DECISION-MAKING IN RELATION TO CLIMATE AND CLIMATE CHANGE IN THE PEOPLE'S REPUBLIC OF CHINA: FROM ADAPTATION TO SEA-LEVEL RISE TO DESTINATION CHOICE IN CHINESE TOURISM

Dissertation
zur Erlangung des akademischen Grades eines
Doktors der Wirtschafts- und Sozialwissenschaften (Dr. rer. pol.)

des Departments Wirtschaftswissenschaften
der Universität Hamburg

vorgelegt von

Maren Anja Lau, M.A. Sinologie
aus Frankfurt/Main

Hamburg, den 8. September 2006

Mitglieder der Promotionskommission:

Vorsitzender:	Prof. Dr. Heiner Hautau
Erstgutachter:	Prof. Dr. Richard S.J. Tol
Zweitgutachter:	Prof. Dr. Wilhelm Pfähler

Das wissenschaftliche Gespräch fand
am 28. November 2006 statt.

A C K N O W L E D G E M E N T S

First of all I like to thank my supervisor Prof. Dr. Richard Tol for his decision to hire me for the DINAS-COAST project. This provided me with the welcome opportunity to write this Ph.D. thesis. I am thankful to him for creating an environment of freedom in research, i.e. for enabling me to put the emphasis in my research work myself and for enduring my constant attempts to put China first. I am indebted to his continuous support throughout the years. Apparently he had some faith that I would – sooner or later – finish this thesis. Later that is, as it shows now. During the last five years a couple of things happened that left a deep impact on my life. We grow with our tasks however I would like to add we even more do so with what destiny has in store for us. In this sense this thesis and the process through which it came into being reflects much more than the participation in a research project. As what Aristotetle, greek philosopher and early political scientist, understood over 2300 years ago, that 'the complete is more than the sum of its pieces', is valid for politics and life in general. Moreover, it is equally true for a cummulative thesis.

The different topics and fields of research that are combined in this thesis make it interdisciplinary. This is a quality that also always appealed to me. However, I was far from being fully aware of what this fact means when I started my Ph.D. studies. This thesis is very much influenced by the EU-project DINAS-COAST (EVK2-2000-22024) which provided welcome financial support. I thank the colleagues from DINAS-COAST for their moral support and helpful comments during my talks at project meetings in London, Hamburg and Amsterdam. They always created a relaxed, yet, stimulating atmosphere that helped us Ph.D. students to develop the self-confidence and routine necessary for scientific exchange. I am particularly indebted to Richard Klein, Robert Nicholls, Bert van der Valk and Rik Leemans for enlightening me about the adaptation issue and taking a holistic perspective. The DINAS-COAST colleagues were always good company and I thank everyone for sharing their professional experiences in this truly interdisciplinary project. Special thanks go to Ib Troen for enabling my China field trips in the context of an European project.

I am also very indebted to a number of Chinese research organisations and conference planners in China. I thank Dr. Chua Thia-Eng from PEMSEA who kindly allowed me to participate in the Second Forum of the RNLG in Xiamen 2002. Further I thank the initiators of the Water Conference in Dalian 2002 (and especially Dr. Juha Uitto for making my participation possible on short notice) and PACE for its first conference in Beijing 2003. My research would not have been possible without the hospitality of all interviewees in Shanghai, Xiamen, Beijing and Tianjin who were so kind to give up part of their valuable time. I also thank numerous conference participants in Xiamen, Dalian and Beijing for their hospitality and kindness to share their experience and opinions with me. I thank Zhang Yiping and Bo Ji for their assistance in grasping the Shanghai dialect and Dai Lian for her support and management at location in Beijing. I also like to thank the UK CARE community for providing me with a challenging platform to present my papers at and especially Dr. Jian Xiangrong for inviting me to participate.

The survey of chapter 5 would not have been possible without the assistance of DB Autozug GmbH, Flughafen Hamburg GmbH, Lübecker Hafengesellschaft, Seehafen Kiel GmbH&Co KG und ZOB Hamburg GmbH. Further the kind advice and comments of a number of experts helped to improve the questionnaire. I thank Jackie for her work on the study, the pleasant co-operation and sharing the ups and downs of finishing 'dead on time'.

Essentially many parts of this thesis, especially the databases and the survey in chapter 5, benefited from help and enthusiasm by the Hiwis of FNU. I like to thank: Petia Staykova, Christian Röbcke and Aydin Nasseri for their assistance with the survey and Hanna Breitkreuz, Jenny Behm, André Krebber and Nele Leinert for their help with the general data compilation and the GIS application.

A thankful recognition goes to the colleagues of FNU. The time there would not have been the same without them: thanks to all of them for their good company over the years! I especially thank Katrin and Jackie for the good time we had in the offices at both locations and for their friendship throughout the years. Zhou Yuan I thank for challenging discussions about modern China and her help with expanding my language skills. I thank Marianne for many relaxing dinner invitations and sharing – among other things – a favour for poppies. All of them showed much patience and were there for me when things were rough. They helped me to keep going more than once. Michael solved many of my computer problems and Malte kindly shared his knowledge of Excel when I mistrusted any software again. I thank Kerstin, Katrin, Katrin and Jackie for their advice and comments on parts of earlier versions of this thesis. I thank Olli for drawing my attention to the position at the right time. Further, in the finalisation stage of this thesis Dr. Kevan Willey improved my English and Franzi was a great help with the layout.

Last but not least I thank my parents for enabling me to study in the first place, their love and endless support throughout the years and that they always believed in me. I thank Axel for being there during the times we shared and the good memories after all. Thanks also to Clea for mutual motivation and distracting me by Qing dynasty's Jiyun from the problems of modern China. Further, the 'Salonisten' were definitely a great inspiration during the last year for how to take things with humour – or rather not loosing it sometimes. I am indebted to all my friends for their friendship, support and distraction. They often endured my odd stories from the scientific front and regularly reminded me that there is a life beyond university.

This thesis is about politics and everything related to politics is often a disputable matter. The same goes for the social sciences in general, as there are always many perspectives and ways to interpret needs and goals. In this sense my findings might not please everyone. However, diplomacy and science do not go together. As Laozi said:

信言不美，美言不信！

Xin yan bu mei, mei yan bu xin: True words are not beautiful, beautiful words are not true!
(Laozi *Daodejing*, 81)

TABLE OF CONTENTS

PART III: TOURISM AND DECISION-MAKING

PART IV: CONCLUSION

EXPLANATORY NOTES

- Chinese terms (except place and river names) are used in Pinyin transcription where appropriate, i.e. where there is no satisfactory English translation. Throughout the text these terms are set in italics.

- I use the Wade-Giles transcription only for two popular place names of special administrative zones: Hong Kong and Macao (instead of Xianggang and Aomen). Therefore, I refer to Beijing (Peking) and Guangdong (Canton).

Further, the major rivers are called by their Chinese names, as this is more systematic: Huanghe (Yellow River), Changjiang (Yangtse) and Zhujiang (Pearl River).

In the appendix 10 (using abbreviations for all provinces and autonomous regions) I use XZ (Xizang) for the Autonomous Region Tibet, XJ (Xinjiang) for the Uighur Autonomous Region, and NM (Nei Menggu) for the Mongolian Autonomous Region.

- Due to differences in translation of Chinese terminology as used by some English language sources, in some cases a Chinese governmental agency may have two different names. For instance, the State Meteorological Administration is also termed China Meteorological Administration; both terms describe the same national level agency. I use the terms according to the authors and sources that I cite.

In contrast, some agencies were officially renamed in the course of administrative reforms during the time of writing this thesis. Therefore, the National Development and Reform Commission is also mentioned by its former name Development Planning Commission.

Appendix 1 provides an overview of major governmental agencies, information networks, and other institutions and organisations that I consulted. Where the translations are not verbatim, the Chinese names in Pinyin are given. The website details complete the list.

- Chinese websites are frequently not available. I experienced this quite often during my research. The websites I cite sometimes do not open the specific page, yet the site is still available. Unfortunately, it may be difficult to find a link to the page that is sought. For all texts I cited, I give a date, when I last viewed the page on the internet. For official websites of appendix 1, an error message usually means the site is temporarily not available.

FIGURES LIST[1]

[1] Due to the cummulative set-up of this thesis some figures are used in more than one chapter. Figures 3-4/4-5, 3-5/4-6 and 6-1/7-3 are identical.

TABLES LIST

APPENDICES LIST

A B B R E V I A T I O N S

ACCA21:	Administrative Center for China's Agenda 21
ADRC:	Asian Disaster Reduction Centre
AI:	Agrometeorological Institute
APEC:	Asia-Pacific Economic Cooperation
CAS:	Chinese Academy of Sciences
CCCIN:	China Climate Change Information Network
CHS:	Centre of Human Settlements
CIA:	Central Intelligence Agency
CIESIN:	Center for International Earth Science Information Network
CIIC:	China Internet Information Center
CMA:	China Meteorological Administration
CNBS:	China National Bureau of Statistics
CNTA:	China National Tourism Administration
CNTO:	China National Tourist Office
COIN:	China Ocean Information Network
CPIRC:	China Population Information and Research Centre
DINAS-COAST:	**D**ynamic and **IN**teractive **AS**sessment of National, Regional and Global Vulnerability of **COAST**al Zones to Climate Change and Sea-Level Rise
DPC:	Development Planning Commission
DZT:	Deutsche Zentrale für Tourismus
ETC:	Economic and Trade Commission
FUR:	Forschungsgemeinschaft Urlaub und Reisen
GEF:	Global Environment Facility
HNTA:	Henan Tourism Administration
IDNDR:	International Decade for Natural Disaster Reduction
IMO:	International Maritime Organisation
IPCC:	Intergovernmental Panel on Climate Change
IWMI:	International Water Management Institute
JICA:	Japan International Cooperation Agency
LOICZ:	Land-Ocean Interaction in the Coastal Zone
MLR:	Ministry of Land and Resources
MOA:	Ministry of Agriculture
MOC:	Ministry of Construction
MOCom:	Ministry of Communication
MSA:	Maritime Safety Administration
MST:	Ministry of Science and Technology
MWR:	Ministry of Water Resources
NBF:	National Bureau of Forestry
NDRC:	National Development and Reform Commission
NTA:	National Tourism Administration
PEMSEA:	Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas
PRC:	People's Republic of China
RMB:	Renminbi (= Yuan); Chinese currency
SEPA:	State Environmental Protection Administration
SOA:	State Oceanic Administration
UNCLOS:	United Nations Convention on the Law of the Sea

UNDP:	United Nations Development Progam
UNESCAP:	United Nationas Economic and Social Commission for Asia and the Pacific
UNESCO:	United Nations Educational Scientificand Cultural Organisation
UNFCCC:	United Nations Framework Convention on Climate Change
WCC:	World Coast Conference
WRI:	World Resources Institute
WTO:	World Tourism Organisation
WWF:	World Wildlife Fund

PART I: INTRODUCTION

Chapter 1: introduction and method

1.1 General introduction

In the People's Republic of China (PRC, China), both economic power and the population are concentrated in a coastal zone that is threatened by an imminent rise in sea-level. How will China adapt to this impact of climate change? Does the fact, that China still has a hierarchical governmental system, ease decision-making for such novel and complex matters? This thesis is concerned with organisational decision-making in situations affected by uncertainty. It further considers, what distinguishes decision-making by organisations from that by individuals? Climate has proven to be a major aspect in choice of destination by international tourists, but is this also the case for Chinese tourists? Given the huge expectations that the tourist industry has for the Chinese market, the motivation of Chinese tourists and their preferences in choice of destination are important and unresolved factors.

China is a country in transition. China is not considered to be at the same stage of development as, for instance, a country in the European Union, but neither is it a typical developing country. This in-between status is related to the ambivalent status of China as an emerging economic power, on the grounds of market economic structures, while at the same time retaining its hierarchical administration, with an aging socialist political structure. Slowly but surely, China is experiencing challenges to its social system, including unemployment, large-scale work-related migration and an aging society, to name but just a few. Thus, China is a country facing massive changes. Rapid developments in the environment or in the socio-economic system affect both organisational and individual decision-making.These include political changes as far as they impinge upon administrative bureaucracies. Climate change is undoubtedly a major cause of administrative and policy change.

Two topics in relation to climate and climate change in China are discussed in this thesis: one, is the policy of long-term adaptation to a rise in sea-level because of climate change, and, two, emphasises the role climate plays in choice of destination by domestic and foreign tourists in China and Chinese tourists going abroad.

The Chinese coast is highly populated and economic development at the coast is particularly important for sustaining the whole country. Thus, human well-being and wealth are at stake if the sea-level continues to rise. Latest estimates predict a rise of 88 cm by 2100 (IPCC 2001a). None of the many possibilities to protect against the rising sea-level are cheap or simple. The building and strengthening of dikes is a costly solution for a mainland coastline of 18,000 km, whereas a managed retreat from the coast is an extreme solution with profound organisational constraints.

Tourism is a major growth sector in China and was given the status of an industrial pillar for future decades by the Chinese government (Zhang and Lew 2003). It is likely that climate change will have a significant impact on the tourist industry. Compared with international tourism in China, domestic tourism has only recently emerged and is developing rapidly. Tourism infrastructures in China are still evolving and so policy changes are more easily implemented than in many other sectors, especially those sectors affected by climate change. Long-term problems that are pervasive, such as climate change, – affecting institutions as well as individuals – usually result in the production of short-term remedies by the institution, i.e. policy-maker. Solutions to long-term problems have a higher degree of uncertainty and so the

level of experience that is perceived as necessary to generate policy change cannot be achieved with confidence, resulting in no decision being made. In contrast, the tourist industry is more dependent on the performance of many individuals. When tourists make decisions about their choice of destination, they have a comparatively larger influence on the development of the industry than do stakeholders in any other industrial sector.[1] Tourism is a paramount example of consumer dependence, confounded by the additional aspect of uncertainty – volatile consumers reacting to the impacts of climate change. Even if climate is not yet a decisive factor for destination choice in China, this will change in response to changes in the environment and, specifically, to the potential rise in natural disasters. The way countries cope with climate change may influence the decision-making of tourists in the future, in a way that the reactions to terrorism do now.

1.2 Purpose, aim and scope

The two major topics of this thesis – sea-level rise and tourism – are united by a focus on the processes of decision-making. In research on China, these topics have not yet been investigated. Climate change as a problem - and with it the acknowledgement of a rise in sea-level as one of its major impacts - has emerged very recently and the tourist industry in China has only developed since the 1980s.

Climate change affects the conditions we live in. A reaction to change, or lack of it, by mankind is the result of conscious decision-making, regardless of the anticipated scope of that change. The decision of a consumer to express a demand or preference is very similar. Yet, in both cases the quality of the information that leads to effective decision-making is crucial. Whereas the individual decision of a consumer mainly depends on information and the general motivation to consume, institutional decision-making processes respond to a wider variety of influencing factors. Despite the fact that information is important, motivational conflicts between the major players and participants affect the decision-making process. Institutions make decisions either internally (i.e. the decision is made by interested or involved parties within the institution) or externally (with the participation of other institutions). The political process generally depends upon the latter kind of decision-making. When decisions are made involving a wider circle of participants, then power structure relationships become important. For the political decision-making of institutions, the whole organisational structure of a political system (polity) is decisive, as this structure pre-determines the relative stances of the participants.

There are various possibilities to approach the analysis of politics in a specific field, mainly concentrating on either political content or the way it is practiced. Thus, the potential policies or their actual implementation by the various involved parties are discussed and evaluated according to pre-defined goals. In contrast, the structural elements of a political system and the impact of organisational patterns are seldom considered. Chinese politics are of a hierarchical nature with highly developed and constraining organisational structures. In contrast, the participation patterns of individuals – which greatly influence power structures in democratic systems – are less relevant. Therefore, the approach adopted in this thesis – with its focus on China – concentrates on the organisation of politics. A particular issue is the reaction in China to climate change and requirement for political change, which is anticipated to be most problematic in static hierarchical structures. Yet, China is not only very vulnerable to the effects of climate change, such as rise in sea-level, it is also a major player in emission

[1] For instance, when tourists react to a crisis they are very flexible in varying their destination choice or may decide not to travel at all (Essner 2003). In contrast, energy users are less flexible in changing their source of energy, for it is essentially indispensable and therefore uninfluenced by consumer choice.

mitigation politics. It is therefore vital to comprehend how political change that may facilitate climate change negotiations is dependent on the polity of the Chinese system.

The aims of the investigations presented here, include:

- evaluating the dimension of structural constraints in Chinese politics in relation to new approaches designed for general application worldwide. Integrated coastal zone management (CZM) is an approach that is investigated for its integrative potential, in particular,

- evaluating the role organisational frameworks play in policy implementation, in order to find the most meaningful organisational set-up for the realisation of the strategies of adaptation to sea-level rise in China. This is done while bearing in mind the structural constraints to decision-making in China,

- providing evidence that climate plays a major role in tourist destination choice,

- examining Chinese tourist preferences for specific destinations in China and abroad and at further investigating their motivation to travel as part of their decision-making,

- providing theoretical evidence that the same aspects that impact on institutional decision-making are valid for individual decision-making, and

- giving an outlook of the impacts climate change may have on China's tourism industry and assessing the relationship between a potential decline of the tourism sector in China and a political change in favour of climate change policies.

1.3 Outline and method

This thesis consists of nine chapters split into four major parts: I - introduction and method (chapter 1), II - sea-level rise and decision-making in the coastal zone (chapters 2-4), III - decision-making and tourism (chapters 5-8), and IV - a conclusion (chapter 9).[2] All analysis is carried out for China.[3]

Figure 1-1 shows the core methodologies, both qualitative and quantitative, and the research tools used. Qualitative methods of social and political science are used in chapters 3, 4, 7 and 8, with statistical analysis in chapters 5 and 6. The major tools ranged from a questionnaire (chapter 5), to interviews (chapters 3 and 4) and to the analysis of newly compiled databases (chapters 5, 6 and 7).

Part II - sea-level rise and decision-making in the coastal zone - (chapters 2-4) emphasises decision-making within and among governmental institutions and highlights the constraints experienced especially while introducing long-term policies.

[2] Different parts of this thesis have been published as research papers in international scientific journals or at the time of writing are submitted for consideration. Two of them are co-authored (chapters 5 and 6).

[3] Chapter 5 is the only exception. It features an empirical study on the role of climate in tourist decision-making and was undertaken in Germany. China was included as a destination country and a small sample of tourists bound to China has been extracted for this thesis.

Chapter number	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Methodology and *analysis tools*	**Garbage can theory**	**Integrated Coastal Zone Manage-ment**	**Adapta-tion to sea-level rise**	**Climate info in tourism**	**Tourist prefer-ences**	**Tourist motiva-tion**	**Climate change decision-making and Chinese Tourism**
Qualitative		X	X			X	X
Quantitative empirical				X	X	(x)	
Theoretical	X	(x)	(x)			(x)	X
Question-naire				X			
Interviews		X	X				
Own database				X	X	X	

Figure 1-1: thesis outline with methodologies and research tools

Chapter 2 discusses the garbage can model of organisational theory applied to the adaptative responses to sea-level rise in China, a major problem for climate change policy. The garbage can model suggests that organisational decision-making is characterised by 'problematic preferences', 'unclear technology' and 'fluid participation' and is not rational but arises from organisational event streams associated with issues such as 'problems', 'solutions', 'choice opportunities' and 'participants', which exhibit the fluid and dynamic characteristics of mutual attraction, repulsion and changing composition. The garbage can approach was initially formulated to explain fuzzy decision-making structures within organisations and, subsequently, applied to decision-making among institutional groups and the many participants within governmental systems. Three main themes consistently occur in garbage can applications: motivation, information and power, and a straightforward decision based upon rational choice is constrained by the relevance of these themes to decision-making by institutions. Generally, it is argued that the more centralised and hierarchical a system, the less it is affected by uncertainty and ambiguity.[4] Despite the hierarchical set-up of the Chinese political system, the informal power structures – the so-called *guanxi*[5] – prove to be very important, especially given the uncertainties of issues such as climate change. Moreover, the benefits of institutional change – in order to meet the demands of new challenges – are questionable as long as only parts of the system (policy, politics and polity) are addressed.

Chapter 3 discusses coastal zone management (CZM) in China and highlights the structural impacts the Chinese political system has on the decision-making processes involved. In order to describe the political conditions found in the country, general power structures are distinguished between the formal (the political system and the administrative set-up) and the informal (the personal networks of the *guanxi*-system). In this way, the polity of China is evaluated as an obstacle to the adoption of general CZM guidelines that are tailored for systems that are more democratic. In order to examine the potential of bottom-up, instead of top-down, approaches, two local CZM programs in the city of Xiamen and the municipality of Shanghai are compared. The very successful integrated CZM project of Xiamen is applied, in theory, to Shanghai. This device reveals that applicability not only depends on the

[4] This only applies to the decision-making process, not to the quality of the solutions.
[5] *Guanxi* are relation-networks and a cultural aspect of Chinese politics (compare chapter 3).

organisational set-up of the CZM program (naming a responsible agency, allocating participating sectors, formulating goals and policies, identifying instruments, building a legislation, broad participation) but also on factors such as political will (of the responsible agency), a clear jurisdiction of responsibilities (of involved government agencies) and the acknowledgement of informal structures, such as the *guanxi*. An organisational set-up for CZM in China that includes informal power structures is proposed.

Chapter 4 addresses decision-making under the condition of uncertainty, by discussing the current policies of adaptation to a rise in sea-level in China. An analysis of ministry jurisdiction for coastal activities, such as land reclamation, coastal construction and dike building, reveals a relatively high representation by the Water Ministry, although it has no clear responsibility for the coastal area. Therefore, further emphasis is put on the possibility to integrate adaptation policies into existing organisational frameworks, such as coastal zone management or disaster management structures. The analysis concludes with a proposal for climate change management in China.

Part III - decision-making and tourism - (chapters 5-8) focuses on the short-term development of the tourism sector in China and turns from the inter-governmental decision-making analysis to that of the consumer.

Chapter 5 investigates the role of climate in the destination choice of tourists in general. The basis is a survey conducted during two summer months in 2004 at major departure points in Hamburg, Germany. It shows that climate is the most important feature for the choice of destination for the tourists surveyed. However, a small sample of eight travellers[6] to China indicates that climate seems less important for travellers to China than landscape and sightseeing spots. For this group, climate is more important for tourists than for business travellers, but even they rank it lower than interests in nature and cultural features.

On the basis of this knowledge, chapter 6 features a statistical regression analysis on the behaviour of Chinese tourists from different countries[7] and of the number of international and domestic tourists at the provincial level in China. The variables used range from climate, transportation facilities and the number as well as classification of sightseeing spots. The results yield tourists' preferences when travelling in China. Additionally, the preferences of Chinese tourists for the domestic tourism market are compared with foreign travellers' preferences; and they prove to be different. A cautious interpretation of what Chinese tourists seek out when going abroad can be given. This largely corresponds to the results of other researchers using different methodologies. Furthermore, the role of regulation by the government-imposed ADS-system[8] on tourist flow from China is discussed.

Chapter 7 investigates further the motivation of Chinese tourists to travel at all. In order to further understand the role of push and pull factors,[9] and climate as such a potential factor, an analysis into the notions of novelty-seeking and similarity-to-home in holiday choice is discussed in terms of size of the country of origin and size of the destination country. China is a large country; therefore, tourists are predisposed to domestic trips (regardless of their preference for novelty or similarity-to-home). This is valid for climate as well as other factors, since China covers almost all climate zones. Furthermore, the influence of source of information on destination choice in China is discussed. A detailed look at the selection of

[6] The sample consists of four travellers on business and four tourists.
[7] From the PRC, Taiwan, HK and Singapore.
[8] The Approved Destination Status (ADS) is required for a country to receive Chinese tourists on package tours.
[9] In the tourism literature (Ryan 2003; Lau and McKercher 2004; Pearce and Lee 2005; Zhang and Lam 1999; Zhang and Lam 1999; Xiao 1997) these are factors determining why a traveller chooses to go on holiday and which destination is chosen.

sources allows some conclusions to be drawn on what is communicated to which group of tourists in the country and whether official policy is more successful than commercial providers.

Chapter 8 puts Chinese tourist decision-making into context with the infrastructural findings of chapter 2. It shows that the same factors that impact on institutional decision-making are valid for individual decision-making. Chapter 8 further evaluates the likely impacts of climate change on Chinese destination choice and tourism in China. A significant question is whether the growth of the tourism sector can be sustained if climate change negatively impacts on China as a tourist destination. The role of policy change and the formal ability of the Chinese governmental system to initiate this change are important for China when the government wants to guide the development of long-term and short-term solutions for the adaptation to climate change.

Part IV - a conclusion - (chapter 9) provides an outlook for future research, with special recognition of the interplay between science and policy-making.

PART II: SEA-LEVEL RISE AND DECISION-MAKING IN THE COASTAL ZONE

Chapter 2: the garbage can – a theoretical approach to decision-making

Decision-making about adaptation to sea-level rise in China is taking place under continuously changing circumstances, which is similar to decision-making situations under times of policy change. This, and the huge uncertainty under which decisions are taken, favours the use of the garbage can concept to investigate decision-making in China. In the following, an institutional perspective is introduced.

2.1 Decision-making processes in institutions

The terminology that is used within the discourse on climate change - such as adaptation and mitigation - suggests that a sustained change in the natural system must be accompanied by a similar change in attitude and action of society and governance. Yet, until now research has only marginally addressed the aspect of reaction to the problem.[10] This is partly due to the fact, that climate change holds a high degree of uncertainty and policy-makers usually expect clear information about the scope of change in order to reallocate time and money effectively. Another aspect is that changes in society and politics are difficult to describe and measure. A further problem that occurs in the context of climate change is that there is a strong demand for reliable data and functional concepts. Whereas data acquisition mostly depends upon a time factor and since the monitoring of change is undertaken as a major prerequisite for further research and as a basis of policy formulation, the formulation of concepts has it own constraints. Basically, there is a trend towards universally applicable solutions that are mostly expressed in general guidelines. Another aspect is the potential up- or downscaling of policies that find expression in a discourse on bottom-up and top-down approaches.[11] This shows that a common ground of discussion and a shared wish for general solutions do not automatically lead to workable concepts and frameworks. The garbage can theory of organisational decision-making discusses the phenomenon of optimal attitudes of the particpants and the parallel existence of solutions to a problem in a situation of non-compliance. Before application of the garbage can model, it is necessary to clarify relevant terminology from the political science perspective. Three dimensions of a political system can be distinguished:

- polity,
- policy and
- politics.[12]

These largely correspond to form, content and process. Polity is the mode of governance and the organisational structure of a political system in which a certain form of politics is pursued. The content of politics is the policy that usually only refers to one field of politics and, therefore, is issue-related to a large degree. The practical dimension of politics – i.e. the implementation of policies – depends on the ideology of the participants and, thereby, must contain some notion of conflict. All three aspects of a political system are interrelated, yet they represent very different parts of the system. This becomes clear when a general discourse delimits the political aspect of a task to just one of the three dimensions. In particular, political change has very different implications in each of the areas. The most challenging and enduring change a political system undergoes is a change in polity, i.e. in structure. In comparison, a change of policy, i.e. in ideas, is much easier to assimilate and can usually be

[10] Please refer to chapter 4 for relevant literature.
[11] Compare O'Toole Jr. (2004) for an account on the sense and method of synthesis of both approaches for sustainable development.
[12] Naßmacher (2004), Schubert (1991), and von Prittwitz (1994) present overviews.

completed in a short term, although there is no guarantee that politics, i.e. the governmental process, acts accordingly and succeeds in implementing the new policy without conflict. This difference in capacity to change is well known and yet this interrelationship of the political dimensions is often underestimated. A new policy is a promising start, but if the polity of a country does not allow it to be implemented successfully, then a mere change in policy is futile. This is more the case with generalised policies that are tailored to be adopted by a wide range of countries. Structural change in political systems is tightly connected to the organisation of political power and its major agents, the institutions. The administration of a state is the manifestation of state structures, whereas the form of government serves the day-to-day organisation of political life. The garbage can model puts the focus on the institutions of administration and government and investigates the decision-making processes within them.

2.2 The garbage can theory

The garbage can theory originates in a model by the same name.[13] In 1972 Cohen, March and Olsen developed a model of organisational choice, which considered universities as organised anarchies,[14] characterised by three properties: problematic preferences, unclear technology and fluid participation.[15] The garbage can model applies to organisations as participants, not to a specific, representative and possibly responsible agent as in classical bounded rationality.[16] The garbage can model specifically focuses on two phenomena in decision-making: "the manner in which organisations make choices without consistent, shared goals[17] […and] the way members of an organisation are activated" (Cohen et al. 1972, p.1-2), so that it is the impacts of goal ambiguity and attention patterns that are under investigation. By assuming that an organisation is a "collection of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be the answer, and decision makers looking for work" (Cohen et al. 1972, p.2) the garbage can focuses on:

- the way the meaning of a choice changes over time
- the strategic effects of timing
- the time pattern of available energy and
- the impact of organisational structure.

The garbage can model limits its attention to four streams: problems, solutions, participants and choice opportunities (Cohen et al. 1972). The garbage can model as a theory essentially forms a counterpart to rational choice theory. The role of institutions in political decision-

[13] Although the authors of the model reject the idea that the garbage can counts as a theory, many other researchers of political science took up the ideas inherent to the garbage can model in their studies, developing them for broader decision scenarios, such as governance decision-making with varying degrees of hierarchy (Peters 2002, Zahariadis 1999). Other researchers criticise the garbage can and seek roots in new institutionalism rather than bounded rationality literature (Bendor et al. 2001).

[14] Organised anarchies are organisations – or their decision situations (Cohen et al. 1972) - with certain predefined properties. This is by far an exclusive definition, as "a theory of organised anarchy will describe a portion of almost any organisations activities, but will not describe all of them" (Cohen et al. 1972, p.1).

[15] An "organisation operates on the basis of a variety of inconsistent and ill-defined preferences" (Cohen et al. 1972, p.1), therefore problematic preferences in decision situations of organisations are given. Unclear technology describes the organisation's operation basis, i.e. trial-and-error, and essentially means that the processes of an organisation are not necessarily understood by its members. Finally, fluid participation explains the variation of participants over time and along domains. Therefore, the involvement and devotion of participants in decision-making are constantly changing.

[16] It is not Simon's 'administrative man' (Simon 1945) who makes the decision in the garbage can, but the organisation itself. Due to the variety of possible preferences within an organisation, organisational decision-making is difficult. This situation is not eased through equating the decision of the organisation with one responsible contributor. Moreover, the significance of existing preferences is determined by the power structures among the internal parties of the organisation. Furthermore, information selection influences the choice of preferences and thus impacts on the final choice.

[17] …and without, for instance, relying on bargaining or market regulations….

making is undisputed and some researchers clearly describe institutional rational choice as a parallel to alternative systems, e.g. the advocacy coalition framework (Sabatier and Jenkins-Smith1999).[18] Yet, the significance of the garbage can model becomes clearer when it is seen as a natural extension and necessary continuation of research, when empirical studies on organisational decision-making experienced limitations of the rational choice model (Olsen 1991) and were able to define its constraints. The classical assumptions of rational choice - which define the decision-maker as a rational, strategic, self-interested player in continuous competition with other contributory parties - delimited to only one perspective: that of the participants themselves. Although on the meso-level of institutions, these human characteristics do not sufficiently describe the conditions of decision-making, since the scope and the potential for decisions are expanded.[19] The role of organisational theory is to clarify the influence of properties and organisational contexts on these potential decisions and to identify those which are eventually evoked (Olsen 1991).

Equally, economic efficiency is not seen as a sufficient criterion for describing political contexts (Olsen 1991). Peters (2002) defines a problem of rationalist policy-making when he states that the "continuing attempts to improve government performance" depended "more upon the use of market or political power to impose greater efficiency and responsiveness, rather than depending upon rational processes to produce optimal answers to policy problems" (p.13). In this regard, rational choice represents the idea that institutions define structure, instead of the political structure also affecting institutions and their perfomance.[20] Yet, as part of the bounded rationality[21] literature the garbage can rejects the rationalist perspective and seeks to understand "how institutions are able to muddle through in complex and poorly defined decision situations" (Peters 2002, p.8). But what determines that decision situations are so ill-defined? Schneider (1991) lists different degrees of uncertainty, the complexity of problems, stakeholder diversity, as well as a wide range of instruments through which the government functions. Alongside the experience of the decision-makers and therefore a focus on specific alternatives, a number of further psychological moments have an impact on the instrument and are deemed useful– ranging from cognition and perception to choice of 'objective' macro-variables. In the case of climate change decision-making, the aspects of uncertainty and complexity are most defining, as there is little experience that decision-makers can build upon. Yet, ambiguity – "the state of having many ways of thinking about the same circumstances and phenomena" (after Feldman, Zahariadis 1999) – is closely related to uncertainty and complexity; and it is a major aspect of the garbage can with its behaviour as a black box, with its multiple streams that transform inputs into outputs.

[18] The literature on classical rational choice theory in political science and the development of alternatives is extensive. Cahill and Overman (1990), Jones and Olson (1996), Zuckerman (1991), Windhoff-Héritier (1991) all give an overview on theories and discuss the constraints of rational choice for research on political decision-making. Scharpf (1991), and Lane and Ersson (2000) discuss rational choice and new institutionalism, whereas von Prittwitz (1994) relates the institutional term to the garbage can. Papadakis (1996) discusses the role of institutions in the context of environmental policy. Migdal (1997) discusses various theoretical approaches to the state model.

[19] This also eliminates such model characteristics of political institutions, e.g. articulated goals, centralised authorities or complete information.

[20] See Dror (1994) and Migdal (1991) for the importance of structure.

[21] Bounded rationality is a term coined by Simon (1945) who sees the *administrative man*'s rationality limited, firstly, by unconscious skills, habits, and reflexes, secondly, by values and conceptions of purpose which may diverge from the goals of the organisation, and thirdly, by the extent of his knowledge and information (note that economic theory today is most attentive to the last aspect and has expanded it to cover the extent, costs and effects of acquiring information). In this early interpretation the term and the inherent concept apply to the standpoint of the individual. In contrast, bounded rationality in its garbage can perspective means that *organisations* only act rationally within their own narrow boundaries and thus rational action is determined by their own routines, norms, technologies and interests (after Peters, p.8.). In this way, it seeks after outcomes that are good enough and not comprehensive with maximal utility. However, it is not necessarily minimising either, "given that finding policy solutions that are good enough can itself be extremely demanding, and is rational from the perspective of minimising decision-making costs rather than maximising the utility of the outcomes produced" (Peters, 2002).

When Cohen, March and Olsen (Cohen et al. 1972) introduced the garbage can model of organisational theory[22] they investigated decision-making within institutions. Kingdon (1995) took a step further when he refined the concept of multiple streams (essentially he reduced it to three streams: problems, politics and policies) in order to show the relatively small probability of solutions joining adequate problems through windows of opportunity.[23] Finally, Peters (2002) applied the garbage can concept to the public sector of governance and thus expanded it further away from the investigation within institutions towards a broader frame of decisions taken by institutions as major players within a given governmental system. In this way, the polity aspect that is so very important to politics in China and, in particular, the adoption of global concepts to a country is in focus. Zahariadis (1999) elaborated more on the windows of opportunity of Kingdon and emphasised the aspect of coupling of streams, by proposing that the garbage can process can also be applied to more hierarchical systems of governance, when compared with US approach of Kingdon to his own discussion of British politics. China is formally a highly centralised state and position of Peter on the governance of centralised states rather suggests that they make decisions under less uncertainty and ambiguity. However, informal power structures in China show a different picture and allow the garbage can concept to be used.

2.3 The garbage can theory for institutional decision-making – a revised approach

The following analysis delineates the theoretical context between the conditions of the classical garbage can model and relevant parallels to the system of polity, policy and politics, as well as to notions of motivation, information and power, that constitute windows of opportunity. Figure 2-1 shows the corollary.

Essentially, decision-making is understood as non-structural, non-orderly and irrational. Peters (2002) describes it as the "almost accidental confluence of streams of problems, solutions, opportunities and actors" (p.13)[24], as the rationalist perspective of problems searching for solutions and the major players pursuing their interest purposefully (i.e. not constrained by their own norms, routines, technologies and interest) that is 'replaced by decision-making that may be dominated by the appearance of opportunities' (p.13). As Kingdon (1995, after Peters 2002) formulates: "policy windows open and the policy entrepreneurs must be prepared to exploit them". Olsen (1991) explains that choice is therefore considered to be more temporal than causal, as problems and solutions are linked mainly by similarity in terms of temporal order.

Opportunities therefore relate to an adequate confluence of problem and solution with simultaneous willingness of individuals to act. This way opportunities are likewise linked to the participants and their (political) will as they consist themselves of (formal and informal) structures and opportunity events, such as crises, that open the temporal window. Zahariadis

[22] The garbage can model of organisational theory has also recently been subject to major critique. Bendor et al. (2001) 'recycle' the garbage can and particularly criticise the true independence of streams. They see a tight connection between the appearance of a solution and a problem. Further, they propose a link between participants and issues. My approach takes this criticism into account and forms a dependency context of major players, issues and opportunities, as shown in figure 2-1. Regarding the importance of power, Bendor et al. point out that the original garbage can theory largely ignores structural adjustments and the influence of seemingly unrelated players. One of the authors of the garbage can rejects the critique by Bendor et al. as misinterpretations of the original goal of the garbage can, i.e. accepting complexity while capturing specific aspects of governance (Olsen 2001). He goes so far as to quote one of the original co-authors, March (1992 after Olsen 2001): "They [Bendor et al. (2001)] want the heretics to return to the true faith", i.e. "conventional economic theories of rational choice" (Olsen 2001).

[23] The term 'window of opportunity' has been adopted by many authors using the garbage can method. It describes the chance that a problem is solved or – less optimistically – that an issue is worked upon.

[24] While Olsen (1991) places the focus on problems, solutions, decision-making and choice opportunities as exogenous streams flowing through a system.

(1999), too, takes the time aspect into account when he investigates how an issue becomes temporarily receptive, regardless of how other issues are being addressed. For climate change, the issue needs primarily to become a strong part of an agenda – which is likely as climate change is related to many other problematic issues that need to be solved in the future.

