms of risks that the area faces now and that likely will affect them in the future, results are not unanimous as such, as they differ among the different communities and groups. Climate variability has had a heavy impact on the livelihood of a number of groups, particularly in those communities where exposure to climate variability is high. Among the livelihood groups in question, then, there is a number of differences observable.

### **Effects on shrimp farming**

Based on people's narratives, aquaculture in the area is clearly threatened by increased drought periods when ponds dry out. This affects both salt water and fresh water ponds. In Au Tho B and Phno Pon Villages, drought is a big issue for shrimp farmers. Drought directly affects the shrimp situation and the prices badly, since many shrimps die or are of 'low quality'.

Primarily, though, the livelihoods of shrimp farmers are affected by losses resulting from a trade-off in rice field protection. In Long Phu District, provinces have closed sluice gates on river mouths to keep out the seawater during the drought season. But this closure of sluice gates has not been always positive, since many shrimps have died due to the lack of saltwater. In 2009, thousands of hectares of shrimp farms in the district and in neighbouring areas were facing a shortage of saltwater after sluice-gates were shut to save the rice winter crop. With sluice-gates getting closed, the hot weather then put another layer of stress on the shrimps.

### **Effects on rice and onion farming**

Planting for the rice crop is traditionally done in the rainy season, which provides sufficient irrigation water, while harvesting is done in the dry season, which favours the rice drying

process. Based on some climate change forecasts, particularly flooding and droughts, and saline intrusion, climate change, it was warned, will affect rice farming in the whole Mekong Delta.

In 2009, in Soc Trang, Bac Lieu, and Ben Tre Provinces, seawater affected around 60,000 hectares of paddies (Vietnam News, November 16, 2009). In some specific areas in Vinh Chau District, some of the rice farmers could not cultivate their land anymore due to saline intrusion and the land remained fallow. Even though farmers made their own wells and ponds in some areas to reserve water, even these efforts did not solve the problem. Later then, unusual rains flattened much of the winter-spring rice crop in Soc Trang in 2009. Farmers had difficulty harvesting their paddies, because heavy rains caused crops to collapse. This was not only a problem particularly given to Soc Trang. At least a third of the Delta was affected by sporadic heavy rains in the beginning of April. Farmer had to wait for sunny weather to harvest his crop.

In early 2010, nearly 40,000 ha of the summer-autumn rice crop in the province was affected by drought again (Vietnam News, January 7, 2010) which then expanded to more than 100,000 hectares in the provinces of Tien Giang, Tra Vinh, Soc Trang, Bac Lieu, Ca Mau, Kieng Giang, and Ben Tre that all were suffering from a severe water shortage (Vietnam News, May 22, 2010). 2010, meteorologists said, was the worst drought in decades<sup>130</sup> in the region.

Evidently, the wet season in the region has been arriving later than in previous years in the case study site. This directly affects the harvesting schedule of farmers. During the dry season, the Mekong River is the only source of irrigation for paddies and onion crops. Rice production in the area is semi-irrigated and partly relies on rainfall. During the mid-dry season (March-April), the maximum water demand coincides with minimum discharges from the My Thanh River. Any impacts that reduce river discharge or increase salination levels in dry seasons will therefore increase lack of water.

Workshop participants in rice-producing areas told that farmers used to harvest rice twice a year, but now because of the high saltiness of the water on their field, they get only one crop a year. Dry weather and salination and unseasonal rains have adverse on agricultural land. Farmers in this area usually adapted to impacts over the years. But the diversifying structure of crop intensification has led to some changes over time, too.

However, the impacts of observed climate variability on rice production depend on a number of specific conditions. In Au Tho B Village, for example, people said there was ‘no problem with salination’, due to the dyke which protects the inland area (more relevant problems, though, have been related to the low level of ground water). But in most of the study region, drought and salination have certainly led to a lowering of yields. This particularly affected the group of rice farmers, while unseasonal rains affected both rice and onion crops alike.

Concerning onions, as described above, after onion production, farmers usually replant a part of the field with onion at high density to produce onion bulbs for the next crop. This production of bulbs—to be then turned into seeds—is during February/March to April/May. Onion seed production is considered a risky culture, with crop failure due to too high humidity during the bulb production or during storage, normally in the open, of the bulbs.

In Bien Tren/Bien Duoi Villages, onions were lost when unexpected rain came just before the harvest. 70-80 percent of the harvest were lost, and prices dropped from VND 8,000 Dong/kg to VND 3,000 Dong/kg due to bad quality (rotten). Late rain in the villages was not just experienced once to affect the onion crops, but in three consecutive years (2007 -2009).

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<sup>130</sup> Agence France Press (AFP) (July 13, 2010): ‘Vietnam’s Mekong paddies dry up’, see <http://www.afp.com> [accessed July 13, 2010].

Despite high productivity level and some existing coping mechanisms, in 2008, many hectares of farming land have been left fallow due to water shortages. In areas where rice could not be planted, the authorities had to instruct farmers to grow other less water-thirsty crops (with limited success only, as farmers emphasised). Water scarcity was in particular experienced in Khu 5/ Khu 6 sections, due to high levels of irrigation and urban population structure in the district capital. *"I have to pump underground water into reservoirs to water the rice every day"*, said one farmer, adding the pumping has cost him an additional VND 4 million so far. Hence, it is clear that pumping is not a long-term solution. When asking him what could be done to improve his situation, he said there was a need to upgrade irrigation systems, and build dykes to prevent salination. Change cropping mechanisms did not seem to be a vital option for him, though.

### **Effects on sugarcane farming**

In Cu Lao Dung, it is an important element of sugarcane farming that, after harvesting, most of the farmers keep the base of the plants for regeneration in the following year; yet this can only be done if the sugarcane is cut before the dry season starts (around November)—what normally is the case then, because crops are cut around the middle to the end of the rainy season. Therefore, a risk for sugarcane farmers has not been reported based on current climate patterns. Moreover, farmers reported to have ‘plenty of’ fresh ground water for irrigation, and have not been affected by high levels of salination during the planting season.

### **Effects on salt farming**

Salt farming—the traditional practice of pumping seawater into enclosed fields for natural evaporation—was hit hard over the period of investigation, based on people’s reports. Salt harvest got frequently damaged or destroyed by early rains in recent years.

While rice farmers in Bien Tren/Bien Duoi Villages experienced late rains from 2007-2009, at the same time unseasonable and surprising rainfalls during the drought period were affecting the saltfarms, and—while some parts of the marshes were destroyed—people had to invest many days of work to undertake efforts to saving the remaining salt. Yet this prevented them from earning extra income from wage labour during this time.

### **Effects on fishery resources**

Declining and migration of fish stocks and associated changes in the marine environment will further need to be analysed. The region is already seeing a depletion of fish stocks, based on the results from the workshops in Nha Tho Village and Khu 5/Khu 6 Sections (described above). Reasons for this are widely unknown, though, but potentially may become related in parts to over-fishing.

### **Effects on aquatic resources**

Negative impacts from climate change were experienced to include off-season rainfall putting a strain on people’s harvests, an increased level of salt water intrusion, seasonally reduced level of groundwater (especially around the urban centres)—but also a ‘coming closer’ of the sea, especially by those households located in front of the dyke. Yet this phenomenon apparently has lead to an increase of aquatic resources close to the shoreline which means potentially higher revenues to the group of aquatic resource collectors.

### **Effects on non-farm employment and other fields of employment**

For coastal communities almost all sources of income could be characterised as being ‘climate dependent’ in some sense. The primary resource-dependent activities in the case study area are those associated with aquaculture, agriculture, and aquatic resources. Other sources,

particularly those associated with wage labour, are less or only indirectly affected by climate variability.

One striking example of such an ‘indirect’ effect was provided in the workshop in Phno Pon Village—but with quite different insights into livelihood dynamics between different groups as one would expect. The village tailor (and Red Cross representative for the village, at the same time) told during the workshop that ‘when people make good money from shrimp farming’, he gets into dire circumstances, because people then ‘want trendy clothes’ that he cannot deliver. Yet when the overall economic situation is bad, he said he makes better business because he offers cheaper clothes to the people than such clothes that are sold on the nearby district capital’s market.

Another example was provided by small-shop owners, though, who told that they also suffer in terms of economic conditions when there are bad harvests and people spend money only on basic products that they buy from the village shops. Hence, there are indeed ‘indirect’ effects of climate variability tractable in non-farming households.

### **Summary**

Evidently, climate variability affects rural markets and requires businesses to adapt, since it affects productivity and, as such, both the demand and supply sides of markets. It is still too early to make predictions about the evolution of these hazards described above in the study site area. However, there are some tendencies that could be observed during my field study. Climate-related variabilities have affected farming people’s harvest in some areas, especially related to shrimps, rice, onion, and salt. This is not to say that climate variability has completely undermined the resource base upon which farmers’ and other groups’ livelihoods and incomes rely; however, some direct impacts were observed.

Bringing in the notion of capability into the analysis, it can be argued that climate variability is *directly* impacting on the economic capabilities of affected groups—rather than on the human, socio-cultural, political, or protective ones. An increase in intensity of the stress, which is to be expected based on existing forecasts, can cause further economic impacts that set back households. But it is also coping with such events that can result in a loss of financial assets, as the salt farmers’ experience shows. It is clear that impacts compound one another and accumulate over time, including drought reoccurring with such frequency that people have no time to recover in between events.

Also, exposure to one type of risk can increase vulnerability to other risk factors, such as when crop failure leads to malnutrition, which increases the risk of common illnesses (Christoplos et al. 2009). Already it was warned that if prompt action wasn’t taken, groundwater in several areas in the Delta would be depleted by 2014 (Vietnam News, June 29, 2010c)—what then might lead to other consequences beyond affecting just people’s economic capabilities.

Moreover, there are other risks that potentially arise from climate variability but which cannot be measured directly as regards a specific livelihood group. One example of this is the effect of climate variability on people’s health in the study sites. In Cu Lao Dung villages (both Vam Ho and An Quoi B), there is a high level of dengue, especially among children. Further changes in temperature and rainfall may change the range of vector-borne diseases such as dengue, exposing new populations or more people to these diseases. Authorities appear to be aware of this threat: In 2010, the Ministry of Health has asked health departments nationwide to spend 30 percent of their budgets to prevent epidemic outbreaks of cholera and dengue fever. According to government officials, more than 15,000 patients with dengue fever were discovered in the Mekong Delta provinces during the first six months of the year, a rise of 44.6 percent over the same period last year (Vietnam News, July 10, 2010). In other areas,

even this was not reported from the sites, climate-induced droughts may degrade and reduce water supplies and increase water-associated diseases, including cholera and diarrhea.

In addition, the droughts are creating negative impacts on the country's electricity sector as reservoirs are running out of water to feed hydropower plants, according to a participant in the urban wards of Khu 5/Khu 6 of Vinh Chau town. In turn, then, the rainy season isolates many rural areas as bridges and roads become flooded, especially in Vinh Chau and Cu Lao Dung Districts, which hampers markets.

There is a strong argument that it will depend on the whole set of capabilities to adequately respond to changing climate patterns. This is, as we have learned from the previous chapters, what adaptive capacity is about. What is finally clear that the effects of sea level rise on levels of salination are hard if not impossible to be captured at a certain stage of time, even in a low lying region such the case study area. Even though it might be true that sea level rise plays an important role for increasing levels of salination over time, I do not understand sea level rise as an element related to climate variability. How sea level rise can be attributed to climate extremes and how it affects the case study area is a central part of the following sub-chapter.

### **7.3.4 Consequences of climate extremes**

Extreme climate events, such as storms and typhoons, and their related impacts affect societies throughout the world. They do so directly through acute damage on human settlement, often with major loss of life, but also indirectly through people's perception of vulnerability towards risk. Although the effect of climate change on hurricane frequency in the future remains uncertain, there is growing consensus that human-influenced climate changes are now evident in hurricane regions and are likely to affect hurricane intensity and rainfall. Generally, it is expected that climate change will intensify erosion along the coast of Vietnam through more frequent and intense storms.

In the case study area, the impacts of climate extremes have been limited over recent years, both in scale and number (with the last major typhoon dating back to the year 1997). Exposure to climate variability and sea level rise are therefore the principal and direct climate change-related phenomena which must be linked to analysing social vulnerability. Concerning exposure, the latter principally depends on where populations choose to (or are forced to) live under a system's internal conditions, and how they construct their settlements, communities and livelihoods (Brooks 2003). Vulnerability to climate change is therefore highly socially and spatially differentiated. Environmental variables will vary in response to human activity, as populations exploit resources and manage the environment for their benefit in the short or long term.

The coastal region of Soc Trang sits mostly less than a meter above the sea, and many people depend on shrimp breeding and rice growing. Considerable and predictable levels of security from salty sea water is a central element of the system. Against this background, increasing levels of coastal erosion and sea level rise are a growing concern. "*Every year, the coast erodes little by little*", a Bien Tren Village official pointed out. Environmental degradation has contributed to the region's exposure in recent years and mangrove destruction has left many regions less protected from potential storm surges. Houses in the coastal areas are less protected by strong tides after mangrove trees have been cut down. Based on narrative evidence, the sea is evidently getting closer and harms buildings.

The damage from erosion in the district of Vinh Chau has increased. Over recent years, some areas of Vinh Chau District area got submerged regularly by the sea which is endangering the crops and the huts of the people. Local officials in this area especially fear worsening living conditions for the people living along an 18 kilometre stretch of the coast in Vinh Chau District where the mangrove forest has almost disappeared. In Bien Tren/Bien Duoi Villages,

for example, coastal erosion has become ‘worse and worse’, and already affects four out of the seven sections of the dyke. As sea level rises, salt water taints farm land and houses. Small-scale farmers, aquatic resource collectors and groups living on marginal lands show great exposure in terms of location of their houses and settlements. According to a Vietnam Fatherland Front’s survey, there are still some 16,000 dilapidated houses across the coastal zone of Soc Trang Province which are located in front of the dykes, a provincial official told. Moreover, *“we’re really concerned about Vinh Chau town as erosion along the coast there happens every year. If the land is eroded it’s difficult for us to plant the mangrove forest”*, an official told.

In some areas of Vinh Chau, mangrove forests are too thin to build real safety against floods and ongoing erosion. Hence, the most critical condition in Vinh Chau is coastal erosion, a lack of mangroves, and a dyke system which is no longer suitable. Dykes are often of poor quality as they consist mostly of earthen structures and have been built by manual labour. Sedimentation of stretches of rivers between dykes in response to the reduction of overbank areas has increased the flood risks as the river bed in some places has risen above the local topography. Also, it was argued by a village Party cadre in Tra Set Village, the raising of dykes has increased risk for damage in the past, since it has caused a false sense of security that led to increased building of houses behind the dykes. In Vam Ho Village, for example, water levels are high around six months per year, and the ‘government comes annually to repair the dyke’. Before the dyke was built in 2000, the whole area was regularly flooded (with salty surface water inside the area from 1986 to 1996). Now, local people monitor the dyke quality and inform officials about damages. The local authorities are very concerned indeed about the issue of dyke security, and sometimes mobilise villagers for providing labour. While, so far, the dyke broke several times over the last years, it was always quickly repaired. In Long Phu, the existing dykes—built at different times and for different purposes—are not uniform and generally do not meet technical requirements, especially during rises in tides or sea levels and storms.

Workshop participants in some of the villages discussed intensively the topic of dyke protection. What became evident over the course of the discussions was the government’s strong focus on the protection of land area and people’s lives—while the aspect of livelihoods and social vulnerability is considerably neglected. In one example in Vam Ho Village, for example, after the dyke system was built in the late 1990s, stronger investments were taken in the area and a new zoning plan for agricultural land use was set up. There were some residents at this time that were concerned about increased levels of agricultural intensifications and extensification of sugarcane crops, yet they had to conform with the plans in order to keep their land. In another village, An Quoi B, people said the concern about ‘security is about lifes, not crops’.

Generally, recession of coastal line occurs due to imbalance of sediment supply from river upstreams. In addition, the sea’s semi-diurnal tide regime has a strong impact on land and land use (Joffre and Luu Hong Truong 2007). While Vinh Chau District is experiencing increasing levels of erosion, Cu Lao Dung District is under constant influence of sediment accumulation and, therefore, land accretion. Erosion itself is a difficult process, and not yet fully understood in the region. However, if erosion further increases, reforestation itself would become meaningless, according to some local authorities who recommend constant monitoring and reconsideration of approaches to protect the area. Evidently, one of the most urgent tasks in the case study sites and, according to government plans, is to recover, protect and to develop mangrove forests to diminish the losses caused by the sea.

In analytical terms, erosion and sea level rise are concerns which, unfortunately, cannot be analysed in how they have a direct effect on different livelihood groups at a given point of time. This aspect, therefore, has to be put into a broader picture of consequences from given

risks. Erosion and sea level rise are risks evolving over time, where an assessment of a particular ‘effect’ cannot be made at a given point in time. Rather, then, much will depend on the people’s general perception towards these risks.