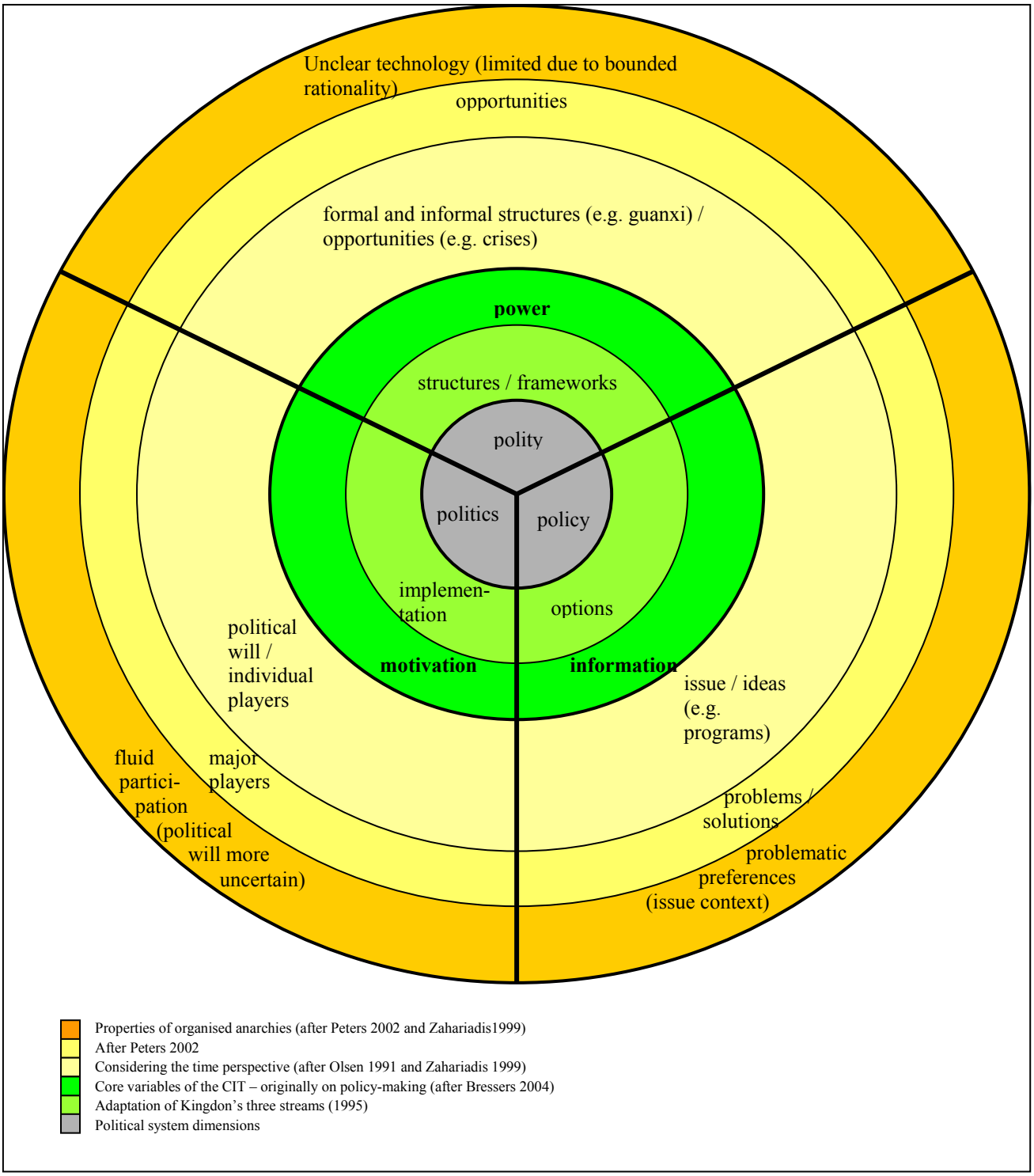

Figure 2-1: a revised garbage can approach combining classical garbage can features (after Peters 2002 and Zahariadis 1999) with political system dimensions and core variables of the contextual interaction theory (CIT, after Bressers 2004)

Secondly, the novelty and importance of the issue is likely to generate new institutional co-operation, also at an international level, which makes it easier for societies, such as China, to participate. Especially as Zahariadis (1999) showed that the three streams can also be applied

to political systems; where the roles of policy makers are less ambiguous and contested, the links are tighter and more formalised, and where fewer participants have insight into policy choices.

The garbage can concept of organisational decision-making is based on three preconditions (often framed as the three properties of organised anarchies):
- problematic preferences
- fluid participation and
- unclear technology.

These are illustrated in the outer circle of figure 2-1. Both, Peters (2002) and Zahariadis (1999), refer to these properties of the garbage can as the most defining aspects. The first condition of problematic preferences relates to the issue taken – or preferred – by one of the major players. These preferences may be ill-defined in governance processes, while the majr player perceives them as clear (Peters 2002). For instance the view of an individual agency in a policy area, e.g. on the necessity of integration processes, leads it to block the development as it may lose out from shifts of control.[25] As long as the governmental structure cannot absorb this tendency, agencies' preferences are problematic for pinpointing the issue. In extreme cases, an issue is seen by two agencies as completely opposed. Zahariadis (1999) also sees time constraints as being responsible for unclear preferences when ideas tend to appear as collections within organised anarchies (in contrast to economic players that tend to compare costs with benefits). It is then the number of choices – or ideas and programs – that makes preferences problematic.

The second condition of fluid participation addresses the members of organised anarchies that vary in number and involvement, i.e. the time and effort they are willing to devote to decisions. In this sense, the participants decide according to their perceived probabilities of winning. In the following this will be termed the political will of actors. In state centric governance situations – as in China – the contributors are usually governmental agencies. This again has a strong relation to the polity structure and, as mentioned above, with the issue chosen.

The third condition is that of unclear technology, which is closely linked to the opportunities of a decision-making process in the garbage can. Zahariadis (1999) refers to technology as the "organisations' processes that turn inputs into products" (p.75). He also indicates that individual responsibilities are often unclear, as are jurisdictional boundaries and monetary obligations. Furthermore, the traditional public sector has only a limited range of responses to problems (Peters 2002) and uses past experience as a major learning tool, thus relying on trial and error procedures (Zahariadis 1999). The learning process is again related to this issue and as climate change does not provide for learning from experience as yet, unclear technology is a major problem for adaptation to it. However, unclear technology – or frameworks of processing – consists of structural constraints that closely resemble the polity area of a political system.

The major question is how structural constraints are best overcome, if not by a change in the political system that affects the polity aspect. The classical window of opportunity is opened by a specific crisis, which may generate a change in all three areas – policy, politics and as far as necessary also in polity. Kingdon (1995) already formulated this aspect of the garbage can, when stating his three streams: problems, politics and policies. He also added the feature of coupling to these streams in order to form a window of opportunity. Still, Kingdon related the

[25] This phenomenon is part of the analysis in chapter 3 on coastal zone management in China.

garbage can to the view of the participant and hence discussed the conditions that are needed to make officials learn about a problem, which is either through the occurrence of the problem itself (crisis), policy change generated by specialists in the policy community or politics represented through a mixture of national mood, pressure group campaigns and administrative or legislative turnover. As mentioned above, this study intends to broaden this narrow perspective and relate the three streams to the areas of politics, policy and polity.

Hence, the 'problem' by Kingdon becomes part of the policy area, as is illustrated in figure 2-1. The problem is essentially represented by the issue that is chosen. It is therefore possible to talk about the options that are there to address the problem. These in turn are highly dependent on the information that there is on a topic. Peters (2002) explains that agenda-setting within the garbage can is most crucial. The politics stream in this new perspective is a group of individual players that implement the ideas and concepts (policy) with a diverse degree of motivation that reflects political will of each participant. Now, Kingdon's problem stream has to become re-evaluated and according to the tripartite of the political system it is concerned with the structures and frameworks that constitute a system (polity). Here the power of individual agents is decisive. Many authors, some of them writing about the garbage can and others about policy analysis in general, acknowledge the importance of power to the system analysis (Dahl 1986, 1991; Zahariadis 1999; Peters 2002; Bressers 2004). As Peters (2002) states powerful players are likely to lead decision-making as they face lower resistance and fewer hierarchical constraints. A clear advantage is given to more powerful sectors through the general absence of legal frameworks within the garbage can functions: a feature that is highly compatible to the legislative situation in Chinese governance.[26] According to garbage can logic, there are only a few formalised rules and the players decide for themselves about involvement. Such formal rules are being replaced by negotiations, networking and bargaining – and these tend for the most powerful to be most effective (Peters 2002). This is also a reason for explicitly including informal power structures, such as the *guanxi*, into the polity sector of figure 2-1. Another argument for including the polity area when discussing Chinese politics is the uncertainty whether less authority-based governance, that is represented by a trend for decentralisation in many areas, significantly affects power distribution among the players at national and local levels.[27]

2.4 The garbage can (revised) – motivation, information and power

As a basis for the discussion on the importance of motivation, information and power[28] on the political decision-making process, in the following, the roots of these features in the policy literature are reflected. Van Tatenhove et al. (2000) describe the risk society[29] (after Beck 1998) as society at risk from, for example, climate change. It relies, therefore, less on traditional securities and more decisions and choices have to be made as risks rise in number. In this way the risk society affects the nation state model, that is now paralleled by a series of local, regional and global arrangements. Therefore, new arrangements have to be investigated in terms of political participation and allocation of political power.[30] Bressers (2004) discusses policy formation and implementation processes using the Contextual Interaction

[26] Note that the existence of a detailed legislation is neither a guarantee nor a measure for its implementation. For further discussion please see chapter 3 on coastal zone management in China.
[27] Local and national level representation is referred to in chapters 3 and 4, especially the shifts in the *kuai-tiao* system.
[28] See Hall (1997) and Simon (1945) for different variations on the power theme. Hood (1983) relates the power aspect to information control. See Dery (1990) for the context between information and political will and MacRae Jr. (1985) for that between information and the differences in political systems
[29] Beck defines "contemporary society as a risk society, which he assumes to be a stage of 'high' or 'radicalised' modernity" (Van Tatenhove et al. 2000, p.45).
[30] This also has to happen on the grounds of legitimacy, controllability and effectiveness.

Theory (CIT). The theory implies that policy process is not only about achieving implementation but also about preventing it, which makes it more dependent on the participants. Bressers (2004) formulates three core variables:

- motivation,
- information and
- power.

These can further be influenced by external circumstances (via these core variables). In the context of motivation, he mentions the possibility of 'symbolic policy' – which is very likely for policies related to climate change, which by their very nature are long-term problems – where, by definition, they are not taken seriously by the implementing parties and, thus, it is their motivation to implement, or lack of it, that is the crucial factor. According to power distribution among the participants, he also points out the difference between formal and informal structures, with the latter creating a dependency on another party for achievement of other objectives. This tactical dimension is clearly related to the Chinese notion of *guanxi*.

Information is seen by Bressers (2004) as both knowledge about the issue and responsible target groups; this includes the standard of documentation and other circumstances of the involved parties. Further, it shows that the features of motivation, information and power are important for the output of policy-making. Their connection to the garbage can further puts them into relation with decision-making processes. In the discussion on adaptation to sea-level rise in China, we can safely assume a similar importance of the three features for decision-making processes. It is more unclear, though, if the windows of opportunity are applicable for a long-term problem.[31] In order to answer this question, the garbage can features will be linked to Chinese political conditions.

Zahariadis (1999) states that there is an increase in the chance of an issue to be worked on when all three streams adopted by Kingdon (problems, policies and politics) are coupled in a single package. Similarly, in figure 2-1, we assume a continuous coupling of all political areas. Yet, issues rise on the agenda when streams are joined together in critical times, thus opening a policy window of opportunity. The coupling of problems and events has only been considered, so far, for short-term problems (that may have waited some time for a chance of recognition). Assuming a case where motivation and power features do not actively block an opportunity window, we propose that even a long-term issue, such as adaptation to sea-level rise, may be coupled through an event to such frameworks as disaster management.[32] Again, this puts the emphasis on structures, as in our case the event is only seen as a trigger to link policy and polity – or problems and opportunities, or information and power – more closely. It is indeed not only the issue formulation but also the information delivered, which is decisive for performance of the garbage can approach. In this case, information is linked to the contributing parties who decide upon the information and distribute it. Peters (2002) specifies that institutional players have an advantage in terms of control of information. This is certainly the case for China, where governmental censorship is the ultimate maker of opinion.

Does a shift in institutional power that may lead to more participation – which in China is more likely to be at the levels of government than of individuals – also lead to more windows of opportunity? Peters (2002) showed that "the role of political and institutional power may be especially pronounced when governments are forced to think and act horizontally, and to attempt to create more coherent patterns of governing" (p. 17). This indicates that a shift in

[31] Von Prittwitz (1994) indicates that this may be overcome by the sequence of a number of single decisions.

[32] This is issue of the necessity of fitting frameworks to new tasks is discussed in chapter 4, using a rise in natural disasters due to climate change as the event in question.

power from national to local level in China is not necessarily responsible for less power-dependent decision-making. Therefore, it is consistent to take the institutional set-up in China as a starting point for analysis on political power in decision-making.

Power is decisive in decision-making regardless of the political system. Even though a rigid government seems more powerful at first sight, an analysis of power structures in China also yields insights for other countries ruled more democratically. Essentially it shows that policy, politics and polity are inseparable and that the aspect of power cannot be ignored.

2.5 Motivation, information and power: internal system dependencies

How exactly do dependencies work between motivation, information and power? Figure 2-2 shows a scheme of effect patterns, i.e. it demonstrates the effects from one feature to the other. It can be read in two ways: firstly, the simple context of one feature, e.g. motivation, as an active and as a passive conjugation. Secondly, the coupled conjugation is shown in both directions, for instance from motivation both outgoing effects, i.e. to power (via information) and information (via power), and back to motivation are displayed.

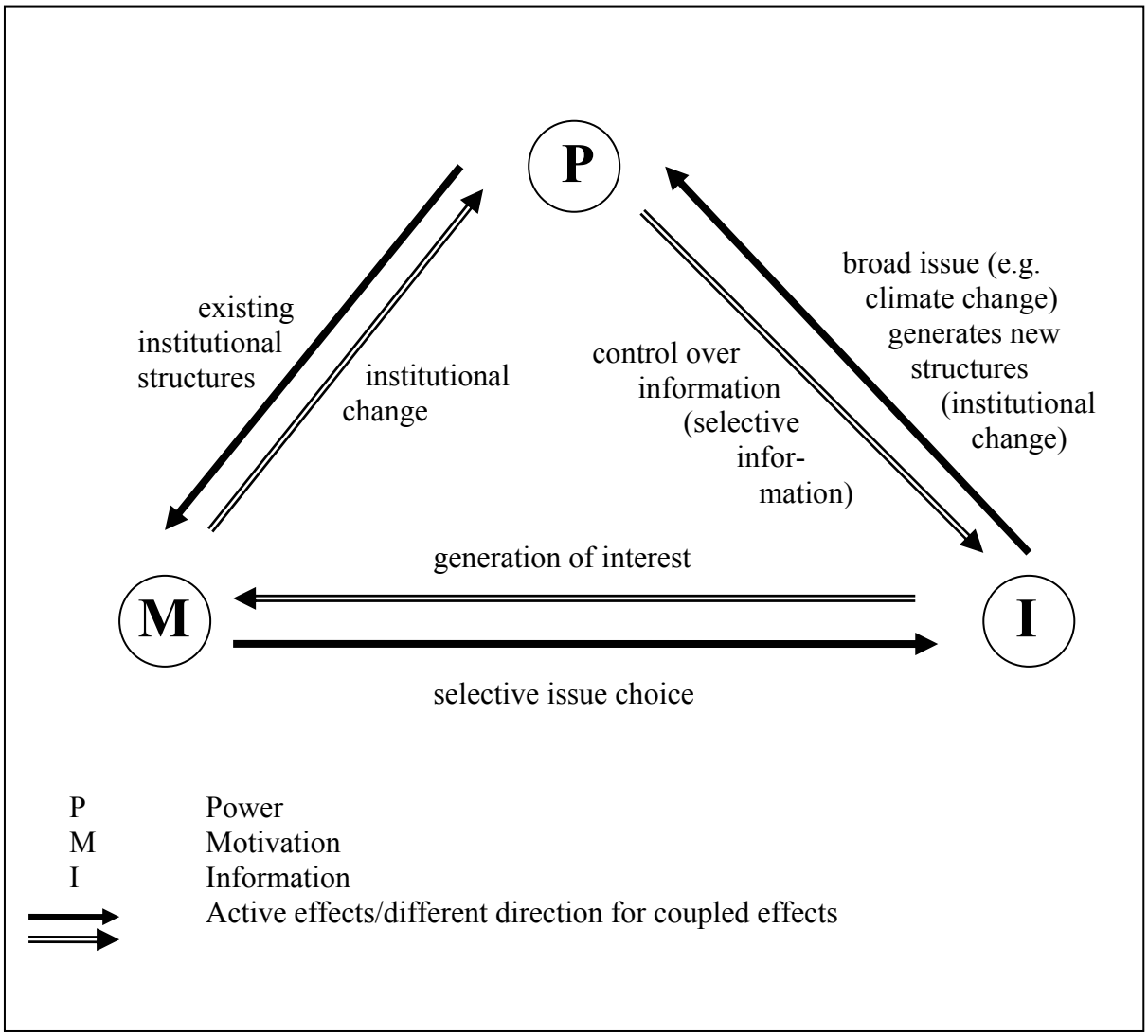

Figure 2-2: scheme for effect patterns (active dependency) for motivation, information and power

The simple contexts of the three features are straightforward (in the following the active effect is described):

Motivation (active):
- political will may generate institutional change
- political will is responsible for issue choice (selective choice of issues)

Information (active):
- an issue may generate new institutional structures
- information on an issue may generate interest and affect political will

Power (active):
- existing institutional structures affect the motivation of actors to become active
- issue is controlled by the – possibly selective – information of institutions (control of information).

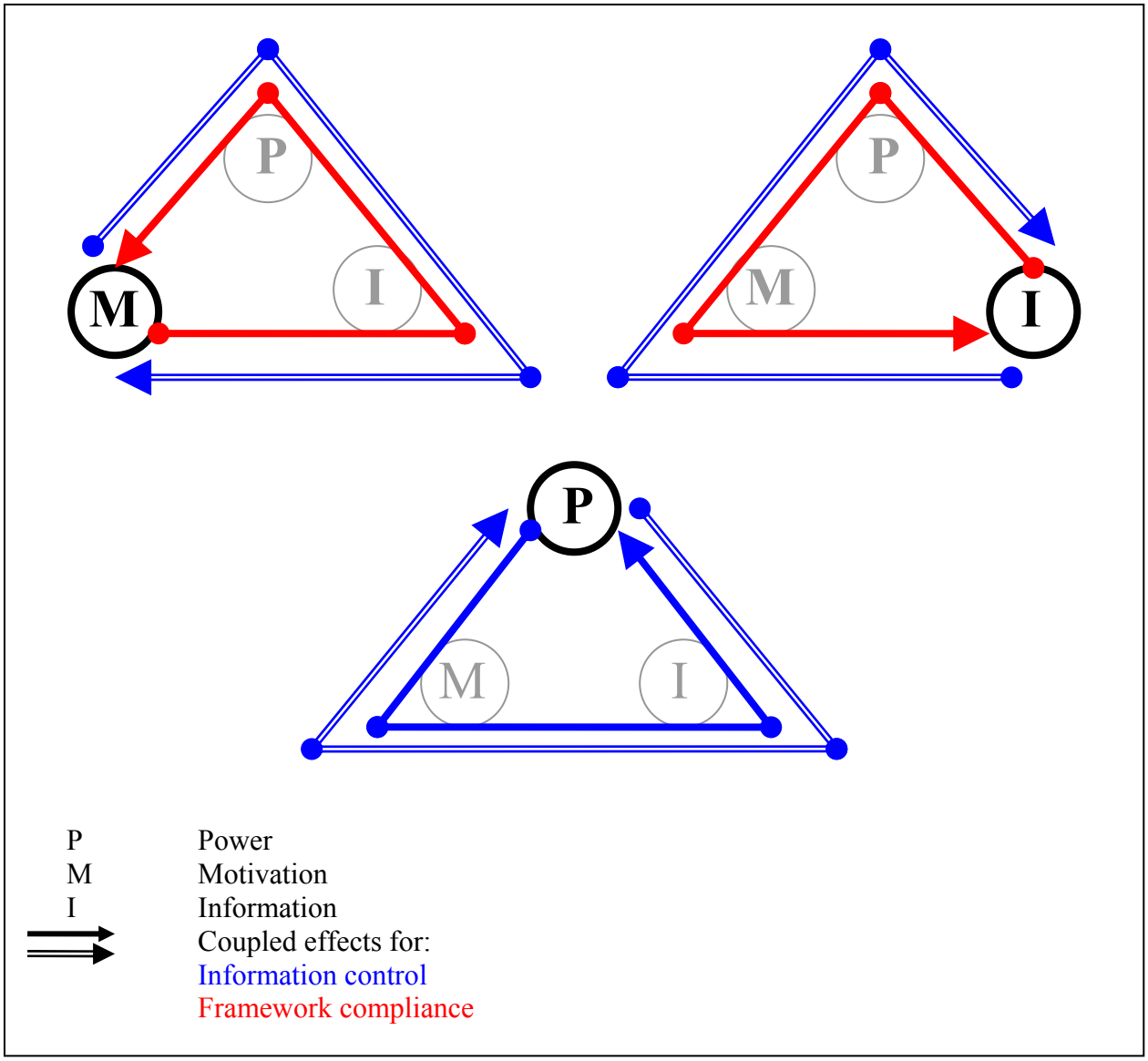

Figure 2-3: scheme of coupled effect patterns for motivation, information and power

The coupled context is more comprehensive than the simple one and helps identify the major causes of concern. One is the control over information. The other is the need for an organisational framework. Figure 2-3 describes the coupled effect patterns for information control [33] and framework compliance [34] for the three features. Interestingly, from the perspective of institutional structure (here power) - and in both directions of the coupled effect pattern - it is the information control which potentially delimits the success of a program or scheme. From the perspective (motivation) of the participants and from the issue perspective (information), it is a mixture of information control and framework compliance that affect the scheme. Each effect pattern for information control leads in the same direction, as is the case with the patterns for frameworks.

Essentially, the institutional structure is not affected by framework organisation and, yet, it is most active in information control. Furthermore, it is always involved in framework constraints and information constraints that impact on agents and issues. Zahariadis (1999) proposes that there is a context between the success of a coupling event and the stream in which a window of opportunity opens. He explains that a window in the problem stream (here information) means that decisions are likely to be consequential, i.e. there is a solution to be found to a given problem. In contrast, a window in the politics stream (here motivation) is likely to be doctrinal, i.e. there is a problem to be found to a given solution. This further supports the assumption that information is a crucial factor in making programs more effective. Yet, Zahariadis (1999) does not specifically take the power aspect into account (as he works with streams and not with comprehensive contexts in a political system).

Nonetheless, an application of the climate change issue to his perspective underpins the importance of issue against that of choice by the participants. Although the former is always passive and therefore modifiable, the latter is an active choice influenced by inputs, such as information and structures, and issue choice takes a significant part in decision-making. The importance of the participants is overplayed by many analysts and the relative importance of choice deserves more consideration. According to Zahariadis (1999), the success of a political decision depends on, firstly, the problem – e.g. sea-level rise due to climate change – that stands to the fore and, secondly, a situation where solutions are sought regardless of existing alternatives, i.e. adaptation is needed due to increased stress on the coastal zone.

Apart from its application in situations of uncertainty and ambiguity, the garbage can theory is applicable to:

- new issues, such as climate change,
- long-term problems, e.g. the adaptation to sea-level rise and
- a governance system that is usually described as rigid but is undergoing structural changes in power distribution, i.e. among different governmental levels.

Application of a revised garbage can theory to the issue of climate change reveals the following results:

- Information control and framework compliance are the most important factors effective in a political system.

[33] The significance of information control becomes evident through looking at one of the coupled effect patterns from power (P): The existing structures affect political will, which is responsible for a selective issue choice. Even if a broad issue may generate new structures, it is the selective issue choice that represents the weak point in a circle to institutional change.

[34] The significance of framework compliance is illustrated by the coupled effect pattern of information (I): Information on a broad issue may generate new structures (i.e. institutional change), yet, these structures need to comply to some extent with existing structures in order to be effective. This means the integration of new ideas works via framework integration, which is necessary as it is the existing structures that generate political will and affect issue choice. A possible incompliance of new structures with existing structures, due to the lack of a comprehensive framework, may reverse the positive effect the issue had in the first place; in this way political will delimits the issue further via incompatible organisational structures.

- Power is, surprisingly, only actively involved in information control. Passively, though, the structure of a political system also impacts on framework constellations, explaining its current underestimation in policy analysis.
- All three spheres of a political system – policy, politics and polity – are tightly connected and cannot be analysed separately.

Chapter 3: integrated coastal zone management in the People's Republic of China – an assessment of structural impacts on decision-making processes

3.1 Introduction

Integrated Coastal Zone Management (ICZM) aims to solve worldwide-perceived problems of the coastal zone. Especially population growth and urbanisation trends pose a long-term threat to a sustainable development in the region. The People's Republic of China (PRC, China) currently has a population of 1.3 billion, the world's largest population of a country. Furthermore, for twenty years the country has experienced immense economic development (Heilmann 2002). Both, demographic and economic growth, are the strongest in the coastal provinces.

The Chinese continental coastline consists of 18 000 km[35]. Since economic reforms initiated by Deng Xiaoping in 1979 five Special Economic Zones (SEZ) were established along the coast. Some national surveys on the ocean's resources and ways of profitable exploitation followed[36]. The area still gains in economic importance. Furthermore the coastal zone represents the country's most wealthy and socially diverse part of the country. The social classes range from the new superrich entrepreneurs to a newly formed middle class and to a growing group of poor peasants that are, among others, migrating to the coast in search of labour. Politically, parts of the coastal zone were the first to achieve substantial autonomy in economic matters and utilised political decentralisation to follow local needs and interests. In this manner, some of the wealthiest areas, such as the Shanghai Municipality, gained a significant political influence over their area's development (Holbig 2001).
As the development of the coastal zone progresses and the national and local interest in coastal and marine resources rise, the coastal zone needs to be managed sustainably. Apart from traditional and sectoral ways of managing the coastal zone, the literature generally introduces Coastal Zone Management as a planning and implementing programme. Since the early 1990s, however, the more advanced concept of Integrated Coastal Zone Management (ICZM) has been discussed[37]. It provides an approach to help preserve the natural ecosystem and at the same time develop economic growth. In contrast to the common sectoral way of managing the coastal zone, ICZM does not emphasise the needs of a single sector but takes a holistic view. This way even social and political conflicts that arise can be addressed. However, ICZM's first task is to combine economic and ecological needs to guarantee sustainability. The problems addressed range from multi-use conflicts of different economic sectors – mostly regarding spatial and resource allocation – to the avoidance of man-made ecological disasters and the negative impacts of development projects, such as erosion, oil spills, salinisation of ground water and soil, or uncontrollable inundation of coastal areas.

Indeed, the threat of sea-level rise due to global warming is a very important problem for the vast coastal areas of China. Scientists have paid attention to this development since the 1980s (Du 1993). Strikingly, the Chinese government has not explicitly addressed the problem as a

[35] This extends to 32000 km if the 6500 islands that the PRC claims sovereignty over are also included. For definitions of coastal zone see 3.2.2.
[36] For a detailed account on the national programs and surveys undertaken, see 3.3.2.1 and 3.3.2.4.
[37] This paper is largely orientated towards the CZM definition upon which the World Coast Conference based their discussion and findings (WCC 1993). See also section 3.3.1.

task within ICZM.[38] The issue is increasingly addressed by the media, though, and the river deltas of China and especially the big cities located within them are acknowledged as the most threatened places by sea-level rise (China Daily 2001). Due to their smaller economic importance, some other low-lying areas along the coast are not considered to be in danger. However, global studies on the effects of sea-level rise predict significant impacts (Nicholls and Leatherman 1995a). On a regional scale, aspects such as land subsidence and crustal vertical movement are also determining factors (Du 1993). Adaptation methods considered in China still emphasise hard structures, underestimate negative impacts on the coastal ecosystem and thus even complicate the matter.[39]

ICZM has been built on a few general conditions to be met by countries using the concept. These presuppositions are a functioning legislative system, at best an independent coordinating agency and a high degree of public participation (Awosika et al. 1993)[40]. In the case of the PRC, hardly any of these formal aspects have been fully achieved[41]. Nonetheless, the Chinese government decided to implement ICZM (NOAA 2002, ACCA21 2002) and made substantial progress during the last decade to meet these objectives, as far as China's political system allows. The structural impacts a political system can have on the implementation of a concept are not necessarily negative. It is rather the sum of all impacts experienced through the organisation and implementation of Coastal Zone Management (CZM) in a country or region conditioned by the general political organisation and implementation of this country or region. Furthermore decision-making processes that are determined by the organisation of CZM affect implementation. These decision-making processes are reflected by institutional functions and responsibilities for certain tasks relating to CZM. This chapter predominantly uses the self-definition of the institutions that have an organisational share in the management of the coastal zone.

Concerning the usability of ICZM structures there are different levels of planning and implementation to be distinguished: global – national – local. Global approaches serve as formulating a set of guidelines for the least common denominator for all coastal countries. Such a catalogue of guidelines has been formulated by the World Coast Conference in 1993 (WCC 1993).[42] The local level is understood as the most practical level, where global and national guidelines may be tried and fed back into the discourse on national and global levels (Chua et al. 1997). Therefore China's Agenda 21 suggests that "pilot areas will be selected to formulate the guidelines for integrated CZM" (State Council 1994). Essentially there are two major directions in which ICZM is continuously formulated and tested: from global to national (and to some extent local) level and from local to national and (to a certain extent) global level. These directions reflect the two perspectives of top-down and bottom-up approaches (compare Hinrichsen 1995 and 1998). While it is not this chapter's intention to evaluate which of these approaches is more practical or consistent with ICZM theory, it takes the example of the PR China to show the impact that political, organisational structures have on these two ways of adopting a concept to a country's or even a locality's reality. Sceptics

[38] China is indeed planning to establish ICZM nationwide (NOAA 2002, ACCA 2004). And sea-level rise is officially mentioned as a planning demand in the China Ocean Agenda (SOA 1996), but not as a problem to be addressed within the ICZM concept.

[39] This study forms the basic part of a forthcoming study on socio-economic and decision-making aspects of adaptation methods to sea-level rise in China.

[40] Other main elements widely perceived as vital within a CZM cycle are: a CZM plan, an applied research strategy as well as monitoring and evaluation systems. This paper focuses on elements seen as generally hampering an adoption of CZM (Awosika et al. 1993).

[41] With China in focus, this paper concentrates on the constraints caused by the political system.

[42] Major guidelines had been developed before by UNEP, FAO and the World Bank (Awosika et al. 1993). The World Coast Conference in 1993 brought theorists and practitioners together on a worldwide scale in order to help coastal states to meet the coastal challenges of the 21st century, including population growth and climate change.

may question the role of the national level in this, when the theory seems to be mostly rooted in the global level and the local level is used to put theory into practice and so generate 'lessons learned'. The national level is important as it conditions the status of a local program, is potentially involved in finance matters and is able to provide guidelines for a whole country, not only in terms of who is responsible on the national level, but also cutting short the process of local levels formulating numerous own approaches. The national level thus gathers the feedback derived from the local programs and projects them into a set of guidelines suitable for exactly this country. Nonetheless the bottom-up approach is not to be overestimated. Especially when broken down to county level, formulating own programs may be a task too responsible for lower level administrations. This chapter will take both directions of adoption into account, top-down and bottom-up, and emphasise the organisational structure's impacts on implementing ICZM in China.

This chapter takes a theoretical political science approach. It analyses the existing coastal zone management system in the PRC and compares it to an integrated framework proposed by international organisations. The first part contains a literature review and addresses the methodology used. The following part applies basic definitions of the coastal zone to China and economic interests in the region are described. Then, the general ICZM approach is introduced and the ICZM attempts in China are discussed. A detailed analysis of the Chinese political system and its impacts on decision-making processes of CZM in China follows. Furthermore, the local ICZM approach of Xiamen is described and compared to both, the current CZM and a proposed ICZM approach of Shanghai. Finally, local ICZM structures are discussed regarding their applicability on the national level, i.e. their suitability to be used as national guidelines supporting local ICZM attempts. The chapter provides a local structure that pays attention to the political organisational component involved.

3.1.1 Literature review

Most of the studies on coastal zone management either approach the issue from a general perspective or focus on case studies. Only few studies combine both aspects mostly with a strong emphasis on one of the parts. Furthermore, most studies that have been published are based on natural scientific research. In these publications management is understood as a means of activating sustainable development. Elements are agreed on and further assessment of them is subject to a technical approach of acknowledging the element's existence and pinpointing its objective. The success of a management's element is tied to a measured quantity, e.g. emission of pollutants[43]. If it is considered a failure a change in elements is proposed. This understanding of management is neglecting the possibility that it may not be the element constraining success, but the way of implementation or perhaps other influencing aspects that are not within the management's own system, e.g. a country's political structure. This way, organisational and structural factors inherent in every management system are systematically underestimated. A possibility to integrate these can be found in political science[44], especially administrative politics[45] and institutional politics[46]. The first group focuses on the organisation of a system and its agents, whereas the latter group emphasises

[43] A recent study on evaluation of coastal zone sustainability using an indicator system has been produced by Shi et al. (2004).
[44] For methods and scope of political science please refer to Zuckerman (1991) and Ball (1993).
[45] For further information on administrative politics please refer to Simon (1965) and Knoke (1990) (especially chapter 4 on organisational power p. 85-117).
[46] For further information on studies of institutional politics on China please refer to Lieberthal and Oksenberg (1990), and Lieberthal and Lampton (1992) with special recognition of contributions by Shirk (p. 59-91), Hamrin (p. 95-124) and Halpern (p. 125-148). For general studies of institutional politics including neo-institutional approaches please refer to Papadakis (1996), Lane and Ersson (2000), Windhoff-Héritier (1991) with special recognition of contributions by Windhoff-Héritier (p. 27-52) and Olsen (p. 87-119). Further reading into Chinese issues is provided by Hamrin and Zhao (1995).

changes in structures, such as an institutional adaptation to changed conditions in political target. Even if a few publications on CZM mention the necessity of social and political science approaches in assessing management systems, so far this has not been done for general structures of coastal zone management in China.[47] This chapter aims at filling this gap.

In the wake of the World Coast Conference (WCC 1993) the World Bank (1993) published general guidelines for ICZM and recommendations on the development of ICZM programs. Such a focus is also taken by the WCC 1993 Conference Report (IPCC 1994), that additionally aims at a common methodology and therefore compares a number of local and regional studies on vulnerability assessment and coastal zone management. One China country study and three local or regional studies were used in this comparison. The publication of the WCC 1993 proceedings (WCC 1993) also contains Winsemius' (1993) general study on CZM development stages.

Many authors dedicated their studies to the CZM issue and produced a wide range of perspectives. French (2002) gives an important account on the coastal zone's definition and further emphasises the issue of coastline protection. Hinrichsen (1995 and 1998) takes a view on the impact the growth of population has on the development of the costal zone and problems generated. In a section about ICZM in China he also takes economic, ecological and management aspects into account and explains the problem of pollution in the Bohai and Huanghai seas. He uses examples from different regions of the world to discuss CZM and the lessons learned during the last twenty years. He recommends a two-level approach for initially implementing ICZM in a country: top-down and bottom-up, a view that can be applied to China very well. Vallega (1999) gives a very detailed account on ICZM methodology covering aspects from coastal zone definition to management issues. He often uses the Mediterranean as a case.

As the World Bank also the United Nations Economic and Social Commission on Asia and the Pacific (UNESCAP) (1995) contributed to the issue of ICZM with an extensive introduction to general ICZM guidelines and an overview to Asian approaches. The case of China is introduced by a description of the location and conditions of the Chinese coastal zone, an identification of major problems occurring there, and facts on national surveys, institutional arrangements and legislation. Furthermore a focus is put on Hainan province, described as a model case of ocean management. The UNESCAP (1998) also published information on marine resources as a special point of interest and on management issues such as stakeholder participation, marine zoning, China's national CZM strategy and international co-operation in the field.

Zhang (1993) as part of the WCC 1993 conference publication also starts from the perspective of coastal resource allocation and an identification of industries involved. Additional topics are the major impacts of industrial activity on the ecosystem, e.g. erosion and pollution are included. Management issues are extensively addressed and also studies on sea-level rise are mentioned.
Two publications by Wang (1992, 1995) give extensive overviews of location and conditions of the coastal zone in China and criticise the lack of a consistent boundary of the zone during the 1990s and the lack of management integration. The latter aspect is also specifically taken

[47] An exception and recent example for a study considering a single political factor, i.e. public participation, is McCleave et al. (2003). The authors compare two examples for decentralised ICZM: a local government run progam (Xiamen) and a community-based program (Atlantic Coastal Action Program, Canada).

up by Dong (1998) who otherwise gives a similarly informative account of the Chinese coastal zone and issues of importance.

There are only very few publications, that introduce local management approaches in detail. In the Anglophone literature only studies on the ICZM demonstration project in Xiamen (Chua et al. 1997, McCleave et al. 2003, GEF et al. 1997a,b) and Shanghai (Shi et al. 2001) can be found. McCleave et al. (2003) compares the successful Xiamen approach to a local attempt in Canada and emphasises the aspect of decentralisation especially for stakeholder participation. GEF et al. (1997a,b) are project reports on the Xiamen site and Chua et al. (1997) takes up the issue of lessons learned there. Shi et al. (2001) introduces a proposed ICZM concept for Shanghai.

Concluding from the existing literature CZM in China is either discussed as a part of general introductions of ICZM and such the impression is left, that it is gradually adopting the general concept. Or, in contrast, China's ICZM is discussed by authors taking the conditions of China's coastal zone as a starting point and include a critical perspective on current implementation. However, none of the publications reviewed takes a political perspective and/or shows the systematic implications coastal zone management is subject to. This chapter aims at contributing to the issue by providing such a political perspective and pinpointing the organisational and structural problems coastal zone management in China faces today. In order to show why the country's political system is indeed a critical feature for the applicability of a general ICZM concept, the current CZM situation in China is discussed. It shows that the political system in China has significant impact on the adoption of general concepts. This study gives account of ICZM in China and addresses relevant institutional and organisational changes since the last administrative reform in 1998. It further turns out, that the adoption of concepts on the national level is already problematic: this seems to exclude top-down approaches from global to national level. As Xiamen's local ICZM approach is exceptionally successful within the Asian region prominent features of its local political organisation in ICZM are highlighted and the possibility to adopt such a local concept to other regions (Shanghai) is discussed. Furthermore it is assessed whether it could serve - bottom-up - as a national concept for China.

3.1.2 Methodology

This chapter takes a political science approach to investigate current CZM structures in China. The focus is on decision-making processes and possible impacts of political and cultural aspects as well as power distribution. The Chinese administrative system in itself is rather complex and continuously changing under the latest reform efforts. The objective to clarify jurisdiction and alternative decision-making within the set-up is a major challenge. In order to understand the basic conditions, institutional organisation and agencies' responsibilities are mapped.

Additionally to the fact that the Chinese administrative system is comparably complex, unbureaucratic contact to governmental representatives in China is still the exception. Therefore verification of information takes up a major part of research time. Another constraint is that many study and paper proposals can be found on the web, unfortunately without contact details. Sometimes it is difficult to reconstruct whether these were ever put into action or not.

This chapter is based on a series of open interviews with academics at Shanghai Universities, the Shanghai branch of the State Oceanic Administration (SOA) and participants of a

workshop in Xiamen[48]. The other main source of information is a review of governmental documents, such as law texts, white papers and ministry programmes, and other official publications (e.g. newspaper articles, information brochures and website presentations[49]). A large part of these sources are accessible in Chinese only. In case of bi-lingual publications, the Chinese version was used for verification.

This study does not take a single case as an example, as Buen (2001) does, but aims to generally illustrate CZM conditions in China with regard to their relation to political structures and the impact these structures may have on CZM decision-making. Due to very limited access to official information on practical outcomes of local ICZM in China this study is theory-driven and focuses on the analysis of political structures. For this purpose the existing CZM structures in China are investigated using institutional and administrative approaches of political science. In order to understand the political and organisational power distribution the underlying organisational structures in the Chinese political system as well as their transformation are explained. While this part of the analysis is mainly using readily available facts and information on (I)CZM in China the second part of this study produces a novel view on CZM structures including an assessment of specific power distribution in exemplary (I)CZM approaches. The successful ICZM approach of Xiamen and a proposed approach for Shanghai are taken as examples to show the necessity of modifications to the organisational structures in order to make a straightforward adoption of an ICZM program possible. While emphasising structural and organisational elements of ICZM it becomes clear that these are among other elements, i.e. implementation and content related aspects, responsible for success or failure of ICZM approaches in diverse localities. Finally, an organisational structure of ICZM is suggested that reduces constraints by structural elements. This way it becomes clear that the widely accepted assumption that an approach is generally not adoptable to other localities than the one it is tailored to should be based on more than modifications in content of an ICZM program. -

3.2 The Chinese coast

The necessity of introducing coastal zone management in China becomes clear through taking a comprehensive view of the Chinese coastal zone. To get a clear picture though is problematic. The definitions regarding the area are as diverse as the fields of science they have their seeds in.

The following section takes up the major groups of biological and geophysical, geo- and demographic as well as economic information, which in combination are able to shed light on the conditions found in the coastal zone and on the potential problems that occur, e.g. through a high percentage of population, strong economic development and in some parts a fragile eco-system. Furthermore this section states the definitions of population and coastal length used in this chapter.

3.2.1 Biological and geophysical conditions

The Chinese coast stretches across three climate zones: the temperate, sub-tropical and tropical zones. It therefore holds a huge variety of species in a number of different ecosystems. These range in the coastal zone from tidal flatlands to river-delta ecosystems,

[48] This workshop 'Sharing Lessons Learned in Sustainable Coastal Development' was organised by the GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), 20-23 September 2002 Xiamen, PRC.

[49] For a comprehensive list of websites used for this thesis, refer to appendix 1.

include marine natural systems, and even encompass mangroves and coral reefs. Morphologically, the coast varies from bedrock to sandy beaches; some parts are subject to significant erosion.[50]

3.2.2 Geo- and demographic conditions

A comprehensive and up-to-date estimation of the economic importance and of population data for the coastal region is difficult, as there are many contradicting data and diverse definitions for the 'coastal zone' in the literature.[51] The official Chinese account (Xinhuanet 1997a) gives a coastline length of 18 000 km of mainland coast plus 14 000 km of shore length for coastal islands.[52] The estimated number of islands taken into account differs from 5000 to 6500.[53] In the following this chapter refers to a mainland coastline of 18 000 km relying on the exactness of data derived from Chinese coastal surveys undertaken in the 1980s and 1990s. It must, however, be understood that some important areas of the Chinese coast (e.g. Hainan and Chongming/Shanghai) are islands not included in this number.

The definition of the coastal zone differs between studies. Early accounts apparently use the administrative delimitation of provinces for the inland direction (Zhang 1993). Wang (1992) writes that the coastal zone would encompass the area from 10 km landwards from the seashore and 15-20 m bathymetric contours seawards. The SOA Shanghai branch defines it as the area 5-10 km landwards and 20 m isobath.[54] In contrast, LOICZ (2003) uses elevation grids in order to define the coastal zone.[55] Wang (1995) further states that China has a total land area on the coast of 350 000 km², whereas Xinhuanet (1997b) states a coastal area of 280 000 km² of which 20 800 km² are considered 'sea beach' area. Apparently the well-known problem of numbers given without exact definitions of the region applied to is responsible for such diverse accounts.

Other definitions emphasise the water – or marine – part of the coast and focus on the differences between China's territorial waters (12 nautical miles from the low-tide line), its contiguous zone (24 nm from the low-tide line), and the Exclusive Economic Zone (EEZ) of 200 nm from the coast (as defined by UNCLOS – United Nations Convention on the Laws of the Sea - in 1982).[56] Strikingly, although the State Oceanic Administration (SOA) is the agency in charge of CZM in China and defines the Coastal Zone as 5-10 km inland and 20 m isobath, with regard to its functions, it refers more to the marine zone and much less to the

[50] Information on geophysical conditions can be drawn from Zhao (1986) and Ren (1986).

[51] There are either data given without proper definition on the region it is applied to, or definitions from different fields of science exist for the area but are not further filled in with numbers. Among others the World Bank (1993) has stressed the importance of a sound definition of the area to be managed by ICZM.

[52] The CIA world factbook (2002) claims to include islands with citing a total coastal length of 14 500 km. The World Resources Institute (WRI) (2003) states a coastline of 30 017 km length including non-overseas islands.

[53] The official white paper on the Development of China's Marine Programs (State Council 1998a) gives a number of 5000 islands with an area of more than 500 km², the official Chinese news agency– Xinhuanet (1997a) – states a number of 5400 islands with a total area of 38.700 km² whereas Wang (1992, 1995) gives an overall number of 6500 islands. Official government data presumably include the Republic of China (ROC) on the island of Taiwan.

[54] Information was gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.

[55] When the LOICZ project was established it used a 50 m elevation to 50 m depth grid. This was later adapted to a more generally used spatial resolution of 1x1 degree.

[56] The contiguous zone is enabling a country to protect the rights of its territorial waters, e.g. for customs. The EEZ is the zone in which a country is allowed to exploit all natural resources.
Compare Vallega (1999, p. 78-92) on the definition of the normal baseline as depending on the low tide and the creation of straight baselines; further quite detailed on jurisdiction in the various zones. Compare also Awosika et al. (1993, p. 111).

adjacent coastal area (SOA 2002)[57]. Thus the difference between coastal zone and marine zone defines a major contradiction in China's CZM approach.

Similar to a consistent definition of the coastal zone another definition problem occurs for population numbers within the area. Citing Wang (Wang 1995) the coastal zone would enclose 41% of China's population. The World Resources Institute (WRI) (2003) comes up with 24% of the population living in a 100 km belt of the coast, referring to population estimates of 1995.[58] Population numbers for the coastal zone can also be derived along administrative borders. In this case the total province population is taken. When using this method more than 50% of China's total population live in coastal provinces.[59] This chapter assumes that for 1990 data less than 5% of the total Chinese population live in the coastal zone as defined by the SOA (up to 10 km inland). Furthermore only 22% live in the 100 km zone.[60]

Nicholls and Small (2002) state that although "the term coastal population is widely used, a single consistent definition […] does not seem to exist". They use a 100 m (of the sea-level)/ 100 km (of the shoreline) grid and come to the conclusion that "most of the near-shore population does not live in large cities".[61] Despite this, Hinrichsen (1995) found, that "the greatest increases in population in most regions have been registered in urban areas along the coastline". He adds that mostly this is a result of extended migration from the countryside, rather than natural growth. Whereas the latter argument is true for China[62] reliable urban population numbers are difficult to estimate. A reason is the unique definition of rural/urban population in official Chinese statistics. This way the complex administrative system restricts the scientific use of such numbers.[63]

3.2.3 Economic interests and economic reforms

According to Wang (1992) the coastal zone accounts for over 66% of the national GDP. Apart from that the Chinese government expects outstanding development regarding the so-called marine economy. This branch encompasses every ocean related source of income: from the primary kind like fishery, aquaculture, and marine mineral resources (offshore oil and gas resources as well as minerals in the ground) to secondary kinds such as tourism, coastal shipbuilding, and maritime transport even to more traditional kinds such as sea salt production and marine medicine. Recently, the branch has been subject to particular support from the government, starting with China's Ocean Agenda (SOA 1996) in 1996, followed by

[57] Some official documents see the marine area as extension of the coastal area with a strong emphasis on exploitation and in part protection (SOA 1996, p. 25). Nonetheless in content these documents almost exclusively address marine issues (State Council 1998a).

[58] The WRI uses GIS and a dataset distribution of population along administrative units and percentage calculation from UN population division totals from 1995.

[59] Compare Hinrichsen (1995) and own estimations on the basis of population data from 2000. The number of total population is stated with 1,295 billion for the census of 2000 (CPIRC 2002).

[60] These are results from own calculations with freely available county population data from the 1990 census (CIESIN, 2003) and a GIS-supported delimitation of the coastal zone into four belts reflecting the 10 km, 20 km, 50 km and 100 km line respectively (refer to appendix 2). It shows that the WRI estimations are nearest to own results. The fact that they are still higher can be explained by them using 1995 population data. In respect to all other estimations it shows that a calculation based on smaller administrative units is much more precise.

[61] Wang (1995) states that 70% of the country's urban areas are situated in the coastal zone.

[62] In the PRC an estimate of 100 million so-called floating population exists with the majority moving towards the coast (Li 2002).

[63] Generally, Chinese official statistics divide the total population per region into two different classifications: rural/urban and agricultural/non-agricultural. Both classifications are based on the national hukou-system, the Chinese household (or residence) registration system. For further information see http://csde.washington.edu/pubs/wps/98-13.pdf, www.prc.utexas.edu/workingpapers/98-99-06.pdf, www.iiasa.ac.at, www.china-labour.org.hk, and www.nus.edu.sg.

the White Paper on the Development of China's Marine Program[64] (State Council 1998a) in 1998[65] and culminating in the fact that marine development became an important part of the Ninth Five-year-plan (1996-2000) (China Daily 2000).

According to official accounts the marine industry had a total output of 350 billion Yuan (RMB) in 1999 (MLR 2002). For China an attempted increase of the marine industry's share of the GDP to up to 5% until 2010 is also accompanied by strengthened food security in the near future (APEC 2004). However, regionally the marine industries' importance differs. Most successful are Guangdong, Shandong, Shanghai, Fujian, Zhejiang and Liaoning (COIN 2000).

What made the coastal region so wealthy? The reason was targeted economic and administrative reforms[66]. Under Deng Xiaoping's leadership the CCP realised the need for economic development in order to politically and socially stabilise the country. The decision to open China to the world – sometimes referred to as the 'open-door policy' (Galbraith and Lu 2000) - was taken in 1978 and was formally initiated during the Third Plenum of the Eleventh Congress of the CCP one year later. Main objective was to restructure the economy from the strictly centrally planned soviet-oriented model towards a more market-oriented system. Parallel to this the administrative reform was coupled to a decentralisation of major power structures, serving the purpose of encouraging economic self-reliance in the regions.

Encouragement of foreign investment formed a main task of the economic reform. In order to generate this, since 1980 the central government founded five Special Economic Zones (SEZ) (compare figure 3-1).[67] In 1984 followed the designation of 14 Open Coastal Cities, whose "policy was explicitly formulated to favour investors from overseas and the territories of Hong Kong, Macao, and Taiwan over domestic interests" (Yeung and Hu 1993, p.309). After the crackdown of the 'Pro-democracy demonstrations'[68] and the following economic sanctions against China, the Chinese government took further measures of its open policy to signal persisting favourable climate for foreign investments. In 1992 it began to establish Free Trade Zones, Economic and Technological Development Zones as well as New and High-tech Industrial Development Zones, which were mainly located in the Coastal Open Cities or SEZs (CIIC 2000, Transnationale 2002, China Daily 2002a). Meanwhile seven economic regions within the coastal belt have emerged[69] (compare figure 3-1).

[64] White papers are domestically a planning tool for specific topics - and often cover a longer time span than the usual 5 years, in this case a period until 2010. Internationally they are a means of propaganda, so the government will dedicate a white paper to every potentially disputed issue, e.g. the Chinese Tibet policy, clarifying its intentions. It must be understood though, that positive results of preceding efforts will dominate the contents.

[65] 1998 was the world ocean year.

[66] These were initiated after the destructive experience of the Cultural Revolution (1966-1976) which had left the Chinese nation in a state of economical, organisational as well as social vacuum. The death of Mao Zedong, founder of the PRC, eventually cleared the path for the return of Deng Xiaoping.

[67] These SEZs were: Shenzhen, Zhuhai, Xiamen and Shantou as well as Hainan, which was later in 1988 upgraded to provincial level.

[68] This is the so-called Tiananmen-incident on the 4. June 1989.

[69] The Yangtze River Delta (Shanghai and parts of Jiangsu and Zhejiang), the Pearl River Delta (also called the Guangdong Province SEZ, including Guangzhou, Zhuhai, Shenzhen, Macao SAR and Hong Kong SAR), the Xiamen-Quanzhou-Zhangzhou-Triangle (also called Fujian Province SEZ), the Shandong Peninsula, the Liaodong Peninsula (Liaoning province), Hebei (including Tianjin) and Guangxi (especially the Open Coastal City of Beihai).

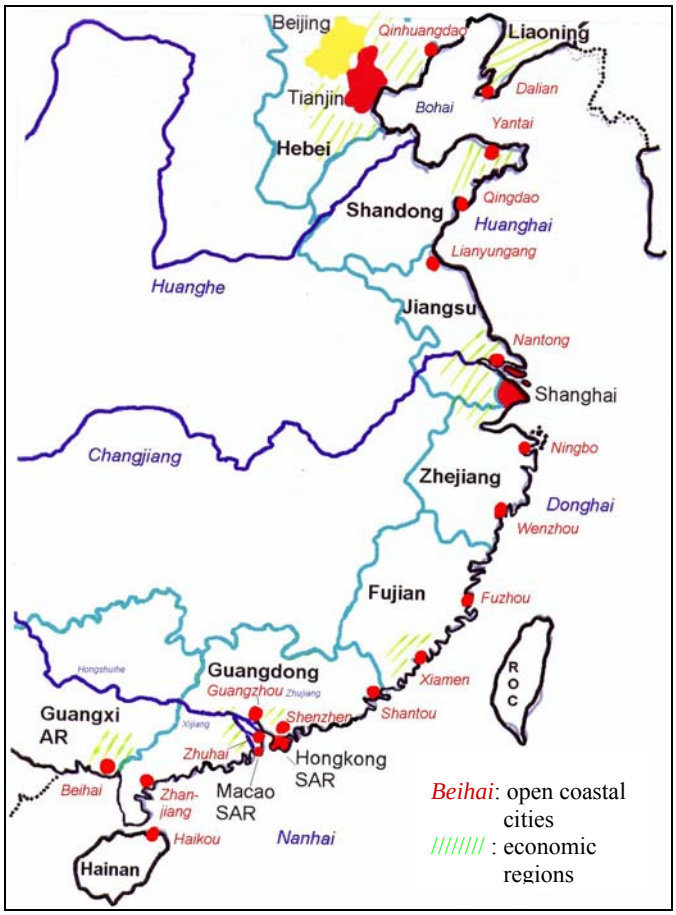

Figure 3-1: administrative map of China's coast with open coastal cities and economic regions

Taking into account the status the coastal zone takes with regards to economic power its importance for the whole country's development becomes apparent. For China's future development it is vital to embed economic and demographic growth into a sustainable strategy. This includes the aspect of environmental protection as well as planned and controlled economic growth. Sustainable development is also the major objective of Integrated Coastal Zone Management – a general approach to mitigate the problems of the global coastal zone. Generalisation usually aims at a high possibility that a country can adopt the concept, with only minor modifications. In the case of China this will hardly be the case. Political and cultural realities prevent a mere adoption of the ICZM concept. In the following the general idea of ICZM will be introduced along with the Chinese interpretation.

3.3 Integrated coastal zone management

3.3.1 ICZM – general assumptions

In terms of different perspectives taken towards the issue of CZM, the literature is quite complex. Some focus on the requirements to be met and instruments to be used, others study the contents of the different programmes and aim at a possible generalisation.
Unfortunately the literature is not always clear in distinguishing between CZM and ICZM. In the early stage of discussing the coastal zone from management perspective – until the WCC 1993 and thus including the direct output of the conference – ICZM was not defined as an independent concept, but was only seen as reduced to the operational level of CZM. This chapter is in contrast making a difference between CZM and ICZM as conceptual approaches with the former following a unified goal (defined by the coastal zone management plan) but not necessarily a compatible organisational structure and the latter emphasizing this

organisational structure in order to enable the set of goals (within the CZM plan) to (re-) define the sectoral entities. Therefore both – CZM and ICZM – are understood as contrary to the most basic sectoral organisation - that is without an overall goal - of issues and interests located in the coastal zone. Sectoral coastal zone management has it that every stakeholder and ministerial agency involved in the coastal zone – even rather marginally involved ones, e.g. the telecommunication sector – is responsible for their share of coastal related issues.

This is also the case with CZM with the difference that in CZM the sectors have a unified approach already, e.g. following the concept of sustainable development. As some issues within the coastal zone are subject to many-fold interests, both of these set-ups potentially include the problems of overlapping responsibilities and inadequate response opportunities, e.g. to disasters or unexpected events. The number of involved agents alone often generates these problems. In contrast, the idea of ICZM aims at a clear distribution of responsibilities of involved agencies and thus an equally clear coordination of all activities taking place in the coastal zone. Through this coordination it should become possible to more efficiently follow a sustainable way in developing the coastal zone as well as become able to respond to problems in a manner avoiding retarding conflicts. Such an approach can be strengthened by a legislation especially formulated for the coastal zone and embedded in a working legislative system. Furthermore the legislation can at best assure that an ICZM program can be implemented and every sector's stakes are sufficiently included. In order to find a common line of action in implementing the ICZM concept in 1993 the World Coast Conference (WCC 1993) brought numerous scientists and responsible politicians of more than 90 nations, 20 international and 23 non-governmental organisations together.

Despite formulating their common recommendation to implement ICZM it is still disputed, in which stage integrated CZM begins. Is it enough to formulate a CZM program or is the existence of a CZM plan a necessary precondition?[70] Similarly, is it enough to name an implementing agency and generate the establishment of sub-divisions down to local governmental level, or are stakeholder and public participation a vital aspect of successful CZM?

It soon becomes clear, that due to its political system, China has a basic problem with a proper ICZM implementation, as suggested by the WCC 1993. In this context, for China, recommendations instead of binding guidelines are advantageous. However, it is also a problem to clearly place China into a certain stage of CZM. Therefore, on this basis, it is hardly assessable whether CZM in China is of the integrated kind and functioning or not. The development stages of CZM (figure 3-2) have been extensively explained by Winsemius (1993).[71] As long as no CZM program is implemented, the government is restricted to reactive policy. This includes every uncoordinated action taking place as soon as, e.g. an oil spill disaster happens.[72] The moment CZM is pursued the CZM policy makers are striving for internal integration, which means "aligning all government units with a direct coastal zone responsibility at a national, regional, or local level" (Winsemius 1993, p. 417). Winsemius already includes sectoral agencies into this stage and leaves the integration of affiliated public sectors (bound to get orders from the CZM policy makers) and private economic stakeholders to the next stage. Regarding the situation in China, the most important

[70] For the issue of CZM plans and programs in connection with a country's legislation, see 3.3.2.1.

[71] In the following I interpret his approach, but changed terminology from sectoral to administrative level integration and from topical to sectoral level integration. In order to create a consistent terminology throughout the paper, I intended to harmonise the general structural explanations with the Chinese political and administrative set-up. I believe to stay in consensus with Winsemius' intention. Errors are entirely my responsibility.

[72] In the case of oil spills, this seems to be the reality, regardless if CZM is pursued or not. The environmental pollutions caused by the Exxon Valdez, or more recently the sinking of the Prestige close to the North Spanish coast are good examples.

aspect is that the governmental and private responsibilities within the different economic sectors can hardly be distinguished. That is one reason to interpret this stage here as the administrative integration of the various levels into the program implemented by the annotated CZM policy makers.[73]

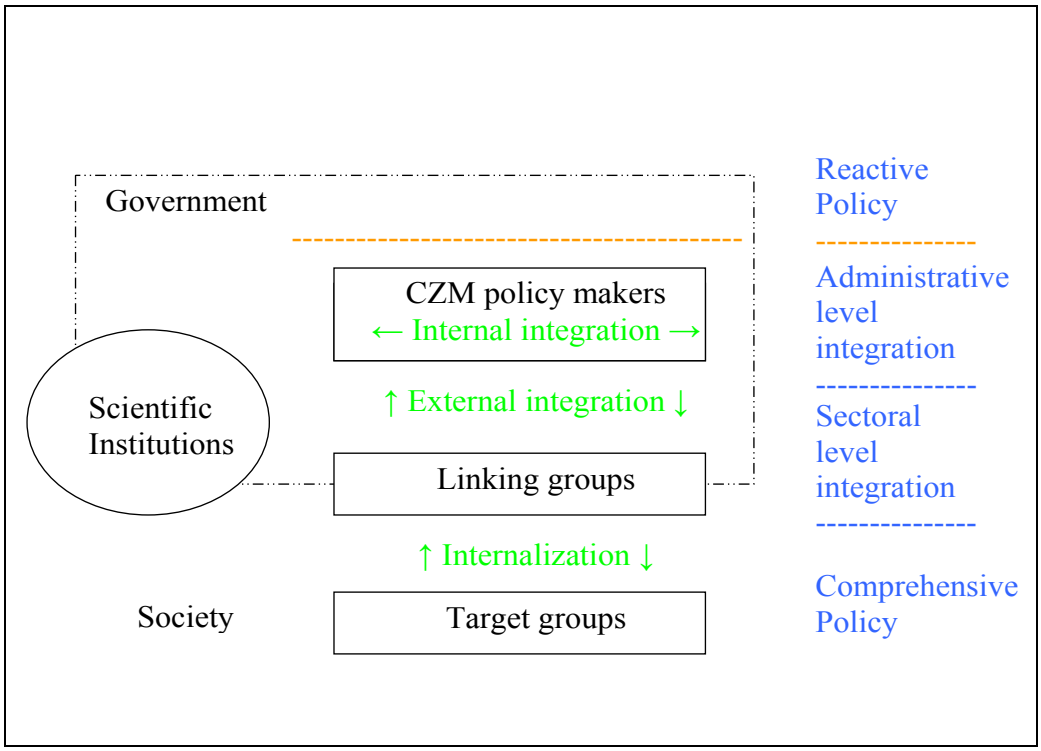

Figure 3-2: CZM development stages (adapted from Winsemius 1993, figures 1 and 2)

The following stage is achieved through external integration of the so-called linking groups. As already mentioned, this stage is aiming at an integration of "other government departments (industry, transportation, housing, urbanisation, education, and tourism) each with its own sector-specific goals" and a close interaction with their target groups - private enterprises or entities (Winsemius 1993, p. 417). To some extent this illustrates classical stakeholder participation, which in China is represented by the various coastal zone related sectors. The final stage of CZM development is the internalisation of the target groups that leads to a fully comprehensive policy. In both cases - Winsemius' perspective and the application to China - target groups encompass all affected groups and public participation is achieved.

Winsemius further emphasises that these target groups should identify themselves with the objectives of CZM. Again, for the situation in China, interpretation is more detailed. For example identification is equally welcome in China, whereas active participation is less seen as a means of achieving successful CZM outcome.[74]

[73] Another reason is that a major (upcoming) point of critical comment is the lack of clear jurisdiction for CZM related agencies in the sectoral government. So, if I would apply the original CZM development stages structure by Winsemius to the PRC, China would not even have been arrived at this stage. However, such an evaluation would hardly be fair, taking the efforts the Chinese government is undertaking and the unique political situation of the country into account.

[74] See also section 3.3.2.2.

3.3.1.1 Issues and their conceptual frames

In the following a short overview of general CZM issues and conceptual frames is given.[75] Furthermore the variety of issues is reflected and it is shown that a distinction is possible by problem and practice oriented approaches.
Vallega (1999, p. 148) illustrates that the problems that are to be solved influence the way the coastal zone is perceived, and therefore the tasks considered most important, are different from programme to programme. Thus, for example, the Lingayen Gulf Coastal Area Management Plan from 1992 emphasises fisheries and aquaculture in search for alternatives and to "achieve sustainable development of biological resources *vis-à-vis* the increasing human pressure on the coastal area".
In contrast, the UNEP (United Nations Environment Programme) approach from 1995 is more generally considering the unique characteristics of coastal areas being subject to, among others, "economically diversified regional organisation" (Vallega 1999, p.148), e.g. agricultural land, forestry, mining, industrial use, and so on.
Whereas the first example is a locally and problem-oriented approach, putting sustainable development in the centre of interest, the second example aims at a universal approach and focuses already on a way of generally categorizing the various parts of the coastal zone.[76]

Similar to the number of approaches, the topics of CZM are also quite numerous. They can be organised into the following categories:
- environmental protection
- multi-use conflicts
- resource allocation
- disaster prevention

The overall objective is always a sustainable coastal development. The concept of sustainability entered the political agenda only quite recently, in the late 1980s, and is widely understood as the "foundation of Agenda 21 and of the Rio Declaration on Environment and Development" (Abaza and Baranzini 2002, p.1). Despite its origin in different fields of science, the environmental, social and economic components' interaction is the core point of interest.

The concept of sustainability is supported by a truly holistic perspective. Only if the coastal zone is seen as one picture, sustainability is possible (French 2002). This emphasises ICZM strategies, "that take account of population growth and distribution, urbanisation trends, consumption patterns, generation of wastes and the use (and abuse) of available resources" (Hinrichsen 1995, p.31). In a way the concept of sustainability strengthens the interdisciplinary character of ICZM whereas the specifically holistic viewpoint emphasises the practical details of the concept.

3.3.1.2 Tools

To integrate every possible problem and development into a concept is a difficulty. Therefore it is recommended to launch testing or demonstration projects for evaluation of strategies and technologies (Awosika et al. 1993). This evaluation can be regarding issue or implementation factors likewise. The latter aspect of planning and implementation tools is most important and holds a great variety (Awosika et al. 1993). In this section the Chinese view should be emphasised.

[75] The issues and concepts of China's CZM are being discussed later in section 3.5.
[76] This is already indicating the implementation tool of functional zoning to be discussed in 3.3. 1.2.

For the Chinese CZM approach functional zoning was defined as a major tool (Wang 2002, Xue et al. 2004, People's Daily 2002a). It divides the coastal zone into units of different use. If more than one use is applied to a unit, the activities need to be compatible (World Bank 1993, p. 708).

The emphasis of the functional zoning can differ, either regarding its various uses (economic focus) or along its environmental value (ecological focus)[77] (Awosika et al. 1993, p.110f, 122). The former takes as a fact, that a use will be applied therefore it can be regarded more as a tool of preventing e.g. multi-use conflicts, and at the same time always being dedicated to the objective of sustainable development. In contrast, the latter indicates which sort of use, if any, may be applied.[78] In this case the environmental aspect seems to be more important. The Chinese programme takes the latter approach, while categorizing at least the marine part of the coastal zone into zones ranging from no use to extended use.[79] Nonetheless this ecologically focussed attempt at zonation is by far a guarantee in favour of environmental interests and in opposition to economic planning.

The determining aspect is, who makes the decisions about the way to categorise and who undertakes the categorisation and is responsible for its implementation. This is subject of the organisation of CZM. In the following the general requirements of CZM and their reality in China are discussed.

3.3.2 Formal CZM requirements and the situation in China

General CZM aspects that are considered as continuing obstacles in ICZM implementation (Awosika et al. 1993) are related to a functioning legislation, the implementing agency and public participation. This chapter is emphasising these elements as requirements, because they are also closely related to the political system. They reflect what the government is prepared to allow and what factors are depending on organisational structures. Additionally to this, the CZM process is often explicitly said to be a framework in flux, and therefore the mentioned requirements are not necessarily set in all development stages. The program should remain able to react to conditional changes, such as new coastal uses or CZM goals or even a basic change in political conditions (World Bank 1993, p.708).

3.3.2.1 Legislation

The legislation is mainly covered by a so-called CZM plan or act. Usually a management plan is the planning tool and should be preceding a management program, which is already part of the implementing procedure (Awosika et al., p.120).[80] Following this argumentation, China's Ocean Agenda 21 (SOA 1996) and its Marine Development Program (State Council 1998a) could count as a management framework. Apart from that, the contents of these documents emphasise general CZM topics and only very superficially provide guidelines for

[77] A basis for this are attempts to categorise the coastal resources and identify possible CZM issues.

[78] In the case of no use, total natural protection is achieved.

[79] China's sea is divided into five kinds of zones: (1) utilisation and development, (2) treatment and protection, (3) nature reserves, (4) special functions, and (5) reserved zones. Citing Li (1991) after UNESCAP (1995, p.38). The program on functional zoning was undertaken 1989-1992 (Zhang 1993), respectively 1989-1995 (Zhong 1999). Wang (1995) provides a similar division. On latest development of sea area use see Wang (2002).

[80] Again, the interpretations are diverse. Whereas Awosika et al. (1993, p.107) do not at all connect the CZM plan to the legislation of a country, French (2002, p. 204) criticises CZM plans to be too much of a decree. He addresses the problem of a top-down applied plan as generating users opposition, while they reject to become dictated what they should do. We should keep in mind, however, that in China this is not the main constraint in implementing CZM.

future management. Generally, a CZM act or plan should have a constitutional function for the coastal zone meaning that a leading agency is clearly appointed and the jurisdictions of all participating organs are defined (either directly or by existing legislation).[81] This is not the case with the above-mentioned Chinese documents.

A CZM plan is supported by any law or regulation regarding the coastal zone. For China these are, for example, the Law of the PRC on the Territorial Sea and the Contiguous Zone (State Council 1992) and the Law of the Exclusive Economic Zone and Continental Shelf of the PRC (State Council 1998a). The Law of the PRC on the Use and Management of Sea Areas (State Council 2001) holds a special importance as it is the only law explicitly relating the management of newly defined areas to certain activities undertaken there.[82] It also regulates the jurisdiction over marine zoning between the State Oceanic Administration, the Fishery Department and the Maritime Safety Administration.[83] Furthermore, there are amended versions of laws that deal with the coastal zone or coastal related sectors, e.g. the Fisheries Law from 1986 (State Council 1986) – amended 2002 – and the Marine Environmental Protection Law from 1982 (State Council 1983) – amended 1999 (Jiao et. Al 2000). For China, a coastal zone management act was proclaimed until 2000.[84] But it seems that it is going to take until 2005 or even 2007 to achieve an overall CZM legislation.[85] Therefore, the legislation of CZM in China can be considered as preparatory.

3.3.2.2 Public participation

The considerations that general CZM approaches take in this regard have already been mentioned in the context of CZM development stages. Altogether, in democratic countries and international accounts, stakeholder participation as well as public participation is considered to be of high importance. These features get even explicitly mentioned in the formulation recommendations for CZM plans, requiring a plan of their own (World Bank 1993, p.711).

Apart from distinguishing into stakeholder and public participation, the issue can be addressed by participation mechanisms. These are many-fold and range from public hearings, to surveys on opinions and perceptions of potentially concerned groups up to the integration of stakeholder groups into the decision-making process itself. The decision whether and, to a certain degree, how to implement ICZM in an area could be expressed most obvious by a plebiscite, in which the public votes pro or contra. But the public may also be more actively involved in the solution creation by participation in round tables, and for instance workshops. If compared to each other an involvement of stakeholders is generally easier than the participation of the general public, but it should be kept in mind that the affected public is also to be considered a group of stakeholders, even if a usually unorganised group. In contrast the typical stakeholder is organised more often in, for instance, sectoral associations, comparative to employees represented by unions.

[81] This is for example the case in the State of Victoria, Australia (1999). Apparently in China also a local level CZM plan exists for Jiangsu province. Unfortunately it was not accessible to me within in time of writing. Nonetheless there is no Chinese CZM act for the national level taking the aspect of jurisdiction into account.

[82] Other related laws are regulations regarding navigation and safety of construction in navigable waters, international marine transport, prevention on pollution, exploitation of offshore oil and so on.

[83] Other agencies or tasks of the SOA are not concerned. The following analysis on the jurisdiction overlap is based on the self-description of all agencies involved.

[84] These efforts are being pursued since the early 1990s. Compare UNESCAP (1995, p.38).

[85] Information gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.

Despite all these theoretical possibilities of participation, only few of them are generally put into action, but it shows that there is indeed a huge range of participation methods available, that mainly differ in their force. However, political realities may prevent some of the above-mentioned participatory methods. In this case participation may become defined accordingly.

In China, public participation concentrates on awareness raising and educational activities. These are clearly basic objectives also included in general definition. Furthermore it is a challenging aspect to raise awareness in a population that for decades was made to believe that environmental problems were a feature of the Western world (Kinzelbach 1983). But educational programmes already encompass all school levels and higher learning institutions as well as holiday activities for children and of course special training courses for administrators active in the field (Hong and Xue 2002). It should be mentioned, though, that some of the special activities, such as the summer university in Xiamen, are being generated by the local level administration and are not part of a national plan.

Stakeholder participation is by definition understood quite similar to the Western notion. One difference lies in the focus on larger businesses, which become involved and are sometimes even a part of political-economic networking. Politicians are often openly entangled in business matters. This in return means that the small entrepreneurs, such as single fishermen, are not explicitly considered important stakeholders. Although, officially they would have their share of influence as well, in reality even the unions in China are no organisations independent of the government (Heilmann 2002, p. 210-211). Another difference is that Chinese stakeholders are generally only being informed by the relevant agency about CZM measures, but not actively included in the decision-making process (McCleave et al. 2003).

3.3.2.3 CZM agency

Another general requirement closely related to the political system of a country focuses on the implementing CZM agency. Usually it is emphasised that this agency can either be newly established and thus bundle various economic sector objectives under one CZM umbrella; such a solution is often referred to as an independent commission. Or, on the other hand, the responsible agency already exists and is allocated additional jurisdiction. Another possibility is the new formation of such an agency within an established and powerful ministry. All of these proposed kinds of organisation emphasise the need for highest political status and clearly defined leadership (World Bank 1993, Awosika et al. 1993, Yu 2002, McCleave et al. 2003). Due to a lack in consistent presentation in the literature[86] the following section gives major information on the organisation of the coastal agency in China and puts it together with relevant administrative conditions found. This way the basic framework for the institutional analysis is delineated.[87]

The Chinese coastline consists of eleven administrative units - eight provinces, one autonomous region and two municipalities (compare figure 3-1). These units are from north to south: Liaoning, Hebei, Tianjin Municipality, Shandong, Jiangsu, Shanghai Municipality, Zhejiang, Fujian, Guangdong, Guangxi Zhuang Autonomous Region and Hainan.[88] These

[86] Interestingly information within the anglophile literature tends to be lacking either detail or consistency, especially if compared to the information in Chinese language. In parts inaccurate translation of terms adds to the confusion. This is a major reason for the detailed and bi-lingual compilation in appendix 3.

[87] Aspects that are most important for the upcoming analysis, such as shifts in political status due to administrative reforms and a detailed account on the agency's tasks and jurisdiction, are included in section V which addresses the various impacts the Chinese political system has on the implementation of CZM.

[88] Hong Kong Special Administrative Region and Macao Special Administrative Region are not included into the CZM management structure.

form the local level on which the CZM agency must be represented apart from the national level.

In China, the SOA is responsible for CZM. Since its establishment over 40 years ago, it has been subject to major changes in terms of the reshuffling of responsibilities, the definition of major tasks, and sub-ordination to higher-level organs. These developments in power distribution are discussed in more detail in section 3.5.1.
The SOA is subordinated to the Ministry of Land and Resources (MLR) as a managed unit (MLR 2003) [89] and consists of six departments, of which the Department of Marine Environmental Protection, the Department of International Co-operation, the Department of Sea Area Management and the Department of Science and Technology are most important for this analysis.[90]

Furthermore the SOA supervises at least 23 sub-units, ranging from various research and development institutes (e.g. for oceanography or desalination), monitoring and forecast centres to affiliated media organisations as well as training and other service institutions (e.g. the marine data and information centre) (COIN 2003).[91] Among these are also three SOA branches responsible for different sea areas, i.e. the Northern Sea, the East China Sea and the South China Sea. They resemble regional branches.

At the local level - in the coastal provinces, some Special Economic Zones and selected Open Coastal Cities - 15 offices or administrations exist. These local offices are either an Oceanic Administration, or a Department of Marine Affairs and Fisheries or a compatible bureau within each provincial level unit. In the cities of Dalian, Qingdao, Ningbo and Xiamen there are additional offices. The latter is the only agency holding the term of management in its name (*Xiamen shi zhengfu haiyang guanli bangongshi*). This obviously comes from the fact, that Xiamen was the first demonstration site established for the purpose of CZM.[92]

The more units within one province exist, the more difficult it is to assess, how these are related in terms of power and coordination. For instance in the province of Shandong four different units exist. These comprise of the provincial Department of Marine Affairs and Fisheries in the province capital of Jinan, the Department of Marine and Aquatic Products in Qingdao, the SOA branch for the North China Sea (Qingdao) and the First Institute of Oceanography (Qingdao). The latter, as a research institute, is the only clearly subordinated unit.[93] It should be understood though that the mere counting of offices in a region does not necessarily reflect the region's status and importance.