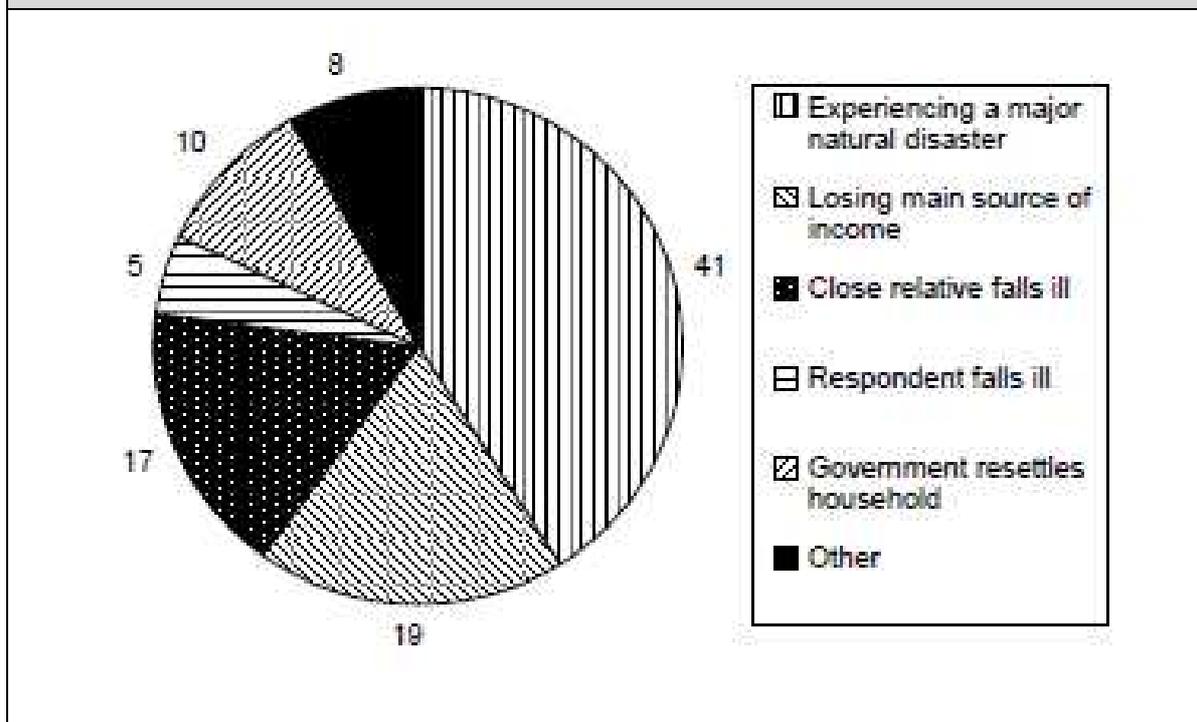
Concerning the prevention of risks from climate extremes, flood forecast capacity was generally improved in the region, according to a range of interviewees. Flood forecast duration and forecast precision have been extended. Flood forecasting errors have reduced as advanced technology and modern equipment improved. Medium term forecasting of climatic features and river flow conditions in the dry season are now being carried out. In Au Tho B Village, for example, an early warning system has been set up, and people have to move behind the dyke in times of a pending storm. At the same time, though, the residents’ experiences are more about coping in the aftermath of a given climatic extreme than about proactive adaptation—“*the area is not accustomed to undergo typhoons*”, the Director of a province department argued. Hence, resilience to upcoming climate extremes remains low. But still, then, the province lacks the capacity to mount quick search and rescue operations, and residents have hardly been briefed on ways to respond to disasters. Clearly, Soc Trang province has no coherent plan to tackle the impacts of climate change although they will suffer the most from ensuing natural disasters, local officials say (Thanh Nien News, August 22, 2010).

Much greater analysis is therefore needed of how perceptions of the climate and environment as a whole, including perceptions of climate risks (Nelson et al. 2008) and how these affect vulnerable communities in terms of ‘elements of surprise’. In this context, key to the discussions of perception of vulnerability and risk is the suggestion by Hulme et al. (2001: 9) that “*What poor people are concerned about is not so much that their level of income, consumption or capabilities are low, but that they are likely to experience highly stressful declines in these levels, to the point of premature death. This approach (...) can be seen as the probability (actual or perceived) that a household will suddenly (but perhaps also gradually) reach a position with which it is unable to cope, leading to catastrophe*”. This awareness will also prevent people from undertaking what they might see as ‘high-risk’ activities, such as taking investments, to improve their livelihoods (see chapter 2.3.4). Therefore, an expected extreme climate event—including storms and typhoons—can keep people socially vulnerable.

The self perception of vulnerability and lack of adaptive capacity itself is an evident barrier to action. In the household survey, I asked people to tick among a range of options of possible worst case scenarios (such as becoming ill, being resettled, losing the main source of income, or experiencing a major climate extreme), and participants unanimously identified a climate extreme the worst that could happen to them. In all of the villages, people are afraid of a devastating natural disaster which could destroy the dykes and people’s houses (see Box 25 below).

**Box 25: Soc Trang Province – Perception of what would be the worst that could happen to the people in the selected villages (in percent)**

*Source: Household survey*



In this context of perceived risk levels, many people referred to Typhoon ‘Linda’ which in 1997 put huge areas of the Mekong Delta, including many of the coastal villages in dire circumstances and especially in the Delta’s coastal areas flattened entire communities leaving tens of thousands homeless, 500,000 hectares of rice fields destroyed, many fishermen lost at sea and roads, dykes and bridges smashed (Few et al. 2006). The typhoon was the worst to hit southern Vietnam in 100 years. High seas and flooding killed more than 400 people, left thousands of fishermen missing and almost 80,000 homes destroyed across the region. The typhoon came to people’s large surprise and during the end of the growing season, so it affected huge areas of paddies under growth.

In Bien Tren/Bien Duoi Villages, for instance, ‘Linda’ swept away several dozen houses and many roofs, and people said in the workshops that, still today, they would not be prepared for a new typhoon with comparable strength, even with new houses and early warning mechanisms. People in those areas living close to the sea said that already under conditions of a ‘normal’ storm, they had ‘many problems with the rooftops’ of their houses. A participant told that, recently, *“The roof of my house blew off and the interior was destroyed. My house only cost VND seven million in total to build. It’s built in a very simple way and I don’t know if it can stand another storm”*. In Nha Tho Village, it was confirmed from the local authority that many people are concerned about a disaster and there are many discussions about what to do, where to get money from etc. In Tra Set Village, then, lessons learned from typhoon ‘Linda’ comprised to build more awareness through a number of campaigns among Government and the local people to ‘protect themselves’, and to establish an early-warning system; however, the village dyke has not been strengthened yet (the village has not taken part yet in dyke-upgrading measures, and principally people are not allowed to autonomously work on upgrading). Yet authorities confirm that funds are somewhat limited and they could not finance dyke repairment on their own. Finally, in Phno Pon Village, located in the west of the district, the dyke is managed by a village farming cooperative. In the village area, the dyke

has two sluiceways, and there is a local resident who is in charge of taking care of the sluiceways, a work for which he gets paid by the cooperative. Same as in Vam Ho Village, repairs are usually done only when the province places an order to do so. In case a weak dyke section is discovered, the process proceeds in various steps: First, the cooperative reports to the village head who then, secondly, will inform the Department of Agriculture and Rural Development (DARD) which then, thirdly, reports to the PPC and, fourthly, waits for reply. Only in urgent cases, DARD allows the cooperative to adjust the damaged parts of the dyke itself. The Management Board of the cooperative, then, in cooperation with village officials, mobilises people to protect the dykes with sandbags. People said that this happens quite regularly ('because government sometimes is slow'), especially during September and October, during the peak time of the flooding season.

In total, security from climate-related shocks, risk and stresses is certainly an area of huge concern. The crucial factor in terms of perception of risk is that a severe storm has not occurred since 1997. But in those villages that were among the most affected ones from the typhoon, people's collective memory tells that they found themselves in dire circumstances, including that once arable land has been doused with salt water, and it took years to grow crops on it again (such as in Vam Ho Village). Based on the data from the household survey, then, there is a striking correlation between people's fear to experiencing a major natural disaster and their personal experience. In places where damage was not so high (such as in Phno Pon Village), there are only 5 out of 26 respondents stating it is their main fear—even though people have observed that the nearby coast is under heavy erosion. Moreover, for households involved in agriculture, the average cost of production is generally lower than for aquaculture production. This is an interesting point indeed since it was especially farmers that, in the questionnaires, responded 'to be afraid of a disaster'. From analysing the data in more detail, I found a correlation between those afraid of a natural disaster and crop farmers—while data did not allow coming up with a correlation between shrimp farmers and fear from natural disaster in this group. This result shows that crop farmers are more hesitant to take investments than shrimp farmers. Compared to aquaculture production, rice culture appears less risky and is generally praised by the farmers for its stable production (Joffre and Luu Hong Truong 2007) compared to other means of production.

At the same time, finally, awareness of climate change is low; there is hardly anyone at the local level who knew about the term 'climate change' and about the related and forecasted changes; instead—in terms of climate variability—people hoped that 'the weather will stabilise again soon' while at the same time, sea level rise and the 'coming closer of the sea' was perceived as a somewhat natural process.

Ultimately, income poverty is certainly an important determinant of people's overall vulnerability when change is occurring. Adger (1996) identifies two components of vulnerability: the effects that an event may have on humans (referred to as adaptive capacity), and the risk that such an event may occur (referred to as exposure). Thus, vulnerability refers to both internal and external dimensions. The external dimension involves exposure to risks and shocks. The internal dimension relates to defenselessness and insecurity (including perceived levels of exposure), as well as the capacity to anticipate, cope with, resist, and recover from the impacts of a hazard. These aspects take the notions of 'vulnerability' and 'adaptive capacity' to the next sub-chapter which deals with the question of how vulnerability and adaptive capacity are characterised in the case study context.

## **7.4 How are vulnerability and adaptive capacity characterised?**

In the study sites, shrimp farming, salt farming, collection of aquatic resources—and, to a fewer extent—rice and sugarcane farming are livelihood sources that are confronted by many challenges located on different scales within the internal dimension of vulnerability. A central aspect of these different livelihoods is that they are not uninfluenced from each other; rather, they interact through the underlying resource base, i.e. land, water, and forest. Evidently, there are several particular sectors of the economy (for example, coastal aquaculture and commodity crop production) in which rapid growth can be associated with either stagnation in the gains in poverty reduction, or increasing risk and vulnerability for poor and nearly poor households (Shanks et al. 2004).

For those villages analysed in the present study, while security from climate-related shocks, risks and stresses is an area of huge concern, even more worrisome are those factors which influence the level of social vulnerability of the residents. Changing precipitation patterns, increasing levels of salt water intrusion, reducing levels of groundwater, and a rising sea level have doubtlessly started to influence people's lives, but the lack of income and arable land, and partially degrading environmental conditions are also increasing and major concerns.

Adverse conditions include, for example, episodes of crop failure; a low level in services; fall in income due to movements in prices of key agricultural commodities; and few and unstable employment opportunities.

Evidently, a short-sighted focus on rapid economic growth has resulted in the large-scale expansion of shrimp farms into mangrove areas and the removal of forests for shrimp cultivation which, as a consequence, has increased the exposure of the people to potential climate extremes. Since the late 1990s, the coastal districts of Soc Trang Province have used the opportunity provided by their salty lands to extensively develop shrimp farming, which has increased incomes for some members of the coastal districts, but worked to the detriment of other members—especially from the Khmer ethnic minority. Aquaculture development has therefore brought both negative environmental and social impacts to the research sites.

Although the poverty rate (in terms of income) decreased, the number of poor households and poor communities is still high in the three districts, not only measured by income, but also by the overall level of assets and capabilities. I found that it is especially, though not exclusively, poor groups that face many problems under the current conditions. The relationship between assets and capabilities, on the one hand, and adaptive capacity, on the other hand, is complex though. Lack of assets may significantly limit capability, and therefore the ability of a system to cope with the effects of climate change and wider development pressures. Equally, an effective asset base depends on the extent to which components within the system are substitutable in the case of disruption or degradation (Jones et al. 2010). This section will describe how vulnerability and adaptive capacity can be characterised in the study site.

The first part explores the topic of poverty, and situates the poor people both spatially and in relation to their livelihoods. Notions of poverty then will be expanded beyond the economic concept of poverty to encompass assets and capabilities across multiple dimensions, including the protective dimension and socio-cultural aspects of capabilities. Finally, the socio-economic features and conditions that shape people's lives will be analysed.

### **7.4.1 Poverty rate, and the spatial and labour related patterns of poverty**

Overall, the picture regarding poverty in the case study area, same as in the whole Mekong Delta, is complex. Poverty rates have improved for the majority of people, but there appears to remain a hard core of 'static poor' (AusAid 2004). Even though Soc Trang Province has experienced high economic growth rates over recent years and it was possible to significantly

reduce poverty rates, figures show that the number of poor people is still high in the selected villages.

A comparison of poverty rates between the local context and the national and provincial context shows that poverty in the selected coastal villages is generally much higher than in Vietnam and in Soc Trang Province. The poverty rate in Vietnam was reduced to around 10 percent in 2010. In 2008, the poverty rate in Soc Trang Province was 18.7 percent (GSO 2008), compared to 32 percent in 2004 (Provincial Statistical Book 2005), and to 64 percent in 1999 (Nguyen Ngoc De et al. 2004). According to these figures, poverty was rapidly reduced over the past years.

However, there are some differences remaining between, as well as within, the selected villages. The more closely the villages are located to the shoreline, the more prevalent poverty is. Households which are located in front of the protective dykes are significantly more affected by poverty than those households located behind the dykes. For example, the total poverty rate of Au Tho B Village (Vinh Chau District) is 33 percent while poverty in front of the dyke is 71 percent. Poverty is also high in resettlement areas. Evidently, the proportion of poorer households living in riskier areas is higher than in safer places, making more poor households exposed to, for example, flooding and coastal erosion than non-poor households. Villages which are located more closely to district capitals and which are directly interlinked to their markets are clearly less affected by poverty: for example, poverty rates in the two sections Khu 5 and Khu 6 of Vinh Chau Town (Vinh Chau District) as well as in Nha Tho Village (Long Phu District), which is located closely to the district's capital, are much lower than the average poverty rate of the selected villages. As can be seen from Box 26, the poverty rate in the western coastal area of Vinh Chau District is significantly higher than in the two other coastal districts.

**Box 26: Soc Trang Province – Poverty rate in the selected villages (in 2008)**

*Source: Interviews with village authorities*

- a) Vinh Chau District (western coastal area):
  - Phno Pon Village (Vinh Tan Commune): 37 percent
  - Khu 5, Khu 6 sections (Vinh Chau Town): 19 percent, 24 percent
  - Bien Tren, Bien Duoi villages (Vinh Chau Commune): 44 percent, 36 percent
  - Au Tho B Village (Vinh Hai Commune): 33 percent
  - Tra Set Village (Vinh Hai Commune): ~34 percent
- b) Long Phu District (central coastal area):
  - Nha Tho Village (Trung Binh Commune): ~20 percent
- c) Cu Lao Dung District (eastern coastal area)
  - Vam Ho Village (An Thanh Nam Commune): 27 percent
  - An Quoi B Village (An Thanh Ba Commune): 22 percent

Overall, in the three coastal districts of Vinh Chau, Long Phu, and Cu Lao Dung, 32 percent of the population are officially considered as poor (Provincial Statistical Book 2005). Within the area, the population characteristic is varied with a higher poverty rate in Vinh Chau District, especially in the western part of Vinh Chau District. Differences in ethnic group

representation<sup>131</sup> and percentage of poor households in the districts are important indicators, not least in natural resource use and livelihood strategies. This is shown in the following Box.

**Box 27: Soc Trang Province – Population characteristics and poverty rates in the selected districts (in 2004)**

*Source: Joffre and Luu Hong Truong (2007)*

	Population	Poor Households (percentage)	Ethnic Groups (percentage of households)		
			Kinh	Chinese	Khmer
<b>Cu Lao Dung</b>	<b>63,928</b>	<b>27.3</b>	<b>94</b>	<b>0.1</b>	<b>6</b>
<b>Long Phu</b>	<b>186,125</b>	<b>26.7</b>	<b>64</b>	<b>33</b>	<b>3</b>
<b>Vinh Chau</b>	<b>149,752</b>	<b>34.4</b>	<b>30</b>	<b>18</b>	<b>52</b>

Generally, the incidence of poverty correlates with the different livelihood groups, with , on the one hand, more households involved in the service industry and as traders in non-poor livelihood groups and, on the other hand, aquatic resource collectors, salt farmers and day labourers more related to poor households. Most of the workshop participants that were ethnic Khmer belonged to the two latter groups. Yet, the poverty rate among Khmer households in Soc Trang Province was said to have reduced to 28 percent by the end of 2008 from 32 percent in 2007 (Vietnam News Agency, December 29, 2008) and from 43 percent in 2002.

Although the poverty rate has continuously declined, the number of households falling (back) into poverty has recently increased. This trend was confirmed by a number of state officials at the province level and local authorities. Yet, this declining trend has not been mirrored in the official statistics so far. Evidently, one factor is that the amount of landless population in the three districts—while being significant in its overall number—has increased in recent years, based on overall trends depicted in studies available. Household survey data show that almost 80 percent of landless households were considered poor by the government while, at the same time, only 12 percent of the poor households owned some land (less than one hectare). Hence, landless households have consistently higher rates of poverty than other groups in the Mekong Delta (AusAid 2004).

Generally, then, distribution of incomes is highly uneven among the different livelihood groups. Rice farmers in Vinh Chau District only earned around USD 300 – 350 per household per year (but could heighten this amount with onion farming) while the income of salt farmers was even lower<sup>132</sup>. The income of sugarcane farmers in Cu Lao Dung District varied strongly

<sup>131</sup> As outlined in the previous chapter, there are four ethnic groups in the Mekong River Delta, namely Kinh, Khmer, Hoa and Cham. After the Kinh, the Khmer are the second largest ethnic group in the Mekong River Delta, especially in Soc Trang, Tra Vinh and Kien Giang provinces. The poverty rate of the Khmer is markedly higher than that of the Kinh and the Hoa (Nguyen Ngoc De et al. 2004), even though ethnic groups have fared better in the Mekong Delta than those in other regions and have the lowest rate of ethnic minority poverty in the country (World Bank 2003).

<sup>132</sup> Local salt was lately losing ground in the domestic market, due to increased levels of salt imported from India. Duong Viet Ngoan, a farmer in Bac Lieu Province, told Vietnam News, that “*We’ve already been hit hard by the crop failure, but we still hope to sell some of what is left to recover some of the losses. But if we sell at too low a price, we won’t see any profits*” (Vietnam News, July 31, 2009).

between USD 400 – 800, salary employees and traders earned up to USD 900 – 1,000 while shrimp farmers had a net income of around USD 1,000 per hectare in some years. The income of aquatic resource collectors remained unclear.

What can be maintained from these figures is that poor households in the area appear to rely to a slightly greater extent on low investment agriculture and day labour for their income, and to a much greater extent on the collection of aquatic resources and salt farming. So far, based on the official figures and based on my data, they are not engaged in aquaculture and sugarcane farming at all. Moreover, apparently, the Khmer poor have few opportunities for employment, and those jobs available are related mostly to unstable day labour with low income.

As we have learned in chapter 2, it is important to differentiate in more detail when we talk about ‘poverty’, particularly in relation to social vulnerability. The state of social vulnerability to climate change certainly does not equate directly to the level of poverty as there are many factors involved which define the dimension of exposure to climate-related risk. Some of these factors, including spatial and labour related ones, have been presented here while others remain to be discussed.

#### **7.4.2 Basic human capabilities and living conditions: The asset base**

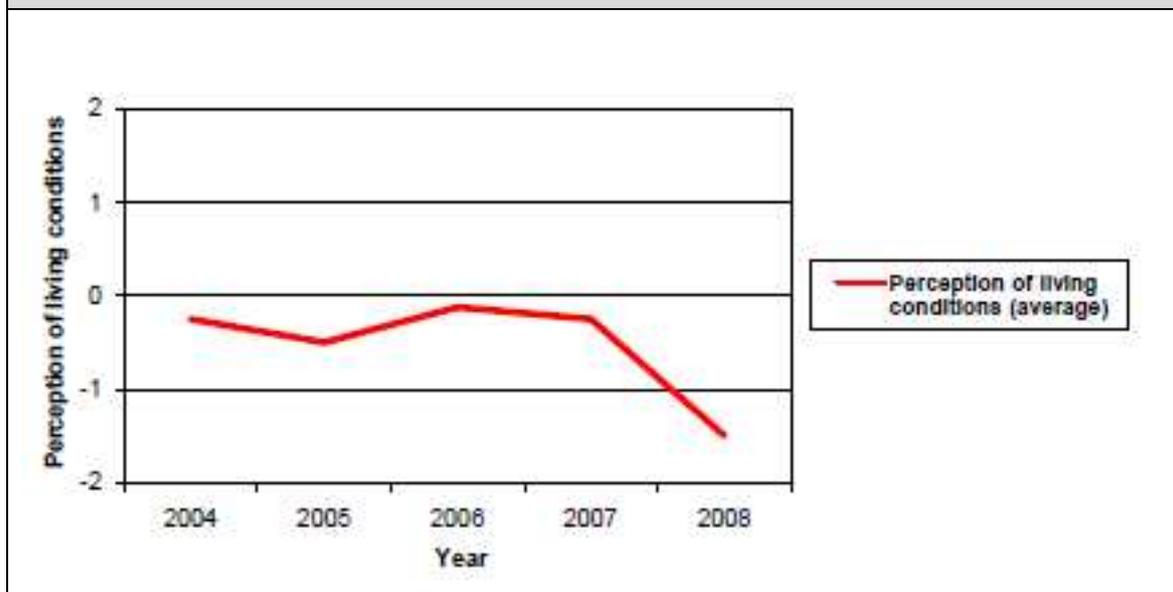
By focusing on poor people’s living conditions, the findings from the workshops show that the perceived overall living conditions have slightly deteriorated over the previous five years. The following trends in overall living conditions (2004 – 2008) were identified by the workshop participants:

- Phno Pon Village: from ‘good’ to ‘very bad’;
- Bien Tren/ Bien Duoi Villages: from ‘normal’ to ‘very bad’;
- Khu 5/ Khu 6 Sections: from ‘normal’ to ‘very bad’;
- Au Tho B Village: from ‘bad’ to ‘very bad’;
- Nha Tho Village: from ‘normal’ to ‘very bad’;
- Vam Ho Village: from ‘normal’ to ‘bad’;
- An Quoi B: from ‘normal’ to ‘a bit bad’.

Box 28 provides an overview of how perceived living conditions, based on people’s opinion and feelings, have changed in the selected villages.

**Box 28: Soc Trang Province – Perception of living conditions in the selected villages (2004-2008)**

*Source: Participatory workshops at village level*



Results from the household survey support the findings from the workshops: 33 percent of people stated that their living conditions have been deteriorating over the previous five years while 40 percent said their living conditions have not changed, and only 27 percent stated their living conditions have improved. Across the sample, Tra Set was the only village where general living conditions have improved; from ‘very bad’ to ‘good’ between 2004 and 2008, namely. Even though living conditions in the village are reported still to be “*extremely low*”, both workshop participants and interviewees confirmed that the village has experienced some improvements. Tra Set is one of the few villages with a relatively low level of commercial aquaculture (not included in zoning plans), and where farmers reported that their agricultural land now offers three crops per year (due to an agricultural extension programme that was implemented in 2003). In addition, what I observed was that in Cu Lao Dung District where sugarcane farming is the mainstay of livelihoods, the overall situation was not recognised as bad as in other villages.

In terms of basic living conditions, the most serious challenge that has led to the perceived deterioration is the very low income situation of the shrimp farmers that resulted in the deteriorating overall trend across all villages (see Box 28 above). Most of the income in the villages now depends on shrimp prices and labour and product demand from the shrimp industry—including labour opportunities on the shrimp farms for landless people, and the cultivation of derris roots to be used as fish poison in the shrimp ponds, and people see the income situation as ‘very bad’. Shrimp prices have decreased dramatically since 2005. In the two villages of Bien Tren and Bien Duoi, for example, most farmers have lost major parts of their income over the last between 2006 and 2008, due to bad shrimp prices (the drought, then, even worsened the situation). Since 2007, more and more people in all those villages where shrimps were cultivated have abandoned their ponds. Others just opened their ponds to the seawater irrigation canals and keep those fishes which are straying into their ponds (Khu 6 Section).

These findings show that in the particular case of shrimp farming, it were not primarily the poor population groups that suffered from vulnerability to market shocks; yet these constraints also had a detrimental effect on them. While Shanks (2004) argued some years ago

that “*as poverty rates amongst the majority population fall, poverty becomes primarily associated with ethnic minority groups*”, the situation is certainly more complex now. Both ethnic minorities and the Kinh were affected.

Besides the income situation, rapid expansion of shrimp farming has been accompanied by rising concerns over environmental impacts. The environmental situation has worsened in many places, for example in Nha Tho Village where conditions were reported to have changed from ‘normal’ in 2004 to ‘very bad’ in 2008, due to high salination of groundwater and an intensive use of chemicals used in shrimp breeding. In other places, such as in Khu 6 Section, the transformation of farming land and the expansion of shrimp ponds led to negative consequences for the mangrove area. The forest was almost completely cut by the end of the 1990s.

Environmental conditions, then, are closely connected to the situation of drinking water which is perceived as ‘bad’, mainly because many people still do not have access to own water supply (around 60 percent of the people in Nha Tho Village do not have direct household access to own water supply), so they still depend on water holes and untreated water from ponds and do not know about the quality of the water. This also relates to the aspect of food security, where people stated that despite food security is given and the situation is ‘normal’, nutrition is not “*well-balanced*” in some places (Tra Set Village) while in other places residents are afraid of “*contaminated food*” (Nha Tho Village). Generally, the main water related problems are associated with scarcity of available freshwater. The problems observed can be categorised into salt water intrusion, decrease of groundwater levels, and pollution. Concerning the latter, waste from aquaculture farms is also discharged directly into lakes, rivers, and seas without treatment even though the pollutants present in them are hundreds of times the permitted levels. Consequently, farming households are the first victims of this pollution (Vietnam News, October 18, 2009).

Water and sanitation are closely related to overall health and well-being. Health has a strong relationship to poverty. Inadequate access to safe drinking water and sanitation, combined with poor hygiene practices, are major causes of ill health. Long term disease has been described as a defining characteristic for the majority of poor families (Le Bach Duong et al. 2005). Among the greatest fears expressed in the households survey was that future sickness might prevent them from working and earning an income and falling into greater impoverishment (see Box 25 above). Many of the people lack basic health protection, even though workshop participants told about improvements in many of their villages: New primary health care stations have opened and are available “*in near range*” from all the selected villages. While there is no health facility located in any of the villages directly, though, distance is not far. However, it is true that very few doctors are willing to work in communal clinics where material facilities remain poor (Vietnam News, June 1, 2010), so people told about an under-supply of health staff. In times of sudden outbreaks of epidemics and diseases, the situation can become extremely worrisome. In early 2009, the dengue fever situation became serious in in the Mekong Delta, and was close to break out into an epidemic in some provinces. In the case study region, it was particularly Cuu Lao Dung District that was affected, and it was especially children that became sick<sup>133</sup>. Also, Malaria still puts stress on wide parts of the local population. Overall, these two mosquito-related diseases are the main cause of morbidity in the Mekong River Delta (AusAid 2004). Another health-related problem is that many farmers suffer headaches, shortages of breath, and vomiting after using pesticides<sup>134</sup>. Apparently, many lack the knowledge necessary to protect themselves—but

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<sup>133</sup> The Vietnam Medical Preventive Service says the main causes of the outbreak are climate change, environmental pollution and high population density (Voice of Vietnam, May 7, 2009).

<sup>134</sup> This is not just an issue pertaining exclusively to the case study site: It is particularly rural women that are at high risk of pesticide poisoning and other health damage, a survey undertaken by the Research Centre for

when we asked them why they haven't thought on preventing from using pesticides or to try other methods, they said they are dependent on the pesticides for making a living.

In general, the school network is high, with no village located more than five kilometres away from a primary school. Yet education opportunities are low due to various reasons. Generally, literacy levels in the Mekong Delta are much lower than the national average, with inequalities said to be considerably greater between Kinh and non-Kinh people (Taylor 2007). Moreover, despite a relatively good education infrastructure, the Mekong Delta has one of the lowest enrolment rates in the country. Household investments in education are lower than the national average for both poor and non-poor households. In Soc Trang Province, there is a 36 percent illiteracy rate among the Khmer population, with only 42 percent having finished primary education, said a provincial government official. Evidently, this is also a reason why few poor Khmer people are employed in local enterprises only or are among the first to be dismissed under adverse market conditions. Poor Khmer people have low education levels and many of them are illiterate in Khmer as well as Vietnamese language (Nguyen Ngoc De et al. 2004). However, at least in some of the villages improvements in this field were perceived, with new schools that were built and more teachers available than some years ago. In terms of people's perception, both primary education and training have turned from 'normal' into 'good' from 2006 onwards.

Concerning other basic living conditions, especially infrastructure, the situation has been improving over the last few years and currently does not cause the greatest worries to the people. Housing conditions are said to have improved from 'bad' to 'normal' in Nha Tho Village, for example, and from 'very bad' to 'good' in Bien Tren and Bien Duoi Village. Low-priced housing schemes for hundreds of households of mostly ethnic Khmer households were established in Vinh Chau District over the last few years. The town set up a 90 hectares residential area to build low-priced housing. Loans and credits were made available for thousands of households in the region to upgrade their facilities or to move to newly-built areas (see also Chapter 7.6.2 on the evaluation of Programme 135). However, most of the poor Khmer households still live in temporary houses made of cheap materials such as bamboo. Concerns therefore were expressed that houses, while they protect people from rain and sun, they will not be strong enough to survive heavy storms.

Concerning other fields of basic infrastructure, all villages are connected to the power grid, although system stability is not always given. Households in front of the dykes have generally no electricity, though. Finally, the road system is operational during the dry season. In Cu Lao Dung District, and in some areas of Vinh Chau District, problems chronically arise during the rainy season.

Box 29 presents a summary of results from the workshops in the selected villages and shows in which dimensions of poverty and in which villages an improvement of living conditions was perceived. It also provides findings of the most prevailing challenges to further development.

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Gender, Family, and Environment in Development (CGFED) shows. Based on the results, it is estimated that as many as 20 million people in Vietnam, mostly women, are regularly exposed to pesticides. The MoH's Environment and Preventive Medicine Department, in a related study, shows that almost 70 percent of those exposed to pesticides display symptoms typical of chemical poisoning (Vietnam News, May 26, 2009).

**Box 29: Soc Trang Province – Development trends in the selected villages (2004-2008)**

*Source: Participatory workshops at village level*

<b>District/ Village</b>	<b>Trend</b>	<b>Perceived improvements</b>	<b>Perceived positive stability</b>	<b>Perceived deterioration</b>
Vinh Chau/ Phno Pon	Negative	Housing, drinking water	Food security, health, education, training	Income, environment
Vinh Chau/ Bien Tren, Bien Duoi	Negative	Housing, drinking water, education, training	Food security, health	Income, environment
Vinh Chau/ Khu 5, Khu 6	Negative	Food security, environment	Housing, drinking water, health, education, training	Income, groundwater
Vinh Chau, Au Tho B	Negative	Housing, drinking water, health, environment, education, training	Food security	Income
Vinh Chau, Tra Set	Positive	Housing, drinking water, health, income, environment, education	Food security	Off-farm labour opportunities
Long Phu/ Nha Tho	Negative	Housing conditions	Food security, health, education, training	Drinking water, income, environment
Cu Lao Dung/ Vam Ho	Negative	Housing, drinking water, environment, education	Food security, training	Health, income
Cu Lao Dung/ Au Quoi B	Negative	Housing, water, health, education	Food security, environment, training	Income

In sum, while a bulk of the population have enjoyed income increase over a number of years (till around 2005), many now do suffer from adverse quality and prices of key commodities. Consequently, overall living conditions in a majority of the communities have been recently deteriorating. This situation can in parts be explained by the prevailing and harsh socio-economic conditions, but also by climatic conditions. Poverty is therefore deep in many aspects of basic human capabilities. Although hunger does not exist, some villages still experience seasonal shortages of food. Even though improvements are felt, the poor live in bad housing, constructed with bamboo, straw and other non-permanent materials. In front of the dykes, most households do not have electricity. In many villages, there is no safe water. The poor, and especially the Khmer, have a low level of education; most of the Khmer workshop participants were illiterate while Kinh participants were, by and large, not. Children of poor households are widely excluded from secondary and higher schooling, at least partly due to the fees that parents would have to pay<sup>135</sup>. Access to health care is also still limited among poor households. The quality of healthcare is low in most of the villages. Whilst both poor and non-poor households were affected, it can be assumed that groups with a lower asset base are more vulnerable to economic shocks, since they have a lower adaptive capacity. Therefore, the protective dimension of capabilities merits some closer attention.

<sup>135</sup> A study by Vo Tong Xuan et al. (2004) showed that many households, particularly agricultural ones, observed that going to school does not directly help their children's future job opportunities. When opportunity cost for sending children to schools is high (as children at the age of 10-14 can supply considerable labor) families are not eager to support their children attending school.

### 7.4.3 The protective dimension: Socio-cultural aspects of capabilities

People have a variety of modes of understanding risks and such perceptions will change considering the experience of the individual and the social and cultural setting in which these understandings are formed. In this sense it should be recognised that *“risk perception and assessment are grounded in the cultural norms and values that govern and are embedded in the relationship that human communities have with their physical and social environment”* (Oliver-Smith 1996, cited by Prowse 2003). But in the case study area, both the physical and the social environment have changed dramatically, with widening levels of inequality that have emerged. Social vulnerability is therefore partially also the product of social inequalities—those social factors that influence or shape the susceptibility of various groups to harm and that also govern their ability to respond (Cutter et al. 2003).

Since the late 1990s, the main driver of change in the three coastal districts was the emergence of shrimp industry, in particular in Vinh Chau and in Long Phu where soil conditions were supportive for aquaculture production markets and where land for cultivation has been cheap due to a comparably low agricultural quality. Improved methods for irrigation have increased yield outputs of a number of crops, including sugarcane, rice, onion, and derris roots. In this context, Cu Lao Dung District has mostly developed towards a supplier for the regional sugar producing industry and most of the farmers are bound to contracts with purchasers; while this has provided for stable livelihoods, yet they have found themselves to be at the mercy of market conditions where prices are fluctuating. Crop diversity and diversification of income sources is low in the area what, during times of fluctuating market but also climate conditions, prevents the main livelihood groups from deploying alternative sources of income. This is the main reason why collection of aquatic resources has emerged in the region and supports many households to stabilise living conditions, once land is not available or lost. However, the number of resource users has lately increased what is also an indication that socio-economic conditions have not yet ‘stabilised’.

In total, findings highlight that all groups have found their particular ways to ‘adapt’, to some way or the other, to changing market conditions what has resulted in a number of socio-economic upheavals in the case study area. Deterioration of markets for aquaculture commodities that were once seen as *“safe business”* (as stated by an official from a provincial government department), climate variability, and resource depletion due to unsustainable land use are creating new and combined challenges in the area and to its residents. The question hence is how do groups, particularly already marginalised ones, protect themselves from deteriorating living conditions? What are capacities they have and how are they deploying these? Among a range of possible options, one way would be to make use of existing modes of state assistance, i.e. social protection. A second way would be to deploy coping mechanisms, such as making use of social networks, while others include the selling of key assets or migrating to other places.