3.3.2.4 Scientific and policy projects

Basically, scientific research on coastal conditions and natural processes as well as the monitoring of indicators in order to evaluate implemented measures are perceived as most important in the CZM cycle (World Bank 1993, Awosika et al. 1993). Therefore the existence of assessment programs and demonstration projects is likely to indicate the status a country is giving its CZM efforts.

[89] On behalf of the State Council the SOA is managed by the MLR.
[90] The Administrative Office and the Department of Personnel are not directly involved in management activities.
[91] For details see appendix 3.
[92] Compare also 3.3.2.4.
[93] Interestingly, the SOA's official information is not clearly stating the various local departments' status within a region, but addresses the hierarchical set-up among internal departments on the national level.

In China in the 1980s, scientific surveys on the coastal zone and the tidal flats introduced the beginning of a new era, which coincided with economic and administrative reforms. The survey on the coastal zone took place from 1980-1986, followed by a compatible survey on sea islands from 1988-1993 (Zhang 1993, Wang 1992 and 1995, Dong 1998). The year 1993 constitutes a major change from research to management issues. In this wake the SOA was gradually annotated to new responsibilities. For example, in 1989, the agency was allocated the competence for the establishment and management of marine nature reserves and marine protected areas. However, this does not mean, that the jurisdiction for marine or coastal reserves is always clear. In this example, the jurisdiction is competed by the State Environmental Protection Agency (SEPA). Only the limitation of the marine reserves and protected areas to the SOA's jurisdiction is delivering a possible distinction for both agencies' responsibilities – whether this fact is to be valued as positive is in more detail discussed below. Basically, the situation is further hampered by the fact that there is no exact defining terminology in Chinese to settle the difference between nature reserves and protected areas.[94]
Generally, during the 1990s many international co-operation projects have been proposed on issues regarding the coastal zone and its management (State Council 1998a). Regardless of the high number of proposals and project descriptions found in information on various international agents or Chinese sources on CZM international co-operation, the number of successfully implemented projects seems to be quite small. However, the quality of co-operation in fields of natural science, building the foundation for the already mentioned scientific surveys, is better than that regarding management issues. This is true, in terms of successful completion and usability of the derived data.[95]

Specific CZM related projects in China were started by the already mentioned Xiamen demonstration site for CZM. Apart from the Bohai Sea Project, which is of inter-provincial nature, and a project on biodiversity protection in Fangchenggang/Guangxi, Yangjiang/Guangdong and Qingangang/Hainan in the north of the South China Sea (Wang 2002), Xiamen remains the only city with an own CZM project.
As already indicated, many projects' proposals were not realised or results and information were never distributed or widely published. Despite the low number of reliable project reports, there is another possible reason for less information on projects. Some projects were initiated and funded to a great extent by international agencies. It is not impossible, that some of the funding was misused by local governments for other than the proposed tasks (Li 2002). Following a statement of Li Haiqing, deputy director for international co-operation at the SOA, ongoing international funding is vital in China to generate political will for CZM. Often these projects are locally defined and such bottom-up approaches have had important impact on the national opinion and policy-making. It now turns out to be an extensive objective of the national level to support and even generate local initiatives top-down.

Not only institutional set-up, but also national and local level power distribution as well as cultural aspects define CZM in China. In order to evaluate the impacts of political and cultural aspects on decision-making processes, these features have to be specified. In the following, the unique aspects of the Chinese political system will be introduced.

[94] The term generally used is huanjing baohu qu, which is not indicating the status of possible use, for example, if human settlement is allowed or not. According to Simard (1995), also in China marine protected areas are classified into several groups. Nonetheless the Chinese terminology is only loosely adopting these classifications. Appendix 4 gives an overview of China's coastal and marine reserves.
[95] In various sources information on 21 projects was found since the beginning of the 1990s. Two of which were completed (proved by final reports), six were assumed completed (restricted time span given, no final reports found; mostly natural scientific surveys), two are ongoing and four are assumed ongoing (mainly management projects with only vague information accessible). For the remaining no estimation of status was possible.

3.4 The Chinese political system

Most decisive power structures in Chinese politics derive from the political system and the political culture. These factors can be divided into formal aspects of the institutional set-up and informal aspects, such as unique cultural characteristics.

3.4.1 Informal power aspects – cultural features

The main cultural aspect of Chinese politics is found in relation-networks, the so-called *guanxi*. Politically, these are patronage relations; a political career is only possible with protection of an elder official. Socially, *guanxi* denote many kinds of personal and social networks. For instance, networks of former fellow students (compatible to alumni in parts of the Western world) build an education-based *guanxi*. Social or personal groups can, among others, range from the army, interest groups, family or clan. Every *guanxi*-relation is based on mutual benefit.
Most scientists working on this field of informal power aspects, emphasise that *guanxi* often generate a corrupt environment. This way they clearly obstruct the effectiveness of the state.[96] On the other hand, in a case of deterioration of state structures or functions (e.g. due to war or the economic collapse of a system), *guanxi* can uphold some of the inevitable functions by exchanging the state structures with social network structures.
It should also be mentioned, that *guanxi* are not entirely unique to the Chinese society, but in China they clearly take up a more important position, than e.g. in Europe. This way, rather traditional notions become supported by a political system generating such networks.[97]

3.4.2 Formal power aspects

3.4.2.1 Party - state relations

The formal aspects are typical for a Leninist state structure. These are the lack of separation of powers – legislative, judicative and executive are all held by one agent, in China this is the Chinese Communist Party (CCP). This way, also the lack of distinction between the party and the government is reflected. The situation is still held up by the Nomenclature system. Despite some reforms, every leading administrative and political official is still appointed by one level above in the structural hierarchy.[98] Generally, the authority in such a political system is organised in a strict hierarchy and has influence on every level of government activity.[99] -

3.4.2.2 Governmental - institutional power potential

Additionally to this, a similarly parallel system of institutions exists. In order to explain constraints in decision-making processes regarding environmental policy, Lieberthal (1995,

[96] The complexity of government generated network systems (such as the Nomenclature system to be explained further down) and their intermingling with society-based systems – as the guanxi-system – leads to a variety of terms used. Thus corruption becomes largely related to political patronage-networks and general rent-seeking activities (Gottwald und Kirchberger 2001, Lü 2000), whereas in administrative studies corruption and reciprocity both become features of ineffectiveness and are described as 'social norms' (Chow 1993). Further reading on guanxi is provided by Gold et al. (2002).
[97] For information on political patronage relation-networks see Heilmann (1999).
[98] On the Nomenclature system compare Gottwald and Kirchberger (2001), Heilmann and Kirchberger (2000), Zhao (2001) and Huai (1995).
[99] The CCP party bureau is not only controlling its own committees on each level, but also takes significant influence onto the Military Commission, the State Council – as the highest organ of government in China – and the National People's Congress (NPC), China's parliament. Compare Heilmann (1996).

1997) illustrates the (im)balance of vertical and horizontal power structures; this scheme is also called the *kuai-tiao*-system. Most important is that ministries hold the same power position as local governments. This way the ministries are not in a position to give direct orders to the local level, unless they take the 'detour' of their own institutional branches on the various governmental levels. As these institutional branches are situated slightly lower than the local government of the same level, a small bias exists in favour of the local power.

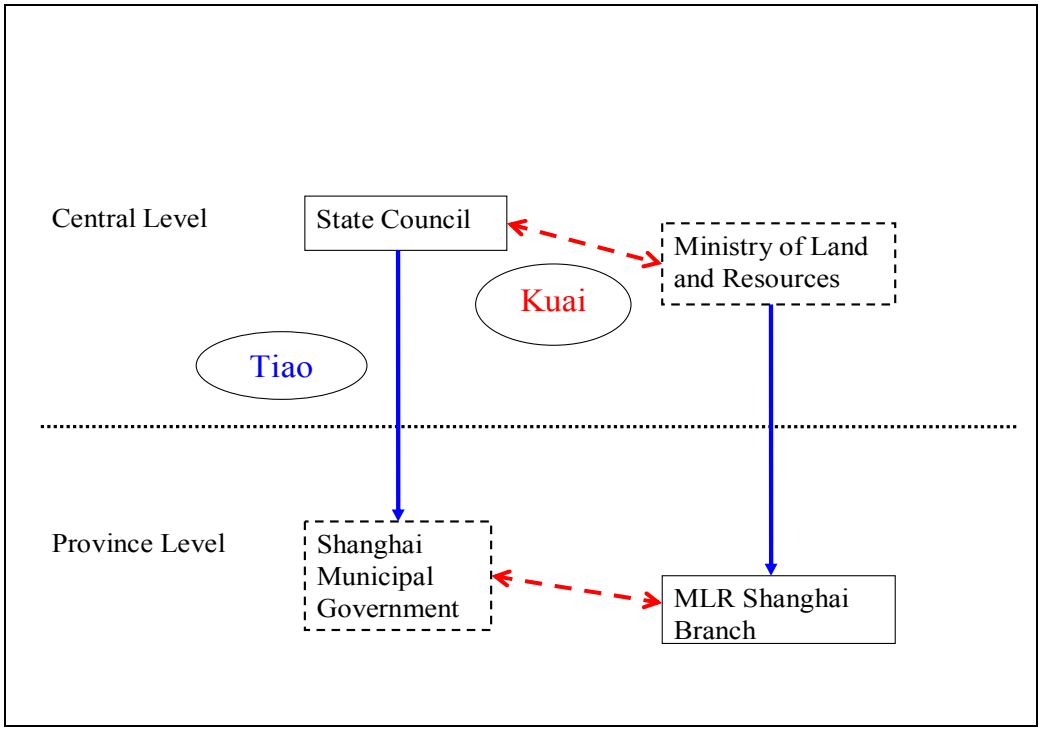

Figure 3-3: the *kuai-tiao*-system (adapted from Lieberthal 1997, chart 2)

In figure 3-3 Lieberthal's concept was adopted for agencies of the Ministry of Land and Resources in Shanghai.[100] Whereas the vertical *tiao*-relations still show a one-directional power distribution, to be interpreted mostly as binding orders, the horizontal *kuai*-relation is much more open to negotiation and therefore can be considered effective in both directions. Consequently, the power of institutions on the local level is very much depending on power relation of the local government to the centre or its independence from it. The more own political power a local government has, e.g. because of successful economic decentralisation, the more the *tiao*-relation is exercised by the institutional influence of the centre. This way *tiao*-relations less determine power relations than *kuai*-relations do. In turn, a weak local government still more depends on *tiao*-relations and institutional influence is guaranteed at the local *kuai*-level.

3.4.2.3 Central - local power distribution and administrative reforms

The Chinese governmental organisation is divided into central, provincial, prefecture, county and township levels. However, even more modes of division exist, such as urban/rural and also direct/indirect control measures[101] are important. The provincial level (*shengji*) encompasses all provinces, municipalities directly under the State Council (Beijing, Tianjin,

[100] Referring to Lieberthal's chart 2 (1997).

[101] Prefecture-level (diji) cities – inserted between the provincial and county levels during the administrative reform period– as well as sub-provincial cities with own economic and administrative power are reflecting the variety of different power levels created by administrative status. Sub-provincial cities along the coast are: Dalian, Qingdao, Ningbo, Hangzhou (located between Shanghai and Ningbo), Xiamen, Guangzhou and Shenzhen.

Shanghai and Chongqing) and autonomous regions (Nei Menggu = Inner Mongolia, Xinjiang, Ningxia, Xizang = Tibet and Guangxi). The Hong Kong SAR (Special Administrative Region; *tebie xingzhengqu*) and the Macao SAR are not included in this system of centralised control.[102] Power distribution within the administrative set-up in China is either focussed on the central-local relations, which mostly carry a hierarchical dimension, or the relation between local levels, which increasingly reflect a situation of competition. Since the economic and administrative reforms of 1979 the central power has been extensively transferred to the local level. Recent changes in the *kuai-tiao*-relations have already reflected a major transfer. For the institutional analysis basic information on changes in the administrative organisation and specific changes in CZM organisation due to the administrative reforms in China are vital. This provides for an estimation of local power distribution.[103]

3.5 Impacts of the Chinese political system

3.5.1 CZM and administrative reforms

For the administrative context the reforms were started slightly after their economic counterparts. 1982 generally counts as the year of the first of four major structural reforms of the State Council (*guowuyuan jigou gaige*), that were undertaken in 1988, 1993 and 1998.[104] Within the context of coastal zone management significant changes of responsible and affiliated agencies have taken place, which will be described in the following. Regarding the estimation of political power it should be noted, that the terms 'ministry' and 'commission' do not indicate a hierarchy or difference of responsibilities anymore.[105]

The leading agency for coastal zone management is the State Oceanic Administration (SOA), which was formerly (in translation) named National Bureau of Oceanography. Until 1993 its status was directly under the State Council (figure 3-4). This was the status giving the agency the most possible independence and administrative strength. At the same time the agencies responsibilities had been already extended from predominantly research to coastal zone management activities. For example in 1989 it was given the responsibility over the establishment, administration and management of Marine Protected Areas and Marine Nature Reserves.[106] In 1993 the SOA became incorporated into the Commission of Science and Technology (Buen 2001, p.110, Schier 1993, China aktuell 1993a,b,c)[107]. This way it experienced an administrative downgrading, while its responsibilities grew, i.e. one year later

[102] After their return under Chinese sovereignty – 1997 and 1999 respectively – these two territories fell under the arrangement of so-called 'one country, two systems' and still have a position of extended domestic autonomy based on international contracts. Compare Heilmann (2002, p. 120).

[103] Local power is equally depending on the administrative status a city has. In this analysis the municipality of Shanghai and the city of Xiamen with a status of a special economic zone both have significant local power, but yet with different central-level support.

[104] Since then only minor changes have taken place in 2001 (Liu 2001). There are plans for even further reforms – especially in the administration set-up of economic state organs – beginning in 2003. These reforms are probably not affecting CZM agencies. Compare CHINA aktuell (China aktuell 2003). In general, the structural reforms of the administration aimed at a reduction of government agencies as well as their personnel and making the set-up more efficient.

[105] The term 'commission' is only still used out of traditional motives and will be subject to gradual abolishment. Compare Heilmann (1998) referring to an interview with Gu Jiaqi, in: Ta Kung Pao, Hong Kong, 11.3.1998.

[106] Zhang (1993) refers to the year 1988. Many Marine Nature Reserves were established in the beginning of the 1990s.

[107] The incorporation was decided upon by the State Council on 19 April 1993 (8. NPC). A final list of administrative changes published in the Renmin Ribao on 11 and 13 Juli 1993 clearly indicates that the guojia haiyang ju was now placed under the Commission for Science and Technology (referring to Xinhua, 11 July 1993 and Summary of World Broadcasts, 14 July 1993 and Renmin Ribao 13 July 1993 cited after China aktuell 1993a,b). For the status of governmental agencies before these changes please refer to: Zhongguo zhengfu jigou ji guanyuan minglu 1989/1990, Hongkong 1990 and Zhongyang guojia jiguan suoshu shiye danwei daquan, Beijing 1992 and China Directory, Tokyo 1992 (cited after Schier 1993, China aktuell 1993a).

in Xiamen the first demonstration site was being established under the co-operation of SOA and international groups such as GEF, UNDP and IMO.

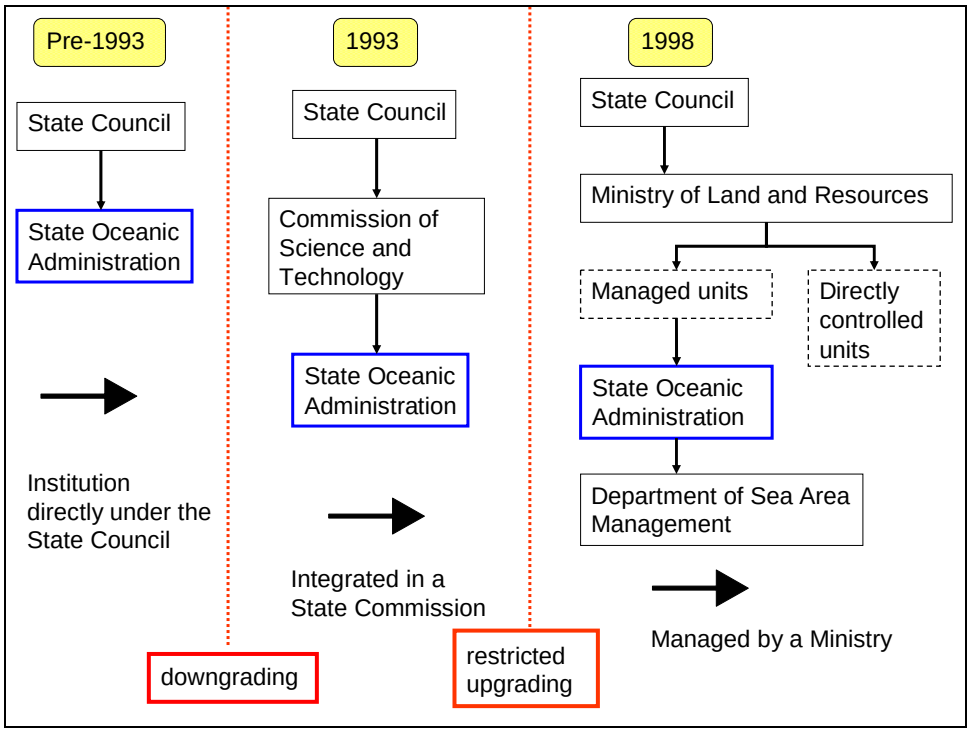

Figure 3-4: SOA structural development

In 1998 another re-organisation of the administrative structure and responsibilities took place. Thus, during the fourth administrative reform, the SOA was incorporated into the newly established Ministry of Land and Resources (Buen 2001).[108] This time the re-organisation reflected a slight upgrading, as the SOA now became compatible to a 'managed unit' of the Ministry of Land and Resources, instead of being completely controlled by it or the Commission of Science and Technology respectively. An important difference is that the MLR is not involved in the SOA's finances.

At the same time the Commission of Science and Technology was turned into a ministry without a major change of responsibility. It is still marginally important to the work of the SOA as this ministry is initiating and supervising research also in marine areas.[109] Of comparable importance is the co-operation with the State Environmental Protection Administration (SEPA) in terms of natural protection areas in the coastal zone that are not managed by the SOA or by the National Bureau of Forestry (that is responsible for e.g. mangroves).[110] Another important agent in the coastal zone is the Ministry of Agriculture with its Department of Fishery and therefore significant regional interest in the coastal zone as part of resource allocation.[111]

[108] The major reform of 1998 was the most radical so far. Five 'super-ministries' were established either through upgrading in status and extension of responsibilities - these are the State Commission for Economy and Trade, the Ministry for Labour and Social Security, and the State Commission of Defence for Science, Technology and Industry - or the merging of existing ministries and other organs, administrations and institutions directly under the State Council (Ministry for Information Industry and Ministry for Land and Resources). Particularly the merged ministries gained significant power while embracing departments of different economic sectors. This is also the reason for associating them with extensive economic regulating power (Heilmann 1998).

[109] In this context also compare the SOA set-up with its own Department of Science and Technology in appendix 3.

[110] The National Bureau of Forestry derived from the Ministry of Forestry, contains a Department of Wildlife Protection, and was uncoupled of the Ministry of Agriculture in 1982.

[111] The Ministry of Agriculture had been renamed and restructured until 1988.

Since 1998 the objectives of the SOA have become more numerous and its responsibilities now extend to management and institutional coordination. However, this can be interpreted on three levels. First, the internal responsibilities encompass the management of all institutions and offices involved - ranging from planning and management of the seas to various institutes of oceanography and other research units as far as media agencies (e.g. the journals of China Ocean Press in Beijing). Secondly, the external responsibilities are an attempt to coordinate all institutions involved in coastal zone management, which would be the task of SOA's Department of Sea Area Management. Thirdly, it may suggest international co-operation, which is taken care of by SOA's Department of International Co-operation.[112]

The conditions of the first version can be verified by a look into media presentations of the SOA (2002). In this case the SOA's leading responsibility is undisputed. This is also true for the third option of international co-operation, which is organised directly by the SOA.
However, the role the SOA plays in the coordination of various governmental agencies involved in CZM remains unclear. In the following the SOA's perception of its objectives will be discussed. Furthermore the co-operation with other agencies for some of these tasks will be clarified and overlapping responsibilities illustrated and evaluated.

3.5.2 CZM issues (SOA)

The SOA itself emphasises its objectives in safeguarding marine rights and interests in managing the sea area use, co-ordinating the utilisation of and development of marine resources, protecting the marine environment, and mitigating natural disasters. Apart from sea area use this does not indicate an overall coordination objective for CZM. The rather fuzzy expression of marine rights and interests includes policy, law and regulation formulation, but also emphasises the protection of Chinese sovereignty in the oceans. Functional zoning of the marine area is largely considered a means of CZM, however, in China the stress is put on ocean development plans, marine industry and marginally on marine protection areas (UNESCAP 1998, Zhang 1993, Dong 1998, SOA 2002, SOA 2003).

3.5.2.1 Jurisdiction overlap

The SOA (2003) admits the need to co-operate with certain other governmental agencies in order to pursue its tasks. Explicitly mentioned are:

- the Ministry of Science and Technology (MST 2003; pre-1998 it was ranked a commission)
- the Chinese Academy of Sciences (CAS 2003)
- the Ministry of Land and Resources (MLR 2003; by whom the SOA is managed)
- the State Environmental Protection Administration (SEPA 2003; former NEPA)
- the National Bureau of Forestry (NBF 2003)
- the Ministry of Agriculture (MOA 2003) with its Fishery Department

As these agencies cover either scientific, zonation-related, or environment and resource oriented issues a significant overlapping of functions is likely. In order to investigate the nature and contents of these overlaps, they should be categorised according to their co-operation status.

[112] As every governmental institution in China the SOA, too, has an office for international relations.

CZM related organs / SOA Tasks	MLR	Department of Fishery – MOA	SEPA	NBF	MST	CAS	MSA – Ministry of Communication	DPC	ETC	NTA	MOC	MWR
CZM rights and laws		X	X				X	O				
Marine resources	X	X	O		O	O	A	A	A		O	O
Marine environmental protection	X	X	O	X	O	O	X	A	A	O	A	O
Disaster mitigation	O		X		O	O	X				O	O
Marine zoning	X	X	O	O		O	X	O	O	O	A	
Coastal zoning	X	X	X	X	O	O	X	X	X	X	X	O
X = jurisdictional overlap O = co-operation A = potential conflict												

Figure 3-5: CZM responsibility overlap

In figure 3-5 the official SOA tasks according to the SOA's programme are put into a matrix with CZM related agencies. The left section encompasses the agencies the SOA says to have co-operation with, the right (italic) section contains selected agencies likely to be involved in CZM. Here the following organs are included: the Ministry of Water Resources (MWR 2003), the Ministry of Construction (MOC 2003), the National Tourism Administration (NTA 2003), the Economic and Trade Commission (ETC 2003), the Development Planning Commission (DPC 2003), and the Maritime Safety Administration (MSA 2003) subordinated to the Ministry of Communication (MOCom 2003). There are three categories illustrating relation conditions, ranging from (1) clear jurisdictional overlap[113], to (2) assumed co-operation, and (3) potential conflicts in the coastal zone.

Most of the clear overlaps occur with powerful agencies like the Ministry of Agriculture and the Ministry of Land and Resources, which the SOA is subordinated to. The scientific institutions are more likely to co-operate with the SOA. With organs like the National Bureau of Forestry and the State Environmental Protection Agency only a few formal overlaps occur. For the latter the institutions' internal power structures will be most important in defining which institution is able to hold the jurisdiction. Hence, personnel structure and the leading officials' commitment will be decisive.

Potential conflicts are most likely to occur with agencies the SOA is not explicitly claiming to undertake co-operation with. It should be kept in mind, however, that some of the italic

[113] These are proved overlaps, either taken from the agencies' programmes (to be found on Chinese and partly also English website presentations of the agencies; see reference section) or from case studies illustrating these; e.g. Buen (2001). Additional information on ministries and commissions can be gained at www.chinaonline.com.

section agencies are established governmental organs, partly defending growing economic interests within the coastal zone and are to be considered as comparably powerful.

The SOA's objective of responsibility over marine resources is one of the most disputed. Although the SOA is emphasising to be in charge of the planning process, also the terms of co-ordination of utilisation of the resources is explicitly mentioned in some SOA publications. However, the Ministry of Land and Resources also explicitly claims jurisdiction over all activities affiliated with marine resource exploitation (including offshore oil and gas as well as mineral resources). In the most positive constellation, this would leave a scientific, but not managerial, planning task for the SOA. A similar situation occurs for the fisheries and aquaculture resources. These are taken care of by the Fishery Department of the Ministry of Agriculture, a condition agreed to by the SOA. In respect of marine resources this does not leave much scope for marine resource activities by the SOA. As all affected ministries claim responsibility in their programmes, a clear overlap of jurisdiction can be detected.

Wherever an overlap is not clearly detectable within the ministries' programmes, co-operation should be assumed. Though this does not mean, that co-operation is also achieved in practice. Within the context of environmental protection and marine zoning, e.g. a co-operation with the State Environmental Protection Administration (SEPA) is most likely. Nonetheless, jurisdictional overlap is also likely, as the SOA is responsible for the marine zoning and hence every protection area within this zone. SEPA in return is responsible for land-based protected areas. All reserves established within the transition zone between marine and terrestrial would be theoretically disputed. It seems, that in practice also protected areas or reserves situated in the coastal zone are being managed to high degree by the SOA, at least if they have a national, provincial or even international status, such as Ramsar sites[114]. Still unclear is, for instance, the jurisdiction over mangrove protected areas. On a local scale they are mainly managed by the National Bureau of Forestry, and as Ramsar sites they are included into the SOA management system. It is almost impossible to judge, whether there is still a co-operation taking place after a change in status. But as marine zoning is also undertaken on a smaller than provincial scale at least here co-operation may be assumed.

Most strikingly the Maritime Safety Administration is not mentioned by the SOA as a potential co-operating partner. As this agency is responsible for marine transport especially within the subject of disaster mitigation jurisdictional overlap exists (Buen 2001). The relations of the other agencies in the italic section of figure 3-5 to the SOA have potential conflict. An example is the Ministry of Construction, which is responsible for the building of major construction projects within the coastal zone. There are some negative impacts construction projects may have on the marine ecosystem, e.g. changing of marine currents and thus influence on biodiversity and possible degradation of resources and economic loss. This holds a significant conflict potential between the SOA and the MOC.
Looking at the jurisdictional overlaps it becomes clear, that the emphasis of the SOA's jurisdiction on the marine zone, while leaving the land-based jurisdiction to other agencies, does not mitigate the problems of the management in the coastal zone. Therefore, all jurisdiction needs to be defined much clearer and in more detail. The creation of two separate zones, instead of one coastal zone reflecting the transitional nature of the area (GEF et al. 1997b, p.10), does not seem reasonable.

[114] Ramsar denotes the Convention on Wetlands in Ramsar, Iran 1971. Ramsar sites fulfil the criteria for wetlands of international importance. The organisation assists governments with guidelines for development and conservation of the sites (Ramsar 2003).

Preceding, China's national level CZM policy and the structural conditions for implementing this policy on institutional level have been discussed. In the following chapter the focus is on the structural set-up of local CZM approaches in China. These are likewise affected by political and social conditions in China. The strength of impact may differ at the local level due to reasons of local power distribution and CZM issues defined.

3.6 Local CZM approaches in China

In the following the organisational structure of the CZM approach of the city of Xiamen, which has been successfully applied, will be compared to the structure of a proposed CZM approach for Shanghai. Further it will be evaluated, if the Xiamen approach would be locally applicable for the Shanghai municipality taking the structural organisation of the Xiamen approach and the different political condition in Shanghai into account. Finally it should be assessed if it could be an option for a national approach.

3.6.1 Shanghai's current CZM structure

At the moment CZM in Shanghai is still being carried out on a sectoral basis. The SOA has the formal leadership. Nonetheless, no CZM commission exists, and co-ordination of affected sectors is loosely organised by the SOA, but not formally adopted[115]. Due to Shanghai's enormous economic power gained mainly during the past decade, the economic sectors are very powerful. In terms of the *kuai-tiao*-system this strengthens the local government and the institutional SOA relation is becoming the most important central level impact. This is calling for a very strong SOA in order to be able to implement national SOA directives. The local government is also involved into a strong *guanxi*-relation with the economic sector. In contrast, the input by the independent scientific community (i.e. academics working at universities rather than being employed by the SOA) is left scattered and is comparably negligible[116]. Partly due to poor coordination a weak implementation of CZM policies is expected. Additionally, political will is left as the only possible generating factor for CZM.

3.6.2 Shanghai's proposed CZM structure

Shi et al. (2001) published a proposed CZM structure for Shanghai. As illustrated in figure 3-6 it is a strictly hierarchical set-up, indicated by the pyramid form of organisation. The SOA is situated on top, indicating formal power. A so-called management organisation, formed by the SOA with early input by the local government, but obviously no responsibility taken by the government, is supervising a support group (administrative input), an executive group (stakeholder input) and an advisory group (scientific input). Remarkably, these three groups only partly interact with each other: the support group and the advisory group do not. The executive group is in charge of implementing various projects, activities and measures within CZM policy.

Problematic is, that the decisions on CZM contents are made before stakeholders are engaged. This is also excluding the possibility of objectifying the economies' financial powers for certain relevant issues. For instance, within the context of sea-level rise, the economic sector is going to loose, and would probably be open to support related CZM measures and co-

[115] Information gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.
[116] Information gained through personal communication with anonymous scientists.

operate with the SOA in case of possible early participation. Also the scientific input happens far too late to be considered an important intervention.

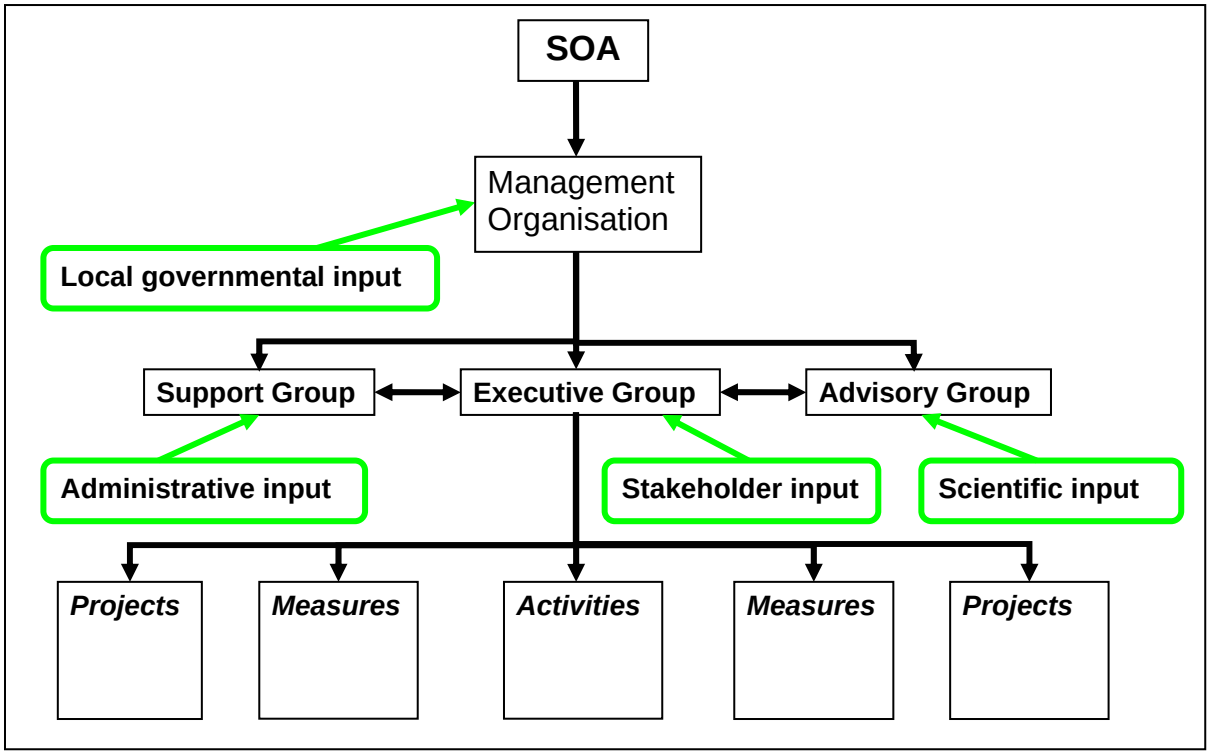

Figure 3-6: Shanghai proposed ICZM structure (simplified from Shi et al. 2001, figure 2)

Regarding the issues chosen for CZM in Shanghai, the SOA is in the position to steer its interests. Usually, it can be expected that pressing issues will be put on top of the agenda, but in the case of the SOA solely deciding it may favour marine issues (rather than multi-use conflicts for example). Due to a double impact by the local government (and its administration) at both stages - decision-making and implementing - the proposed issues will have to be generated by the local political level. Like in the current CZM structure, this again, makes the organisation dependent on political will. That is, the issues being steered by the central level via the SOA and the implementation undertaken by the local government with its strong *guanxi* to the economic sector. Although the structure is very hierarchical, formal and informal power distribution on the local level result in a double impact of the local government, while the responsibility lies with the SOA. This makes a successful implementation of the proposed CZM approach questionable.

3.6.3 Xiamen's CZM structure

This structure has been successfully implemented in Xiamen for a couple of years now and illustrates the CZM organisation of the first demonstration site for CZM in China (figure 3-7). The effort was supported in 1994 by international organisations[117]. In contrast to the proposed structure for Shanghai, Xiamen's CZM set-up relies on a system of early professional participation and a structure which is problem-oriented (such the pyramid form stands on its head now). Main planning and implementing organ is an executive committee closely engaged with the local government. The responsibility lies with the mayor of the city,

[117] These are the Global Environmental Facility (GEF), the United Nations Development Programme (UNDP) and the International Maritime Organisation (IMO).

who is also supervising the Executive Committee.[118] The input of the local government and the SOA into the Executive Committee can be considered equal.

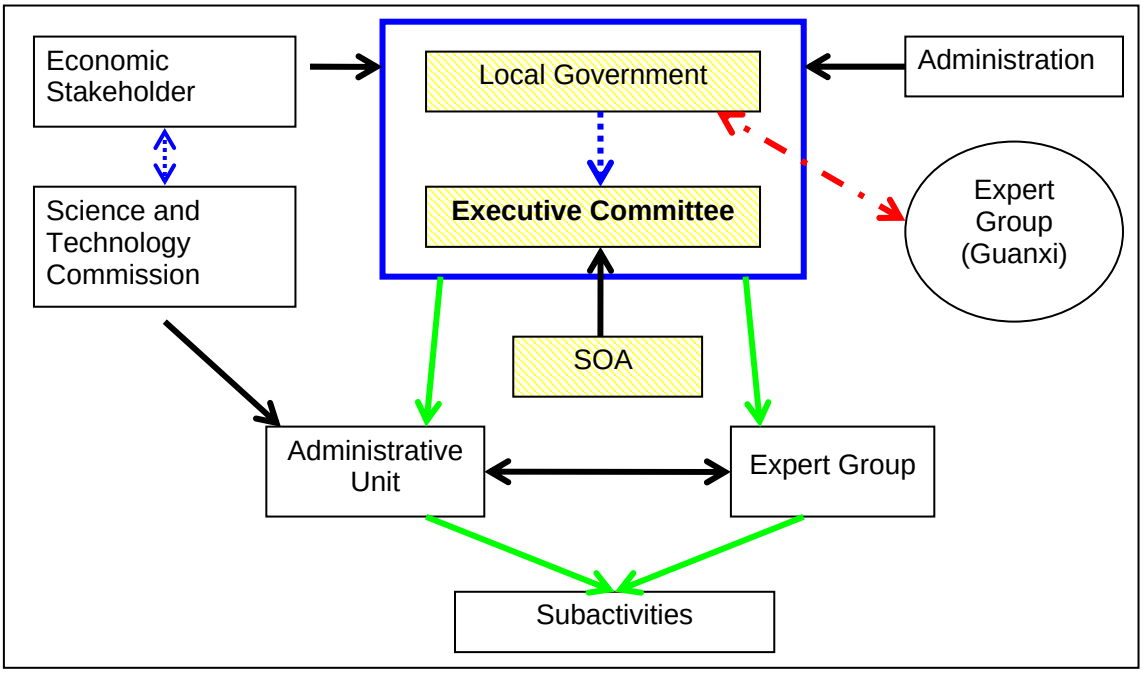

Figure 3-7: Xiamen ICZM structure (simplified from Chua et al. 1997, figure 3)

Furthermore the administration as well as the economic stakeholders (in co-operation with a Science and Technology Commission that takes care of technical questions) has a particularly early input into the planning process. The Science and Technology Commission also has a practical input into the implementing stage. The close interaction of the two groups that actively implement the policies – the Administrative Unit and the Expert Group – is considered very positive. Such is an early scientific input into the planning stage via a *guanxi*-input of the expert group[119] directly into the local government that supervises the Executive Committee.

3.6.4 Alternatives

3.6.4.1 Alternative 1: application of the Xiamen structure to the situation in Shanghai

A positive aspect of the Xiamen structure is the early and double input of the Expert Group in both development stages. However, the first (and unofficial) input is characterised by *guanxi*-relation not as strong in Shanghai as in Xiamen (if existing at all). The factor, that the local government would be responsible for CZM implementation, is to be considered as positive.

[118] Information was partly gained at the PEMSEA workshop on CZM in Xiamen 20-23 September 2002. The Xiamen ICZM approach as described here has been published by Chua et al. (1997). A more recent publication by McCleave et al. (2003) informs that the structure has been consolidated in 1999, when the Xiamen demonstration project formally ended.

[119] A guanxi-relation is not included in official illustrations. My intention, though, is to incorporate informal power structures into my explanations. Through my participation at a PEMSEA workshop on CZM in Xiamen 20-23 September 2002, I became knowledge of this good co-operation between the local government and the scientific community, which to a high degree determines the success of CZM in Xiamen. Chua et al. (1997) describes a one way input of the municipal government into the expert group, whereas McCleave et al. (2003, figure 4, p. 68) already shows a mutual impact between the Marine Management and Coordinating Committee and the Marine Expert Group and so indicates the high importance of the latter to the CZM set-up in Xiamen.