In Vietnam, as we have learned, social security and welfare resources are generally scarce and pensions low. Insurance services have not met the people’s demands; their quality is poor and their procedures bureaucratic (Vietnam News, August 27, 2010b). Yet some sorts of state assistance are available for the poor. More than 600,000 people in the whole Mekong River Delta have been financially supported to buy voluntary health insurance since 2005 under a major healthcare project (Vietnam News Agency, March 15, 2010a). The number accounted for around 80 percent of the total number of people living near the poverty line in the region; for them, partial payment of hospital fees is made. People from the villages told that having health insurance cards is a considerable improvement for them because they do not have to pay when consulting a medical person. Before, they were more often hesitant to go to a doctor due to the expected costs. Moreover, the policy of issuing health insurance cards to the

poor, including poor Khmer households, has been implemented since as early as 2001 in the study area. Poor people receive full payment of medical costs and hospital fees. Selection of eligible poor is done by the authorities and branches of mass organisations in the relevant village and then submitted to the local government. Soc Trang province is issuing cards to more than 300,000 poor households each year. The study findings show, however, that the identified groups have not been adequately covered by health insurance. Some residents reported they have been waiting for up to three years to receive ‘their’ cards. It can be expected, though, that such delays will be solved soon. During an official visit in July 2008, the Prime Minister urged Soc Trang provincial authorities to ensure that local people benefit from social welfare policy. He said the provincial authorities “*should mobilise different sources to make life better for poor people*” (VietnamNetBridge July 28, 2008).

Other policies to assist the poor have also had limited impact only. While education support (in terms of exemption for primary schools, or other support such as free textbooks) is appreciated by the households, it is evident that poor livelihood groups, both farming and landless groups are severely underserved by existing social protection programmes, and lack appropriate formal risk management instruments. Agricultural tax exemption, for example, while having considerable benefits for non-poor households, it has no benefit for those with no land or with little land only, I got told.

Other sources of state assistance applied in the area, then, are warranties. In terms of warranties, for example, after the harvest of the winter/spring rice crop in 2009, the DARD set prices of rice sold to middlemen so that farmers could earn some profits at least<sup>136</sup>. Moreover, a lesson learned from the Government after the drought periods in 2008 and 2009 was to pay a subsidy to farmers to convert their cultivation to other crops requiring less water (Vietnam News, March 16, 2011).

The formal insurance market is another potential source of state support, mainly provided by Agribank—but which is also facing some constraints. Agribank takes the place of an insurer, but the costs it incurs aren’t paid fully by farmers; instead funds are taken from Government sources to subsidise the costs. Small-scale farmers, though, shy away from the financial ‘risk’ to be insured. For poor farmers, therefore coverage from state assistance is still limited. In addition, while the size of these groups has been reported to increase in recent years, few support and protective measures are made available to them. In a time of increasing globalisation, it is clear that ‘something new will be required’ (Toye 2010) in building more robust social protection and insurance.

As studies have clearly shown, the so-called ‘social assets’ play a most important role for the most vulnerable populations who control very few economic as well as other assets. For them, when sources of state support fail to guarantee sufficient social assistance, social assets in the sense of being integrated into ‘social networks of mutual trust’ (Bohle 2001) is an option to rely on, at least for a certain while. In this context, it was shown by Adger (2001: 919) already that market liberalisation though the 1990s in Vietnam facilitated the re-emergence of local credit schemes and local collective action such that greater social resilience was built within communities. This is due mainly to ineffective and inadequate social protection measures (Le Bach Duong et al. 2005).

In times of shocks, particularly smaller ones, the most important sources of support traditionally have been the family, community, and local reciprocal relationships. Yet, it can be expected that the nature of these social structures is changing in Vietnam. Results from my study show that the picture is not entirely bleak in the study site, however. Against this

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<sup>136</sup> Normally, middlemen buy unhusked rice from farmers and process it, and then sell the husked grains to distributors and exporters. Farmers usually have to sell rice at prices offered by middlemen, and at times suffer losses (Vietnam News Agency, March 15, 2010).

background, Tudawe (2002: 33) defines ‘social capital’ as being a “*form of mutual assistance*” and locates the ‘asset’ in “*social relationships [which] facilitate access to information, finance, state services, equipment, food and goods that raise the capacity of households to survive and prosper*” (ibid.). In this sense social capital can be seen as an ‘asset’ which exists not in people but in relationships (Francis 2002). This asset is an important means for the local population in the study sites to rely on, mainly through informal structures.

Consequently, the question is what opportunities do people take in the study sites in order to cope with given challenges?

In the selected villages, when their livelihoods are threatened, people will mostly rely on support and sources from the family and their social networks (27 percent), they will take a credit (27 percent), or they will rely on help from the Government (15 percent). Land owners have potentially more access to credits than landless people and are also those who tended to choose this answer in the questionnaire (almost two out of three landowners, with land more than one hectare, said they will rely on the local bank).

However, many of the landowners are heavily indebted due to the transformation of their rice fields into shrimp ponds and are therefore restricted from further access to credits (see Chapter 7.5.2). Thus, many of the landowners also have to rely on private sources of support. This is a highly alarming trend, especially against the background of the forecasted consequences of climate change that leaves many people and village communities vulnerable. While in the past credits have improved many farmers’ income situation in the short-term, it has made them more vulnerable to climate change, especially in the context of bad market conditions.

Particularly worrisome is the finding that almost one out of seven of the respondents (15 percent) replied that there is no source of support he or she could rely upon. This pathes the way to ‘mal-adaptation’ and evidently could be an explanation for the increased levels of aquatic resource collectors along the coastline of the province, but also for why an extraordinarily high number of students in the region have been dropped out of school over recent years before graduation (Vietnam News, December 14, 2009); this would be a clear sign of financial difficulties vulnerable households in the area try to cope with.

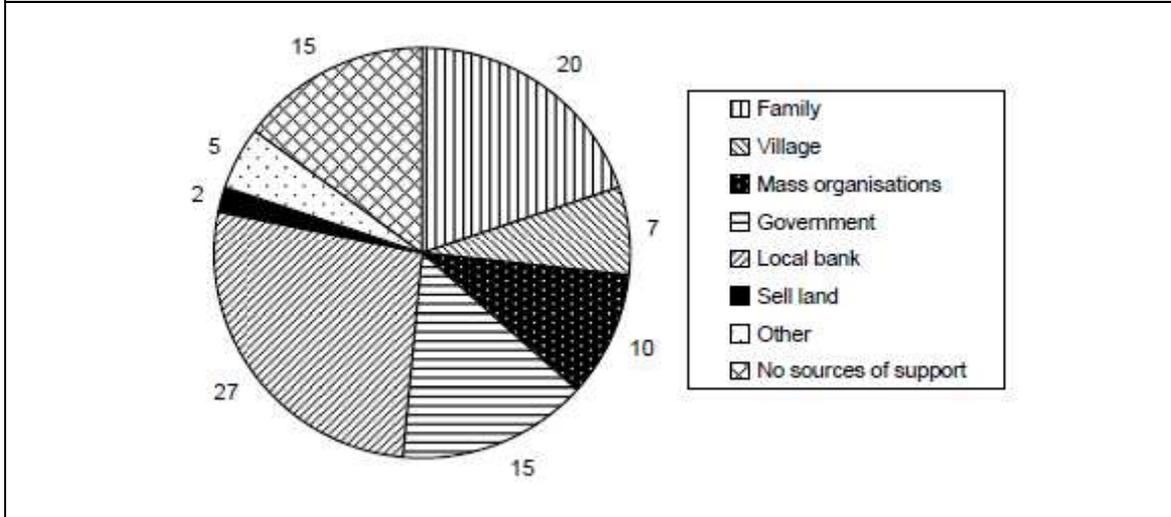
Yet, there are no clear indications from the household survey data that seasonal or long-term labour migration to areas outside the coastal districts has considerably increased.<sup>137</sup> What has been observable, though, is that labour dynamism is increasingly occurring within the three coastal districts. Joffre and Luu Hong Trong (2007: 56ff.) observed that, with the development of market demands for some natural products such as juvenile mud crab, juvenile and adult clams, natural resource collectors are now traveling within the province, seeking these specific products. Cu Lao Dung’s mudflat and sandbank is one example in the province that is experiencing high pressure from non-local people, collecting juvenile clams and mud crab. People from the Long Phu district and Tra Vinh Province travel every day to Cu Lao Dung during the collection periods, thus increasing the pressure on natural resources. This situation in Cu Lao Dung creates conflict between the local and non-local population who compete for these resources. People from Long Phu also travel to Vinh Chau District to collect specific products including honey bees. In Vinh Chau District, migration between communes and Bac Lieu Province are common for the collection of high value products such as juvenile or adult clams and cockles. Migrations are obviously driven by market demand.

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<sup>137</sup> While a considerable amount of people in Nha Tho Village stated that remittances contributed to their livelihoods, the reason more eventually might be long-term migration stemming from the late 1970s when many people from Long Phu District escaped as ‘bota people’.

**Box 30: Risks mitigation strategies and sources of support in the selected villages**  
 (Question raised: “What are your sources of support in case your income is threatened?”)

*Source: Household survey data*



Based on these findings, then, the relationship between social capital and adaptive capacity may not be as straightforward as one generally would tend to think (Adger 2008). Many traditional risk-sharing mechanisms based on social capital, such as asset pooling and kinship networks, may not work well for wider market and climate risks because they often affect all households at the same time. This could also explain the low number of people that would rely on their family and on the community in times of shocks. Tudawe (2002: 33), in this vein, highlights how forms of mutual assistance for poor households are not adept at coping with covariate risks as “*such ties are more common with other poor households: they provide a key means of coping with risk and vulnerability but, because they are poor-to-poor ties, they can often only provide a small amount of support for a limited time*”. It appears that limits are getting increasingly exceeded in the study region. In sum, there is a clear demand for more appropriate measures to be taken by the state.

### **7.5 Institutional Dimensions of Vulnerability and Adaptive Capacity**

In the three coastal districts of Soc Trang Province, agriculture, aquaculture, and aquatic resource collection are the main income generating sectors for the rural population. The economic development of these areas was fast and unplanned and livelihood strategies had to adapt to the new ecological and socio-economic environment. Before 2006, aquaculture production contributed significantly to the overall economic growth of the province, but most of the shrimp farmers now have to struggle with a severe loss in revenue and income. The shrimp sector has been confronted with a decline in prices and adverse climate conditions impacting on the system, and many shrimp farmers are facing serious economic problems. Many ponds are now lying idle, and many of those shrimp farmers affected by this negative development are increasingly searching for alternative sources for securing their income and livelihoods. This also includes transforming shrimp ponds back into farming land. Due to expansive credit policies, however, most of the farmers are heavily indebted what puts strains on their options. At the same time, an increasing number of farming households is becoming

involved in the exploitation of aquatic resources, which increases pressure being put on the natural and aquatic biodiversity and resources along the shoreline<sup>138</sup>.

While the privatisation of mangrove forests and their conversion into aquaculture has been a major cause of increasing inequality over time, adverse market conditions, though being a direct effect of this, have further increased and broadened vulnerability. Livelihoods dependent on access to natural resources, and on access to commodity markets, these are evidently those livelihoods most affected by striking climate change, but by market forces and social changes as well. Vulnerability is therefore different among the different livelihood groups, both in scale and over time. While the various groups are not dependent on a single resource, they are all effectively dependent on a single ecosystem, where the various livelihood sources are interrelated. Overall, it can be said that particularly those resources are negatively affected by ongoing changes which previously had been in direct or indirect use as common pool resources (Garschagen 2010).

### **7.5.1 Linkages between access to resources and the institutional context**

All of the resources are somewhat interlinked and dependent on the institutional context:

- Modern agriculture has tried to minimise the impacts of climatic and weather uncertainty through irrigation, and plant breeding for heat or water-stress tolerant crops.
- Shrimp ponds have largely superimposed socio-economic and environmental conditions what also affects other livelihood groups.
- Much of the fisheries and aquatic resources in Soc Trang are unlikely to survive without active management and an appropriate institutional context.
- Landless livelihood groups are dependent on aquatic resources, for both self consumption and daily income. Those practices applied for resource collection have lead to a depletion of resources in the near term, and to increased collective vulnerability in the long term. Nowhere in the case study area is the institutional context as decisive to vulnerability outcomes as in the field of natural resources.

Building measures to protect the overall ecosystem and its particular resources, and building adaptive capacity, are urgent tasks. Both from theory and case study observations, adaptation takes place either by people individually, by livelihood groups, or by these groups and local institutions collectively, and—most importantly—through property rights. If property rights are poorly defined, confused, or overlapping, though, management of the resources in question may be difficult. Often, then, lack of adaptation leads to a situation with great potential for conflict due to the overlapping property regimes between opposing livelihood groups (or even within them) at the local level as well as between the local and the higher-level interests. While much of the adaptation is reactive, in the sense that it is triggered by past or current events, it is also anticipatory in the sense that some assessment of conditions in the future will be made for decision-making and for adopting ‘rules’.

In the following, I will analyse how the formal institutional framework has been facing the prevailing challenges, in the way ‘rules’ have been established and adopted over time, what is the role residents can take (or are allowed to take) in the institutional framework and in setting

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<sup>138</sup> In all of the selected communities, income generation based on the collection of a variety of aquatic resources such as clams, crabs, and goby is a common activity for many people. It is highly prevalent in the mudflat areas, but not so much in the mangrove forests. Particularly the poor people living in front of the dyke as well as resettled people are dependent on these resources, but with harsher socio-economic conditions, other households also collect resources now.

these rules. The role that access to these resources plays is decisive for an understanding of the specific context of entitlements, then.

As outlined in Chapter 4.1, institutions are the ‘rules’ that govern belief systems, behaviour and organisational structure (Ostrom 2005). Communities with well-developed institutions are typically better able to respond to changing conditions than those with less effective institutional arrangements. Access to and control of assets is mediated through institutions and entitlements which themselves change over time. Certainly, further reductions in vulnerability of the most pertaining livelihood groups require attention to institutions and how they govern access to resources. It is then clear from the diversity of possible development pathways that sustainability will also depend on how institutions themselves are able to change.

### **7.5.2 ‘Rules’ and the role of the central government**

Adaptive capacity is the capacity to adapt and to shape change (Jones et al. 2010a) and, as such, is inherent both to individuals and to institutions. A lack thereof will constitute constant and exacerbating vulnerability to risks and shocks. From a human development perspective, vulnerability can be conceptualised as a set of entitlements and “*it is the structure or architecture of these entitlements which underpins both security and vulnerability*” (Adger 2002: 5). This architecture is changing rapidly in Vietnam. The *doi moi* process launched in 1986 began the transition from a centrally planned, command economy to a market economy. The central role that the state has played in collective security in the past has been changing as a result (Chaudhry and Ruyschaert 2007) and is continuing to do so.

The institutional stakeholders involved in state administration in the most relevant sectors in the three coastal districts are diverse and not only from the state sector. With the development of the market economy and the shrimp industry, private stakeholders have emerged and changed the landscape of actors and livelihood dynamics in the area. At the same time, the formal institutional stakeholders are diverse and have several overlapping responsibilities, concerning the area being managed (Joffre and Luu Hong Truong 2007). The legal framework is dense and complex, but despite a plethora of decrees and decisions they do not create a cohesive legal framework that is easy to implement. This lack of a cohesive approach to sustainable management, utilisation and protection of the coastal zone in Soc Trang Province, as well as unclear responsibilities of local authorities and economic interests in shrimp farming have lead to the unsustainable use of natural resources in the coastal zone thus threatening the protection function of the mangrove forests and reducing income among the various livelihood groups.

The problems caused to the various livelihood groups in Soc Trang Province’s coastal area are complex and diversified. The complexity of the situation is clearly based on the very livelihood strategies of different groups. The diversity of this situation is further highlighted due to the different ecological and resource environments found in the study sites, and of course the market. Within this context, institutional and private sector stakeholders and different stakeholder groups interact with different strategies and goals.

Arguably, nowhere in the Mekong Delta become the multiple scales of interest as complex and challenging as in Soc Trang Province. Soc Trang, before it started into the shrimp industry, for a long period of time was the poorest province in the Mekong Delta, as measured both by growth records and the poverty level. While economic development also has been rather moderate in recent years, particularly in comparison to some of the neighbouring provinces’ ‘achievements’, growth rates are still higher in the study region than on the national average. Against this background, Hanoi is putting a special focus on progress in the province. During a visit in February 2009, President Nguyen Minh Triet urged authorities in the province to improve the local economy, to prepare for coming investment opportunities and to pay more

attention to the poor. The President asked provincial leaders to try to ensure the province was ‘not overly reliant on the agricultural sector’ while working on developing the local economy. At the same time, the President also urged the province to enhance the quality of its agriculture crops and aquaculture productivity. With more infrastructure to be completed in the delta region over the next years, Soc Trang province would “*become a more attractive destination for investment*”. Triet said he still regarded the province’s economy as “*small and suffering from low competitiveness*” (Vietnam News, February 26, 2009).

For the study site, the issues relating to the institutional framework, as well as for ‘rules’ to be formulated and applied, are therefore multi-faceted and some issues are doubtlessly intertwined with policy and development goals of the central government. Another example on the national targets was that, in 2008, the Prime Minister asked Soc Trang authorities to focus on removing difficulties for the shrimp farmers and to raise production, while increasing agricultural promotion activities, the application of new scientific advances and new varieties of plants, and the use of fertilisers to maximise farming productivity (VietnamNetBridge July 28, 2008). These statements were repeatedly stated since then (Vietnam News, August 27, 2009).

While all policies and growth targets are designed by the Central Government, it is clear against this background of ongoing challenges that these cause some headache to the provincial government. According to an interviewee from a provincial department, in 2007, Soc Trang envisaged to enhance the area for shrimp farming by 45,000 hectares, out of which 24,000 hectares as industrial area, with a total amount of 55,000 tonnes of harvest that was expected from this plan. Yet it became clear already during the planning process that the targets were “*impossible to be reached*”. What can be learned from various of the examples provided on local market conditions and constraints in the above chapters, with ongoing liberalisation of markets and the financial sector, possibilities for the government to intervene is getting more limited. This puts constraints on the government to control both supply and demand sides of markets. I heard similar stories at various and different occasions. For example, the Ministry of Agriculture and Rural Development (MARD) instructed agricultural and rural development departments to provide arable land for poor households. However, land resources are scarce in Soc Trang and officials did not know how to adequately deal with these orders.

In many respects, the composition and style of leadership at the provincial level is doubtlessly a critical determinant on how policies are interpreted and put into effect. The degree of province influence in the national political arena varies, and it is further recognised that some provinces are more progressive in ways that others are not (Shanks et al. 2004). While environmental issues in general tend to be downplayed within the official communications between the national level and the provincial level, based on the interviews, it is possible to say something about what appear to be the motivations of the provincial Government, and how these are changing.

### **7.5.3 The institutional framework at the provincial level**

For the three coastal districts, it appears that the institutional framework involves many different agencies, such as the Department for Planning and Investment (DPI), the Department of Agriculture and Rural Development (DARD), the Department of Natural Resources and Environment (DoNRE), the Department of Fisheries (DoFi), the Forest Protection Sub-Department (FPD), the Department of Finance (DoF), the Department of Education (DoE), the Department of Health (DoH), the Department of Labour, Invalids and Social Affairs (DoLISA) and some others, and local authorities at the communal, district and provincial level. However, overall lines of decision-making in the Province are under the Central Government (as shown above), and the Provincial People’s Committee (PPC). Line

departments rather can be regarded as ‘technical agencies’ (Joffre and Luu Hong Truong 2007) which implement decisions at the local level but, at the same time, provide their expertise to decision makers, as related to the line departments, the following institutions can be identified:

- Department of Agriculture and Rural Development (DARD): The DARD has 750 staff members and consists of a board of directors and a number of sub-departments. Within the DARD, 13 sub-departments are in charge of forestry, agriculture, and aquaculture. Two of these are important stakeholders for the coastal districts: The Forest Protection Sub-Department (FPD) and the Department of Fishery (DoFi). The DARD is also responsible for management of so-called ‘Special-use Forests’; and they oversee the implementation of the 5 Million Hectares Project (Joffre and Luu Hong Truong 2007) and are important stakeholders in the poverty reduction programmes (see Chapter 7.6).
- Department of Natural Resources and Environment (DoNRE): The DoNRE includes 127 staff, with 73 working on land use planning and allocation. The department manages natural resources including mineral, water, wetland, environmental, and meteorological data, and is involved in investigation and mapping. However, district DoNREs are not involved in the management and protection of the mangrove forest. The coastal accreted mudflats and sandbanks in Cu Lao Dung is considered by the DoNRE to be managed by the district council and the mangrove forests by FPD (see below). The DoNRE manages the accretion along the river only. The DoNRE in all three districts argue that no specific agency of the district is responsible for managing these 8,590 hectares of accretion land in the province, and they are not to be included as part of the natural terrestrial area of the district. District DoNREs focus mainly on pollution caused by factories, mostly located in urban areas. There is no monitoring programme for the watercourses in the district although certain pollution is thought to be caused by shrimp farming according to a deputy head of the district DoNRE. Despite being aware of the levels of caused by some enterprises, DoNRE apparently has no legal framework yet to work on these problems.
- The Forest Protection Sub-Department (FPD): The FPD has 33 staff and is responsible for mangrove forest protection and development. According to Decree no. 39/CP (1994) the provincial FPD is directly attached to the PPC in woodland provinces (which emphasises the strong political role that forests play in Vietnam). Decree no. 39/CP (1994) also says that the provincial FPD is responsible for advising the PPC on the State edicts on management and protection of forests in the locality. Enforcing legislation dealing with management and protection of forests, the provincial FPD has the following tasks and powers:
  - To take stock of the situation with regard to forest resources as well as the management and protection of forests in the locality.
  - To advise the PPC on the plan and measures to organise and guide the management and protection of forest resources and forestry products in the locality.
  - To organise the enforcement of State policies, regimes, rules and regulations on the management and protection of forests and the management of forestry products in the locality.
  - To directly guide the Forest Ranger Sectors and Forestry Products Control Sector in the management and protection of forests and patrolling of forests, and in the control, inspection and handling within its jurisdiction the violations

of legislation on the management and protection of forests and the management of forestry products in the locality.

- To manage the forest areas in the locality which are not yet allocated to any organisation or individual for management and use.
  - To organise campaigns of awareness and education about the management and protection of forests and mobilisation of the population to protect and develop the forest resources. To direct the creation of grassroots organisations in the protection of forests and guide their activities;
  - To manage the organisation, personnel, expenditures and equipment to provide professional training and build up material and the technical side of the Forest Ranger Service in the locality under the guidance of the Ministry of Forestry;
  - To monitor regulations at various levels of administration both at provincial and State levels and advise the Chairman of the PPC on how to coordinate and settle any conflicts between the different organisations.
  - To coordinate action with the district PC in forming plans for the management and protection of forests within the district and provide guidance for the proper execution of these plans.
- Department of Fisheries (DoFi): While natural resources management is under the responsibility of DoNRE, this does not extend to sea-based production, such as offshore fishing, which is the responsibility of the DoF. The limits between responsibilities are still unclear between departments and lead to gaps in the legal framework (Joffre and Luu Hong Truong 2007). The DoFi was previously under the responsibility of the MoFI (Ministry of Fishery) and was recently transferred to the MARD. At the provincial level the DoFi is now a sub-department of the DARD. The DoFi is a management organisation at the provincial level and a technical adviser for the PPC. They are responsible for natural management resource of all sea, brackish, and fresh water including aquaculture areas (mudflats are outside of their jurisdiction). The department is divided into five main sub-departments, with a total of 125 staff:
    - The Fisheries Extension Center within the DoFi has a Fishery Extension Station with 3-5 staff at every fishery farming district to implement extension projects, including disseminating and training aquaculture techniques to farmers. The station in Long Phu regularly monitors several characteristics of water, including salinity, applying various equipment. Yet, the lack of knowledge and human resource limit the use of such equipment.
    - Exportation, management and fishery resource management is responsible for the exportation and financial aspects of fishery and aquaculture production;
    - Food quality and hygiene is responsible for the quality of shrimp production through analysis of samples from shrimp traders and processing companies determining anti-biotic and microbial infection. They are also responsible for the monitoring of quality standards for shrimp processing, waste water management by shrimp processing companies, and the working conditions in processing companies. This sub-department includes 50 staff;
    - Sub-Division of Aquatic Resource Management and Protection is responsible for the regulation of aquatic resource exploitation throughout the entire province. This sub-division is in charge of controlling illegal tools for fishing, including the use of prohibited mesh sizes for nets. However, local people reported that this unit seldom patrols the Cu Lao Dung District.

- Administrative office, which is divided into 4 departments (planning, general management, inspection and administrative organisation). The DoFi have to report to the Economic Department and PPC on its activities. They also report on and follow the plan developed by the local PC and DoE at the district level. The role of the DoF is to serve as a technical adviser for this institution and to implement the different decisions of the MARD and PPC. At the district level, the Fishery Extension Service collaborates with district PC and hydraulic department to organise the sluice gate calendar and the stocking period for shrimp farmers. Most of the activity of the DoF is to develop shrimp farming in the province. One of the goals of the DoF is to improve the quality of shrimp production for exportation. The Sub-Department of Food Quality and Hygiene is in charge of controlling the inputs used in shrimp farms (mainly in commercial farms), post larvae quality, feed and other inputs in shop.

Regarding the development of shrimp farming in the future, the Vice Director of DoFi believes that “intensive shrimp farming has been developed to a saturation point and will begin to decline as semi-extensive shrimp farming increases in the near future” (Joffre and Luu Hong Truong 2007). In the opinion of others, though, pland should be revided to create more sustainability in the sector.

#### 7.5.4 Perspectives on sustainable management approaches

*“The approach we must now take is learning by doing.”*

(DARD official, Soc Trang Province)

The structure of government institutions is certainly an important factor to say something about the ‘quality’ of the formal framework. Within the range of actors, the DARD and the DoNRE are the two most important institutions for facing the given challenges in the study site, with both playing a key role in coordination of activities related to market development and climate risks. Moreover, both institutions have now started to elaborate and to follow more cohesive approaches and have started to adapt (albeit in limited scope) to the prevailing challenges. While the central policy instrument of DARD is the Land Law (2003), the DoNRE implements its activities based on two laws, i.e. the Law on Environmental Protection (2005), and the Law on Biodiversity Protection (2008).

Coordination between sectors is important to strive for overarching and, hence, common goals. In Soc Trang Province, inter- and intra-sectoral coordination varies between the sectors. The merging of the Department of Fisheries with the Department of Agriculture and Rural Development shows the responsiveness of the government administration towards changing conditions. The main objective from merging the two institutions, according to a provincial official, was to “*better administrate the land where coordination was low and overlappings prevented us from efficient work*”. Overall, however, “*many challenges*” remain. For example, despite that there is a clear trend to fiscal decentralisation in Vietnam<sup>139</sup>, some of the Government’s self-management financial policies were told to ‘not match reality’; this was particularly true of environmental resources (Vietnam News, November 17, 2008). Moreover, planners appear to have failed to have an overview on the use of common water resources in

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<sup>139</sup> Allocations from the national level are more or less fixed for three to five years through budget negotiations between provincial and central government offices. In the process, the central government attempts to moderate inequalities by redistributing tax income from better off provinces to poorer ones (Kerkvliet 2004). Having received funding from the centre, provincial authorities are responsible for allocating it to province-wide programmes and to districts, which in turn give a portion to communes. Basically, local governments had raised 50 percent of their own yearly budgets in 2006 compared with 26 percent in the 1990s.

the area (Vietnam News, August 28, 2010); arguably these resources depend on intense coordination between the two line departments. Yet, the aspect of water resources also puts limits on the ability of formal planning and management, as shown by the high demand for irrigation water in the western communities of Vinh Chau District which cannot be realised and fulfilled. Concerning disaster risk reduction, DARD is looking at structural ways to help, such as building dykes to hold back the sea. However, *“The problem here is the cost. As estimated, it costs VND 40-60 billion [USD 2 -3 million] per kilometer of dyke while budgets are limited”*, told an interviewee.<sup>140</sup> Land withdrawal seems to be a big problem, because the province does not have capital to build infrastructure and support the people who lost their land. *“Most of the poor people, they are going to have a hard time, if we cannot help them.”* Concerning sustainable management approaches, then, *“It is important that there is integration between conservation and giving people a perspective”*, a DoNRE official told. *“Local people live too close to forests, so encouraging them to tend the forest would help them to live on the natural resources”*, an official from another department said. *“We need to create an environment for the development of aquatic products in order to bring profit to poor people.”*

In this context, the Director of the Forest Protection Sub-Department has very much agreed on carrying out a pilot model on co-management with the expectation that, if successful, eventually Soc Trang will be able to contribute to state regulations on co-management. In this context, he gave an example on the Prime Minister’s Decision on pilot policy of payment of ecosystem services (PES)<sup>141</sup> for forests *“to create the basis for setting up a legal framework on policy for payment of forest ecosystem services for further application nationwide”*.<sup>142</sup>

*“Good laws and legal frameworks are essential to how risks are reduced, and how we respond.”* While the provincial leadership appears to be deeply undecided as to how far and how fast it wishes to proceed with which type of political reform, public sector decisions on responses also require consideration of implementation issues (Tompkins and Adger 2005: 568).

Clearly, capacity to adapt always will also include autonomy to self-organise (Adger 2006). In this context, the Vice Director of DARD argued that his department would work with the DoNRE to *“advise the Province People’s Committee to request the central authorities’ permission for the province to provide the local people (co-operative groups) in the area of co-management pilot models with the right to use the resources on the state-owned land”*. Concerning ‘autonomy to self-organise’, the Decree No.151/2007/ND-CP of October 10, 2007, on the Organisation and Operation of Cooperative Groups must be acknowledged as a considerable progress—as it provides an approach to reducing social vulnerability for the

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<sup>140</sup> Collective building and maintenance of sea dykes is a traditional risk reduction activity. In the past, agricultural cooperatives mobilised 10 days of household labour to repair dykes, but this has now been replaced by a tax for coastal protection, with better-off households no longer able or willing to afford the opportunity cost (in terms of lost income potential) of collective labour protection (Chaudhry and Ruyschaert 2007).

<sup>141</sup> The concept behind payments (or other rewards) for environmental services is to provide incentives and benefits to the people who utilise environmentally valuable ecosystems, and in return they agree to utilise these ecosystems in ways that protect or enhance environmental services for the benefit of the wider population. For the provision of such services, individuals or communities can be directly rewarded. Another way to express the concept behind Payment for Environmental Service (PES) is that those who provide ecosystem services should be compensated or rewarded for doing so, and those who use the services should pay for their provision (Hoang Minh Ha et al. 2008). The term ecosystem services rather than environmental services is used in the Vietnam context because environmental services were being used for ‘brown’ issues such as pollution. The term ecosystem services is utilized in the Biodiversity Law and the new policy framework by the Ministry of Agriculture and Rural Development (MARD). Significant achievements have recently been witnessed in Payment for Environmental Services (PES) in Vietnam (Hoang Minh Ha et al. 2008).

<sup>142</sup> As Lascoumes and Le Gales (2007: 9) point out, analysing the interests implicated in the choice of management instruments is always a good idea in the social sciences.

people dependent on aquatic resources and, therefore, for providing for sustainable management of the mangrove forest areas. The Decree provides for the organisation and operation of cooperative groups which are formed on the basis of cooperation contracts authenticated by People's Committees of communes, wards and townships. Organisation and operation principles include that cooperative groups are organised and operated on the following (selected) principles:

- Article 1: (1) Voluntariness, equality, democracy and mutual benefit; (2) Majority voting; and (3) Financial autonomy, self-financing and self-responsibility with assets of the groups and their members. Formation of cooperative groups shall conform with the following stipulations: (...)
- Article 4: (1) Individuals wishing to form a cooperative group shall organise its formation; (2) When forming a cooperative group, the following principal contents must be discussed and agreed upon: a/ Purpose and operation plan of the cooperation group; b) Contents of the cooperation contract; c/ Name and logo (if any) of the cooperative group; d/ list of members; e/ Selection of the head and management board (if necessary); and f/ other relevant issues. The rights of cooperative groups include the following: (...)
- Article 12: (1) Cooperative groups may select production and business domains that are not prohibited by law, and operate freely regardless of the administrative boundary of the locality where their cooperation contracts are authenticated. When cooperative groups operate in domains requiring a practice permit or a certificate of business condition satisfaction, they must comply with requirements on such permits or certificates as prescribed by law. (2) To conduct direct export or import or set up joint ventures or associate with domestic organisations and individuals or foreign organisations and individuals to expand production and business according to law. (3) To enjoy support policies and participate in the elaboration and implementation of plans, programs and projects in support of collective economy development; plans, programs and projects on socioeconomic development, employment generation and hunger alleviation and poverty reduction in their localities. (4) To open their own bank accounts under law and the representative mechanism specified in the cooperation contract. (5) To enter into civil contracts. (6) To decide on the sharing of yields or profits and handling of losses of cooperative groups. (7) Other rights specified in cooperation contracts, but not contravening the law.

Hence, participatory protection plans have turned into an important part of the management approach Soc Trang is following. Cooperative groups with enhanced responsibility of self-management have been founded among resource users. In early 2009, various meetings were held between resource user group representatives and local authority representatives to discuss the 'rules' on 'who can do what, where, when, how and how much' in the mangrove area. A vision was formulated stating that

‘The forest and fishery resources are well managed, protected, developed and reasonably used in accordance with the Law; there are no poor households, people have stable incomes and children attend higher school levels; and there is a clean and beautiful environment and less impact from natural disasters.’

Another question that is closely related to the latter aspects then concerns the broader aspects of participation of residents in decision-making on the local level.

### **7.5.5 Institutional dimensions of public participation in the selected villages**

In practice, there are several necessary preconditions to the successful implementation of collective action associated with the design of institutions, the nature of the group, and the nature of the resource (Ostrom 1990). Yet a key component of enhancing adaptive capacity is ensuring that individuals, communities and societies are actively involved in processes of change. As we have learned already, participatory and inclusive management refers both to 'interactive' and to 'active' participation. These terms reveal the role of community self-mobilisation and the importance of communities being able to take control of decisions.