Nonetheless, also the Xiamen approach can only be generated with significant political will and is depending to a high degree on local initiative. This situation can become problematic with disputed issues. Generally, in Shanghai the danger of the economic lobby becoming too powerful in this structure is reducing the possibility of a successful adoption of the Xiamen structure to Shanghai. This is the more true as presumably absent scientific *guanxi* and a comparably weak SOA have to be considered. Only a very strong SOA and an early participation of the scientific community could possibly relativise an established economic lobby such as Shanghai's.

3.6.4.2 Alternative 2: possible modification of the Xiamen CZM structure

In order to transform the Xiamen structure into a universally applicable approach, at least along the Chinese coast, several modifications are necessary. As can be seen in figure 3-8 the Xiamen CZM structure would gain more strength with a balanced initial input of the local level represented by the local government, the central and local institutional level represented by the SOA and the scientific component represented by the Expert Group. The danger of e.g. the economic sector becoming too powerful and the constraint of varying local power structures in different cities could be lessened by this homogeneous and early impact of the institutional administration in form of the SOA (which stands in contrast to the local administration that is included this way in the Xiamen structure), the local government and a group of independent experts.

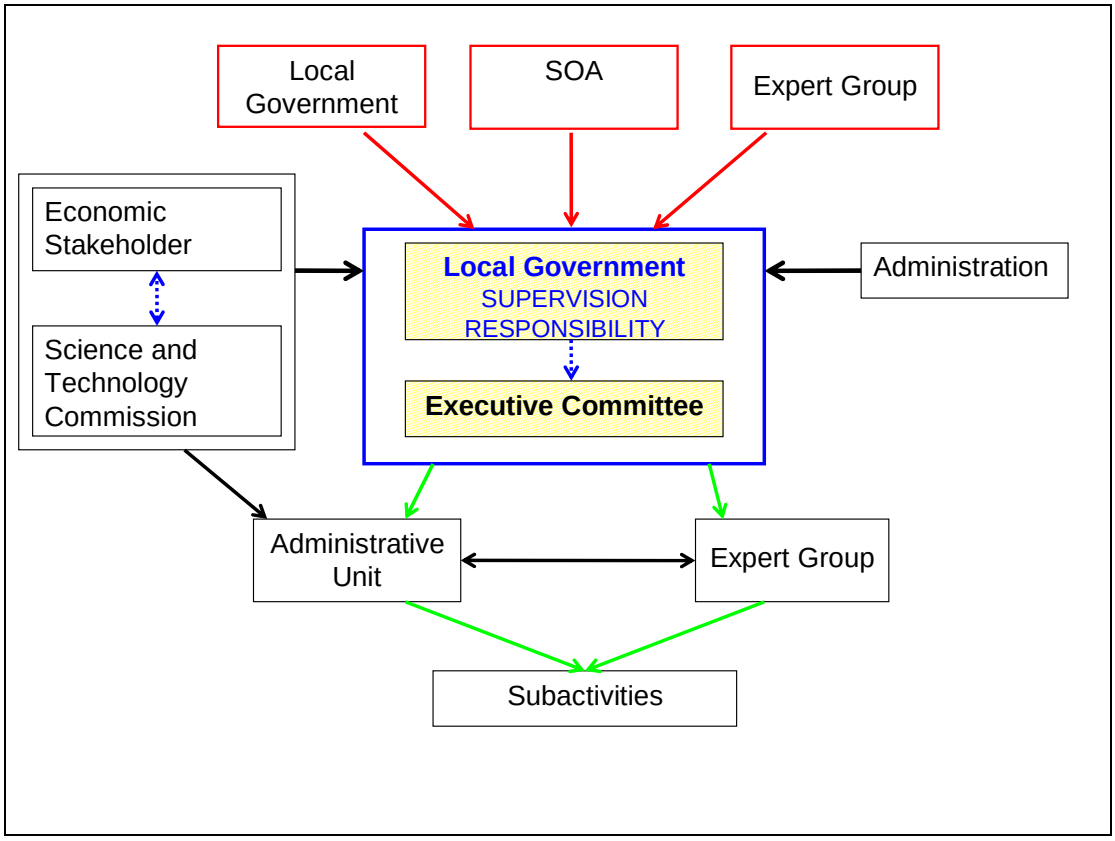

Figure 3-8: modified ICZM structure

Of course, a generally applicable structure should not include informal relations, but it should be able to compensate such factors, if necessary, in order to be able to guarantee a working structure. The triple input on top of the structure should be able to balance *guanxi* between the local government and the economic sector through providing two agencies with strong environmental interests. This way, in most situations, a political balance of the *kuai*- and the

tiao-relations can be achieved, as the local government and the SOA have an equal initial input.

In the future, also public participation should be actively included in the CZM structures; even if this can only happen by and by. Until now and in harmony with the national and local level formulation public participation has been theoretically reduced to education and awareness raising. However, in practice there are, for instance in Xiamen (McCleave et al. 2003), local initiatives organised. These are rather informative actions though. Generally participation - also in Xiamen – means stakeholders are being informed but not asked to contribute to the decision or the public may feedback to the government their opinion and perception of certain measures, but there is no guarantee that this will lead to any input into the decision other than that the government knows that it sometimes acts contrary to the public's concerns. Although this may sound not unlike some programs in the rest of the world, the Chinese in general have considerably less possibilities to participate politically, and therefore a change would have to happen in smaller steps than elsewhere. However, within the Chinese present political condition the participation as practiced in Xiamen represents a clear difference to former times. One may say it with the words of McCleave et al. "community-based management […] does not exist yet in China and is not feasible, for various economic, political and educational reasons" (2003, p. 70/71).

3.7 Conclusion – is Chinese CZM constrained by structural impacts?

The concept of integrated CZM is very broadly defined in order to be applicable to most regions and countries. Due to China's political system and socio-economic situation, determining factors of CZM policy and implementing structures need to be redefined according to the political reality. Thus the Chinese notion of CZM for instance largely ignores public participation as an important factor of CZM and redefines its status within the whole structure.

Even with an own national concept, the institutional organisation of the implementing agency has an important impact on the way decisions are made and programmes are implemented. The co-ordination of affected agencies is a big challenge, not only for China, but a clearly defined jurisdiction seems to be necessary. Overlapping responsibilities often obstruct development and therefore need a better solution.
Generally, the SOA's responsibilities should be extended towards the coastal zone, instead of the marine area only. As the analysis of the SOA's jurisdiction has shown a mere eradication of the overlaps within the marine zone will not mitigate the problem of overlapping jurisdiction within the coastal zone. So far only one part of the SOA's tasks extends to the coastal zone.[120] The clarification of SOA's jurisdiction is the objective of the legislation. An early formulation of a CZM act can be a possible means to strengthen the SOA's power. Another possibility is a consistent status upgrading of the agency by the central government. This would mean more institutional power for the SOA. Parallel to more clarity in responsibilities this yields good options for subsequent implementation.

There are numerous approaches of CZM and the WCC 1993 was the first attempt to produce general guidelines for all countries that wished to follow the (I)CZM concept in order to control problems and negative impacts in the coastal zone and make a sustainable development there possible. With the time many local projects emerged and China

[120] According to the self-presentation of the agency these are objectives related to functional zoning. The relevant department is the Sea Area Management Department (Xue et al. 2004, People's Daily 2002a). Compare www.soa.gov.cn/jigou/1/zhize.htm.

contributed to this with the Xiamen development project. As the comparison of various set-ups has illustrated even a successful local CZM structure cannot be implemented nationwide without significant modification and careful evaluation of involved power structures. While it is generally accepted that the contents of each project have to be modified to the local conditions found, i.e. biological, geographic or even demographic, the political perspective had been neglected so far. Through emphasising the structure of CZM organisation and its position as embedded in a country's political system, this study shows that a concept's content and organisational structure are likewise decisive of its successful implementation. Since China has formulated no national guidelines for ICZM yet, this theoretically leaves the decision and the formulation of ICZM-structures to the local level. This study contributes to the ICZM discourse in China by drawing an elementary structure of a conceptual organisational set-up that is likely to be suitable for most localities in China.

Apparently, all CZM structures must be considered very carefully for all kinds of issues and different local interests involved. In addition, the question whether Chinese CZM functions is still very difficult to answer. China came up with its own structural approach and a certain bias in the direction of the marine sector. Research on China to a large part depends on background knowledge, official information and personal contacts. Mostly it is restricted by controlled media coverage and bureaucracy. Therefore it is still very difficult to gain information on examples of planned and implemented projects or reaction to unexpected development or disasters that could be used to determine the success of CZM and the decision-making processes involved. Nevertheless there is a need for extended research with such case studies to assess the effectiveness of Chinese CZM, e.g. on prevention of loss due to storm surges or the management of conflicts in the coastal zone, to fill in the theoretical framework.

Chapter 4: adaptation to sea-level rise in the People's Republic of China – assessing the institutional dimension of alternative organisational frameworks

4.1 Introduction

Latest estimates of sea-level change predict a rise of up to 88 cm (IPCC, 2001a) within the next hundred years. Related issues are physical changes of the coastal regions of the world, ranging from accelerated storm frequency and intensity, erosion of sand beaches, loss of wetlands, the salination of ground water and threats of coastal flooding and inundation. Due to a time lag of reaction, i.e. the ocean temperatures are very slowly raised by atmospheric warming but also store this temperature change longer, the effect of sea-level rising due to global warming are not to be avoided even by global mitigation efforts of CO_2 emission reduction (Walsh et al., 2004). One remaining question is how much exactly the sea-level will rise – globally and locally in certain parts of the coast, that are of interest to a nation or economic region. Any detailed prediction of global change effects is subject to a high degree of uncertainty.

The results of natural scientific research have been the basis for an extended academic discussion ongoing since the 1990s on adaptation options as well as management and conceptual frameworks. During this time many different aspects have been covered. The technical perspective on adaptation options has been discussed and contributions from a diverse group of sciences, e.g. economics and social sciences, have enriched the debate. By doing so they shed light on important factors like the time frame of implementation, the costs of adaptation or the relation of adaptive capacity to globalisation and equity issues. Nonetheless one perspective has not been sufficiently covered yet: the political science approach of institutional impacts on adaptation. So far, most views have been limited to acknowledging non-climatic factors, but have not directly related them to constraints caused by political systems, economic conditions or cultural preferences. Although some attempts exist to include, for example, poverty as a defining aspect for vulnerability and adaptive capacity in developing countries, institutional factors have been widely neglected.

This chapter aims at filling this gap with a case study on the adaptation to sea-level rise in the PRC. The PRC has a mainland coastline of 18 000 km and is very susceptible to the impacts of sea-level rise. Additionally, rapid economic development is ongoing in the coastal provinces. A very large part of the population either lives there or is directly dependent on the well-being of the coastal economic areas. Despite significant economic and some administrative reforms during the past 25 years, the PRC is still a centralised socialist country in which institutional and organisational constraints are persisting. This chapter maps decision-making processes and discusses institutional and policy-related constraints by using, firstly, empirical evidence derived from a series of interviews and, secondly, analyses of accessible governmental policies, programs of coastal related ministries and bodies, as well as the Chinese contribution to climate change research. As this chapter is based on many Chinese language sources, it presents an original overview of adaptation in China. Since there are a range of organisational frameworks that may include adaptation, such as coastal zone management and disaster management, this chapter furthermore attempts to find a suitable institutional framework for adaptation to sea-level rise in the PRC.

The first section of this chapter consists of a selected literature review on adaptation. Then an overview of the methodology that has been used is given. The second section defines the

framework of the institutional analysis as organisational and delimits it to other frameworks and concepts of assessment. It takes a more detailed look at the general adaptation discussion including adaptation options. One focus is on institutional change. The exposure of China to climate change impact is discussed with the emphasis on sea-level rise. Adaptation in China and the public perception of sea-level rise are further issues. In section three, an analysis of institutions that are related to activities in the coastal zone is undertaken. The selected activities are land reclamation, dike building and coastal construction. On this basis, the organisational frameworks that could include the planning and implementation of adaptation in China are introduced. Integrated coastal zone management (ICZM), disaster management, water management and river basin management are discussed. Finally section four concludes with the proposal of a management framework for climate change.

4.1.1 Literature review

The literature on climate change can be distinguished into several categories of interest for the chapter analysis. One group is the adaptation literature, another is covered by conceptual works on coastal zone management and disaster mitigation, yet another group is literature on sea-level rise in general. For this chapter, the Chinese literature and the official Chinese opinion on the mentioned issues is of great importance.

The literature on adaptation is permanently advancing; see Olmos (2001) for an extensive overview. Essentially, the literature distinguishes between mitigation and adaptation, in which the former is usually used for CO_2 emission abatement (Smit et al., 1999) following the International Panel on Climate Change (IPCC, 2001c). The term further appears in disaster issues (Klein and MacIver, 1999; Bruce, 1999). For this reason this chapter prefers the term disaster management to disaster loss mitigation, as adaptation may be a part of this management structure and mitigation and adaptation are usually understood as exclusive terms (Tol, 2003).

Most studies are based on assessment frameworks and they sometimes include discussions on implementation aspects such as time frames or costs of adaptation. Nicholls (2003) provides a meaningful conglomeration. Only a few of the assessment framework studies on adaptation explicitly mention the importance of non-climatic conditions for the success of adaptation. Apart from studies on social vulnerability (Adger, 1999; Adger and Kelly, 1999; Handmer et al., 1999) these are Smit et al. (1999), Wheaton and MacIver (1999), United Nations Framework Convention on Climate Change (UNFCCC, 1999), Tol et al. (forthcoming), and Olsen (2003).

Organisational aspects of conceptual framework approaches are only sparsely represented in the current literature. The conceptual frameworks used most often are coastal zone management (Olsen, 2003; Tol et al., forthcoming; Carey and Mieremet, 1992; Pernetta and Elder, 1992; De Groot and Orford, 2000; Nicholls and Leatherman, 1995a; French, 2002) and disaster management (as emergency management (Handmer et al., 1999) or hazards (Klein et al., 2003; Arthurton, 1998) or disaster loss mitigation (Bruce, 1999)).

The Chinese literature on climate change and sea-level rise is mainly rooted in natural science. Cui and Zorita (1997) study the impacts of atmospheric changes to sea-level rise. Han et al. (1995) estimate the impact of sea-level change on the national as well as the local level, in the main three river deltas. Wang et al. (1993) investigates the trends of sea-level rise along China's coast. Zhang (1997) provides a forecasting model for sea-level rise in China. Information on zones that are vulnerable to sea-level rise can also be taken from Du (1993),

and Yang (1996). Li et al. (2000) address further problems with vulnerability assessment in China's coastal zone. These assessments are based upon the literature, that is to a large extent not accessible or part of governmental studies not published.

Authors addressing the issue of sea-level rise and adaptation are Du and Zhang (2000), Du (1997), and Du et al. (1997b, 1997c). All take economic aspects into account as they assess the vulnerability of the Chinese coast. A geomorphologic view of sea-level change can be taken by studying the works by Zhao Xitao (1984, 1993, 1994). Further reading into the context of climate change and sea-level rise is possible at the website of the China Ocean Information Network, including articles by Du et al. (1997b), Zhang (1997), and Tian and Ma (1997). Some more articles have also been published in Du et al. (1997a). A regional study on sea-level rise impacts is by Wang et al. (1995) for the Shanghai area. The Zhujiang Delta Area and especially population at risk is issue of a study by the Lü et al. (1997), whereas the China Ocean Information Network (COIN 2004a,b) focuses on the vulnerability of offshore islands and estimated costs through loss. Further regional studies can be found in Du et al. (1997a).

Information on disaster management in China is based on Ye (2001), Zhu (2000), State Oceanic Administration (SOA, 1996), JICA (2002), and UN (2002). Additional information on climate change perception and partly on adaptation measures can be drawn from the official statements by China's National Coordination Committee on Climate Change and newspaper publications. All information on specific policies and institutional structures has been taken from official publications of the various agencies involved in coastal zone management and disaster management (for CZM refer to Lau, 2005). A comprehensive list of agency websites can be found in appendix 1.

4.1.2 Methodology

This chapter applies a social and political science perspective to adaptative responses to a rise in sea-level. The chapter aims at mapping the institutional dimension within organisational frameworks of adaptation and is, therefore, also based on information about institutions participating in coastal activities. A range of publications on coastal zone management and disaster management give an insight to the organisational framework approach. Most information on such organisational structures in China was gained by looking at institution internet appearances and analysis of their programs. Information on China climate change policy was gained from some related websites and other official publications by the government. A major part of information from websites and publications appears only in Chinese language.

The most important source for verifying information and deepening insight into institutional structures and objectives was produced through a series of open interviews. A structured (standard) interview or even the distribution of a questionnaire was considered not to be sensible for a couple of reasons. Generally the response rate of written material is low and may be even lower in Asian countries, where personal contact is decisive. On the other hand the interviews were planned to be expert interviews on specific issues that left opportunity for an open structure.

In China, usually all contacts at the (national) ministerial level have to be pre-arranged and supported by a bilateral project. This study is part of the EU-project DINAS-COAST[121],

[121] The DINAS-COAST project produced a global model on sea-level rise and integrated socio-economic with natural scientific approaches. The EU-project number is (EVK2-2000-22024).

which was not laid out to provide these official connections and, therefore, research at the national level was mainly restricted to contacts with scientists. At the local level, in contrast, it is much easier to gain access to administrative units and so interviews could mostly take place without official appointments. Another reason for choosing this way of allocating interview partners can be found, firstly, in official bureaucratic constraints, i.e. being forced to take the way via the foreign affairs department of an administrative unit and risking exposure to non-experts on the field. Secondly, in China making contact is a matter of *guanxi*[122], which generally means to have been brought into contact through personal communication via a common acquaintance. This sort of approach can seldom be substituted by prior notification - even if this is done by telephone and supported by a letter of recommendation. It can be concluded that the most valuable information that was gained came from interviews through *guanxi* at locations in China.

Altogether 14 interviews were undertaken in October 2003. The interviews were made with experts in the field of sea-level rise and ministerial representatives[123]. The interviews took place with representatives at the national level in Beijing and representatives at the local level in Shanghai. Furthermore, research results were exchanged with a group of scientists engaged in data and information gathering in the coastal zone in Tianjin. With their help, major decision-making structures were mapped and analysed with by means of common qualitative analysis methods within the social sciences. The list of interviewees cited in this chapter is provided in Appendix 6. Throughout the text information from interviews is identified by name and personal communication.

4.2 Adaptation – defining conceptual and organisational frameworks

The organisational frameworks used in the analysis for this chapter require definition and some comments on adaptation to rise in sea-level are necessary.

There is a range of assessment frameworks that are utilised to shed light on the type of adaptation and the conditional environment in which it is applied. General assessment frameworks often include the objective of measuring either the adaptation itself [124] or the success of conceptual frameworks [125]. The search for measurability led to a number of indicator-based approaches[126]. Some of these also formally include institutional aspects, but seldom specify how these were going to result in reasonably quantitative data (Ehler, 2003).

This chapter follows the argument that institutions influence politics. An assessment of the institutional level is taking research further to one specific and decisive core of conditions affecting all assessment frameworks. Certainly, all other approaches that, for instance, focus on economic aspects are essential- as economic incentives are part of politics. A parallel stream of analysis is to some extend interrelated, since the economic system of a country is related to its political system. However, the example of China shows that there is a potential for the political system to be seemingly inconsistent with the economic system that is in reality developing. The approaches that focus on management systems apply concepts such as

[122] These are relation-networks that form a main aspect of Chinese culture. Also compare section 4.3.

[123] Appendix 5 shows the fields of research that were covered by the interviews.

[124] Compare Tol et al., forthcoming; UNFCCC, 1999; Nicholls and Leatherman, 1995b, for different foci; and Wheaton and MacIver, 1999; Smit et al., 1999, for more theoretical approaches.

[125] Compare De Groot and Orford, 2000; Nicholls and Leatherman, 1995a; Pernetta and Elder, 1992, for CZM, Bruce, 1999, for disaster management; Walsh et al., 2004, for urban planning; Klein et al., 1999, for general guidelines; Tol, 2003, for a discussion on trade-offs between adaptation and mitigation approaches.

[126] Compare Handmer et al., 1999; Adger and Kelly, 1999, for vulnerability indicators; UNFCCC, 2000, for technical indicators; Olsen, 2003, for CZM indicators; Darwin and Tol, 2001, for cost indicators.

vulnerability, resilience, or adaptive capacity. These also have an overlap with institutional approaches. This chapter argues that the latter is fully a part of the former. Institutional organisation and change is inherent in the concept of adaptive capacity. In return, governmental and adaptive capacities are to a large degree dependent on institutional structures and organisational frameworks. Especially with the example of climate change, this means that adapting to new situations requires institutional change to take place. Since change is usually easier when slight and less affecting complex organisational structures, it is meaningful to seek existing organisational frameworks that are capable of incorporating these challenges.

Both groups of frameworks – conceptual ones and organisational ones - imply policy issues. Again, even if the institutional dimension of organisational frameworks is only a minor part of assessment frameworks, it is indeed a very significant one. The best conceptual framework is bound to fail, or work inadequately, if policy formulations are not clear and/or the organisation of institutions is hampering it being put into practice. As Scharpf (1991) formulated: The "given institutional conditions cannot fully determine policy choices" but they may "define a set of constraints limiting the set of feasible choices" (p.54). Table 4-1 illustrates the contribution of political system analysis for adaptation assessment.

Frameworks:	**Conceptual** assessment frameworks					**Organisational** framework
	e.g. ICZM framework	Adaptation management framework				Adaptation as a task
Scale of analysis:	Concept of ICZM	Concepts of e.g. vulnera-bility, resilience or adaptive capacity	Integrated environ-mental assessment	Cost-benefit analysis	Manage-ment analysis	**Institutional** analysis
Core questions or areas of investigation:	e.g.: is ICZM in country X sustainable	e.g. interrelation of adapta-tion and social vulnerability	Specific sectors or areas, e.g. MPAs	e.g. what are the incentives to pursue adaptation	e.g. testing general guidelines	Role of **institutions** in organisational frameworks
Methods:	e.g. indicator system	e.g. indicator system	e.g. indicator system	Economic analytical tools		Analysis of **integration** of adaptation into ICZM, disaster management or water management
Contents related to adaptation:	Mostly no adaptation discussion	e.g. adapta-tion **policy**	e.g. time frame of adaptation	e.g. costs of adapta-tion	Iterative steps of adaptation	**Policy** of institutions towards adaptation**, constraints** of adaptation due to institutional organisation and **responsibility jurisdiction**
Non-climate or institutional factors:	X	X	(X)	X	X	**X**
Related systems:	Integrated manage-ment system	Integrated research and manage-ment system	Natural area manage-ment system	Economic system	Adaptation manage-ment system	**Political** system

Table 4-1: contribution of political system analysis to adaptation assessment

In the conceptual assessment framework, adaptation counts as a framework itself, i.e. planning and implementation are both defined as integrated within the broad objective of how to serve adaptation. Within the institutional analysis, however, adaptation is defined as a task within another (conceptual) framework of organisation, e.g. integrated coastal zone management. Therefore, institutional analysis within an organisational framework is more specific in spatial and assessment scale, best based on empirical material and may only

address one problematic impact, e.g. sea-level rise. While concentrating on this assessment level, it is possible to highlight coordination constraints of institutions at the organisational level and problems concerning policy planning and implementation. In taking a focus on the overall organisation of climate change adaptation in a country, it offers a different perspective within the range of non-climatic conditions that are generally proposed. This chapter aims at including institutions in order to enrich the discussion on general concepts of adaptation to climate change.

4.2.1 Adaptation - issues

Many authors engage in formulating groups of adaptation measures and theoretically underpin them. These approaches are for example sorting adaptation measures into emergency, strategic or tactical (Arthurton, 1998). Widely known is the distinction between protection, accommodation and managed retreat (IPCC, 1990; Munn et al., 1996; Nicholls and Klein, 2000; Klein et al., 2003; Neumann et al., 2001). This chapter adopts the definition by the IPCC (1990) with the exception that Integrated Coastal Zone Management (ICZM) is not considered an adaptive response itself but a framework. Hence, managed retreat is the prevention of development as well as the planned abandonment of structures. Accommodation concerns constructions, as well as land use modifications, and also requires long term planning. Li et al. (1999) make some recommendations for accommodation in flood control construction, ranging from the construction of houses on high pillars to the segmentation of flood retention basins into smaller units, in order to prevent basins being inundated fully and, by this way, limiting the economic loss. Protection measures consist of hard structures such as dikes, sea walls and similar engineering structures. Soft measures include beach nourishment, but also the creation and/or protection of natural systems, such as dunes, mangrove areas and wetlands.

Olmos (2001) reflects the various definitions of adaptation, adaptability and adaptive capacity.[127] The double exposure of climate change and globalisation effects is an additional aspect in assessing adaptive capacity (Olmos, 2001). A potential win-win situation – economic gains through globalised economic structures and less vulnerability to climate change impacts through a wise adaptation concept – is at stake and threatened by maladaptation in the vulnerable delta regions in China[128].

Only a few studies mention the different scales at which policies may be applied. These are mostly understood as the global, (sometimes regional, too), national and local scales. For the PRC, this chapter looks at the national, regional, and local scale, as international co-operation within the Asian-pacific region is not decisive on the inner-Chinese institutional organisation. This was a further reason for undertaking interviews at the national and local levels.

The literature also takes the interrelation of poverty and vulnerability into account (Adger and Kelly, 1999). Whereas Olmos (2001, after O'Brian and Leichenko, 2000) speaks for a regional approach of assessment here, in order to capture the poverty distribution within a country, Handmer et al. (1999) mention the uneven distribution of adaptive capacity between and within countries. They stress the importance of the lower levels, when stating that humans are strongly adaptive on the global scale, but exposed more severely on the local level with many more aspects taking a significant role, e.g. human behaviour, institutional capacity and

[127] He further lists the numerous related terminologies, such as vulnerability, resilience, resistance and susceptibility that were taken up by Klein and Nicholls (2001), Klein et al. (2003, after Dovers and Handmer, 1992) and partly by Handmer et al. (1999).
[128] For maladaptation and definitions of under- and over-adaptation please refer to Willows and Connell, 2003.

culture. In order to reduce vulnerability, they also see the need for the underlying socio-economic causes to be addressed; otherwise the major task would be to respond to disasters and uphold institutional stability.

Handmer et al. (1999, after Handmer and Dovers, 1996) also state that adaptation may require massive political and social change, whereas Olmos (2001, after Kates, 2000) stresses that economic and social change reduces traditional adaptation methods. China is indeed a country facing significant change in the future because of a number of reasons. Social change is most central to all existing and evolving problems, such as increased unemployment and social insecurity. Economic change is already taking place and often it is generating social change directly. However, political change has so far only occurred as limited administrative reform. Handmer et al. (1999, after Land and Water Resources Research and Development Corporation, 1998) acknowledge that in comparison with technical and scientific barriers the "social, economic and especially institutional barriers are […] more resistant to change" (p.272). As Olsen (1991) states citing Krasner (1988): "Major change is […] less likely the more an institution is integrated into a larger political order so that changes in one institution require changes in several other institutions" (p.102). This speaks for the incorporation of adaptation into existing frameworks and of limiting the institutional change required to a minimum. The fact that in this way the traditional adaptation methods may be reduced is only marginal to China, where development is rapid and, especially within the coastal zone, adaptation to sea-level rise has a strong bias towards protective measures.

4.2.2 Exposure to impacts of climate change along the coast in China

The capacity to adapt differs from country to country and from region to region within national boundaries. It is defined through a local vulnerability in the sense of geomorphology and socio-economic exposure. Another aspect is the national experience in coastal protection and the general political will to approach the problem of sea-level rise. Generally, climate change is perceived as a challenge for the future by Chinese meteorological experts. The effects of global warming are closely monitored and predictions primarily address impacts on the water cycle system, as floods and droughts are already a major problem, compromising food and water security in China (People's Daily, 2003a).

Whereas for most floods in China, "prolonged, widespread and intensive rain storms are the main causes", the coastal areas are particularly "subject to damages caused by typhoon-related flooding and tidal surges" (World Bank, 1999). Most typhoons make landfall in the south-eastern parts of the coast in the areas of Fujian and Guangdong, with rates of 21.6% and 37.6%, respectively[129] (Han et al., 1995). Altogether, China was struck by about 40% of the typhoons in the Asian-Pacific region in the period from 1949-1997[130] (Xinhuanet, 2003a). A list of regions affected by typhoons before 1997 included numbers of victims and economic losses (Li et al. 2000). Considering data gathered by EM-DAT (2005), the number of storm disasters from 2000-2005 is higher than for a comparible period in the preceding decade. In comparison, fewer people were killed, but many more had been affected already.

Sea-level rise is a threat that is identified differently at diverse levels of impact. The global sea-level has risen at least 10 cm within the last century (Nicholls, 2003) – this defines it as a global phenomenon. But as indicated above the more severe and demanding impacts are taking place at the local level – which defines sea-level rise as a local problem and a significant challenge to lower than national administrations. Additionally, research shows that

[129] For regional landfall rates of 415 typhoons of the period 1939 to 1992.
[130] For 347 landfalls in China of 753 Asian-Pacific typhoons.

global warming will have a sustained impact on the sea-level. Even if global CO_2 emissions could be terminated immediately, the time lag in the reaction of the oceans to global warming would still lead to an impact up until 2050 (Walsh et al., 2004). The latest predictions by the International Panel on Climate Change (IPCC) show an increase of up to 88 cm of sea-level within this century (IPCC, 2001a). Therefore, the threat of more severe temporal flooding and inundation along the coasts is real and irreversible. Adaptation to this threat is the only option.

Within a geomorphologic context, the three main river deltas in China are most vulnerable to sea-level rise (Du, 1993; Zhang, 1997). These are the Changjiang (Yangtse) with the municipality of Shanghai at its mouth, the Huanghe (Yellow River) in the North China Plain and the Zhujiang (Pearl River) with five major cities in its coastal area (these are Guangzhou (Canton), Shenzhen, Zhuhai, Aomen (Macao) and Xianggang (Hong Kong)). Figure 4-1b shows the deviation of regions defined as vulnerable by authors for Ren (1993, cited after Du, 1993), Han et al. (1995) and Yang (1996). Strikingly, the larger areas defined as vulnerable coincide with the economic regions defined by the government in figure 4-1a.

Figure 4-1a: China's economic regions

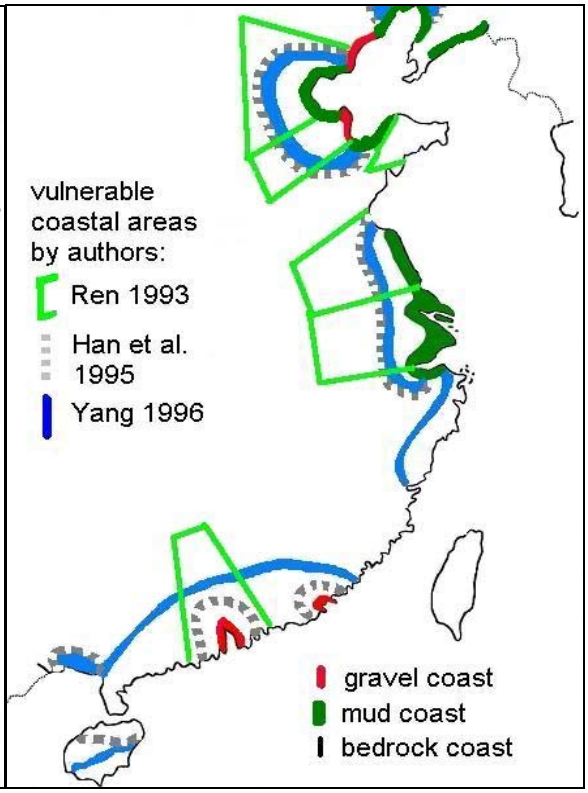

Figure 4-1b: the vulnerability of the Chinese coast to sea-level rise as defined by various authors

There is also a tendency of the vulnerable zones to become larger with more recent studies, probably from the perception of vulnerability increasingly integrating economic values. This is of great importance, since mega-cities and several cities with a population of several million are situated in river mouths. The latest Chinese studies calculated losses of up to 655.6 billion RMB for a 1 m increase of sea-level at 2000 prices (Du and Zhang, 2000). Table 4-2 shows the highest calculated losses in regions of already high economic importance and equally high development potential.

Region	Predicted losses for a 30 cm rise (2000) in RMB	Predicted losses for a 30 cm rise (2030) in RMB	Predicted losses for a 1 m rise (2000) in RMB	Predicted losses for a 1 m rise (2030) in RMB
Zhujiang Delta	**22,6 Billion**	**56 Billion**	**104,4 Billion**	**262,5 Billion**
Changjiang Delta with Jiangsu coast and North Zhejiang coast	**3,8 Billion**	**9,6 Billion**	**655,6 Billion**	**1599,5 Billion**
Huanghe Delta with Bohai and Laizhou coast	**109,4 Billion**	**274,6 Billion**	**118,1 Billion**	**296,5 Billion**

Table 4-2: calculated losses in Chinese delta regions as impacts from sea-level rise of 30 cm and 1 m for the price level from 2000 and an estimated price level for 2030 in RMB (after Du and Zhang, 2000)[131]

Global sea-levels are called eustatic and together with local conditions of land mass subsidence or uplift yield relative sea-level rises at a certain location (compare Moore at al., 1996; Nicholls and Leatherman, 1995a). These local sea-levels are measured in time series at local stations over a particular period and provide a mean sea-level that filters out higher frequencies and seasonal variations. Long-term variations of wave, tide and wind effects are also included. Projections are generally made on the relative sea-level, adding expected impacts of tectonic trends and anthropogenic activities, e.g. groundwater overpumping that may cause subsidence. The relative sea-level rise rates along the Chinese coast differ significantly for some local stations (Wang, 1993). Partly, this is due to a limited number of accessible, long-term time series data for monitoring stations (personal communication Zhao Xitao)[132]. However, a mean sea-level rise of 1.4 mm/year has been observed at 48 coastal tidal observatories (Guo et al., 1995). According to Wang et al. (1995) the local sea-level rise rate ranges from -1.2 to 3.6 mm/year. Additionally, the average change in sea-level for different regions varies from 2 mm/year at the Bohai Sea, 1 mm/year at the Huanghai Sea, and 2.7 mm/year at the Donghai Sea to 2.1 mm/year at the Nanhai Sea (Tian and Ma, 1997, after Tian et al., 1993) (compare figure 4-2).

The estimated data of sea-level change differs because of human intervention in sensitive coastal systems (compare Han et al., 1995). The sea-level rise is accordingly defined as either tectonic or human-induced (Nicholls and Leatherman, 1995a). Figure 4-2 shows the coastline with areas of extreme to light subsidence and uplift, after Du (1993, 1997). Past subsidence rates vary significantly. For instance, Li et al. (2000, after ESD-CAS (Earth Science Division, Chinese Academy of Sciences), 1994) present a reduced ground subsidence rate in Shanghai of 10-15 mm/year for the period 1993-1998, compared with 110 mm/year for the period 1957-1961. Hence, they predict a relative sea-level for Changjiang by taking the experience of "strict coastal zone management" (Li et al., 2000) into account.

[131] The inundated area was calculated on the grounds of the highest experienced flood level.
[132] There are over 200 tidal stations providing data, but only 10 have longer records of several decades.

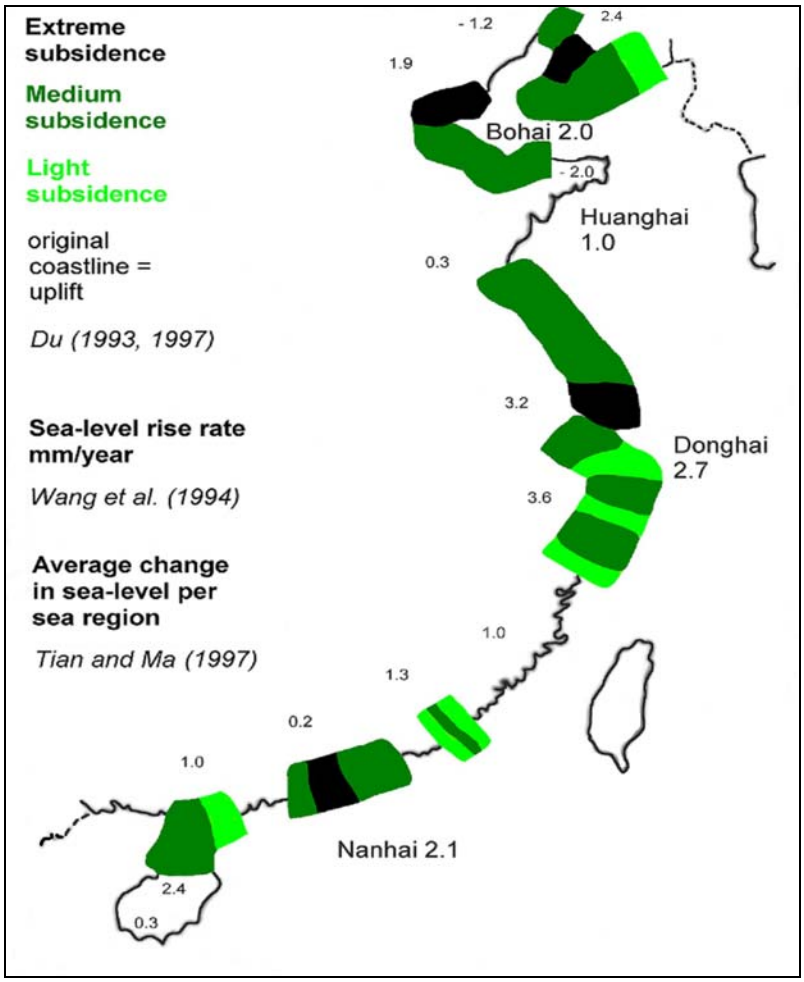

Figure 4-2: areas of subsidence and uplift, local sea-level rise rates along China's coast and average sea-level changes per sea region (after Du, 1993, 1997; Wang et al., 1994; Tian and Ma, 1997)

Although it is evident that Shanghai subsidence due to ground water extraction is not under control (for a dike breach incident caused by subsidence compare Xinwen Chenbao, 2003; China Youth Daily, 2003a + b; People's Daily, 2003b; China Daily, 2001) and partly even increases because of sediment compression caused by high rise building construction (personal communication Zhao Xitao; UNESCAP 2005; Sinosphere, 2004; China Daily, 2003b), this is seldom acknowledged.

The data for future subsidence due to ground water extraction in delta regions is therefore very optimistic (Wang et al., 1995). They are also not secured by appropriate measures yet. An emphasis is put on protecting groundwater resources (SOA, 2001) through choosing other sources where possible, generally cutting down water consumption and refilling water aquifers. The latter only provides for 20% of withdrawn water, however (personal communication Wei Zi Xin and Mao Wei De). Additionally, calculations by the Agrometeorological Institute (AI, 2003) show that even areas that are now considered as subject to considerable uplift will still feel the impact of sea-level rise by 2050. This exemplifies the strong interrelationship of natural phenomena and human intervention along the coast. It is also a reason for taking a closer look at activities within the coastal zone below.

4.2.3 Adaptation to sea-level rise in China

Generally, adaptation to sea-level rise consists of several optional measures. Most prominent is the protection through hard structures such as dikes and sea walls. Alternatives are so-called

soft structures and strategies of accommodation or managed retreat (Klein et al., 2001; IPCC, 2001b). Chinese researchers discuss all of these options and often distinguish between engineering and non-engineering measures according to traditional flood control systems (Zhu, 2000). The latter is understood mainly as the strengthening of the legislation and research, the prevention of inter-sectoral problems, and improvement of forecasting systems. For coastal protection, alternative options to hard structure protection are mostly neglected[133]. For instance, costs for a 500 km dike to prevent losses from a 1 m sea-level rise for the North China Plain were estimated at an equivalent of 370 Million US$. This is a mere 0.82% of the GNP of the protected province. Han et al. (1995), therefore, recommend dike building as largely feasible measure[134]. Another reason for concentrating on hard structure protection is China's high population density and the enormous economic importance of the coastal region (personal communications Zhao Xitao, Du Bilan and Mao Wei De). Hence, protection measures are preferred for future adaptation planning. Nonetheless, adaptation by protection still leaves large populations at risk from flooding, when caused by tropical storms and similar events (Nicholls and Leatherman, 1995b).

Coastal Provinces	**Length of mainland coastline (km)**	**Length of sea dikes for mainland coastline (km)**	**Length of sea dikes reached set standard (km)**
Liaoning	2000	846	26
Tianjin	152	152	-
Hebei	421	297	20
Shandong	3121	858	65
Shanghai	171	171	243
Jiangsu	950	726	600
Zhejiang	1840	1905	680
Fujian	3324	1084	300
Guangxi	1083	782	-
Guangdong	4314	4080	692
Hainan	1500	260	46
Whole China	18876	11161	2672

Table 4-3: hard structure flood protection measures along the Chinese coast (after Du and Zhang, 2000)[135]

Table 4-3 shows the high density of hard structures along the Chinese coast. Nevertheless, the Chinese protection standard for vast parts of the coast is calculated with a 20-50 year flood-return-period and therefore is lower than the standards in Europe or the U.S. (personal communication Li Kungang; IPCC, 2001b; World Bank, 1999). This is in part contradicting official reports that claim heightened flood control measures and raised awareness of climate change issues in China. For instance, the Shanghai local government reacted to a series of studies to sea-level change in the Shanghai area by formulating adaptation measures with regard to the inputs of urban expansion and engineering projects on agriculture in the

[133] A notable exception is coastal planning in Xiamen. Classical hard structure engineering measures are complemented by soft measures of beach nourishment and the utilisation of beach vegetation. Additionally, a considerable wide set-back zone has been installed in some areas of the island that were newly used for settlement (Cheng et al., 2002).

[134] For the Zhujiang delta Yang (1996) calculates an average annual input in dike building of 0.12% of the GDP, which equals 3,5% of the local government expenditure. Du and Zhang (2000) provide more recent calculations on dike costs for all major river deltas and different basis assumptions regarding the water levels assumed.

[135] Only construction along the mainland coast is considered.

Changjiang region (Chen and Zong, 1999)[136]. Apart from this, Shanghai dikes have been subject to heightening throughout the last years, but the expected sea-level rise has not been taken into account (personal communication Ms. Xu). It can be concluded from this fact, that the problems of subsidence and coastal construction very close to the waterfront have been the main reasons for the dike restoration. Generally, the Shanghai dike system is perceived as functioning well and limiting economic losses through typhoons to a low level, despite the city's location in a particularly vulnerable zone (compare Li et al., 2000).

Apart from this, there is a relentless trend to develop the coast through land reclamation. According to the Regional Programme for Prevention and Management of Marine Pollution in the East Asian Seas (PEMSEA, 2003), 10.5 Mio ha of tidal lands have been reclaimed since the middle of the 20th century. The gained land areas are primarily used for construction projects. Another reason for reclaiming land is the increasing shortage of cultivated land, especially in the Changjiang delta (Chen, 1998; Nicholls and Leatherman, 1995b). The lands reclaimed are often sensitive wetland areas that also serve as a natural flood protection. Similarly, offshore coral reefs serve as a natural protection and the damage and extinction of 80% of Hainan reefs has already nearly resulted in the destruction of a local village (PEMSEA, 2003). However, land is not only reclaimed by the government, the number of tidal lands and sea areas irregularly claimed "by some institutions and individuals for the creation of shrimp ponds and other coastal development projects" (PEMSEA, 2003, p. 54) is rising. In some cases, this private land reclamation is tolerated by the government. Nevertheless, it poses a problem regarding the building and maintenance of a comprehensive flood control system using hard structures (personal communication Li Kungang).

In contrast, strategies of managed retreat are very rarely discussed in China. An exception is the temporary evacuation of flood-prone areas, but this is only practiced for inland river floods so far, as they occur almost annually in Chinese river deltas. The high organisational input is only profitable with low expected losses in the areas evacuated; therefore this strategy has been limited to rural areas (personal communication Mao Wei De). Apart from this, resettlement policies in China are defined as comparably modern and lack implementational rather than theoretical capacity (Woort, 1994). It is the compensation schemes that are mostly criticised, as they are often not measured against previous living standards. Another constraint is embezzlement of disaster management funds (China aktuell, 2004).

4.2.4 Perception of sea-level rise in China

Since the 1980s, the problem of global climate change is predominantly recognised only in academic circles in China. This is partly rooted in the IPCC requirements to measure the current climate conditions and monitor their changes, before formulating future predictions for diverse regions of the country on the basis of this data (IPCC, 1990). During the last ten years, the Chinese government has participated in international negotiations, and a number of bilateral research projects and regional co-operation have been supported (compare China Climate Change Information Network (CCCIN), Agrometeorological Institute (AI)).The establishment of the Chinese IPCC bureau in Beijing and official websites (e.g. www.ccchina.gov.cn, compare China Daily 2002c) are a promising development for airing vulnerability to climate change and adaptation in China.[137] Nonetheless, the broad public is only hesitantly informed by the government. The state-controlled media present only selected

[136] The proposed adaptation options include engineering measures such as the dredging of river channels, the renewal of pumping facilities, and the construction of a flood barrier in the Huangpu mouth. But also the development of new crops that are tolerant to higher ground water tables as an accommodation measure is considered.

[137] These websites are by the CCCIN, launched in Oct 2002 (China Daily, 2002c), and by COIN.

facts (Guangming Ribao, 2002) and often focus on representative dates and events, such as the World Meteorological Day (China Daily, 2003a). Some newspaper articles, though, are taking up the issue and are providing institutions and motivated researchers with a platform to present their findings [138]. In comparison to the challenge that rising sea-levels pose, information is still scarce. According to the generally limited participation of the population in political decision-making, there is no trace of a real share in responsibility by the coastal population when adaptation options are decided upon.

The Chinese government has still not proclaimed an official strategy on a response to the threat of sea-level rise. Only at the provincial level, a discussion of approaches is pursued (personal communication Du Bilan) that is generated at the local level (Zhujiang Water Resources Network – refer to appendix 1 – and compare Du et al., 1997a), as studies of the Zhujiang and Changjiang Deltas show. Some projects with international support by the World Bank also take up the rising sea-levels as an issue, but do not extensively address adaptation options (compare Chen and Saito, 2001, for the Changjiang Delta). The SOA publishes a Sea-level Rise Bulletin (SOA, 2001) every two years and sea-level rise has been subject to a project proposal within the China Ocean Agenda 21 (SOA, 1996). Yet the Chinese government has not explicitly named a responsible agency so far.

Large dams, however, have an impact on silt transportation to the coast, human activities of groundwater pumping and high-rise building construction lead to ground subsidence. Further, land reclamation and destruction of tidal wetlands is ongoing, and the impacts of sea-level rise - such as backwater effect, salination and erosion – have already set in and coincide with human settlement close to the shore. With the current situation along the China coast and the sea-levels rising more than usual, Zhao Xitao speaks of a "Damocles-Sword" hanging above China (personal communication). The problems are well known and have been partially recognised for decades. Also, the countermeasures are widely discussed in international circles but the organisation of adaptation to sea-level rise has been neglected so far. This chapter argues that the institutional framework in which adaptation is placed is also of importance. This will be the focus of the following analysis.

4.3 Potential organisational frameworks supporting adaptation

The successful implementation of a concept is dependent on numerous conditions that influence its processing within management structures. It is essential to clearly define the jurisdiction of the various institutions involved in a system and institutional power structures play a major role in this context. Within the Chinese culture, these are supplemented by *guanxi*, informal relations and network structures (Heilmann, 1999)[139]. Other factors seen as important for the success of a concept are a functional legislation and a high public participation in decision-making processes. Conceptual assessments have so far focused on coastal zone management (Awosika et al., 1993; World Bank, 1993), arguing that flood control is a sector – although "rarely specifically related to the coastal zone" – that has direct impacts (Awosika et al., 1993). For China, this approach will be discussed below.

Since no institutions have been explicitly given the responsibility for adaptative responses to sea-level rise in China, a detailed discussion on specific adaptation options is difficult. Theoretically, these could be drawn from institutions responsible for coastal disasters. Figure 4-3 shows the deviation this analysis took in order to map responsibilities.

[138] Compare Xinhuanet, 2002, 2003; Nanfang Zhoumo, 2002 (Zeng W.); Science times, 2002 (Yao W.J.).

[139] China is not the only culture that knows this phenomenon, but in China these are much more relevant in every-day life than e.g. in western cultures.

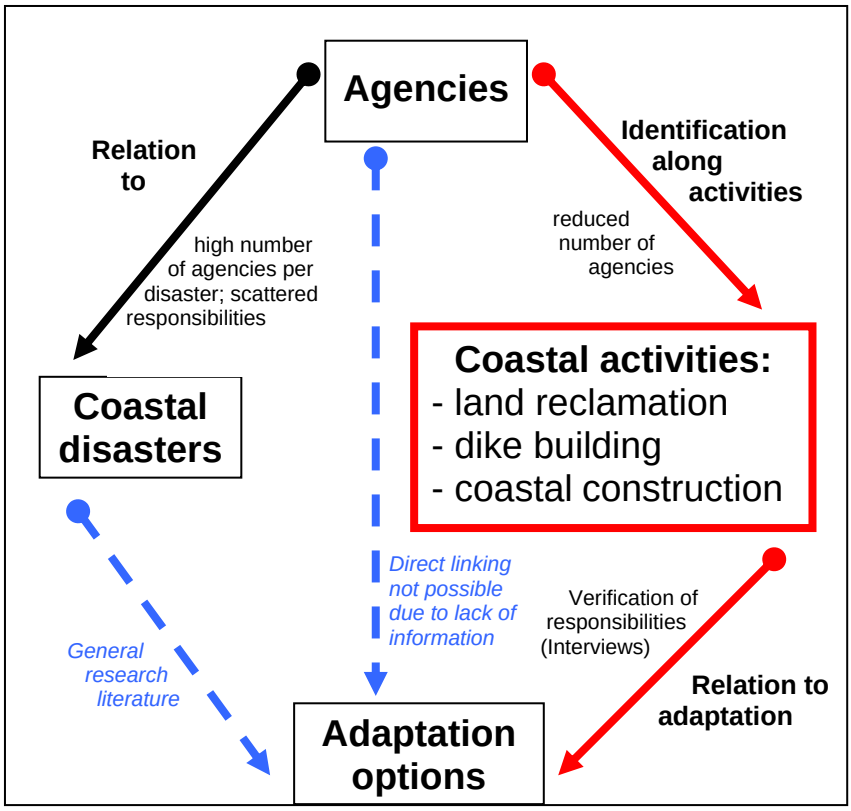

Figure 4-3: path of the analysis

For planning and implementing adaptation to sea-level rise, concepts other than (integrated) coastal zone management concept may be relevant, such as disaster management, integrated management of climate change or management structures inherent to specific sectors that have high input in existing flood-control or land-use planning. In order to identify these potential sectoral-based frameworks, an analysis of institutional implications for coastal activities, such as dike building, land reclamation and coastal construction was made, with the major focus on decision-making and financial responsibility.

4.3.1 Identifying institutions and ministries related to coastal activities

Frameworks of coastal zone management and disaster management already exist in China and their capability of integrating adaptation to sea-level rise will be discussed later. But first, the political agencies involved in activities that change the natural character of the coasts need to be identified. In order to do so, activities with an impact on flood protection and vulnerability of coastal regions are investigated: dike building, land reclamation and coastal construction in general. Dike building as a major hard structure is the predominant flood protection measure along the coast in China. Land reclamation is currently undertaken as a means of extending the coastal regions for development purposes. Although land reclamation measures could also be used as a means of environmental protection. Through a parallel set-back of human habitat or through land use, that is less vulnerable to sea-level rise, it can function as an adaptation option of accommodation (land use change) or even minor managed retreat (prevention of development). This is not the case in China. Reclaimed land is almost always used for construction developments, a matter that is also subject to intra-institutional displeasure (personal communication Mao Wei De). Certainly, coastal construction is formally controlled by several agencies in order to harmonise with e.g. flood protection plans (compare Zhujiang Water Resources Network, see appendix 1), but as long as no adaptation plans for sea-level rise exist, either at the local or as a guideline at the national level, short-term economic incentives are shaping decisions for the coastal zone.

Figure 4-4 shows the high participation of the Ministry of Water Resources (MWR), or its equivalent, at local (provincial and county) level for all three exemplified coastal activities. The MWR bears responsibility for land reclamation, meaningfully supported by the Ministry of Land and Resources (MLR) or equivalent at the local level. For instance, the MLR has the responsibility for feasibility studies and decides on the use of an area. The local level government has merely the function of initiation, i.e. it orders a new piece of land. This is in contrast to general decisions on coastal construction, which are much more influenced by the local government. Only when large projects are at stake does the national level government, or one of its ministries, give approval. Other institutions that participate in the process of approval are the MWR and the State Oceanic Administration (SOA) at the provincial level. Caution is needed when interpreting the list of nominally participating governmental bodies, as they only marginally reflect power distribution among the institutions. The power structures are generally too complex, especially the informal ones. However, the high profile of some agencies can be seen as a relatively high involvement and of their influence in decision-making.

Institutions	Order	Decision-making, permission	Planning	Assess-ment, research	Imple-mentation	Monitoring
Ministry of Water Resources	——— ⋯⋯⋯	——— ◆◆◆◆◆◆◆ ⋯⋯⋯	——— ⋯⋯⋯	⋯⋯⋯	——— ⋯⋯⋯	⋯⋯⋯
State Oceanic Administration		◆◆◆◆◆◆◆				⋯⋯⋯
Ministry of Land and Resources		———		———		
Local Government	——— ⋯⋯⋯	◆◆◆◆◆◆◆ ⋯⋯⋯	◆◆◆◆◆◆◆ ⋯⋯⋯			
National Government		◆◆◆◆◆◆◆ ⋯⋯⋯	⋯⋯⋯			

——— land reclamation ◆◆◆◆◆◆◆ coastal construction ⋯⋯⋯ dike building

Figure 4-4: involvement of Chinese ministries and governmental levels in land reclamation, coastal construction and dike building

The primary participation of the MWR in dike building reinforces the minor involvement and limited sphere of influence of the SOA in this activity. Also, dike building is mainly under the jurisdiction of local government, with national level involvement primarily in the financing of protection measures. Every local government has an interest in having the costs covered by the national government in Beijing. For this purpose a proposal is passed up, first to the provincial government and then on to Beijing. When the national government declines cofinancing, because it does not consider a dike at the proposed site a national priority, then the provincial government can carry some of the financial load; but its contribution will inevitably be lower than when support from Beijing is forthcoming (personal communication Li Kungang).

The overall participation of the MWR was greatest for the coastal activities investigated. Going beyond Coastal Zone Management and Disaster Management frameworks, the structure of water management in China was investigated, with particular emphasis on the sub-national River Basin Committees.

4.3.2 Coastal zone management in China

With a mainland coastline of 18 000 km and three main river deltas with large or even mega-cities situated in them, China is particularly threatened by sea-level rise. Regarding the organisational framework of Coastal Zone Management, Chinese institutions are less prepared for an integrated approach than generally expected (Lau, 2005). The situation in China is quite similar to the situation in other countries regarding, for instance, the impacts of erosion of sandy beaches on the tourism industry or, generally, the salination of coastal ground and surface water resources (Oliver, 1996). However, the hierarchical political system and a clear preference for economic interests in decision-making do produce developments that can influence the adaptation to sea-level rise in a negative way. The concept of Integrated Coastal Zone Management usually relates to the concept of sustainability that, simultaneously, supports economic development while guaranteeing environmental protection. In China, the implementation of ICZM is subject to institutional constraints and, currently, cannot be considered an adequate framework to encompass adaptation strategies in a meaningful way.

Successful coastal zone management generally depends on a number of conditions formulated by organisations, such as many participants at the World Coast Conference in 1993 (WCC, 1993). These conditions attempt to create a functioning legislation to protect the coastal areas and to establish an independent as possible implementation agency for coastal zone management, or to upgrade the jurisdiction of an already existing administrative body. Generally, a major aim is the high participation level of stakeholders and the coastal population in decision-making procedures. The implementation of such guidelines becomes difficult when the national political system is not fully in support, such as when stakeholder participation is only partially admitted and terminology becomes redefined. This is the case in China, where public participation is interpreted as raised awareness through public education. Additionally, the definition of stakeholders in China deviates from the general consensus, as they are often involved in the political administration and mostly depend on protégés (Lau, 2005).

Regarding coastal legislation, there has been a high commitment within the last ten years to adjust existing laws to the new conditions (Jiao et al., 2000; State Council of the PRC, 1992, 1998b, 2001). Nonetheless, Chinese legislation is still far from being independent in the sense of separation of powers and the mere existence of laws does not yet routinely lead to their adequate use. Additionally, the draft of the national coastal management law never emerged from interagency review, due to the "lack of clarity on operational modalities" (PEMSEA, 2003, p. 22) and was interpreted as the "proposed law would affect the entrenched interests of concerned agencies in coastal areas" (PEMSEA, 2003, p. 23). Apparently, sectorial interests prevented a binding legislation and the political will necessary to overcome this situation is still lacking.

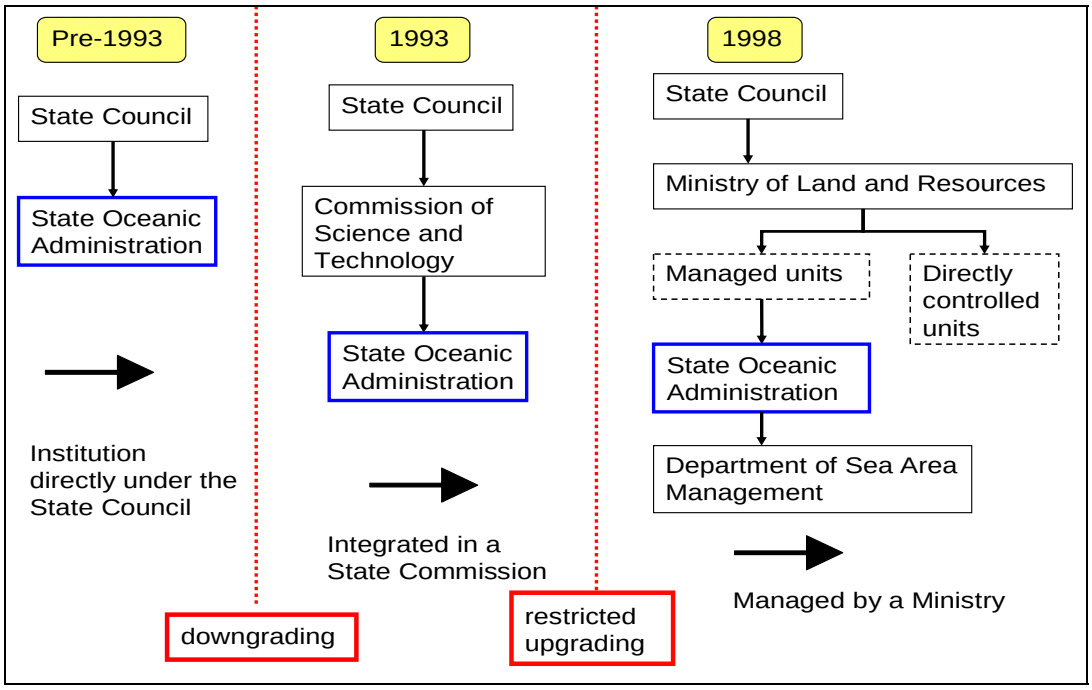

Figure 4-5: state oceanic administration - structural development (Lau, 2005)

The agency responsible for coastal zone management is the State Oceanic Administration (SOA). It is predominantly the position of this agency within the political hierarchy that is decisive for its capacity and performance (compare also Awosika et al., 1993). Although its tasks have regularly increased in number since 1989, administrative reforms have lowered its position in the hierarchy. Figure 4-5 presents an overview of these developments in changed dependencies.

Just as important as institutional power, of an agency within the political structures, is the disvision of responsibilities among all of the bodies that participate in coastal zone activities. Inter-institutional discrepancies are highlighted through an analysis of each program of potentially involved ministries and administrative agencies. Figure 4-6 shows significant overlap in jurisdiction on the basis of self-defined tasks and responsibilities by the agencies. The responsibilities of the SOA are listed in the rows and the six agencies that are co-operating partners of the SOA are identified in the left-hand column headers in italics. The right-hand column headers identify other agencies with potentially overlapping or similar functions in the coastal zone (compare Lau, 2005).

Figure 4-6 also illustrates another constraining aspect of coastal zone management in China. Within the SOA jurisdiction, the coastal zone is limited to the marine part only. In contrast, the land part is under jurisdiction of the Ministry of Land and Resources (MLR), which has managed the SOA since 1998. Figure 4-6 shows that a redefinition of the coastal zone, in the natural sense of a highly sensible transition zone between land and ocean, would only increase overlap in responsibilities. Therefore, coastal zone management in China needs a more comprehensive reform in order to efficiently address coastal problems.

CZM related organs / SOA Tasks	*MLR*	*Department of Fishery –MOA*	*SEPA*	*NBF*	*MST*	*CAS*	MSA –Min. of Communication	DPC	ETC	NTA	MOC	MWR
CZM rights and Laws		X	X				X	O				
Marine Resources	X	X	O		O	O	A	A	A		O	O
Marine environmental protection	X	X	O	X	O	O	X	A	A	O	A	O
Disaster Mitigation	O		X		O	O	X				O	O
Marine zoning	X	X	O	O		O	X	O	O	O	A	
Coastal zoning	X	X	X	X	O	O	X	X	X	X	X	O

X = jurisdictional overlap O = co-operation A = potential conflict

Figure 4-6: responsibilities of agencies in coastal zone management in China (Lau, 2005)[140]

This is also a major argument against incorporating adaptation measures into a coastal zone management system in China, as major overarching reforms are currently not envisaged. Still, Yang (1996) places CZM as a method of adaptation in parallel with those of retreat, accommodation and protection. Alongside a study series for the Zhujiang River on sea-level rise impacts (compare China Ocean Information Network, COIN 2003, 2004a,b), Yang's study forms one of the rare frameworks for specific areas that are available in the literature.

4.3.3 Disaster management as an alternative framework

China is also subject to other climate change induced impacts along the coast. These impacts include increased storm frequency and intensity. Coastal storms also produce temporary flooding and are a major cause for disaster loss in the region already. Disaster management is another organisational structure that may be capable of integrating adaptation to sea-level rise. In order to assess this, the structures of current disaster management in China have to be analysed according to the group of disasters that occur within the coastal zone and, therefore, spatially interact with the effects of climate change in this region in the future. The agencies involved in disaster management were also investigated.

China is a country hit quite frequently by natural disasters. In 2003, overall losses of 188.6 billion RMB (22.7 billion U.S. $) occurred (Xinhuanet, 2003b; People's Daily, 2003c). Chinese awareness of natural disasters is relatively high and the country also participates in the IDNDR (International Decade for Natural Disaster Reduction) effort (ACCA21, 1997; People's Daily, 2000a; UN, 2002). The China National Committee for IDNDR formulated the National Natural Disaster Reduction Plan of the PRC which came into effect in 1998. The plan is a long-term objective with development aims for the year 2010.

[140] Y-axis f.l.t.r.: Ministry of Land and Resources, Ministry of Agriculture, State Environmental Protection Agency, National Bureau of Forestry, Ministry of Science and Technology, Chinese Academy of Sciences, Maritime Safety Administration, Development and Planning Commission, Economic and Trade Commission, National Tourism Agency, Ministry of Construction, Ministry of Water Resources.

The plan divides China's areas into three regions, according to their economic vulnerability to natural disasters. The coastal zone is mainly represented within region three, which includes eight provinces and municipalities along the Eastern coast[141]. Due to high population density and economic importance, the absolute quantity of direct economic loss that could be experienced is high (compare also Nicholls and Leatherman, 1995b). On the other hand, a strong economy and greater capability to fight disasters only results in medium to low percentage of direct economic loss due to natural disasters. The most affected sectors are industry, agriculture, transport and city infrastructures (China National Committee for IDNDR, 1998). The China Ocean Agenda 21 also includes a chapter on 'Natural Marine Disaster Prevention and Mitigation' (SOA, 1996). Sea-level rise is mentioned as an extraordinary threat, as unlike most other disasters of the coastal zone it does not occur suddenly. Furthermore, the establishment of a management system for disaster prevention and mitigation is a declared aim, with adaptation options proposed on the basis of assessments and vulnerability studies.

Within the Chinese National Natural Disaster Reduction Plan, the range of disasters threatening the coastal region includes flood and water-logging, drought, typhoon, and storm surge, as well as earthquakes, hailstorms and subsidence (China National Committee for IDNDR, 1998). As the region is quite large, many disasters are included and a detailed distribution is not specified. In contrast, this analysis also includes disasters frequently mentioned by general and specifically Chinese literature on coastal zone management and climate change. The number of disasters under investigation is limited according to their occurrence along the coastline.

The disasters in figure 4-7 can be distinguished in two ways. The first classification option is their relation to systems. River floods are related to the water system. Floods due to precipitation and storm surges are related to the meteorological system. Accelerated wave activity, seawater inundation, red tides, oil spillage and marine pollution are related to the marine system. Land subsidence (natural and human-induced), erosion as well as mud slides are geological disasters.

Another classification is based upon their frequency of occurrence in the literature on disasters and sea-level rise. Red tides, oil spillage, and marine pollution are mentioned most in literature on marine vulnerability to disastrous events (compare COIN, 1998). However, it is clear that they do not have a direct relation to sea-level rise. In contrast, seawater inundation, accelerated wave activity and storm surges are mostly discussed within the climate change literature (compare Nicholls, 2003; De Groot & Orford, 2000; Arthurton, 1998). Other disasters are generally described in geoscientific approaches, e.g. land slides and erosion. However, erosion is distinguished into direct and indirect erosion within sea-level rise research, with the latter taking place by reduced sediment transport in estuary areas (as first and second order impacts in Pernetta & Elder, 1992).
Another group of disasters is formed by salination (of soil, ground and surface water), natural and human-induced ground subsidence and general environmental degradation. This group is usually not mentioned separately within the disaster literature. Either, they are formed into a superstructure for disasters leading to one monitored effect, or they are considered to be strongly related to other disastrous effects, e.g. salination being the impact of sea-water inundation. Yet, other incidents that frequently occur, e.g. the collapse of buildings and dike breaches are also seldom specifically formulated (except for earthquake literature, compare

[141] Out of 11 coastal administrative units on the provincial/municipal level altogether. Not counting the Special Administrative Zones of Hong Kong and Macao.

Ye, 2001). As they are also in part related to sea-level rise, with dike breaches considerably influencing the flow direction of inundation, they are included in the following analysis.

Disasters	Impacting	Outcome	Accelerating sea-level rise	Mutually impacting	Resulting from slr
Floods (river)	X			X	
Floods (precipitation)	X		X		
Storm surges	X		X		
Land subsidence – natural	X		X		
Land subsidence – human induced		X	X		
Erosion – direct / indirect		X		X	
Accelerated wave activity	X	X		X	
Seawater inundation		X			X
Dike breaches		X		X	
Environmental degradation		X		X	
Salination – soil / ground and surface water		X			X
Building collapses		X			X
Land slides (mud)		X	No relation to sea-level rise		
Red tides		X			
Oil spillage	X				
Marine pollution	X				

Figure 4-7: disasters classification for China's coasts

In contrast to Ye (2001), who categorises disasters in China into major and minor, a categorisation of disasters into a ranking was abandoned here, as it could only show disaster rank on a scale of subjective human experience. In this way, only disasters with a large scale influence on an area's population (e.g. river floods), or those of major interest to a certain group, or with a short term but dramatic effect, are bound to be defined as first rank. As this analysis emphasises the relationship between disasters and sea-level rise, a subjective ranking is not feasible.

Two major qualifications are reflected in figure 4-7. The first categorisation is that of impacting as opposed to outcome disasters. Impacting disasters are directly influencing human life and other systems (ranging from the natural environment to the economic system) and are generally difficult to control. In contrast, outcome disasters have to be preceded by either another disastrous event (e.g. sea-level rise) or some (human) action generating this disaster. This becomes most clear with the example of land subsidence: the natural, tectonic version is unpredictable and uncontrollable, whereas human-induced subsidence is generated by human activity, e.g. overpumping of ground water. Outcome disasters can generally be prevented or controlled by yet another human intervention often via another system, in our example the refilling of underground aquifers, which is a detour via the water management system. The only exception in this classification is posed by the effect of accelerated wave activity, which can be both impacting and outcome. As an impacting disaster, it is generated by (naturally) changing currents and, because of this, is unpredictable to a high degree. In contrast, as an outcome disaster, accelerated wave activity is generated by storm surge and can be protected against.

The second classification proposed is that of relevance to sea-level rise[142]. The exclusive categories are either accelerating sea-level rise, which is an active and unidirectional function, or the disasters offered can also be mutually impacting with sea-level rise – defining a two way function . For instance, direct erosion can have the effect of relative sea-level rising and sea-level rising can accelerate the rate of direct erosion. The last option is a disaster resulting from sea-level rise, which is also a one direction function, but in this case a passive one; an example is sea water inundation. This categorisation cannot be applied to land slides, red tides, oil spillage and general marine pollution, as they have no direct relation to sea-level rise.

The two categorisation options result in five groups of different combinations. Further steps of analysis gave each group a certain qualification reflecting the disaster's predictability, possibly its relation to other systems or adaptation aspects. The qualifications were held as simple as possible in order to enable cross attribution. This showed that the more unpredictable the impact of a disaster then the more superficial became the recommended form of adaptation. And the more related the disaster is to other systems, then the more diverse the adaptation options become. Also, the more often there is an accelerating relation to sea-level rise, then an adaptation approach of vulnerability reduction is more likely.

Based on literature research and other information on institutional participation (JICA, 2002, and compare appendix 1), related agencies in China were mapped according to disasters. In this way it became clear which was responsible for disaster management. In the following step, these agencies were compared with those derived earlier which were found to be responsible for land use changing activities within the coastal zone (see figure 4-4). This step tested a possible integration of adaptation into existing disaster management structures and showed that the activities, whose institutional responsibility was investigated (land reclamation, coastal construction and dike building), have a very high potential relation to the disasters of the coastal zone. No disaster was insignificant to the coastal activities, but some had a somewhat weaker potential relation, i.e. building collapse, indirect erosion, environmental degradation and salination. It should be kept in mind that a relation may also be positive. Interestingly, the agencies that are responsible for the coastal activities did not always have a direct relation to the agencies involved in disaster management. Furthermore, there was always a significant additional number of agencies involved in disaster management. Figure 4-8 shows an aggregated overview and provides the numbers of agencies involved in specific disasters.

Disaster analysis is feasible for redefining disaster groups according to their potential adaptation. This perspective relates to the quality of disasters emerging in the coastal zone. However, the results of the analysis do not show a matching responsibility of agencies, for which there appear to be only two possible explanations. First, the institutions related to disasters are too broadly defined, as they are mainly derived from the literature and reflect only a share in responsibility without further defining the absolute contribution. Second, the agency responsibilities for both groups – disasters and coastal activities – in fact do not reflect the natural relation existing between the two outcomes (of human, land-use changing activities and possible disasters in the coastal zone). However, some of these disasters will be accelerated with climate change and especially the encroachment of sea-level rise.

[142] Geophysical effects of sea-level rise are described by Nicholls, 2003; De Groot & Orford, 2000.

agencies by disaster relation	related disasters	coastal zone activities		
		land reclamation	dike building	coastal con-struction
MWR, MLR + 6	floods (prec.)	**X**	**X**	**X**
MWR + 4	land subsidence (nat.)	**X**	**X**	**X**
4	Storm surges	**X**	**X**	**X**
MWR, MLR + 5	floods (river)	**X**	**X**	**X**
SOA + 3	acc. wave activity (imp.)	**X**	**X**	**X** (bridges)
MWR, MLR + 3	land subsidence (human-ind.)	**X**	**X**	**X**
MWR, MLR, SOA + 7	seawater inundation	**X**	**X**	**X**
MLR + 3	building collapses			**X**
SOA + 3	acc. wave activity (outcome)	**X**	**X**	**X**
MWR, MLR + 2	erosion (direct)	**X**	**X**	**X**
MLR + 3	dike breaches	**X**	**X**	**X**
MWR, MLR, SOA + 2	erosion (indirect)	**X**		
MWR + 2	environmental degradation		**X**	**X**
MWR + 3	salination (all)	**X**		
agencies and administrative levels by coastal activities		MWR, MLR, loc gov	MWR, loc gov, nat gov, SOA	loc gov, MWR, SOA, nat gov

Figure 4-8: agencies of disaster management related to coastal activities

It is difficult to integrate adaptation with the way disaster management in China is currently practiced. A large number of agencies and sectorial organisational structures are involved (see also China National Committee for IDNDR, 1998), depending on the disaster, and they are either organised top-down, e.g. flood protection, or the objective is addressed by an ad-hoc commission, e.g. oil spillage (personal communication Lu Dong Yun). The latter is not an adequate option for a long-term threat such as sea-level rise, as it needs a preventive planning approach to be implemented. Thus, the top-down approach to flood protection is the object of the following investigation. In the process of analysis, the emphasis is taken away from the institutional set-up of agencies and moved to the organisational structure of implementation procedures. In this way, more focus is given to the governmental levels of implementation.

4.3.4 Water management and flood disasters

In China, the natural disasters of flooding, drought and earthquakes are most often mentioned. Typhoons, Asia's most powerful storms, are another threat, and as they always bring a high but mercifully brief, amount of precipitation, their management is incorporated into flood defence. (Ye, 2001; Zhu, 2000). The group of disasters perceived as most important has led to the scattering of responsibilities amongst a number of institutions. For the adaptation to sea-level rise, the mechanisms for flood protection are most interesting. The Headquarters for Flood Protection and Drought Control (HFPDC) (China Daily, 2002b) is situated in the Ministry of Water Resources (MWR) and has the structure of a commission. The most frequent floods in China are river floods; therefore placement within the MWR is sensible. Other ministries participating in flood control are those whose jurisdiction is most likely to be affected by the flooding and whose losses are likely to be the highest. These are the Ministry of Agriculture (MOA) and also the Ministry of Communication (MCom), which is responsible for national transportation infrastructure. In a severe disaster, the National People's Army will be brought in for dike-strengthening and evacuation tasks; further rescue responsibilities are with the Ministry of Civil Affairs.

Flood protection is essentially subject to the MWR, which has planning and implementation responsibilities (personal communication Li Kungang). As long as only one province is affected by flooding, the local (here provincial) level bears all responsibility. In the case of more than one affected province, the national government forms a commission that is led by the HFPDC. Concerning the adaptation to sea-level rise, it is problematical that the national agency (or the MWR) is not explicitly engaged with flooding along the coast – this is a matter for the local governments. Generally, local water administrations are complex in structure and partly lack coordination mechanisms (Centre of Human Settlements, 2004). Although dike-building is also a responsibility of the MWR or its local counterparts, there is a lack of an organisational framework for bundling the institutional responsibilities. Only a clear jurisdiction can build capacity to implement adequate approaches against all possible climate change related disasters along the coast – through a range of measures from reactive emergency plans to long-term planning of adaptation options.

4.3.5 River basin management and the adaptation to sea-level rise

Besides the MWR Headquarters of Flood Protection and Drought Control, the seven River Basin Commissions for all of the major Rivers in China form a management system at the regional level[143]. These Commissions are situated at a sub-national level, theoretically providing them with more and inter-provincial decision powers than the water management bodies at the provincial and municipal level. Furthermore, they include a combination of departments, e.g. for water affairs, that are responsible for the assessment of construction projects within the river deltas (Zhujiang Water Resources Network, see appendix 1). Although these institutions have largely existed since the 1950s (IWMI, 2005; China Daily, 2004; Wu, 1994), the legal status of the river basin commissions was not even mentioned in the water law of 1988 (Zhang und Wen, 2001). They are, therefore, considered as having a weak position in negotiations and decision-making (Zhang and Wen, 2001). Recommendations on how to integrate River Basin Management in China have been made as early as 1994 (Hu, 1994). The flood control law formulated in 1997 also allocates the comprehensive planning objective along river basins and regions (State Council of the PRC, 1997). But only after the devastating floods in the Changjiang River Basin in 1998, did the MWR issue guidelines on how to re-organise flood control at the three levels: national, regional (per basin) and provincial (Zhang und Wen, 2001).

Since 1998, the integration of flood control, together with plans from other sectors such as land use planning or urbanisation, has been the focus in river basin management. In 2003, a task force of Integrated River Basin Management (IRBM) was formed with the participation of international experts (WWF, 2003). A long-awaited institutional change is the formation of a national Integrated River Basin Management Commission, headed by the Vice-Premier, which involves all related governmental organisations (China Daily, 2004; Zhang and Wen, 2001). It is clear that river basin management is currently undergoing significant change. Furthermore, all of the existing seven river basin commissions have different degrees of competence in respect of their responsibilities for flood control and in the number of agencies involved[144]. Even just for adaptation to sea-level rise in the delta areas alone, a significant number of agencies and levels are involved (compare Chen and Saito, 2003).