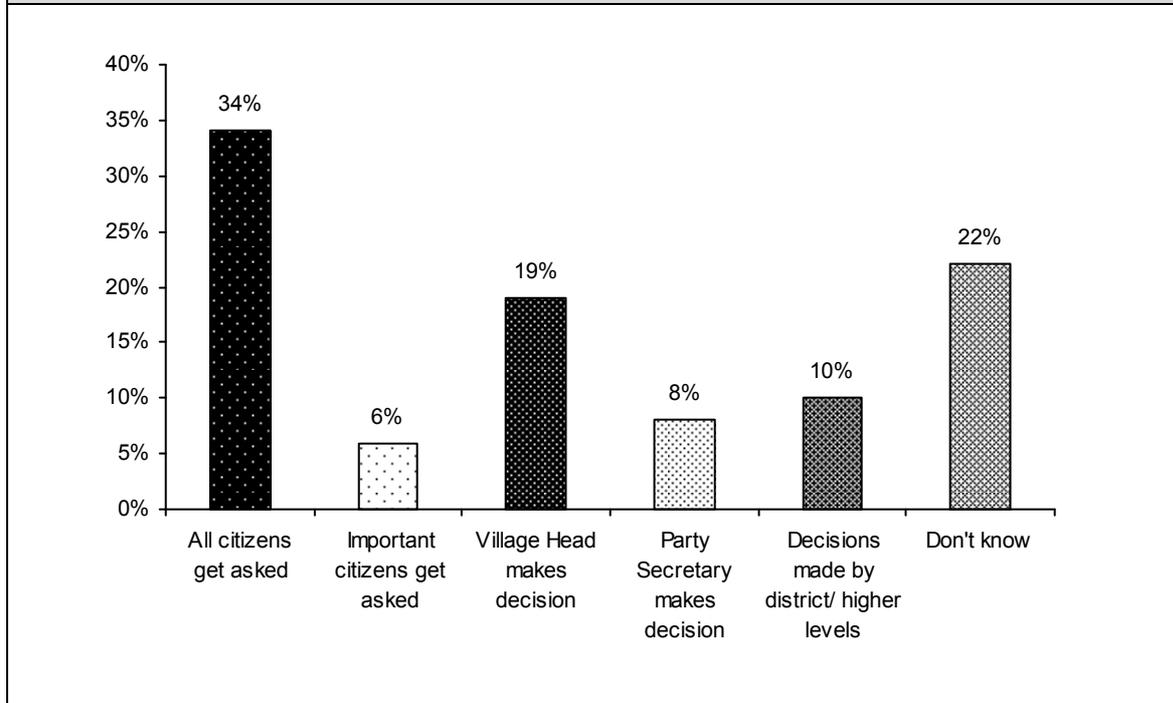
There are many examples about the role of participation in community management and decision-making. Tompkins et al. (2002) suggest that participatory approaches to resource management are constrained or promoted by three main factors: 1) the institutional arrangements, 2) the legislative framework, and 3) the organisational and technical skills of the communities. Concerning the first, also among the provincial line departments themselves it was agreed that coordination between line departments, as well as between line departments and district and commune stakeholders needs to be improved, so that the prevailing challenges can be addressed in an integrated way (including long-term socio-economic and poverty reduction efforts). Also with regard to the second, the legislative framework, there were a number of suggestions made repeatedly by both provincial and village officials and which, taken as a whole, let suggest that what is needed is a) to create a regulatory framework comprising principles and guidelines for sustainable management and economic utilisation of the coastal areas ('rules'); b) to raise awareness about environmental issues for local communities and authorities; and c) to establish closer cooperation with the private sector in order to make approaches work and to create income for marginalised livelihood groups. Concerning the latter then ('organisational and technical skills of the communities'), it was repeatedly complained that many local officials lack sufficient skills and training to do their jobs well, with the majority of commune officials only having primary education, while, so far, only a small proportion of local officials get additional training on technical matters of their work (Kerkvliet 2004). Hence, one question raised in the household survey was directly related to the matter of 'what is urgently needed for the development of the communities', with the answers providing for a clear result: Among a range of six possible answers, more than 60 percent of the respondents said that 'training' is what was most urgently needed.

Besides technical aspects of formal administration and management, 'informal' local-level institutions or rules are virtually to be found on the community level, and which may include: land tenure rules, such as claims to common property resources; the ways in which farmers share knowledge; etc. (Jones et al. 2010). Dimensions such as participation in decision-making; how institutions empower or disempower people; and the extent to which individuals, groups and communities have the right to be heard may prove key in determining both the degree to which communities are able to adapt, and the direction in which they do so (e.g. in response to whose interests?) (ibid.). As regards this issue, many people in the workshops reported they were not aware of the commune development plans and budgets, especially women. It appears that the latter—as an unwritten 'rule'—are often excluded from decision-making structures. A central aspect of this is that, traditionally, household heads have rather consisted of men than of women, with them acting as the ones to be consulted, informed, or addressed in the more 'official' affairs of village life. This information is also essential then in order to construe the results of the following question that was raised in the household survey: 'Who is participating in the process of coming to important decisions affecting your village?' (see Box below).

**Box 31: Decision-making and levels of participation in the selected villages**

(Question raised: “Who is participating in the process of coming to important decisions affecting your village?”)

*Source: Household survey data*



One important finding from this question is that more than one out of five respondents (22 percent) apparently ‘do not know’ about how decisions are made in their village. Since it were mostly Khmer respondents that gave this answer (48 percent), and while analysing the results showed that they were less often members of a village organisation than ethnic Kinh respondents (44 percent and 63 percent, respectively), I conclude that poor Khmer tend to be marginalised from mainstream village organisations, that they have less contact with commune officials than ethnic Kinh household, and that they have fewer opportunities to participate in community decision-making processes. Language is apparently another problem; especially concerning written documents for the purpose of communication and announcements (many poor Khmer people are illiterate). At the community level, reducing the barriers to communication will be of significant importance for more ‘inclusive’ forms of development.

Generally, though, all the poor from the selected villages have apparently less access to local decision making processes, as shown from the results of the household survey. It was only poor people stating that ‘only important residents get involved in decision-making’, and just a minority stated that ‘all citizens get asked’ (20 percent).

Another not less important finding is the apparently decisive role of the village head which demands for some more detailed exemplification. In recent years, the revival of the position of the village head (truong thon) has caused considerable debate. Nobody, not even members of the party’s Central Committee, denies this position’s importance in rural life. The village head is the person most likely to have direct contact with villagers. Though their roles are important, their privileges are modest in comparison to commune cadres. They are not trained, have no social and health insurance and are given only about VND 100,000 per month allowance (Pham Quang Minh 2004). Generally, it needs to be understood once more that the official status of villages in Vietnam is ambiguous (see Chapter 6.4). While many

have a party cell and units of some mass organisations, they have no People's Councils, People's Committees, or the other government institutions that communes, districts, and provinces have. Yet by the late 1980s and early 1990s, the role of the village head emerged. Since then, the position has become commonplace across the countryside. A village head usually has the approval of commune and even higher authorities. Yet no regulations specify the person's responsibilities and relationship to the commune's People's Council or other government bodies. The result, says one observer, is 'confusion' about the role of a village head (Koh 2004). Yet this role is decisive for regulating a village's internal affairs and to establish communication with the higher levels of administration.

On the local level, it was said by some researchers that conflicts over the allocation of resources, for adaptation and other purposes, reflect different perceptions of progress as a central dilemma of development (Adger et al. 2005: 80). In the selected villages, although land use zoning generally takes place within local government structures, it is certainly true the enforcement and effectiveness of planning and zoning are certainly dependent on the inclusionary and consensual nature of the processes. Often, as shown above, key vulnerable groups are excluded.

Yet my findings show that, in general, the issue of land use and land use rights is not perceived as a big problem in the villages, and people stated that it is widely clear who is entitled to which lands and who is allowed which forms of access and resource use, particularly in the farming areas where people have apparently 'arranged' now with the given conditions<sup>143</sup>. However, there are many discussions about land use and land use rights taking place in the villages. Evidently, local residents live with a set of rules concerning the topic of land use which they, more often than not, will stick to—once these rules are agreed upon. Results from these two questions are shown below.

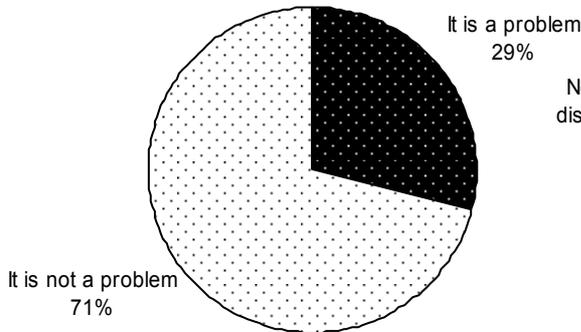
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<sup>143</sup> A prominent exception is the case of the 'FFE 30/4' in Cu Lao Dung district where land use in the communes An Thanh Nam and An Thanh Ba in Cu Lao Dung District was shaped mainly by the establishment of the FFE 30/4 to administer State-owned land. As Joffre and Luu Hong Truong (2007) explain, the FFE 30/4, established in 1987, had a strict land use plan for the 4,212 hectares land it was responsible for. 1,100 hectares of mangrove forest managed by this enterprise accounted for most of the mangrove forest that existed then in Cu Lao Dung District. Irrigation and dike systems were built to ensure the implementation of the agriculture and fisheries planned. A large area of the local natural mangrove forest was cleared to make canals and farms of rice, shrimp, etc. Rice was then the main crop. Most of the present people in An Thanh Nam Commune and many in An Thanh Ba migrated from neighboring Tra Vinh Province after the establishment of the enterprise. Meanwhile, investors in high cost shrimp farms were brought in by the FFE 30/4 and private contractors. Most of the investors came from Soc Trang Town. Natural resources such as crab, fish, etc. in the mangrove forest and on the mudflats and sandbanks were exploited by the enterprise and its collecting contractors. The enterprise was officially declared bankrupt on March 31, 2007. Most of its land is now managed by the district and 140 hectares by the PC of An Thanh Nam Commune. Although new land use proposals are being made, shrimp farmers whose contracts with the former enterprise are still valid continue farming (along the dike) on the contracted lands. It is important to note that this recent development in land use has caused strain and conflict in the An Thanh Nam Commune (Joffre and Luu Hong Truong 2007). The transfer of responsibility for land allocation between the FFE 30/4 and District authorities led to open conflicts and demonstration in Ho Chi Minh and Hanoi by the local people.

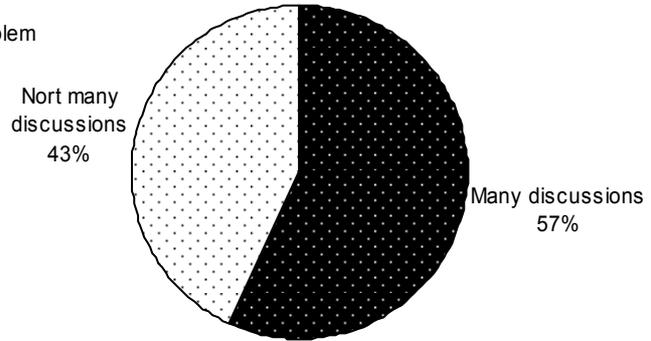
### Box 32: Perception of land use and land use rights in the selected villages

Source: Household survey data

**Question 1:** In general, is the issue of land use and land use rights a big problem in your village?



**Question 2:** Are there many discussions about land use and land use rights in your village?



## 7.6 The impact of poverty reduction programmes on adaptive capacity

Findings from the case study show that the prevailing socio-economic situation in the selected villages, particularly in terms of a bad market situation and a decline in prices of local agricultural and aquaculture products on the regional and on the global markets, including increasing levels of environmental degradation, exacerbates autonomously driven opportunities to reduce vulnerability to present levels of climate variability (especially to farmers and shrimp farmers) and future climate change (both to the former, as well as to aquatic resource collectors). Changing precipitation patterns play a strong role in this, since in some cases these have led to a destruction of agricultural products including rice, onions and salt, and also shrimps, which are all heavily climate-dependent resources.

Low assets, exacerbated by entitlement constraints, result in limited capabilities of various livelihood groups to improve their living conditions. Poverty is deep in many dimensions, including basic human, protective, and economic capabilities.

It is clear then that job creation is a key to further poverty reduction in the area. The study undertaken found that there is an oversupply of low-skill labour in the rural communities. Low capabilities, though, are limiting the opportunities for marginalised livelihood groups to cope with change; evidently, seasonal and/or long-term labour migration does not seem to be a vital option for the affected groups. Yet, poverty and vulnerability have many dimensions, not merely income.

Results then show that vulnerability to climate variability and extremes, besides high levels of physical exposure, is particularly to be found in areas where a) there are underlying challenges on land use (mainly in Vinh Chau and Long Phu Districts), b) where there are only insufficient conditions in the area of management of the mangrove forests and aquatic resources (mainly in Vinh Chau District, but also in Long Phu District), and c) where access to markets for the poor is not, or only insufficiently, guaranteed (in all three districts). These challenges, arguably, are essential to become tackled in policies and programmes currently in practice future strategies, or in future strategies in order to reduce vulnerability and to enhance adaptive capacity.

This final part of the study provides an impact assessment of those programmes currently in practice and asks whether these impact positively on levels of adaptive capacity through means of poverty reduction and providing sustainable livelihood options. The question I will address in the following is therefore related to the opportunities in enhancing adaptive capacity by linking poverty reduction strategies to climate change issues, within the existing targeted and development programmes.

It shall be mentioned once more that, besides these targeted programmes for poverty reduction, the Government has issued and implemented several policies on areas such as social protection, health insurance, exemption of education fees etc. which—in case they are not an explicit objective of the targeted programmes—will not be a part of the assessment, since these have been analysed in the former parts of this chapter already.

### **7.6.1 Overview of results**

Concerning poverty reduction, the 2006-2010 Socioeconomic Development Plan (SEDP) for Soc Trang Province highlights further economic development as an issue of prime importance. The focus is on: (1) strengthening the local economy; (2) creating labour opportunities for the rural population; (3) encouraging private investments; and (4) spurring public investment. In the short run, it is envisaged to establish mechanisms to further improve the average basic living conditions of the poor local population. In this regard, the two Government programmes 135 and 134 are considered to be very important tools. In the long run, the strategy of the provincial Government is to focus on raising the education level and the capacities of the local population, especially the poor, while providing them with opportunities to benefit from the overall socioeconomic growth. In terms of specific approaches to directly raising the income level of poor segments of the population, continuous support is primarily being provided via the Vietnam Bank of Social Policy (VBSP) and via the Agribank of Vietnam (even though the clientele of the latter rather consists of better-off farmers and non-poor population groups). Interestingly, though, the current 2005 – 2010 SEDP does not refer to aspects of direct adaptation to the consequences of climate change.

Overall findings from the impact assessment show that poverty reduction strategies have improved living conditions by rising the degree of, and access to basic services. However, the overall living conditions for poor people have deteriorated over the past few years. The surmounting challenges, i.e. low saving ratios at the household level and, increasingly, debt pitfalls, therefore, cannot be solved with the prevailing instruments that are applied for poverty reduction. Results from the selected villages reveal that, on the one hand, many dimensions of poverty have been reduced in recent years. Basic human living conditions have improved, such as housing conditions, food security, primary education, and health care. On the other hand, however, poverty reduction programmes did not have sufficient impacts in those dimensions where deterioration of living conditions has occurred, such as land use, environmental and resource conditions, and income and access to markets. In other words, the poverty reduction programmes that were in existence during the timeframe under investigation (2004-2008) did not sufficiently counter these negative developments. It is likely, however, that such target programmes will continue to be implemented in Vietnam and in Soc Trang Province over the near- to mid-term at least.

Finally, then, is that due to the given high level of exposure to the consequences of climate change in the case study region, well-planned policies will be needed that clearly will go beyond what is possible to be achieved under the current poverty reduction programmes. It is becoming clear when considering the nature of global climate change that poverty reduction policies and goals will in themselves not address the specific climate change related risks for the most vulnerable portions of developing societies (Adger et al. 2003: 193). However, they can play a significant role for enhancing adaptive capacity of vulnerable groups, especially if

they promote features of sustainable livelihoods, social protection and meaningful approaches to disaster risk reduction.

Clearly, provincial planners need to start taking climate change into account, including both construction and, even more importantly, non construction measures. The Vietnam National Target Programme to respond to Climate Change (albeit limited in its overall visionary scope) outlines that there are many ways to adapt to climate change. Climate change will clearly create an additional set of challenges in terms of ensuring sustainable development in coastal areas. The question is, though, whether future policies and management initiatives can provide impacts that positively respond to these challenges.

In the case study region, in all the villages the two targeted programmes 135 and 134 were identified<sup>144</sup>. Although it was tried to clearly differentiate between different interventions, in practice there are many projects that overlap, especially when focusing on infrastructure. Only for the topic of schooling, there were sometimes three to four programmes driven parallelly in a single village. Moreover, in some of the villages, workshop participants could not clearly distinguish between the two programmes. I therefore decided to analyse the two programmes 135 and 134 together in terms of their impacts.

### **7.6.2 Programmes 135 and 134: Impact assessment**

The National Programme for Socio-Economic Development in Communes faced with Extreme Difficulties in mountainous and remote areas (PDCED, which is more commonly called Programme 135) was established by Decision 135/1998/QD-TTg of the Prime Minister in 1998. The Programme focuses on poverty reduction in the poorest regions of Vietnam.

Most of the funds (95.5 percent) were invested in construction of infrastructure. Less than four percent of the funds were used for capacity building (technical extension) and training of cadres. 0.5 percent of the funds were used for the settlement of households of ethnic minorities (Vu Tuan Anh 2005). Only a tiny fraction of the money went into non-farming activities. This means that, in terms of targets, the Programmes have put a higher priority on expenses for communes and villages and less for households and individuals. In 1998, Programme 135 was initiated in the Mekong Delta with a focus on infrastructure. At its inception, the programme covered 1,715 communes with 147 in the Mekong Delta. In 2003, there were 2,325 communes in the programme or 26 percent of the total number of communes nationwide.