[143] The main river deltas in China are the Changjiang, the Huanghe, the Songhua, the Liaohe, the Haihe, the Huaihe and the Zhujiang. Nonetheless, the river basin commissions are distributed differently: Songhua and Liaohe share one Committee and the Taihu Lake has an own (Zhang and Wen, 2001).

[144] Compare CGIAR 2005 for the Huanghe; Zhang and Wen 2001, Vemula et al. 2004 for the institutional set-up of the Changjiang authorities; and Zhujiang Water Resources Network (www.pearlwater.gov.cn) for the Zhujiang.

The planned national River Basin Commission reflects a trend for even more centralised organisation of management. However, experts largely agree that adaptation is a local objective. This way an integration of adaptation to sea-level rise into river basin management would also need support from the lower administrative levels. A centralised approach is meaningful from the perspective of integrating numerous administrative units (11 provinces alone for the Changjiang River Basin), but the river basin management as it had existed before also broke down at the county level. Apparently, these lower levels of administration have to be adequately supported in their task of flood control, especially with regular financing, as in some regions the funds for maintenance and operation are not secured and, therefore, many projects are in a poor condition (Zhang and Wen, 2001). If this is still the case for flood control along the river course, river basin management does not yet seem to be a suitable framework for additional integration of adaptations to sea-level rise. However, if a working scheme can be achieved in the near future, as the task force team of IRBM is hoping for, it would be best to include coastal adaptation as soon as possible. Especially for the Zhujiang and the Changjiang rivermouths, this would be a solution that could also take into account phenomena such as the backwater effect.[145] In general, the use of river basin management as an organisational framework has the disadvantage that not all coastal provinces would be affected by this institutional set-up. Therefore, it would still be the MWR that is ultimately responsible for coastal adaptation.

The current development in institutional change of the river basin management originates in the 1998 floods along the Changjiang[146]. According to the China Daily (2002b), these floods left 4100 people dead[147]. Today, dike-strengthening may have produced positive effects already. According to EM-DAT data, the number of flood incidents for the period 2000-2005 is already higher than the number for the 1990-1999 period. Nonetheless, the numbers of people killed and affected have been reduced significantly (EM-DAT, 2005). Although it is disputed if the increase in the number of such events is a direct effect of global warming and some scientists argue that it may be a repetition of cycles that have affected the global climate before, it is evident that such events raise awareness of mankind's vulnerability to natural events. The manager of Red Cross China has urged the Chinese government to improve disaster management and consciousness in affected regions, stating that protection against flash floods and general climate change cannot be achived by concrete and steel alone (China aktuell, 2004). The following section discusses the potential of climate change management for China.

4.3.6 Development of climate change management in China

Since the 1980s, climate change has been a research issue in China, but it has also increasingly become an issue on the political agenda, although with the emphasis on the mitigation of CO_2 emissions. In 1990, a Coordination Committee on Climate Change was set up that has since been moved from the Environmental Protection Committee, under the State Council, to the State Meteorological Administration. During administrative reforms in 1998, the National Coordination Committee on Climate Change was established under the Chair of

[145] A backwater effect is setting when sea-levels are rising and the discharge of river water is hindered. The water then stows in the areas of the river mouth and causes inundation. Especially for Shanghai this effect is not to be underestimated (Wang, 1995).

[146] As has been the project of reinforcing the Changjiang dikes. The project took four years and cost 27 billion RMB for a length of 3078 km (Zhu, 2003; People's Daily, 2002b).

[147] The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) counts 1562 victims (UNESCAP 1999).

Zeng Peiyan of the State Development and Planning Committee (National Coordination Committee of Climate Change of the PRC, 2001; CCCIN, 2004). Major coordination groups of this cross-ministerial body are the National Development and Reform Commission, which coordinates various climate change policies, the Ministry of Foreign Affairs, which leads Chinese participation in international climate change negotiations, and the SOA, which leads Chinese participation in the work of the IPCC. The SOA is conducting major research on sea-level rise, but only marginally on adaptation options, so far. Additionally, research institutes such as the Meteorological Administration and the Agrometeorological Institute provide special disaster mitigation and global change sections.

Currently, more research on mitigation efforts is pursued in China than on adaptation options. A reason for this can be seen in the long-term character of sea-level rise. Mitigation efforts, such as a decrease in the urban pollution, show changes in everyday life more quickly, and therefore is more meaningful to people. Furthermore, investments in new technologies are a convincing argument for local governments to prefer investment in mitigation technologies than in costly adaptation measures and programs that may only be necessary in one to two decades time. Hence, there is a strong division between research on sea-level rise impacts and practical implementation of (new) adaptation options. With the threat of sea-level rise being a long-term problem, this sometimes detracts from the fact, that reasonably soon alternative practices are necessary for adaptation to sea-level rise (personal communication Du Bilan). Concepts for such practices need to be formulated as soon as possible and their implementation must be firmly tied to a functioning organisational framework.

4.4 Conclusion: short-term and long-term targets in competition - climate change management as an alternative framework?

The difference between short-term and long-term planning is a crucial factor when discussing climate change. Politically, China is highly capable of implementing concepts that would not work in most countries, e.g. the one-child policy, in order to reduce population growth. Nonetheless, it shows that such decisions are made on the grounds of pressing problems and also yield an economic advantage in development policy.

Developments within the Chinese coastal areas are formulated over the short term, which is a reasonable approach taken the immense economic growth and expected urbanisation rate of the region (Cheng, 2002). However, the adaptation to future threats is a long-term task. A possibility of circumventing this contradiction lies in the upgrading of the MWR responsibilities for coastal development into comprehensive flood control for the coast. In this way, the MWR would gain the jurisdiction for a practical adaptation to sea-level rise, whereas the theoretical level, including research would remain with the experienced SOA. Another possibility, for the near future, would be to incorporate the adaptation issue more deeply into the climate change management in China. Ding Yihui, special advisor on climate change to the Chinese Meteorological Administration, emphasised (after Yao, 2002) “that the state needs to draw out an overall strategy of adaptation and reduction”, meaning a combination of adaptation to sea-level rise and mitigation of CO_2-emissions. For this purpose the National Coordination Committee on Climate Change would need to include a comprehensive adaptation plan and to allocate the relevant responsibilities accordingly. This could also happen in a separate organisation responsible for the impacts of climate change that includes disaster management.

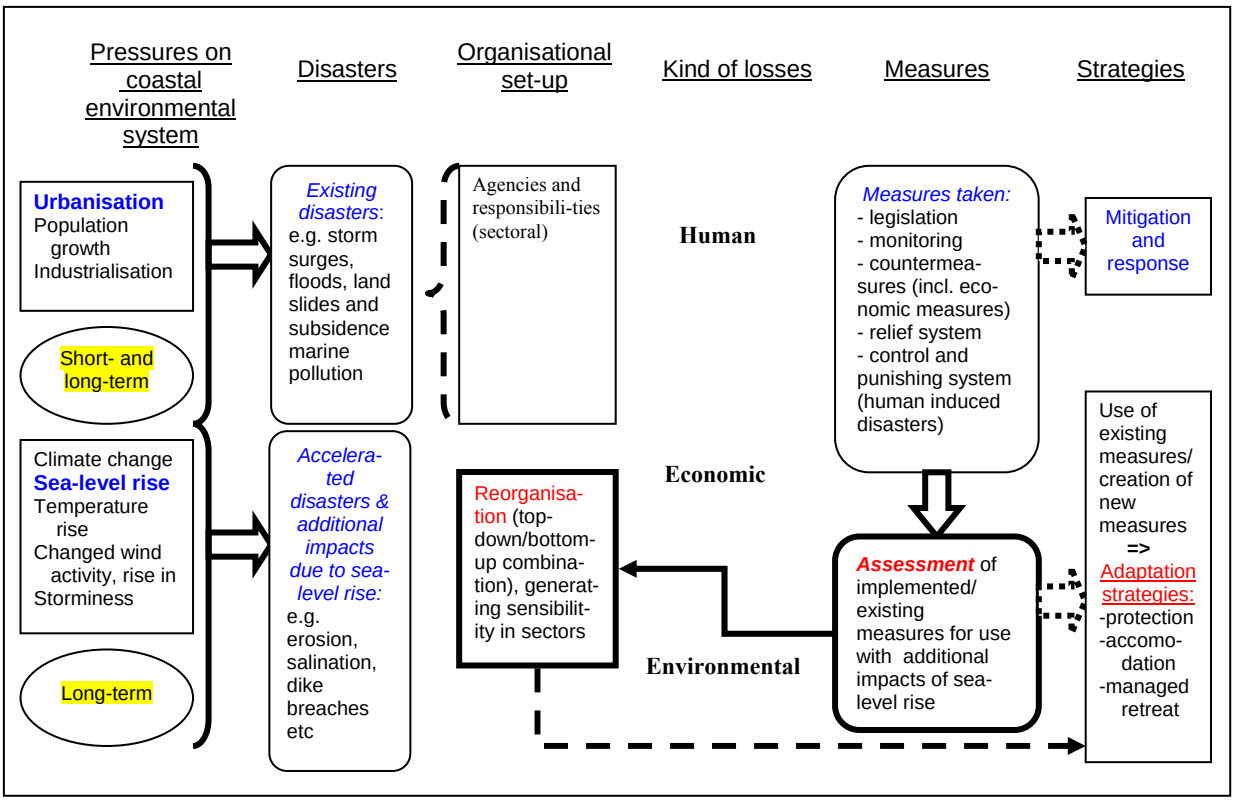

Figure 4-9: changes in disaster management perception to meet the requirements for climate change and especially for the adaptation to sea-level rise

Figure 4-9 shows a path that upgrades the existing disaster management, as it exists in most countries, with responsibility for the impacts that climate change is posing. It is essential to include the distinction of short-term and long-term developments in recognition of the fact that most known impacts will be accelerated through climate change. Therefore, it is meaningful to allocate the basic structures of a framework to experiences drawn from disaster management. Additionally, the importance of long-term planning in adaptation options must be reflected by institutional planning capacity. Although adaptation is often described as a local task, the responsibility should not automatically be allocated there. At least a national plan should exist or a national framework of organisation be provided to include the adaptation to sea-level rise. As Christie (2005, citing Ostrom, 1992) emphasises: "local-level […] resource management regimes must be nested within wider, and supportive, governance structures for such approaches to function properly" (p.220), otherwise long-term adaptation plans run great risk of being overruled by short-term economic decision-making. Clear concepts and functioning frameworks may provide a chance to generate the political will that is needed. As China is in a phase of change, it has the chance to become a country sincere in its determination to do so.

PART III: TOURISM AND DECISION-MAKING

Chapter 5: the role of climate information in tourist destination choice decision-making[148]

5.1. Introduction

The impact of climate change on tourism has been examined quantitatively in several different ways. There are economic theory based studies that involve estimating the demand for destinations using, among other things, climate variables (see Maddison, 2001; Lise and Tol, 2002 and Hamilton, 2003). Related to these studies are global models of tourism flows that include temperature as a determinant of the flows of tourists between countries (Berritella et al., 2006 and Hamilton et al., 2003). There are also studies that use tourism climate indices to predict the effect of a changed climate on tourism demand (Scott and McBoyle, 2001 and Amelung and Viner, forthcoming). The latter group of studies combine climate variables in a more complex way to reflect the thermal, physical, and aesthetic properties of climate. The former two groups take a more simplistic approach: they include temperature, and up to two other variables. How far does the reduction of climate to one or two variables limit these studies? Moreover, de Freitas (2003) argues that climate data expressed as an average, which is used in the economic studies mentioned above, has no psychological meaning. Nevertheless, the economic theory based studies and the global models base their analysis on the actual behaviour of tourists, in other words actual destination choices. A tourist's choice of destination will be based on what they expect from the chosen destination. Furthermore, what they expect will be driven by the image that they have of the destination. Of course, weather is not experienced as a set of separable and independent attributes but as a complex impression. In terms of climate, this leads us to ask: do tourists have an image of the climate and if so, how was this image formed? Moreover, it is unclear whether tourists form a complex picture of climate or if information on a few key attributes tells them enough about climate to construct an image. Lohmann and Kaim (1999), note that there is a lack of empirical evidence on the importance of climate on destination choice decision-making. In contrast to the German travel surveys reported by Lohmann and Kaim, we have focussed this study on climate image and climate information. As far as the authors of this chapter know, this is the first study of its kind and there is a considerable gap to be filled.
After considering the aforementioned issues, we formulated the following research questions:

A: How decisive is climate as a factor in decision-making?
B: At what point in the holiday decision-making process do tourists gather information about climate and weather?
C: What sources of climate information are most frequently used?
D: What are the most frequently used types of climate information?

In order to gather data to answer these questions, a survey of tourists departing from Hamburg and its vicinity was carried out during July and August 2004.[149] The survey produced 394 completed self-administered questionnaires. The questionnaire provided details on the current holiday, destination image, information sources, type and presentation of information and demographic details of the respondents.
This chapter will continue in the second section with a review of the literature related to climate and tourism demand, tourist decision making and destination image and develops the hypotheses. The third section presents the research design. The results of the study are

[148] This chapter is a co-operation with Jacqueline M. Hamilton.
[149] Appendix 7 is the questionnaire that was used in German language.

presented in section four. The fifth section discusses the implications and the limitations of this study and concludes.

5.2 Literature review and hypothesis formulation

Morley (1992) criticises tourism demand studies, which typically focus purely on economic factors, because they do not consider utility in the decision making process.[150] Moreover, he suggests an alternative way to estimate demand based on the expected utility derived from the characteristics of the product – in this case the destination country is the product. Lancaster (1966) originally developed the concept that the characteristics of a good are more important to the consumer than the actual good itself. How these characteristics are perceived will determine the expected utility. In the case of tourism, the product is the holiday at a certain destination and at a certain time and this product will have certain characteristics. Knowledge of destination characteristics will be limited for a first time tourist. As climate can be temporally as well as spatially defined, even repeat visitors will not necessarily have experienced all seasons at the destination. Limits to knowledge lead Um and Crompton (1990) to argue that "the image and attitude dimensions of a place as a travel destination are likely to be critical elements in the destination choice process, irrespective of whether or not they are true representations of what the place has to offer" (Um and Crompton, 1990, p. 433).
The final choice of destination is the result of a decision-making process that involves the use of information, whether from personal experience or through an active search, to generate an image of the destination. This section develops the hypotheses related to destination image, decision-making and information search as well as climate information for tourists.

5.2.1 Destination image

There are many different definitions of what destination image actually is (Gallarza et al., 2002). There is however, a consensus that destination image plays an important role in destination choice. What role does climate play in destination image? Not all studies of destination image include climate as an image defining attribute, as can be seen in the extensive review of destination image studies by Gallarza et al. (2002). Of the 25 destination image studies reviewed, climate was included as an attribute in 12 studies. Nevertheless, from their list of 20 attributes, climate is the seventh most frequently used attribute. Studies of destination image, that include climate/weather as an attribute, find that it is one of the most important attributes. There are, however, differences in the preferences shown by different types of tourists and for tourists from different places (Hu and Ritchie, 1993; Shoemaker, 1994; Kozak, 2002 and Beerli and Martin, 2004).
Only one of the 142 destination image papers reviewed by Pike (2002) specifically deals with weather. This was a study by Lohmann and Kaim (1999), who assess, using a representative survey of German citizens, the importance of certain destination characteristics. Landscape was found to be the most important aspect even before price considerations. Weather and bio-climate were ranked third and eighth respectively for all destinations. Moreover, they found that although weather is an important factor, destinations are also chosen in spite of the likely bad weather. In a study by Gössling et al. (forthcoming) of tourists surveyed in Zanzibar, tourists were asked to rate climate's importance for their decision to travel to Zanzibar. More than half rated climate important but a small share of the respondents (17%) stated that climate was not important at all. Based on the existing literature, it seems that climate is an important factor for tourists when choosing their holiday destination. We have, therefore, formulated the following hypothesis:

[150] For an extensive review of tourism demand studies see Witt and Witt (1995) and Lim (1995).

Hypothesis A1: Destination climate is an important consideration for the choice of destination.

5.2.2 Decision-making and information search

Fridgen (1984) expands on the five-phase model of recreation behaviour of Clawson and Knetsch (1966). The five phases are anticipation, travel to the site, on site behaviour, return travel and recollection of the trip. The anticipation phase includes decision-making and preparation for the holiday. According to Fridgen (1984), tourism decision-making involves environmental preferences and the cognitive image of what they expect from the destination. Other models of decision-making in the tourism literature contain a number of stages. Among these stages may be the motivation to go on holiday, information gathering and evaluation of the holiday, which may include feedback loops into the next holiday decision (see for example Van Raaij, 1986; Gunn, 1989; Ahmed, 1991; and Mansfeld, 1992). The temporal aspect of the holiday decision, in other words when to go on holiday, is absent from these models of decision-making. Sirakaya and Woodside (2005) distinguish between behavioural and choice set approaches to decision-making. According to them, behavioural approaches seek to identify the different stages in the decision-making process and the factors that influence the process. Choice set approaches involve identifying the various destinations that are in the awareness set and following an active information search, an evoked set develops (see, for example, Um and Crompton, 1990). From the latter set, the final destination will be chosen. In both of these models the tourist assesses the destination options available, using information acquired from their search and gradually eliminate the options that do not meet their needs. In both cases and in the studies discussed above, information is gathered in order to make the decision. Hence, we formulate our hypothesis as:

Hypothesis B1: Tourists gather climate information before they make their concrete holiday decision.

Information on the current weather at the destination or predictions for the weather in the coming week can only be used to make decisions about destination choice at the very last minute. Therefore, we assume that the tourist gathers weather information in order to prepare for their holiday and make any necessary adjustments to the clothing or equipment that they will take with them. They may also do so to adjust their image according to the current situation and so modify their expectations. This leads to the following hypothesis:

Hypothesis B2: Tourists gather weather information in preparation for their holiday.

Closely related to the time of information gathering is the question of which information sources are used. The destination image studies that take climate and weather in to account do not consider this factor, whereas another group of studies focus on information search strategies but do not specifically look at climate information. Three distinct information search strategies are classified by Fodness and Murray (1998 and 1999). First, there is a spatial element; the information search can occur internally, that is information from the individual's own memory, or it can occur externally, through the acquisition of information from sources such as travel agents or friends and family. Second, there is a temporal element to the information search. Tourists may continually be gathering information for their holiday or they may do so only when they are planning to go on holiday. The third aspect of the search is operational, which reflects the type and number of sources used. In a survey of American tourists who travelled to Florida, 68% of the tourists used more than one source in their information search (Fodness and Murray, 1998 and 1999). The sources most likely to be used on their own were: personal experience, travel agencies, and friends and relatives. For a repeat visit, which involves less complex problem solving than a first time visit, Fodness and

Murray (1999) argue that personal experience will be favoured. In their results, however, an external source of information - friends and relatives - was the main source. For those with a longer decision period, possibly reflecting a first time visit, friends and relatives is also the main source followed by auto club and travel agent. This study uses the length of planning period but the actual type of decision, that is whether it was a first time visit or a repeat visit, is not made explicit.

Van Raaij (1986) argues that novel destination possibilities and expensive holidays will necessitate an extensive information search. As the following analysis concerns itself with international tourism trips, the holidays under consideration are likely to be one of the major purchases by a household. Not only this, a holiday abroad is a significant event. Therefore, we can assume that the majority of the tourists will use several different information sources. Four information source categories were examined by Baloglu and McCleary (1999). These were professional advice, word of mouth, advertisements, books/movies/news. Word of mouth was ranked highest in terms of its importance for forming an image of the destination. The least important category was advertisements. In addition, they find that the mean number of sources used in their sample to be 3.75. In a study on the destination image of India, tourists used several different information sources. Friends and relations was the main source for more than half of the tourists (Chaudhary, 2000). From the above, we have formulated the following hypotheses:

Hypothesis C1: Tourists rely on more than one information source.
Hypothesis C2: 'Friends and family' is the dominant information source category for first time visitors.
Hypothesis C3:'Own experience' is the dominant category for repeat visitors.

5.2.3 Climate information

Types of climate information can be examined in terms of content as well as presentation. De Freitas (2003) classifies climate according to its aesthetic, physical and thermal aspects. The thermal aspect is argued to be a composite of temperature, wind, humidity and radiation. Since climate is complex, we assume tourists are striving for a detailed picture in their information search and therefore formulate the hypothesis as:

Hypothesis D1: Tourists gather climate information on several different attribute types.

The studies that analyse the demand for destinations in terms of characteristics include variables for temperature and in some cases precipitation and the number of wet days in the demand function (see Loomis and Crespi, 1999; Mendelsohn and Markowski, 1999; Maddison, 2001; Lise and Tol, 2002; Hamilton, 2003; Berritellla et al. 2004 and Hamilton et al. 2003). Moreover, in the studies that use tourism indices, such as Scott and McBoyle (2001) or Amelung and Viner (forthcoming), temperature plays a greater role than any other climate variable. The tourism climate index, developed with regard to the biometeorological literature on human comfort, consists of five sub-indices. The sub-indices contain seven climate variables, three of which are temperature ones (mean, maximum and minimum temperature). The two sub-indices that contain the various temperature variables account for 50% of the weighting in the tourism climate index. As temperature is an important factor in both behavioural and biometerological studies of tourism and climate, we have formulated the following hypothesis:

Hypothesis D2: Temperature is the dominant attribute for climate information.

We found little guidelines in the literature on the way that climate information is portrayed. De Freitas (2003) argues that a climate index would be the most appropriate way to present climate information to tourists. Nevertheless, the authors are not aware of actual studies where the preferences of tourists for different formats are tested. From a survey of the Internet and print sources of climate information, we can conclude that there are many different ways of presenting such information. There was, however, no clear tendency towards a particular presentation form. For this reason we randomly chose one of the possibilities for our hypothesis, which we have formulated as:

Hypothesis D3: Tourists prefer a textual format for the presentation of climate information.

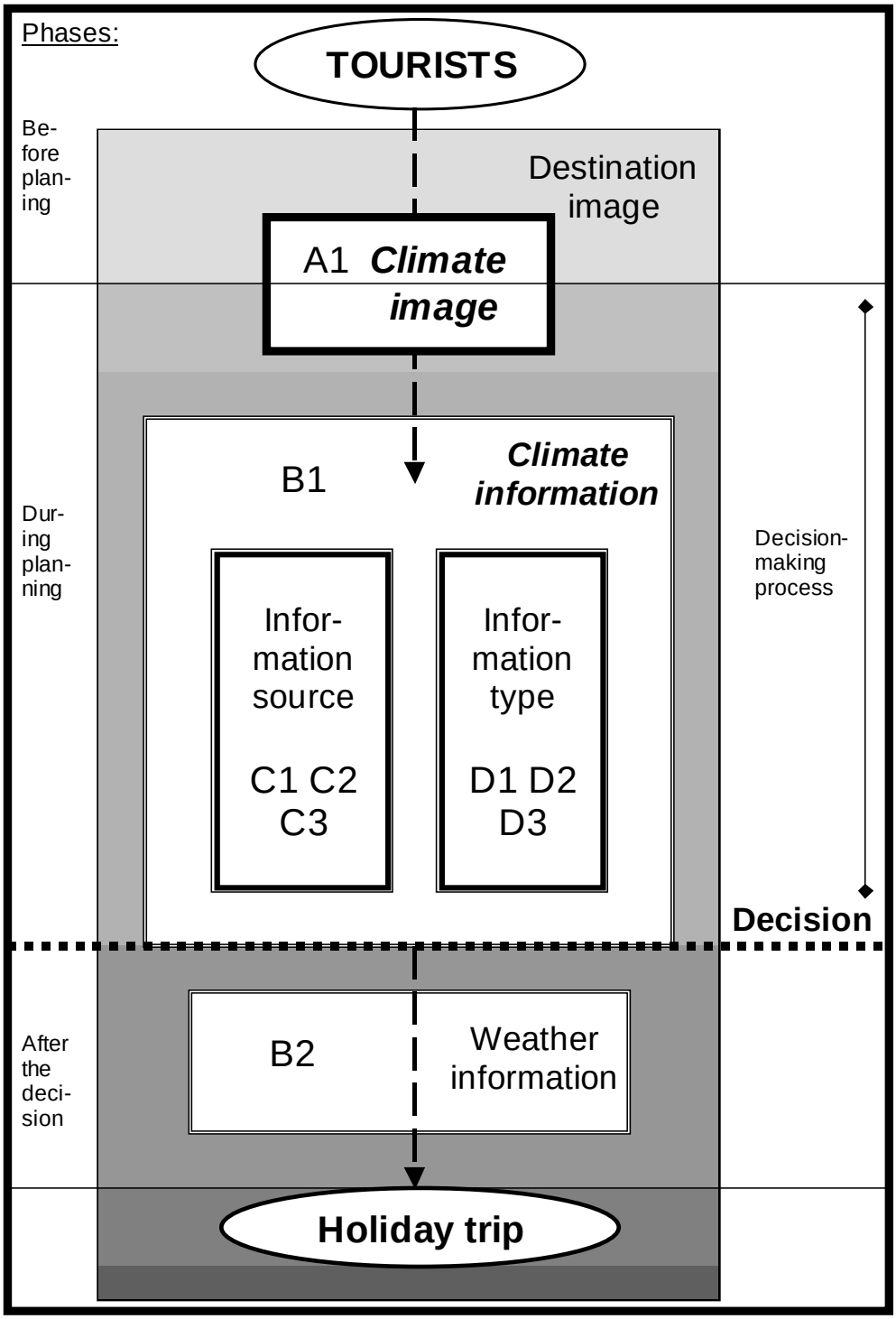

Figure 5-1: conceptual model with hypotheses of the role of climate information in the tourist decision-making process

The nine hypotheses and the related research questions are shown in figure 5-1. This figure depicts the phases of potential image change indicated by the various grey shades. The tourist has an image before planning that may change during the actual planning process and even after the decision for a specific destination has been made. Although not examined in this chapter, the tourist's image could also change after the experience of the holiday.

5.3 Research design

The fact that this study includes not only the question of information sources and information types but emphasises the time of information gathering lead us to choose a specific point in time to survey tourists – shortly before departure. This allowed us to include the phase of preparation for the travel. Our study population are those residents of Germany going on an outbound holiday and departing from Hamburg and its vicinity. Our sampling frame consists of those tourists departing from Hamburg and its vicinity at specific points of departure: the airport, the train station,[151] the international bus terminal and the harbours of Travemünde and Kiel for ferries to Scandinavia.[152] Our convenience sample consists of those tourists travelling on the selected days and on the selected departures. All participants were aged 16 or over and resident in Germany. Additionally, only one person out of a travel party was questioned. We purposefully excluded business travellers in the sample used.
We paid attention to the following quotas:

1) Destination countries according to the market shares from the Reiseanalyse (F.U.R, 1998 and 2004)
2) Transportation mode market shares also from the Reiseanalyse (F.U.R, 1998 and 2004)

The survey was carried out on 20 days spread over the months of July and August 2004. The days and times of the survey were chosen to correspond with departures to the countries with a high quota. The study period covered the main parts of the local school holidays.[153] The schedule and budget of this study did not allow for an inclusion of car travellers according to the market share of about one third of all travellers. Therefore, this group was left for future research. The quotas, therefore, corresponded to the relative market shares of the other transport modes.

While creating the questionnaire, we consulted a group of specialists, who commented on the preliminary versions of the questionnaire. These were tourism experts from academia as well as professionals from the tourism industry and others from the fields of marketing and quantitative research. A two-step pilot study was carried out at the end of June with the target group of tourists leaving from Hamburg Airport and a group of randomly chosen students. This pilot phase yielded valuable insights into intelligibility for the final questionnaire version. The comments of the experts and the results of the pilot phase resulted in the reformulation of individual questions and the questionnaire to improve its intelligibility.

In the following, we give an overview of the relevant questions from the questionnaire that we use in this analysis. The first section of the questionnaire includes general questions on the holiday: the destination country, the length of stay and the organisational form of the trip. We largely oriented this section on the Reiseanalyse (FUR, 1998 and 2004) in order to guarantee

[151] We chose car-train departures to southern Europe from the station Hamburg-Altona. This gave us direct access to tourists travelling abroad by train, whereas with the normal international trains it would have taken a lot of time to locate the international travellers as domestic travellers also use the international trains.
[152] There are no international ferries departing directly from Hamburg.
[153] The six-week long school holidays of the states of Hamburg, Schleswig-Holstein and Mecklenburg-Pomerania were partly covered by the study period. For the states of Bremen and Lower Saxony, the school holidays coincided with the study period.

comparability to other studies. As far as possible, these questions are in multiple-choice format. Another section contains two questions that identify the main image attributes and the main information sources. See table 5-1 for details of the sources used to formulate these questions. The next section begins with a filter question about whether the tourist had been to the destination country before. Answered positively, the respondents are asked to complete five additional questions. After that another filter question is asked; if the respondent had informed themselves about the climate of their destination. If answered positively, another block of five questions follows. The questionnaire closes with a section containing demographic questions that provide details on the respondent's place of residence, gender, age, and education level.

Tested attributes	Source of attributes
Destination image	Baloglu and Mangaloglu (2001), Baloglu and McCleary (1999), Kozak (2002), Lohmann and Kaim (1999), Gallarza et al. (2002), Hu and Ritchie (1993) and Yuan and McDonald (1990)
Information sources	Baloglu and McCleary (1999), Chaudhary (2000), Fodness and Murray (1999) and Phelps (1986)
Type and presentation of information	own research of online weather information providers, online travel guides, information provided online by travel agents, tour operators, foreign offices and tourist boards, and print travel guides
General information on the trip and demographic information	F.U.R (1998 and 2004)

Table 5-1: sources of attributes for the questionnaire

5.3.1 Hypothesis A.1

This hypothesis will be tested by examining if climate is at least the third most important attribute for the choice of destination. In order to assess this we asked respondents to rank the three most important attributes out of ten attributes. The ten attributes were chosen according to an analysis of the attributes that were found to be the most important[154] for tourists in studies on destination image (see table 5-1 for the sources used). We purposefully put this ranking question on the first page of the questionnaire. Respondents were not told in advance the specific focus of the questionnaire. This way the individual's perception on the importance of climate was assessed before the respondent became aware of climate being the main theme of the questionnaire.

Our assumption that climate information is indeed important within the decision-making process purposefully does not implicate a certain quality of climate, e.g. as Baloglu and Mangaloglu (2001) do when using the attribute of 'good climate'. Although this could mean either a good climate according to the individual's perception or a good climate for certain activities that the tourist prefers to undertake while on holiday, such a formulation may yield a pre-valuation of the climate factor. We assume that some tourists will search for warmer places to go, others may prefer a cooler climate than they experience in their home region at

[154] We took the five highest valued attributes from each study and calculated the frequency that each attribute appeared over all the studies. The ten most frequent were then taken from this list.

the same time of the year and some may be completely indifferent. Moreover, the individual's perception of the climate at the destination as being 'good' may be influenced by the home weather at the time of booking. In the region of Hamburg, where the survey has been undertaken, the summer 2004 has been widely perceived as comparatively cold and wet. In order to hold this sort of seasonal deviation at a minimum, we focus on climate and do not value it.

5.3.2 Hypotheses B1 and B2

Motivated by the decision phases formulated in studies of Fridgen (1984), Ahmed (1991) Mansfeld (1992), we emphasise three distinct phases of information gathering. The first phase is limited to the time before the tourist decides to go on holiday. It is not an active information gathering phase, since an image of the climate of the destination is there already either through previous experience in the country (or comparable climatic regions) or through knowledge gained from a general interest in the area. Phase 2 covers the period after the tourist is motivated to go on holiday but has not made the concrete decision of where and when. In this phase, information will be actively gathered in order to make these decisions. Phase 3 includes information gathering in preparation for the holiday. This is carried out after the decision has been made but before the actual trip.
The hypotheses B1 and B2 are tested using the results of two questions. The first question asks the tourists to state when they informed themselves about climate. There were seven options, which belonged to the following three groups: *before planning, during planning* and *after the decision,* which correspond to the phases 1 to 3 respectively. We gave the tourists the opportunity to choose more than one option. The second question concerns the actual weather at the destination before the trip: we ask the tourists whether they have been following the weather during the week before their holiday.
Pinpointing the time at which information is gathered also contributes to the analysis of the climate as an important factor in decision-making (see hypothesis A1). Information gathering *during planning* indicates a decisive character, while *after the decision* indicates for instance an adaptation of clothing to the climate and does not play an important role in the decision to go to the destination.

5.3.3 Hypotheses C1, C2 and C3

We included a question on the sources of information about the destination in general. Information sources for general information on a destination may be different from the sources used for climate information. From the review of the studies shown in table 5-1, we included 12 possible sources of information, including *friends and family* and *own experience* as well as weather information providers. The latter was included not only because of the purpose of this study but also because such sites contain information about destinations and links to online travel agents, tour operators and airlines.
In order to test the hypotheses, the exact same sources were included in a question specifically focusing on climate. We asked the tourists to rate on a five point Likert scale, the actual information sources used according to the importance for the decision. The filter question on previous visits is used to establish the two groups of first time and repeat visitors.

5.3.4 Hypotheses D1, D2 and D3

In these hypotheses, we distinguish between the presentation of the information and the content of the information. An examination of the possible sources of destination information and destination climate information resulted in the inclusion of the following categories: text

format, maps, diagrams and numerical data (see table 5-1 for the sources). The various information sources provide on different types of climate information, these range from several temperature types to precipitation related information and less frequently mentioned attributes such as humidity or UV-radiation.

5.4 Analysis

5.4.1 General results

Not all of the tourists asked to participate in the survey agreed to take part. The response rate differed in two ways, first between the two months and second according to the departure point where the survey was carried out. Generally, July showed a better response rate (of 2:1 and even better) than August. The response rate at the airport was altogether less high than at the bus terminal, train station or ferry terminal. At the airport, the terminals seemed to matter. The survey was easier to carry out in the charter flight terminal, where we had a response rate of 3:1 during August, whereas at the terminal for scheduled flights, on some survey days, we had a response rate of 10:1. In total, we had 413 returned questionnaires. We eliminated 19 questionnaires because core questions were unanswered and so we coded 394 questionnaires in total.

	Mean	Frequency
Age (n=377)	40.3	
16-19		9.0%
20-29		28.9%
30-39		18.3%
40-49		21.5%
50-59		10.1%
60-69		11.4%
70-79		0.8%
Gender (n= 387)		
Male		48.8%
Female		51.2%
Place of residence (n=362)		
Hamburg		34.5%
Northern Germany		51.7%
Other within Germany		13.8%
Education (n=378)		
Completion of compulsory education		40.2%
University entrance diploma		27.5%
Higher education		31.7%
No qualifications		0.5%

Table 5-2: descriptive profile of respondents (n=394)

Table 5-2 shows the demographic profile of the tourists surveyed. Compared to the age structure from the Reiseanalyse data from 1998 (F.U.R, 1998), this survey has a more distinctive bi-modal pattern, which can be seen by the larger shares of tourists in the 20-29 and 40-49 age groups and a much smaller percentage in the 30-39 age group. The

male/female split corresponds to that of the current population of Germany. Compared to the Reiseanalyse from 1998, this survey has a much larger share of those with a degree or who have a university entrance diploma. A comparison with national statistics is difficult because the statistics cover the age group 25-64 and statistics are based on completed years of education and include technical qualifications, which are not included in our options.

		Mean	Frequency
Duration of stay (n=388)	in days	14.3	
Less than one week			14.4%
One week			17.5%
One to two weeks			19.1%
Two weeks			27.1%
Two to three weeks			9.8%
Three weeks			4.9%
Three to four weeks			1.0%
Four weeks and more			6.2%
Holiday organisation (n=393)			
Independent			42.5%
Travel agents (but not a package tour)			20.6%
Package tour			32.3%
Other			4.6%
Destination (n=394)			
Spain			25.4%
Greece			8.9%
France			7.1%
Italy			6.3%
Croatia			5.3%
Hungary			5.3%
Turkey			5.3%
Bulgaria			3.8%
Sweden			3.8%
Tunisia			3.8%
Other European			20.1%
Other non-European			4.8%
Previous visit to the destination (n=391)			
No			36.8%
Yes			58.6%
No response but answered the follow up questions			4.6%

Table 5-3: descriptive profile of holidays (n=394)

Questions were also asked about the current holiday, the results of which are presented in table 5-3. The average length of the holiday is 14.3 days, which corresponds to the average length of holiday (13.7 days) reported for the Reiseanalyse 2004 (F.U.R; 2004). Surprisingly, a large share of the holidays were organised independently.[155] The shares for package tours and booking through a travel agent are similar to that of international trips in the Reiseanalyse

[155] The Reiseanalyse (F.U.R; 2004) examines direct booking with the providers of accommodation, whereas our "individual" category includes both transfer and accommodation.

2004. As mentioned above, quotas had been used to get a representative spread of holidays to the most popular countries for German tourists. Nevertheless, an important group of tourists, those travelling to their destination by car, could not be included. Countries that are very popular but are typically travelled to by car: Austria, Switzerland, Poland, Denmark and the Netherlands, are underrepresented in the survey. In addition, the share of long-haul trips is smaller than that of the Reiseanalyse 2004. We must take into consideration however that the Reiseanalyse covers a whole year. This study concentrates on the summer and it is logical that there would be less of a tendency to travel far, when Europe is at its most attractive climatically. Finally, the majority of respondents had visited their destination previously.

5.4.2 Research question A: climate as a factor in decision-making

The tourists were asked to pick the three attributes from a list of ten that were most important in their decision to go to the destination, and rank them. 94% of the respondents provided a useable ranking of the attributes.