From 2000 to 2005, Programme 135 aimed, firstly, to reduce the poverty rate rate in communes faced with extreme difficulties to less than 25 percent, secondly, to ensure to provide adequate clean water, ensure that 70 percent of school-age children attend school, to provide further training on production for poor people, to promote disease control, to build roads to inter-commune centres, rural market development. Programme 135 consists of five main components that include:

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<sup>144</sup> Moreover, a number of other interventions were mentioned, including a Worldbank financed project ‘Coastal Wetlands Protection and Development Project’, a rural road building project ‘Nam Song Hau’ and a number of small-scale charity- and NGO-financed projects. GIZ project ‘Management of Natural Resources in the Coastal Zone of Soc Trang Province’ which started in 2008 was not part of the study, due to the early stage of project implementation. The project aims to contribute to adaptation to climate change through planting, rehabilitation and management of mangroves with emphasis on resilience to climate change. This will be achieved through application of risk spreading strategies to address uncertainties (i.e. protection of representative species and habitats), protection of mangrove areas that have shown persistence over time, establishment of buffer zones to allow for mangrove migration in response to sea-level rise and restoration of degraded areas. The project envisages to mitigate human threats through development of alternative livelihoods for mangrove dependent communities such as co-management of mangrove forests and clam co-management on mud flats, as well as the establishment of aqua-sylviculture to compensate for climate-induced losses in food production.

1. Construction of infrastructure at the village and commune level (roads, clinics, schools, irrigation systems, safe water supply systems, markets, etc.);
2. Construction of infrastructure at village level;
3. Settlement of ethnic minorities;
4. Agricultural/ forestry extension, and
5. Training of commune cadres, especially for the management and monitoring of construction works.

Programme 134, then, pledges to support Khmer people in the Mekong Delta in terms of production land, housing and safe water. The provincial government argues that poverty reduction among the Khmer people has become a central issue in poverty reduction objectives. This has been emphasised by various interviewees across different line departments and sub-branches.

In 2007, central agencies and local authorities of Soc Trang poured more than VND 200 billion (USD 11.7 million) into improving living conditions for Khmer ethnic minority communities under Programme 134. Of the amount, VND 50 billion spent for building 6,880 houses for poor Khmer households in five districts, including the two study districts Vinh Chau and Long Phu, while nearly VND 33.5 billion was invested in installing water supply systems for areas inhabited by Khmer people. With VND 79 billion available under Programme 135, Soc Trang Province conducted 79 projects in total for 36 ‘specially-difficult’ communes. Basically, Programmes 135 and 134 are perceived as highly successful and important for improving living conditions in poor localities.

Overall, concerning the implementation of government-run poverty reduction programmes, in Soc Trang Province the local administrations (People’s Committees at provincial, district, and commune level) are the implementing agencies. People’s Committees have the task of implementing, and enforcing the programmes within their locality (Vu Tuan Anh 2005). A Committee for Hunger Eradication and Poverty Reduction is established at each local level, with members of this committee mainly consisting of government authorities, cadres, and representatives from mass organisations. As regards aspects of implementation of the two Programmes in Soc Trang Province, guidelines provided directions to support the decentralisation of programme planning and management to the commune level. The move to decentralisation of government service delivery has to be considered in highly positive terms. However, local implementation of the programmes was dependent upon existing capacities on the lower levels of state administration (Vu Tuan Anh 2005), and problems were reported with the capacity of local officials to administer the programmes, based on information provided from the Soc Trang line departments. In practice, then—and as the AusAid (2004) study also correctly observed—decentralisation of the planning and management of Programme 135 (but also Programme 134) has only reached the district level. Provincial and district level officials commented that, more often than not, the knowledge and management practices of commune officials were not sufficient to have control over the implementation of a national programme. On the other hand, though, there was also mentioned a lack of guidance: Until the end of 2008, the government still did not issue a document guiding the implementation of this programme.

### **Impacts on basic living conditions**

Findings are that, generally, the programmes have been promoted towards the objectives prescribed, and facilitated poverty reduction in its multi-dimensional form. The mechanism used for the two programmes has worked and has been continuously applied since 2001. In terms of basic living condition, a majority of interventions on the village level were perceived

as ‘relevant’ to the needs of the local people. Overall, as of early 2009, the province has built 6,800 houses to be given to those in need and provided 34 billion VND for localities to build safe water supply stations. Approximately 90 percent of Khmer houses now have access to a safe water supply. Generally, infrastructure has developed to some point in all villages that were investigated.

Results show that in all villages in which the two programmes were implemented (100 percent), positive impacts were felt by the local people, mainly in those dimensions affecting basic human capabilities, and which included: health, housing conditions, drinking water, road conditions, food security, and education. Positive impacts were also observed, though to a lower part (see below), in terms of training. Almost no impacts were identified in the area of protective capabilities (e.g. social protection, protection from adverse climate conditions, credits, and dealing with market risks) (see Box 33) for an overview of activities.

**Box 33: Soc Trang Province – Overview of Programmes 135/134 in the selected villages**

*Source: Participatory workshops at village level*

District/ Village	Targeted Programmes	Duration	Main interventions
Vinh Chau/ Phno Pon	135 134	2005-2007 2008	Road, Health Station, School, Electricity, Houses for the Poor
Vinh Chau/ Bien Tren, Bien Duoi	135 134	2005 2004	Road Maintenance, Housing, Health Facility, School building, Training/ Agricultural extension, Credit scheme
Vinh Chau/ Khu 5, Khu 6	135 134	2005 2007-2009	Infrastructure, Seedling and Livestock Programme for Poor people, Houses, Kerosene, Water, Money
Vinh Chau, Au Tho B	135 134	2004-2006 2005	Houses, Streets, Electricity, School, Health Station; Finance for Agriculture and Livestock, Housing for Khmer People
Vinh Chau, Tra Set	135 134	2004-2008	Infrastructure
Long Phu/ Nha Tho	135 134	2001-2005 2006-2009	Infrastructure, Roads/ Housing, Water
Cu Lao Dung/ Vam Ho	135 134	2004 2005	Streets, Health Station, Subsidies, Houses for Veterans and Poor People, School, Health Station, Electricity, Livestock Breeding, Water Containers for Khmer
Cu Lao Dung/ Au Quoi B	135 134	2004-2009 2004-2008	Road, Bridge, Health Station, School, Cattle, Pigs, Electrics, Clean Water

Yet some inequalities were reported. In An Quoi B Village, for example, while some benefits were perceived for those living outside the dyke, the bulk of programme funds were spent on infrastructure works in the inland area. The most vulnerable groups therefore still lack from the most basic services, such as electricity. In terms of maintenance of the activities under Programme 135, in Au Tho B Village every year each household along the road have to contribute some labour for maintenance while, in terms of implementation of Programme 134, people were mobilised to provide funds as much as VND 80,000 as per hectare of land under ownership. This, however, was regarded as “not too much” by the workshop participants. In

Khu5/ Khu 6 Sections, however, the local government also asked residents to financially contribute to the implementation of activities, but there, participants argued that they were not able to pay and that this caused “*some problems*”.

As explained by Toye (2010), maximising the numbers who cross the poverty line is best achieved by concentrating budget transfers on those poor people who are already closest to the minimum standard. More poor people can be moved across the poverty line, the closer to it they are already. This was apparently the case in Khu 5/ Khu 6 Sections where some households received direct fiscal supports. Some irrigation channels were broadened in Vinh Chau District, but most of the citizens reported this did not increase the amount of water on the fields.

Within Programme 135, resettlement projects and housing support are among the major objectives then. Resettlement projects were implemented by the Vietnamese Government after typhoon Linda (250 households). Part of the government’s response to the issue of land loss has therefore been the construction of resettlement areas, with albeit mixed results. Resettlement areas were equipped with roads, safe water supply systems and irrigation works, in addition to some limited amounts of arable land. However, a Village Head reported, there were shortcomings in implementing the programme such as the low availability of land and capital. Moreover, in the specific resettlement area in Khu 5 Section, called Ho Be Hamlet, resettlement of households was only partial and some households are still settled and cultivating land in the mangrove forests. The households were not part of the resettlement project due to apparent administrative failure (Joffre and Luu Hong Truong 2007). While resettlement programmes could be identified as an element of disaster mitigation, interventions did not work well across all the places. There has been some resistance to move, especially because the settlements limit people’s access to canals and their fields, in non-flood times as well as during floods, whilst fishing is a critical survival and livelihood strategy (Chaudhry and Ruyschaert 2007). For example, In Tra Set Village, a comparatively big resettlement area (An Lac) was built after Typhoon ‘Linda’ in 1997 for people living close to the shoreline. This area now consists of 210 households. Generally, people in the resettlement area are among the poorest in the village, and the area still lacks basic infrastructure. Most of the people living in the resettlement area are dependent on collecting natural resources from the mudflats.

### **Results from livelihood promotion activities**

As mentioned above, less than four percent of the funds available under Programme 135 were used for capacity building, a field potentially to be perceived as an activity on livelihood promotion. A major part of this money went into the area of extension trainings and activities. However, in none of the cases, inputs provided under the schemes for poverty reduction have helped poor people to improve their livelihoods to cope with the given changes in a sustainable manner. Activities targeting on livelihood promotion were either not provided, too small in scale, or irrelevant in terms of content.

Against this background it is important to understand the scope of relevant interventions. Hicks (2004) formulates six broad objectives for extension that remain relevant today:

- to educate farmers to gain new information and develop new skills;
- to help with rural tasks relevant to agricultural production and marketing;
- to take research to the farmers;
- to encourage farmers;
- to train farmers in decision-making; and

- to support the production of a particular crop.

Agricultural extension services generally aims at facilitating farmers' access to information on production techniques and market developments have the potential to improve farmer's access to rural markets (AusAid 2004). Hence, extension services play an important role in training farmers. However, landless people stated they had no access to these kinds of services, and therefore opportunities to participate in any trainings were limited. The majority of the poor has no or little land and work mainly as hired labour so that they could take little or no benefit from Programme interventions targeting on livelihood promotion. This partially may also help to explain, as Nguyen Ngoc De et al. (2004) argues why the number of Khmer poor who escaped from poverty is 'insignificant', despite a good achievement of the two Programmes in general. The poor were widely left out from these interventions.

Therefore, with having been small in number and quality, agricultural promotion programmes did not turn out to be successful. Vital services such as agricultural extension and job promotion did not really contribute to the poor because they were not targeted to them. While the poor said they hardly did not participate in these trainings, landowners told they were invited through the Farmer's Union representative.

Those who participated in the trainings complained that the contents were inappropriate. Experiences from vocational training to farmers show poor management which lead to a low rate of young farmers being employed. Training centre capacity was another concern. In total, the study area has been widely left out from agriculture mechanisation, due to low infrastructure, low access to credit markets, and, overall, land plots that in many cases are too small to be used for intensification. Moreover, may farmers tend to avoid the risk to invest into their plots.

In one case, a variety of peanut was introduced (in Khu 5/Khu 6 Sections), but farming failed because it was not appropriate for the soils of the area and there were no buyers. Moreover, most farmers still have low income so they cannot afford advanced production equipment. In addition, farmers' limited knowledge of advanced technology and equipment has also prevented them from using machinery (Vietnam News, March 14, 2009). What this group may need are new varieties of rice and other crops more adapted to a dry and salty environment, based on their own decisions and capabilities, which can only turn out to be successful if being based on an ongoing relationship between extension officers and farmers via a more relevant way of promotion of livelihood groups that try out new technologies and measure success.

In sum, in those communities and places where exposure to climate variability and market constrains has been high, consequences for poor population groups widely exacerbated the positive impacts from the poverty reduction strategy. Impacts on poverty reduction have not reduced vulnerability and/or other external and internal conditions have constrained those impacts. Principally, some of the expected results already suffered from weak implementation and therefore produced weak outputs only. It is clear then that outcomes and impacts have often been considered as insufficient by the workshop participants.

While the positive impacts on poverty reduction have been observable in all the communities that were analysed over the course of the present case study, results draw a different picture on the reduction of vulnerability, mainly due to a lack of efforts on livelihood promotion. In this context, the government has recently drawn up a new programme 135 to assist 61 districts whose poverty rates are more than 50 percent. The assistance includes priority in resources, the empowerment of local authorities and people, and incentives to encourage businesses to employ underprivileged workers (Vietnam News, December 30, 2008). While interventions will therefore target explicitly on livelihood promotion activities, Soc Trang Province will not benefit from the Programme.

## 7.7 Summary

While being highly successful in macro-economic terms, the Mekong River Delta faces tremendous challenges in reconciling market-oriented land use and economic policies with the vulnerability of local populations, not only to climate change. There are several particular sectors of the economy (for example, coastal aquaculture and cash crop production areas) in which contemporary rapid growth has been associated with either stagnation in the gains in poverty reduction, or increasing risk and vulnerability not only for the poor but also for those involved in the commodity markets.

The Mekong Delta has been a focal point of the state's rural development programmes. With over 70 percent of the population living in the countryside, the major challenge to the Vietnamese government is to provide viable and sustainable livelihoods for rural inhabitants (Le Bach Duong et al. 2005). Government policies for the Mekong River Delta have put in place strategies for overall development planning. While long-term strategies aim at moving away from agriculture as the main income source, the region will be a topic of ongoing concern over the mid-term.

In the case study region of Soc Trang Province, my findings show that ongoing economic and human activities have left their mark on the environment (including depletion of mangrove forests, pollution from wastewater used in industry and aquaculture, decrease of groundwater levels in urban sites), and that ongoing climatic changes are impacting on a range of resources that already by now are highly sensitive to ongoing stresses.

Exposure due to climate *variability* (mainly given to water-related challenges, such as salination of irrigation water and low levels of groundwater in urban sites in prolonged periods of drought, and coastal erosion; precipitation patterns, moreover, have become more fluctuating—it rains when it should be dry and remains dry when it should rain) is discernable in all the research sites. However, the impacts of climate *extremes* have been rather limited over recent years (with the last major typhoon dating back to the year 1997). Exposure to climate variability and sea level rise are therefore the principal climate change-related phenomena which must be linked to analysing social vulnerability.

Findings then show that 'the poor' is too broad as a category to provide for meaningful results on major determinants of vulnerability in the study region. The study shows that different population and livelihood groups can be affected in different ways. Vulnerability, it is show, is a more suitable notion than poverty through which consequences of climate change and how they affect communities and households can be identified, observed and analysed. Social vulnerability is shaped by insufficient market integration and fluctuating market conditions, by unsustainable management of environmental resources, and by constrained access to land resources. Not surprisingly, population groups located close to the shoreline are generally more vulnerable than households that are located further inland. Yet, though, their adaptive capacity is also lower, due to low levels of human, economic, political, and protective capabilities. Their asset structure is the lowest compared to the wider population which leaves them equipped with a low ability to adapt to climatic challenges and what, as a result, adverts to the strong linkage between poverty and vulnerability in which low levels of adaptive capacity prevent these groups from a betterment of their living situation.

While the absolute number of people living below the economic poverty line has been reduced, poverty is still widespread and deep in many dimensions based on their capabilities. The government has developed several programmes to support agricultural households to improve their incomes, but many families are yet to benefit in terms of livelihoods. The research shows that both targeted as well as broader development interventions in the study region are a necessary, though not a sufficient, approach to enhance adaptive capacity.

Sustainable livelihood approaches, social protection and disaster risk reduction play a significant role for improving communities' living conditions.

While targeted programmes for reducing poverty and promoting livelihoods have had certain positive impacts that unfolded on people's living conditions, market vulnerabilities and institutional constraints have inhibited substantial improvement of poor people's lives.

The way that local institutions govern access to resources has largely lead to an exclusion of poorer segments of society. Institutional constraints are limiting them in their ability to adapt. Documentation on these constraints is provided through examples of imbalanced allocation, prevailing market structures that limit farmers from crop diversification, restraints to access to non-farm labour, and poor opportunities of marginalised population groups to participate in decision-making processes.

At the same time, social protection provided by the government assures for some basic support to the poor, but does not facilitate betterment in times of acute individual crises. When support is needed, poor people in the communities rather rely on mutual support and make use of social networks.

Remaining poor, many if not most of the community members in the coastal zone are highly dependent on aquatic resources that they collect from the mangrove forests located along the coast. Over time, this has lead to an unsustainable use of the forests which protect the shoreline and the coastal dykes from erosion and provides shelter from storm surges and flashfloods. Models for sustainable disaster risk management have currently started to take the needs of the people into account through developing community-based co-management models in which local people are granted access to these areas while bearing responsibility for the protection of the forests. However, some unclarities persist on whether these attempts will be sustainable over time.

## 8 Conclusions

Based upon both the overall and specific findings from the study, a number of conclusions can be drawn on how adaptive capacity can be further enhanced in the case study region:

Overall, there are some promising approaches to adaptation and to creating synergies between sectoral approaches discernable at the national level of Vietnam, including some approaches to make institutional frameworks more enabling for the poor. It is clear, though, that implementation remains a challenging task, given the prevailing political, economic and social context of the country.

The research shows that the most promising means to reduce vulnerability is to increase adaptive capacity and to focus on more sustainable ways to development. This perspective will help to ensure protection of people and their livelihoods, especially of the rural poor. Moreover, an integrated approach is needed based on improved communication and coordination between sectors, scales, and agencies. Neither pure economic development nor putting a mere focus on interventions to poverty reduction will constitute the way to adaptation. Rather, a more systemic and holistic approach to adaptive capacity building is needed. This can only be achieved when being based upon an enabling institutional environment. Without considering the institutional context, new forms of societal regulation will be only about to fail.

After 25 years of economic restructuring, it is high time to focus on wider aspects of human and sustainable development in the Mekong River Delta. This includes to employ a focus that is oriented towards sustainable planning and management, and develop more integrated forms of livelihood approaches, social protection, and disaster risk reduction.

Since most of the poor in the Mekong River Delta are located in rural areas and are involved in farming production, the strategy of agricultural extension and industrialisation has had the advantage of both raising incomes and accelerating growth. For the immediate future, though, it will be important to move away from a growth-led understanding of development, and taking aspects of sustainable and human development into more account. Sea level rise in the Mekong Delta will not happen overnight but gradually over the next decades, thus urging the country to plan with related exposure.

Over time, transferring people away from the immediate coastal areas could free these lands for promoting mangrove cultivation which will also reduce risk from sea level rise and increased salt water intrusion. For the time being, though, livelihood groups in the coastal zone are among the most marginalised ones; hence to simply resettling those to 'safer' places will not improve their living conditions. Transformation of the regional economy away from agriculture and provision of opportunities to sustainable forms of income diversification can be a way to adapt to the given challenges. Without enabling environments that ensure for sustainable livelihood strategies, though, these measures will only lead to more hardship of these groups.

Vulnerability to climate change is intimately linked to poverty, and the best long-term adaptation measure for the most vulnerable remains reducing poverty in all its dimensions. Since poverty is prevailing in the research site, it remains important to run targeted support programmes for promoting the livelihoods of the poor segments of society. Urgent measures that will make these programmes more relevant for beneficiaries and to strengthen their livelihoods include encouraging risk spreading through income diversification; and to create sustainable conditions for common property management rights.

Concerning the social security system, the task is also to adapt policies and develop a flexible system of social assistance that can respond to disasters and accidents, boost prevention and

response to natural calamities and the impact of climate change, especially in the regions regularly hit by drought and floods.

While disaster risk reduction has been strong both in the region and in Vietnam for a long time, there has been so far little attempt only to linking disadvantaged and vulnerable groups, such as poor farmers, to disaster risk management schemes. Disaster risk management, though, will also have to become adapted to the needs of the vulnerable segments of society, and will have to promote collective security, for example by strengthening disaster preparedness, and measures such as dyke reinforcement and forestation.

# Annexes

## Annex I: Questionnaire

### 1. Livelihoods

**1.1. Does your income depend on any of the following resources? You can choose more than one answer!**

- Farming land
- Pasture for livestock
- Mangrove forests
- Mudflats
- Sandbanks
- Water beyond sandbanks
- Other: \_\_\_\_\_
- No, my income does not depend on any of these resources

**1.2. Out of these resources you have marked in the question above, which one is the most important for providing you with an income? Please only choose one answer!**

- Farming land
- Pasture for livestock
- Mangrove forests
- Mudflats
- Sandbanks
- Water beyond sandbanks
- Other: \_\_\_\_\_
- My income does not depend on any of these resources

**1.3. Do you possess land for cultivation?**

- Yes.

If yes, how many sqm. of land do you possess?

- Less than 1,000 sqm.
- More than 1,000 sqm.

- No.

If no, are there any other places where you cultivate crops or raise livestock?

- Yes.
- No.

**1.4. In total, do you think that your living situation has changed over the past five years?**

- Over the past five years, my living situation has become better.
- Over the past five years, my living situation has become worse.
- Over the past five years, my living situation has not changed.

**1.5 Is your household considered as 'poor' by the Government?**

- Yes.
- No.

**1.5.1 In case your household is considered as ‘poor’ by the Government, do you or your household receive any kind of social assistance by the Government?**

- Yes.             No.

**1.5.2 In case you or your household receives social assistance, what is the type of assistance?**

- Health insurance  
 Exemption of tuition fees  
 Other: \_\_\_\_\_

## **2. Land use and prevailing challenges**

**2.1. In general, is the issue of land-use and land use rights a big problem in your village? Please only choose one answer!**

- It is a big problem, and there are many conflicts about land-use and land-use rights  
 It is a big problem, but we can sit together and try to find solutions  
 It is a big problem, but I think the authorities will find reasonable solutions  
 It is not a big problem, because it is clear who uses which land and who is allowed to use it

**2.2. Are there many discussions about land-use and land-use rights in your village? Please only choose one answer!**

- Yes, there are many discussions, especially between the village people and the local authorities  
 Yes, there are many discussions, especially among the village people  
 No, this is not widely discussed

**2.3. Previous studies in Vietnam have pointed out to the following to be key issues for the development of coastal villages. Please choose one issue which you consider to be the most important in your village.**

- Better mechanisms for conflict resolution in your village  
 More and better leadership of authorities  
 More accountable decision makers at the local level  
 More transparency and better information about laws and regulations  
 More and better training for village people to deal with current problems  
 Taking account of cultural heritage (including aspects of religion, rites, and language)

## **3. Social networks**

**3.1. In case your income is threatened, which are sources of support you can rely upon? You can choose more than one answer!**

- My family  
 Other people from the village  
 Mass organisations (such as the Farmer’s Union or the Women’s Union)  
 Government  
 Local bank  
 I will sell land, livestock, or other assets  
 Other: \_\_\_\_\_  
 There are no sources of support, and I will better not get into such a situation.

**3.2. Are you a member of a mass organisation, and if so, which one?**

- Farmers' Union
- Women's Union
- Youth Union
- Veterans' Union
- Red Cross
- Other: \_\_\_\_\_
- No

**3.3. Are you a member of another organisation, such as a club, an association, or a cooperative?**

- Yes, I am a member of: \_\_\_\_\_
- No

**4. Risks**

**4.1. What do you think is the worst that could happen to you in your current living situation?**

**Please only choose one answer!**

- To experience a natural disaster that leaves me and my family homeless
- To lose my main source of income and not being able to find an appropriate alternative
- To see that a close relative falls ill and not being able to provide him with appropriate care and treatment
- To fall ill and no one will be there to treat me and to take care of me
- Government decides to resettle me and my family
- Other, please specify: \_\_\_\_\_

**5. Collective action and decision-making processes**

**5.1. In general, how is the relationship between you and the village authorities? Please only choose one answer!**

- Easy
- Sometimes there are problems
- There are many problems
- No idea

**5.2. In general, how are decisions made which affect your whole village? Please only choose one answer!**

- Decisions are generally taken in a collective way. Everybody has a saying
- Normally, our village head makes a decision after discussions with the most important citizens
- Our village is run like a family. The village head is like a father. The final decision is up to him
- Decisions are mainly made by higher authorities from the commune or district. We are not involved
- I don't know how these decisions are made

**5.3. Please tell us about an activity from your village where you think participation of village people and co-ordination between the village people and the local authorities worked well.**

.....  
.....  
.....

**Why do you think it was particularly this activity where co-ordination worked well?**

.....  
.....  
.....

**6. Demographics**

**6.1. Are you female or male?**

- Female
- Male

**6.2. What is your year of birth?**

19\_\_

**6.3. Which ethnic group do you belong to?**

- Kinh
- Khmer
- Chinese
- Other

**6.4. For how long have you been living in your village?**

- My whole life
- More than 20 years
- More than 10 years
- Less than 10 years

**6.5. How many people belong to your household?**

\_\_\_\_\_

## ***Annex II: MAPP as a tool for analysing impacts of interventions, projects and programmes***

### **What is MAPP?**

MAPP is an actor-centred method for impact monitoring and assessment devised by the German Development Institute (GDI; Deutsches Institut für Entwicklungspolitik, DIE) in 2002. Today, a wide range of (mainly German) development organisations and NGOs apply MAPP for the monitoring and evaluation of their project- and programme-related impacts.

MAPP is based on a multi-dimensional concept of poverty and shows how the social dimensions of development, including, for example, (i) human dimensions, (ii) economic dimensions, (iii) protective dimensions, (iv) political dimensions, and (v) socio-cultural dimensions, have changed over time. MAPP is a participatory and process-oriented tool and allows for an analysis and determination of project objectives (thus answering the question of whether objectives have been reached or are on track to be reached) in a given local context, and whether the poverty of target groups has actually been reduced.

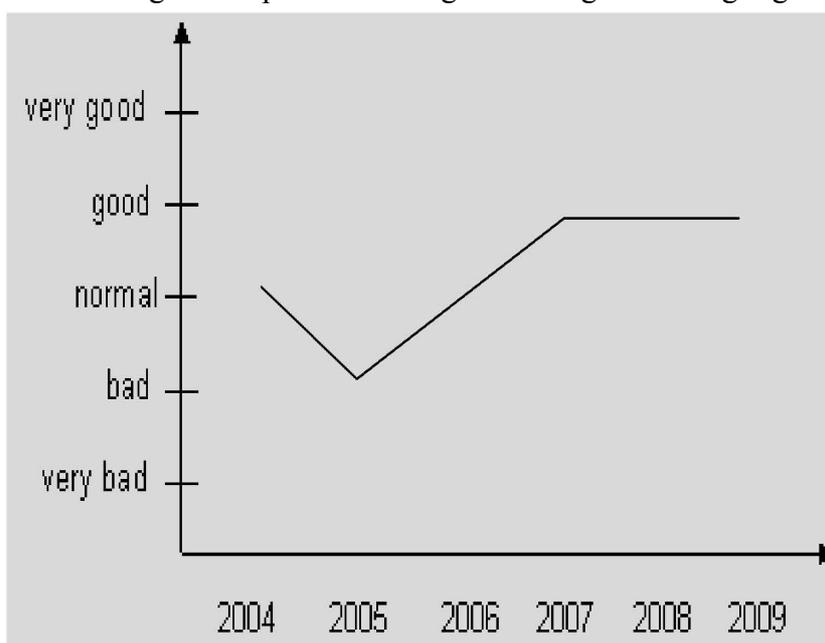
The tool takes place in the form of participatory and organised workshops with target groups of a specific programme or project, and normally is applied on the local commune or village level.

### **The five steps of MAPP**

Each MAPP workshop (one workshop per village; for the selection of villages, workshop implementation and workshop participants, see Chapter 7.2) consisted of five consecutive steps. In each step, workshop participants were asked to provide their individual opinion on general and specific aspects of development in their village. These opinions were discussed among all workshop participants and, after reaching a consensus, were charted in tables and diagrams which were prepared by the evaluation team before the workshop started. In so doing, one specific table or diagram was filled out in each of the five steps. Each of these steps is presented in more detail in the following.

- **First step: Life in the village**

In a first step, major factors influencing development in the given village were highlighted. For pragmatic reasons, the year 2004 served as a vantage point for the discussion. Thus, the workshop participants discussed how their life has changed over the last five years. The main goal was to get an overview of the situation as a whole, as well as the local living conditions, by highlighting all relevant key incidents in the village over this period. Developments as well as changes in living quality and conditions were visualised on a time bar. The aim was to identify those key incidents that crucially influenced

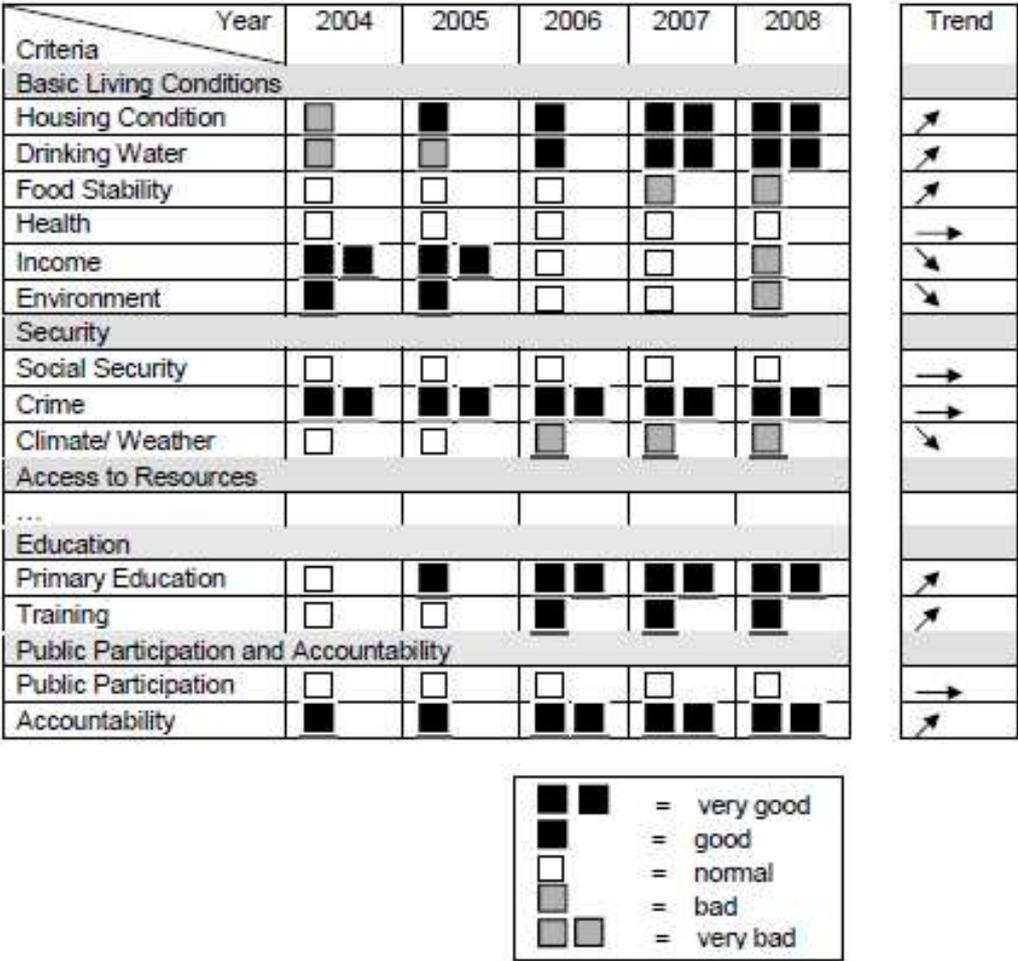


the living quality of local village people. For each year, participants could then decide whether life in their village was either “very bad”, “bad”, “normal”, “good”, or “very good”. An example for the results of Step 1 is illustrated in the chart on the right.

- **Second step: Trend analysis of the living situation in the village**

In a second step, the living situation in the villages was analysed in more detail in a trend analysis. This analysis was based on the general situation described in Step 1 as well as the key incidents highlighted there, and by approaching a more detailed differentiation of the key incidents.

By looking at the situation in a given year, it was possible to deduce a trend. This trend was then visualised with an arrow which pointed either upwards (indicating that the situation improved), downwards (indicating that the situation got worse), or which followed a horizontal line (indicating that the situation had not changed). An example for the results of Step 2 is illustrated in the following:



- **Third step: Development interventions, programmes, and projects**

In a third step, we identified all types of development interventions that had taken place in the village over the last five years. This list included important interventions (projects, programmes, constructions, etc.) that had taken place in the village and provided an overview of the respective institutions behind these interventions and listed the beneficiaries of these interventions. Moreover, we asked about the people’s contribution while the intervention took place as well as people’s contribution to maintaining the results.

One of the main features of this step was to identify existing development interventions of the Vietnamese Government and their relevance to the people within the context of living conditions on the ground. This helped to avoid a too narrow focus being put on the interventions, which would have led to other activities influencing people's lives and their villages not being considered. Moreover, asking for the people's contribution allowed for important insights into people's ownership and the sustainability of the intervention. An example of the results of Step 3 is provided in the following:

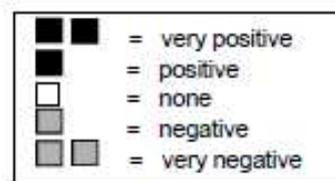
Intervention	Year	Main provider	Beneficiaries	People's contribution (initial)	People's contribution (maintenance)
Programme 135	2005	Government	All people	none	None
Programme 134	2007	Government	Poor people	none	'taking care of the new street'
Wetlands Project	2006	World bank	All people	10 men days/ household	/
Charity Project	2004 – today	Buddhists' Association	Buddhist community	/	/
Microcredit Project	2008	Women Union	Women, Farmers	Set-up of credit groups	/

- **Fourth step: Analysing the impacts of development interventions**

In a fourth step, we identified the impacts of the development interventions listed in the previous step by asking the extent to which they influence/have influenced the development criteria listed in Step 2. Thus, Step 4 combined the information and results that were drawn from the two previous steps. Step 4 showed how each of the interventions has been influencing the living situation in the village.

Consequently, this step allowed for an evaluation of all the impacts which could be deduced from the development interventions mentioned by the participants. This included positive and negative impacts, as well as intended and unintended impacts, while also showing areas for which no impacts could be identified. An example of the results of Step 4 is provided in the following:

Criteria \ Intervention	Housing conditions	Drinking water	Food Stability	Health	Income	...	...	Accountability
Programme 135	■ ■	■ ■	□	■	□	...	...	■
Programme 134	■ ■	■	■	□	■	...	...	■
Wetlands Project	■	□	□	■	□	...	...	□
Charity Project	■	□	■ ■	□	□	...	...	□
Microcredit Project	□	□	■	□	■ ■	...	...	□



- **Fifth Step: Conclusions**

This final step did not contain any new information or tools. It consisted of an identification and discussion of conclusions based on the steps of the workshop. This final step offered a good opportunity to cross-check the data by comparing the results from the different steps of the workshop. In the end, we provided a final summary of the workshop and highlighted the most striking results.

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