	1st position value = 3	2nd position value = 2	3rd position value = 1	Not chosen value = 0	Total Chosen	Mean
Access to the sea/lakes	53	79	56	182	188	1.01
Accomodation	14	33	22	301	69	0.35
Climate	**91**	**65**	**40**	**174**	**196**	**1.20**
Cuisine	2	12	10	346	24	0.11
Cultural/historical attractions	60	50	33	227	143	0.85
Ease of access	3	22	23	322	48	0.21
Hospitality	17	38	35	280	90	0.44
Nature/Landscape	62	58	36	214	156	0.91
Price	17	61	48	244	126	0.60
Sport and leisure activities	8	22	19	321	49	0.24

Table 5-4: results of the ranking of destination attributes (n= 370)

From table 5-4, we can see that only two attributes are chosen more often than they are not chosen, namely climate and access to the sea/lakes. Not only was climate the most frequently chosen attribute, it also achieves the highest ranking of all attributes. The t-test for related samples was used to test if the mean rank value of climate is significantly different from that of sea/lakes, culture/history and nature/landscape, the three attributes closest in popularity to climate. Table 5-5 presents the results of this test and we can see that the mean of climate is significantly different from the other three attributes. For that reason, we can accept our hypothesis that climate is at least the third most popular attribute. Moreover, we can say that it is the most popular for the tourists in our survey.

	Mean	T-value	2-Tail sig.
Climate and Nature/Landscape	0.28	2.701	0.007
Climate and Access to the sea/lakes	0.19	2.228	0.027
Climate and Cultural/historical attractions	0.35	3.242	0.001

Table 5-5: mean differences between destination attribute rank values (n= 370)

Almost two thirds of the respondents said that they had informed themselves about climate before their holiday. A further 10% answered the questions on climate information, even though they said that they did not inform themselves about climate or did not give any answer to the question.

5.4.3 Research question B: decision-making process and information search

There were seven options, which we converted into three stages: before planning the holiday, during the planning and after the decision has been made to go to the destination. The most common phase for gathering information about climate is during the planning stage (42%). Nevertheless, "shortly before the holiday" was the most frequently chosen single category (34%) and for those that only chose one category, the split between the three phases, before planning, during planning and after the decision is 25%, 35% and 39% respectively. The majority stated only one phase where they gathered climate information. Of the tourists that combined two or more options, 61% combined the phases during planning and after the decision. We can accept the hypothesis B1 that tourists gather climate information before they make their decision but with the caveat that the group of tourists informing themselves after the decision is also considerable.

			Yes	No	
		Climate information gathered			
	Yes		68%	33%	
	No		33%	67%	
		N	286		91
		Climate information before planning			
Respondent was aware of the weather at their destination during the week before their holiday	Yes		71%	68%	
	No		29%	33%	
		N	68		206
		Climate information during planning			
	Yes		70%	67%	
	No		30%	33%	
		N	133		141
		Climate information after the decision			
	Yes		68%	68%	
	No		32%	32%	
		N	132		142

Table 5-6: cross-tabulations of climate information and the weather in the week before the holiday

In addition to the results presented above, we examined whether the respondents had been following the weather at their destination during the week before their departure. The majority of respondents (59%) had been following the weather of the week before their departure. Table 5-6 shows the cross-tabulations of this variable and the groups before planning, during planning and after decision. The correlations are not significant. It seems that there is no relationship between when the tourists inform themselves about climate and whether they follow the weather. Nevertheless, the relationship between getting climate information and following the weather in the week previous to travel is significant. If tourists inform

themselves about climate, they also inform themselves about the weather shortly before they travel. We can accept the hypothesis B2 that tourists gather weather information before they travel, as the majority of tourists do this. Nevertheless, we accept this hypothesis with the caveat that a large group of tourists (41%) showed no interest in weather. An examination of different tourists groups and destinations could provide more information on what conditions make weather and climate information important for the tourist.

5.4.4 Research question C: sources of climate information

The results of the question on information sources are problematic. Tourists were asked to rate 12 different information sources and a thirteenth option of "other" on a scale of one to five for only those sources that they used. The question was answered in two different ways: first, that only the actual sources used were given a rank and second, that all sources were given a rank. For the following analysis, we have examined these two groups separately. The first group, those that ranked only the sources that were used, we will call group A. The second group, B, are those that ranked more than ten sources. Table 5-7 shows the number of climate information sources used. The first column contains the number of sources used by group A. The second column contains the number of sources used, for group B, when we exclude those that are ranked lowest. In both cases, we can accept the hypothesis C1 that more than one source is used, given that 21% (A) or 7% (B) of the respondents state only one source. For comparison, the number of sources used as information about the destination is shown. Here there is a greater reliance on only one source (45%).

	Climate-Group A	Climate-Group B	Destination
1	21%	7%	45%
2	24%	6%	28%
3	24%	20%	17%
4	17%	19%	8%
5	4%	10%	2%
6	4%	17%	<1%
7	<2%	9%	<1%
8	<2%	14%	
9	<2%	7%	
10	2%	8%	
11		4%	
12		6%	
13		2%	
N	141	138	392

Table 5-7: number of information sources used

For the first time visitors of group A, friends and family and travel guides are the most frequently chosen sources with 51% each (more than one response was possible). The second most important sources are travel agent and tour operator. For the group of repeat visitors of group A, own experience was chosen by 69% of the respondents followed by friends and family (53%) and travel guides (40%). An examination like this is difficult for group B as they rank (almost) all of the sources. From this preliminary analysis, it seems that we can accept our hypothesis C2 that for first time visitors family and friends is the most important source and the hypothesis C3 that for repeat visitors own experience is the most important

source. Nonetheless, a more detailed analysis is needed. Table 5-8, shows the cross-tabulations of previous visit (yes/no) with the sources family and friends (yes/no) and with own experience (yes/no), for the sources of information about the destination in general (for all tourists) and about the climate for the groups A and B. For destination information and for climate information (group A), there is no statistically significant effect of being a first time visitor on the tourists' likelihood to get information from family and friends**.** For group B, the effect is significant but counter intuitive. Having visited the destination before has the effect that you are more likely to ask family and friends about the climate. The results are much clearer for own experience. The positive relationship between previous visit and own experience is significant for all groups.

		Previous visit	
		Yes	No
Sources of information about the destination			
Family and friends	Yes	38.5%	41%
	No	61.5%	59%
	N	247	145
Own experience	Yes	53%	2%
	No	47%	98%
	N	247	145
Sources of climate information (group A)			
Family and friends	Yes	49%	57%
	No	51%	43%
	N	92	47
Own experience	Yes	65%	6%
	No	35%	94%
	N	91	47
Sources of climate information (group B)			
Family and friends	Yes	71%	51%
	No	29%	49%
	N	83	53
Own experience	Yes	85%	36%
	No	15%	64%
	N	85	50

Table 5-8: cross-tabulations of information sources and the weather and having visited the destination previously

Not only can we examine the most frequently chosen sources, we can also look at the mean of importance value attached to them. There are no statistically significant differences in the means of own experience and family and friends for groups A and B. There are, however, differences in the means, if we examine the groups of repeat and first time visitors separately. For group A, there are few first time visitors, who used both sources. This makes a comparison of the means difficult, so we will continue with the repeat visitors. For that group, we have a mean difference of -0.4828 between friends and family and own experience, which is significant at the 5% level. Not only is own experience relied on by more tourists it also is more important. For the first time visitors of group B, friends and family has a higher mean

value than own experience and is statistically significant at the 10% level. Again, for the repeat visitors, we see a significant difference in the means and own experience is ranked the more important of the two sources. Other sources that were given a high rank were newspapers and television, travel guides and weather information providers.

5.4.5 Research question D: types of climate information

An overwhelming majority of the respondents (91%) chose more than one climate attribute. The mean number of attributes chosen is 3.23. We can therefore accept the hypothesis D1 that tourists choose more than one attribute.

	Mean	Frequency
Number of attributes chosen	3.23	
Climate attributes chosen		
Maximum temperature		67%
Water temperature		52%
Duration of sunshine		51%
Number of rainy days		50%
Average temperature		32%
Minimum temperature		16%
Amount of precipitation		16%
Humidity		14%
Cloudiness		10%
Wind conditions		7%
UV Radiation		6%
None of these		3%
Air temperature options chosen		
Maximum temperature		27%
Average temperature		19%
Minimum temperature		1%
Maximum and minimum		8%
Maximum and average		25%
Average and minimum		<1%
Maximum, minimum and average		6%
Did not choose any temperature option		12%
N	283	

Table 5-9: preferences for information about climate attributes

In table 5-9, we can see that temperature is quite clearly the most frequently chosen attribute. Maximum temperature was chosen by two thirds of the respondents. 32% and 16% of the respondents chose average and minimum air temperature respectively. Other attributes that were chosen by more than half of the respondents were the number of rainy days, duration of sunshine and water temperature. As respondents were able to chose more than one attribute, we present the frequencies with which the air temperature attributes were chosen both singularly and in combination. As the lower half of table 5-9 shows, only 12% of the respondents did not chose one of the air temperature attributes. This gives very clear support for hypothesis D2, that temperature is the dominant attribute.

	Frequency	
	more than one response	only one response
Maps and satellite images	33%	23%
Text	27%	15%
Diagrams	36%	17%
Numerical data	57%	42%
Other	2%	3%
N	283	149

Table 5-10: preferences for the presentation of information about climate attributes

From the 5 possibilities offered, textual format was the second least preferred option and if we discount the option "other" then it is the least preferred. In this case, we can reject the hypothesis D3 that tourists prefer a textual format. Table 5-10 shows the results for all options in two forms: for all respondents and for those only giving one response. In both cases, numerical data is the most popular option.

5.5 Discussion and conclusion

This study adds to the evidence that climate is an important factor in destination choice. In addition, it provides clarity over the role of climate and weather information gathering in the various phases of the decision-making process.
Our results highlight the importance of information gathering before making a decision. Furthermore, this study shows that information gathering also occurs after the decision. The number of sources used by the tourists is comparable with other studies (Van Raaij, 1986; Fodness and Murray, 1998 and 1999; Baloglu and McCleary, 1999 and Chaudhary, 2000). Moreover, this study gives support for Fodness and Murray's theory (1999) that personal experience will be the main source of information for repeat visitors. The importance of friends and family as an information source for all of the tourists in our sample, reflects the results of Chaudhary (2000). The majority of tourists informed themselves about climate from a variety of sources. Therefore, the results of this study could also be useful for the providers of tourism information, in that they tailor the information they present to meet the preferences of tourists.

There has been some debate on the effectiveness of using tourism climate indices and demand studies to assess the impact of climate change on tourism. Studies of destination demand have been criticised of simplistically representing climate using single variables, such as temperature and precipitation and not a complex of variables. The results presented in this study support the use of temperature as the main determining variable in destination demand studies. Nevertheless, we cannot claim from these results that temperature alone is enough to represent the considerations of tourists about destination climate. We do not find support for de Freitas' argument (2003) that data presented as averages have no psychological meaning. Travel guides typically present climate data as monthly averages and they were, along with family and friends, the most frequently used source for first time visitors.

The limitations of this study need to be addressed. A major issue is that of the sample used. Time and budget considerations limited the study to easily accessible departure points. As tourists travelling by car have no common departure point, we had to omit them from our sample. This had the consequence that certain destinations, such as Italy, Denmark, the

Netherlands and Austria were underrepresented. Nevertheless, climatically comparable destinations were well represented. It is unclear if different information search strategies are related to particular travel mode choices. In addition, a non-random sampling method was used, which limits the generability of the results. The survey period encompassed the school holidays of the states of northern Germany. This peak holiday period can easily be avoided by other groups of tourists who are not tied to institutional holidays. Therefore, the study may be biased towards tourists travelling with children. From other survey sources, it can be seen that older travellers favour the off-peak months (for example Oppermann, 1995). Despite two pilot studies, certain questions were not formulated clear enough, which hindered the analysis (see the results for research question C). An interview methodology may be better to examine such complex issues but this would be expensive and time consuming on this scale. Instead of using a self-administered questionnaire, verbally administering the questionnaire could bring more success.

Although they have quite different definitions, the terms weather and climate are used interchangeably by the general public. This can also be seen in some of the images studies that refer to weather, even though what is actually meant is climate. We tried to be clear and distinguish between weather and climate in our survey. Nevertheless, in some questions it is possible that the respondents misunderstand and give responses in terms of weather information. This is particularly the case with climate information sources, where some of the sources listed can give information on past weather, the climate, current weather and predicted weather. For example, the weather information providers, which have information on all four or family and friends, who may also be able to provide information on all four. Again a verbally administered questionnaire could be more effective.

Global climate change is already having an effect on mean temperature and its further course is very likely to have an impact on the tourism industry as well. As the results of this study showed, climate is a defining factor for the destination choice of tourists. When the climate changes, destinations' attractiveness will change and with it – probably with a considerable time lag – also tourists' images of the destinations. An ancillary effect of global warming is that of sea-level rise. Access to the sea will change considerably and the quality of beaches will mostly deteriorate, with intensified erosion and change of slope occuring. As this study shows that the access to sea and lakes is the second most important attribute to tourists when choosing a destination, sea-level rise will have a large effect on the tourism industry, as tourists will not necessarily adopt to the new situation by changing their preferences, they would rather change destinations.

Having carried out this survey, the first of its kind to focus on climate as a specific attribute of destination image and on its role in the decision-making process, we have produced a valuable database that can be used for further research. For instance, the issue of whether the tourists' images of climate are accurate when compared to the climate of their destination can be assessed (Um and Crompton, 1990). Some destination image studies found that there were differences in image for different groups of tourists (Shoemaker, 1994 and Kozak, 2002). It would be an interesting extension of this study to examine, whether we find different information preferences for different demographic or holiday groups.

Chapter 6: the Chinese are coming – an analysis of the preferences of Chinese holiday makers at home and abroad[156]

6.1 Introduction

In 15 years time, the top 10% of Chinese earners could have the same average income as Western Europeans enjoy today. They may adopt a similar lifestyle and may be as keen to travel as are people from Germany, Italy or Taiwan. This cohort is 100 million people strong, and the second decile would soon reach the same income levels. China may become a major factor in international tourism (CNTA 2003; FAZ 2003; HA 2005; Economist, 2006). 80 million Chinese already have the financial means to spend over 2000 Euros on a holiday (FAZ 2003). Where will they go? Will they choose a once-in-a-lifetime-trip to Europe and spend the rest of their holidays in China? This chapter studies the behaviour of Chinese holiday makers in the recent past and attempts to predict their behaviour in the near future.

Projections show that the People's Republic of China could become the fourth world tourist-generating country by 2020 with a market share of 6.2% (Zhang and Lew 2003). Under this prospect, many countries seek the Approved Destination Status (ADS) that they need to welcome Chinese travellers on package tours (CNTA 2003). By March 2006, 81 countries had received this status (CNTA 2006a; compare appendix 8).[157] Germany gained the status only in 2003 and accordingly for the period of 1994-2004 the number of visitors (per night) from China showed an increase of 171% (DZT 2005). This has lead to predictions of many more Chinese visitors to come, although some of these are misleading as they have neglected the fact that most Chinese have still not travelled extensively, even in their own country (Hoffmann 2005).

The ADS-system applies to package tours. There are diverse interpretations on the importance of package tours in future. Ryan (2003) mentions a general trend towards self-catering holidays and away from package tours. In contrast to Japanese travellers that took 20 years to generate an independent travel style, Chinese outbound tourists already constitute a significant number of independent travellers (World Economic Forum, 2003). This opinion contradicts some other studies that emphasise the Chinese/Asian preference for group package tours (Tisdell and Wen 1991; Zhang 1997). The ADS-system organises most Chinese outbound tourism into package tours and this is unlikely to change in the near future. And this may also be a reason for especially younger Chinese to prefer independent travel, at least as far as the governmental visa- and passport-regulations will allow. This is also indicated by the self-help network, Yiqilai, which expresses the wish to freely choose a travel itinerary. On their web site, they mention a growing opposition against forced stops for shopping within organised tours.[158]

Zhang and Lew (2003) expect the revenue of domestic tourism to grow by 6.6-9.4 times between 2000 and 2020, an annual rate of 10-12%. During the last 20 years, domestic tourism development was less rapid. This was due to many reasons. Domestic tourism development was first subordinated to the increase of foreign tourism and gained speed only after 1989. To

[156] This chapter is a co-operation with Richard S.J. Tol.

[157] For information on the order of approved countries and official guidelines refer to Kim et al. (2005). Verhelst (2003) discusses ADS in relation to the Shengen area.

[158] In China it is usual that a relatively short leisure bus trip is interrupted by several stops for food and shopping opportunities. As these routes to tourist attractions are also taken by regular bus services tourists who want to prevent this are left to take a taxi instead; an option that is not affordable to the average domestic tourist.

support domestic tourism, in 2003, the market opened to foreign investors that were now allowed to run travel agencies in China (People's Daily 2003d). Projections expect 210-300 million inbound tourists by 2020, of which non-Han foreigners will make up 31-45 million (Zhang and Lew 2003).

A number of official website presentations (CNTA, CNTO Toronto 2004) explain Chinese tourism policy further. China was practically closed to foreign tourism until the economic and political reforms started by Deng Xiaoping in 1978. Domestic travel had also been subject to strict limitation, through a permit system for accommodation and transportation tickets (Sofield and Li 1998). As a means of generating foreign investment and gain foreign currency revenue (see Jenkins and Henry 1982), foreign tourism was then actively supported by the Chinese government, e.g. by successively opening tourist cities to foreigners[159] (Richter 1983), and generally in giving precedence to foreigners, through advanced booking possibilities, provision of high-quality accommodation[160] and special shopping opportunities (Zhang 1997). Despite some organisational problems, the trend was steady until the breakdown of the democracy movement in 1989, which lead to a decrease in the growth rate by 17.2% (cf. Hall 1994, Table 4.1). This was a turning point in tourism policy, as now domestic rather than foreign tourism became the focus.

The development of domestic tourism was stimulated further by the pay rise act of 1993, the 5-day-week, and the increase in holidays to three 'golden' weeks a year (Xiao 1997; Zhang 1997; Zhang and Lam 1999; Zhang and Lew 2003; CNTO Toronto 2004). Despite some remaining restrictions, the 1990s saw an opening of the country and the Chinese were allowed to travel to a growing number of destinations that were not necessarily politically-favoured by the government. The responsible regulatory system was the Approved Destination Status.

The proportion of individuals travelling to China has risen (Wen et al., 2003), as has the share of tourists visiting relatives and friends. In fact, the share of Overseas Chinese has risen. Eco-tourism and cultural tourism are rising as well; the former is still small, while the latter suffers from a lack of authenticity and from the sinisisation of minority cultures in theme parks. In their Chinese manifestation, both of these touristic themes are less attractive to Western tourists.

This study is based on a regression analysis of openly accessible data of tourism flux from the People's Republic of China (China) and within the country, both domestic and inbound international tourism, respectively. In addition, we look at the international travel behaviour of the Han from Hong Kong, Singapore and Taiwan. As we do not have access to data directly reflecting the tourist needs and behaviour from their own subjective perspective, we focus on actual behaviour and interpret tourist preferences. This chapter continues the style of statistical analyses found in Lise and Tol (2002) and Bigano et al. (2006).

The regression results are complemented with the results from studies that have China as a focus – either as a destination country for foreign tourism or as a tourist-generating country for outbound tourism. The former group is represented by works of Tisdell and Wen (1991, Wen and Tisdell 2001) and Wen et al. (2003). The preferences of Chinese outbound tourists are discussed by Kim et al. (2005) and Zhang and Lam (1999). We further take studies on domestic Chinese tourism as a basis (Schwickert 1989, Zhang 1997), specifically on recent

[159] During Mao's time only a dozen tourist cities were open to foreigners, 1979 this number had increased to 60 and 1982 it were over 100 (Richter 1983).

[160] Interestingly, Tisdell and Wen (1991) cite a study by Zhao Jian, who claims that 70% of all foreign visitors interviewed wanted middle or lower class hotels instead of high-class hotels that were primarily provided.

historic development (Richter 1983), the interaction of cultural policy with tourism policy (Sofield and Li 1998) and the economic dimension (Zhang and Lew 2003; Xu 1999). Ghimire and Li (2001) discuss the relations of tourism development with poverty eradication programs, whereas Zhang et al. (1999) have the most comprehensive account on tourism policy development in China. Chu (1994) focuses on sightseeing areas and Chen et al. (2004) on the recreational benefit of beaches. The relative preferences of foreign and domestic tourists are studied by Xiao (1997) and Cheung (1999). Reisinger and Turner (2002a,b) and Enright and Newton (2005) show the differences between Chinese tourists and other Asians.

The chapter consists of Section 2 and a presentation of the data and descriptive statistics, Section 3 considers the regression results and Section 4 is a conclusion.

6.2 The data

6.2.1 Set-up and sources

International tourism data are taken from WTO (2003a). Where available, we use their Table 1 'international arrivals of *tourists* by *country of residence'*. If not available, we use the alternative Table 1 'international arrivals of tourists by *nationality'*. If no Table 1 is available, we have used Table 4 'international arrivals of tourists in *all establishments'*. In the current study, no distinction is made between residence and nationality. If there is no Table 4 either, we use Table 3 'international arrivals of tourists in *hotels'*. WTO (2003a) reports annual arrival numbers for 1997-2001 and we have used the average of these five years, smoothing out annual variability.

The volume of domestic tourist flows is derived using 1997 data contained in the Euromonitor (2002) database. A major drawback of foreign tourism numbers in China was the SARS crisis in 2003, which made subsidies to the tourism industry by the government necessary (Au et al., 2005; People's Daily 2006). In order to avoid distortion of results due to SARS, our regression analysis is based on 2002 data. Provincial-level data on the numbers of tourist arrivals were taken from the China Statistical Yearbook 2002 (CNBS 2003) and if not clearly stated they were recalculated using information from the yearbooks 2001 and 2003 (CNBS).

For compilation of tourist attractions, we collected tourist spots from 6 sources on a national basis (Chinese and foreign origin as well as in Chinese and English language) and an additional 46 local Chinese sources (all in Chinese language). All sources are freely accessible websites, except the two foreign sources for which we used the paperback print versions. For details on the compilation of our database, see appendix 9. The data are broken down to the county level. For the statistical regression analysis, we use province data as there is no county data on tourist arrival numbers for China. In the following, we distinguish between tourist spots (tourist attractions derived from our own database), tourist sights (attractions listed by the sources we used), and tourist sites (UNESCO's world heritage sites). Generally, tourist spots are classified into natural (N), cultural (C), natural and cultural (CN), and other (O), including all spots that cannot be exclusively associated with culture or nature. An additional classification (OM) is a mix of O with either C or N.

For general source comparison, we used the information provided by the China National Tourism Administration (CNTA), Yiqilai (a Chinese non-commercial self-help travel network with expert support) that reflects the preferences of Chinese tourists, and the mainly commercial Travel-China-Guide.

6.2.2 Descriptive statistics: countries

In 1991, a government policy allowed Chinese nationals to join overseas tours going to selected countries. These were the first countries with an ADS status (Zhang et al. 1999). For outbound Chinese tourism, the ADS-system cannot be underestimated. Verhelst (2003) explains that the system has a strong impact on tourism related interests for the countries that apply for the ADS-status, i.e. economic interests and immigration restrictions. For the Chinese government, it is a political control instrument that can also be used in negotiations by the Chinese government in issues unrelated to tourism, e.g. human rights. The prospect of economic advantage in one field may influence decisions in another.

To \ From	China	Taiwan	Hong Kong	Singapore	From \ To China	
Macau	824585	231455	1070845	6687	**Japan**	1919245
Thailand	439795	448280	472325	492089	**South Korea**	1085892
Japan	313183	862950	276171	66200	**Russia**	923012
Malaysia	277575	193443	96247	4753715	**USA**	775095
USA	209609	442780	222129	127109	**Malaysia**	388784
Germany	186918	68219			**Singapore**	360032
Italy	95086	24365	19058		**Philippines**	320656
Canada	66538	139444	153396	26226	**UK**	263215
Mongolia	59730	494	156	502	**Germany**	217330
Belgium	55039	6810	3551	3390	**Canada**	214835
Switzerland	44244	44690	39191	20615	**Thailand**	211751
Hawaii	29930	58130	27730	12080	**Australia**	207203
Indonesia	27918	356853	74457	1412186	**Indonesia**	175913
Cambodia	24942	22337	2385	11002	**France**	161891
Philippines	19645	147400	152748	48803	**India**	98121
Brazil	16345				**Italy**	73083
Myanmar	14424	30365	1583	10886	**Netherlands**	70040
Finland	14411	7502	1208	2034	**Sweden**	46446
Turkey	12156			7318	**Pakistan**	36819
Ukraine	10820	100		357	**New Zealand**	34336
China				360032		
Taiwan			307350	87767		

Table 6-1: top 20 visitors to China, and top 20 destinations of Chinese tourists[161]

Table 6-1 shows the most popular destinations for tourists from China, Hong Kong, Taiwan, and Singapore; no data are available for Macau. For international tourists from China, Macau is the most popular destination, followed by Thailand, Japan, Malaysia, the USA and Germany. For completeness, we show the entire top 20, but visitor numbers rapidly decline. Note that we do not know the number of visitors to Hong Kong (probably high), Taiwan (probably low) and Singapore. For tourists from Taiwan, Japan is the prime destination, followed by Thailand, the USA, Indonesia and Macau. For tourists from Hong Kong, Macau comes first, followed by Thailand, Taiwan, Japan, the USA, Canada and the Philippines. For tourists from Singapore, Malaysia is the number one destination, followed by Indonesia, Thailand, China, India, and the USA. This suggests that the Han, like so many other tourists, prefer to spend their international holidays in adjacent countries. Thailand has clearly established itself as a major destination.

[161] For comparison, visitor numbers from Taiwan, Hong Kong and Singapore are also shown.

Wen and Tisdell (2001) report 1.8 million tourists visiting China in 1986. In 1997, this had risen to 7.4 million, and further to 11.2 million by 2001 (WTO, 2003b), an increase of 13% per year.[162] Table 6-1 shows the top 20 nations with travellers going to China. Japan comes first, followed by South Korea, Russia, the USA and a range of other countries. In fact, tourism numbers exceeded 100,000 for 14 countries, with India very close. Since 1998 especially, visitor numbers from South Korea, Malaysia, Germany, Thailand and Indonesia have increased (see Wen and Tisdell 2001). Again, we do not have data for Hong Kong, Macau, Singapore and Taiwan.

6.2.3 Descriptive statistics: provinces

There has been only little research on domestic tourism in China, mostly on the grounds of insufficient data. Domestic tourism numbers given for specific regions, especially the economic zones that relate to major river deltas, are often overstated.

	Domestic		**International**			
	(10^4)	**(10^8 RMB)**	**1986 (10^4)**	**(10^4)**	**(%/year)[163] [a]**	**(10^8 RMB)**
Anhui	3886	203	1	46	29.0	2
Beijing	11496	928	26	311	16.9	31
Chongqing	4620	202		46		2
Fujian	3931	333	10	185	*19.8*	11
Gansu	1035	27	1	24	**22.7**	1
Guangdong	7700	1010	72	1526	*21.0*	51
Guangxi	4887	204	11	130	*16.6*	22
Guizhou	2200	56	0	23	**29.0**	50
Hainan	1216	88	0	39		1
Hebei	5985	265	1	47	**25.8**	2
Heilongjiang	3349	179	1	72	**28.9**	3
Henan	6269	409	2	41	**23.0**	1
Hubei	6672	384	2	102	**27.7**	3
Hunan	5700	220	1	57	**32.9**	3
Jiangsu	9666	830	9	223	*6.5*	10
Jiangxi	3270	185	1	24	**27.5**	7162
Jilin	2454	108	1	29	**33.6**	1
Liaoning	6303	397	2	93	*20.5*	5
Nei Menggu	1153	82	0	44	**52.2**	1
Ningxia	305	12	0	1	*15.5*	161
Qinghai	418	14	0	4	**22.0**	999
Shaanxi	3733	158	8	85	*16.2*	4
Shandong	9573	572	1	98	**31.9**	5
Shanghai	8761	994	15	273	*20.0*	23
Shanxi	4360	120	1	25	**24.8**	7
Sichuan	7218	364	4	67	*18.9*	2
Tianjin	3710	390	2	50	**23.8**	3
Xinjiang	968	84	0	28	**43.0**	9942
Xizang	73	6	0	14	**33.5**	5166
Yunnan	5110	255	3	130	**26.2**	4
Zhejiang	8020	634	4	204	**28.7**	9

Table 6-2: tourism data per province: domestic and international tourist numbers (in 10,000 people) and revenue (100 mln RMB)[164]

[162] Our data base of foreign visitors per province indicate 40.4 mln visitors in 2002; the discrepancy is surely due to tourists visiting more than one province.

[163] Average annual growth rate between 1986 and 2002. The rate for China as a whole is 21.5%. Provinces with above (below) average growth are marked in bold (italics).

[164] All data are for 2002, except indicated otherwise.

For instance, it is claimed that over 25% of Chinese domestic tourists in 2001 visited the Yangtse River Delta (extended Shanghai region), while the Pearl River Delta (around Guangzhou) accounted for 7% (Invest Hong Kong 2004).

Table 6-2 shows tourism statistics per province for 2002 according to our database. As our data base does not break down to the county level, we estimate the proportion of regions included as half for Jiangsu and Zhejiang, and one-third for Guangdong. With 15% for the Yangtse River Delta[165] and 2.9% for the Pearl River Delta, our results are well below the numbers stated above and indeed suggest an overvaluation of the delta regions in their share of domestic tourism.[166] Table 6-2 shows foreign tourist numbers for 1986 (Wen and Tisdell, 2001) and 2002 (Bigano *et al.*, 2004). Ten provinces have a decreasing share of the market and 19 an increasing share. This implies that international tourists are spread more evenly over the country – although the spread is still very uneven, ranging from 15 million in Guangdong to less than 10,000 in Ningxia. In addition, regional development through a wider dispersial of tourists among the regions (see Wen et al. 2003) is supported by the rise of international tourist numbers through Overseas Chinese travellers. Eco- and cultural tourism are major themes in regional tourism development.

DATA China 2002 per Region				
Category	**Sub-category**	**Unit explanation**	**Unit measured**	**Unit detailed**
Tourist Spots		Total	Number	
	classification	compare table 6-4	Number	**C,CN,N,O,OM**
	time code	compare table 6-4	Number	none, pres, pres/rev, rev, rev/imp, imp, imp/pres, imp/ant, ant, preh
Mountains	*source*	Yiqilai	Number	
		Travel-China-Guide	Number	
	status	wuyue, budd and dao ('holy')	Dummy	
Sights classifications ('must sees')	*source*	Travel-China-Guide	Number	C, N, C+N
		Yiqilai	Number	C, N, C+N
Tourist Cities	*source*	Yiqilai	Number	excellent tourist cities, historic famous cities, total tourist cities (excl. doubles)
		CNTA	Number	top tourist cities, second rank tourist cities, total tourist cities
Regions	*groups*		Dummy	N, NE, E, S, SW, NW
	coast/non-coast		Dummy	
Transportation	*civil airports*	total	Number	
	railways	length in operation	in km	
	highways	total length	in km	
Climate	*temperature*	annual average in province capital	° C	
	relative humidity	annual average in province capital	%	
	precipitation	annual total in province capital	Mm	
Physical	*area*	Total	square km	

[165] In the case of counting Zhejiang province in total our data show 19.6%. This difference is criticised by Invest Hong Kong (2004) as a major drawback in data consistency due to a lack of available local data in Zhejiang.
[166] All numbers refer to the official domestic tourism data of 2002 (877.8 mln).

conditions				
	coast length	Total	M	
	longitude	province capital	Min	
	latitude	province capital	Min	
Population	*population*	total (year-end)	number 10 000	
		Density	pop/sq km	
	minority population	percentage to total population in minorities areas	%	
Economy	*GDP*	Total	100 Mio RMB	
	GDP	per capita	100 Mio RMB	
Tourism	*domestic*	total	number in 10 000	
		Revenue	100 Mio RMB	
	international	total	number 10 000	
		Revenue	100000 US$	
Natural conditions	*nature reserves*	Number	Unit	
		area	10 000 hectares	
		Percentage	%	
	pollution accidents	Total	Number	

Table 6-3: explanatory variables

Table 6-3 lists the initial 60 explanatory variables we compiled. These range from our newly compiled information on tourist spots and their classification to official source information on tourist sights ('must-sees') with comparable classification, and additional information by official sources regarding mountains and tourist cities. These variables are used to estimate the influence that the actual existence of tourist attractions (tourist spots) has on tourism numbers in comparison with the attractions that are listed by official and commercial tourism providers (tourist sights).

Figure 6-1: provinces and regions of China.

The 'mountain' variable regards the potential importance of holy mountains on domestic tourism numbers and the variable 'cities' is used to reflect if the strategy of appointing cities to tourist centres has an impact on tourism numbers. Other variables are on regional classifications, where we adopt the coastal/non-coastal distinction used by e.g. Wen and Tisdell (2001) and Wen et al. (2003) and add another in accord with official grouping (N, NE, E, S, SW, NW). Figure 6-1 is a map of the distribution.

As Chu (1994) states, accessibility of sightseeing areas is a prerequisite and transportation plays a major role (compare also Xu 1999; Wen et al. 2003; Enright and Newton 2005). We have, therefore, included information about transport facilities, i.e. airport numbers, highway length and railway length. Since 1988, the national tourism commission has focussed on civil aviation development through a close co-operation between the CNTA and CAAC (Zhang et al. 1999). Recently, a number of airports were established in remote areas and smaller cities, supposedly to open these regions for economic and tourism reasons (Tisdell and Wen 1991 after Zhang 1989; World Economic Forum 2003 citing Ho Kwon Ping; People's Daily 2001). Apparently, in 1987, the operation and management of airports was transferred to local and regional governments, a development that may have contributed to an overcapacity in some locations (compare Zhang et al. 1999). It will be interesting to learn if this strategy generates higher tourism numbers. Another group of variables is climate, general physical conditions, population, economy and natural conditions.

Number of Tourist Spots						
Sub-category	**Unit detailed**	**Total**	**Max**	**Min**	**Median**	**Standard deviation**
		1325	110	11	42,7419	23,7907
Classification	**C**	558	39	4	18,0000	10,3344
	CN	184	26	0	5,9355	5,6210
	N	413	46	2	13,3226	10,2319
	O	128	17	0	4,1290	3,9811
	OM	42	5	0	1,3548	1,3552
Ttime code	**none**	527	67	2	17,0000	14,0238
	pres	170	15	0	5,4839	4,3195
	pres/rev	7	2	0	0,2258	0,4973
	rev	53	9	0	1,7097	2,0362
	rev/imp	16	6	0	0,5161	1,2348
	imp	488	43	3	15,7742	10,5789
	imp/pres	4	1	0	0,1290	0,3408
	imp/ant	22	6	0	0,7097	1,6369
	ant	17	6	0	0,5484	1,2339
	preh	10	2	0	0,3226	0,5993

Table 6-4: descriptive statistics: number of tourist spots

The descriptive statistics for tourist spots is presented in Table 6-4. C classification is clearly the highest score, closely followed by N classification. CN, O and OM classifications make less than 27% percent[167]. The time code categorisation shows that a lot of tourist spots were not included in this system, as they represented natural spots. The second largest score was

[167] The total 1325 spots in our database split into 42.1% of C spots, followed by 31.2% of N spots, 13.9% of CN spots and 9.7% of O spots; 3.2% are OM spots.

reached by spots related to the imperial epoch. The third largest number, although only covering less than 10% altogether, was reached by spots related to modern times.

DATA China 2002 per Region							
Category	**Sub-category**	**Unit de-tailed**	**Total**	**Max**	**Min**	**Median**	**Standard deviation**
Mountains	*source Yiqilai*		43	5	0	1	1,382689
	source Travel-China-Guide		24	3	0	1	0,920495
	status		13	2	0	0	0,672022
Sights classifications ('must sees')	*source Travel-China-Guide*	**C**	182	22	0	6	5,457362
		N	71	8	0	2	2,019795
		CN	253	24	1	8	6,372319
	source Yiqilai	**C**	30	4	0	1	1,378015
		N	46	5	0	1	1,338431
		CN	76	6	0	2	1,822795
Tourist Cities	*source Yiqilai*	**ETC**	138	14	0	4	3,731297
		HFC	96	7	0	3	2,314517
		Total TC	189	17	1	6	4,221807
	source CNTA	**TTC**	24	3	0	1	0,844972
		SRTC	68	8	0	2	1,939405
		Total TC	92	10	0	3	2,442456
Regions	*Groups*	**N**	5				
		NE	3				
		E	7				
		S	6				
		SW	5				
		NW	5				
	coast/non-coast	**C**	11				
		NC	20				
Transportation	*civil airports*		148	11	1	5	2,692083
	Railways		72744,4	6192,6	213,9	2347	1438,39
	Highways		1765222	164852	6286	56943	33502,08
Climate	*Temperature*			25	5	15	5,098364
	relative humidity			82	40	64	12,4391
	Precipitation			1865,7	279,7	903	534,7006
Physical conditions	*Area*		9344350	1604712	5994	301431	370965,3
	coast length		14255673				
Population	*population total*		128453	9613	267	4113	2657,265
	population density			2711	2	378	493,6433
	minority population		47	97	10	50	19,78172
Economy	*GDP total*		118020,69	11769,73	161,42	3807	3075,023
	GDP per capita		319916	40646	3153	10320	7878,2
Tourism	*domestic total*		144038	11496	73	4646	3048,115
	domestic revenue			1010	6	322	293,2073
	international total		4039	1526	1	130	270,7418
	international revenue			9942	1	788	2343,218
Natural conditions	*nature reserves number*		1757	191	3	57	48,2358
	nature reserves area		13294.5				
	nature reserves percentage		13				
	pollution accidents		1921	358	1	71	92,12229

Table 6-5: descriptive statistics: variables except tourist spots

Surprisingly, the number of frequented spots from antiquity, although widely promoted, are actually small in number, and also the spots related to Chinese Red Tourism[168] is actually quite small.

Table 6-5 shows the descriptive statistics for all other variables. It is obvious that the focus of the compared sources distinguished by a C and N classification is quite different. Also the overall numbers of spots is diverse. Similar patterns are detectable for tourist cities and mountains, as is discussed below.

6.3 Regression analysis

6.3.1 International travel

We started with a regression that includes all potential explanatory variables for destination choice. We then eliminated one-by-one all those variables that were individually insignificant, also testing for joint significance. The following relationship for all four "countries" of origin (People's Republic of China, Hong Kong, Singapore, Taiwan) was determined:

$$\ln(A_i^j) = c^j + \delta_{dom} + \delta_{ADS} + \alpha_1^j (1 - I_{i=j}) \ln(D_i^j) + \alpha_2^j \ln(y_i) + \alpha_3^j T_i + \alpha_4^j T_i^2 + \alpha_5^j H_i + \alpha_6^j C_i + \alpha_7^j G_i + \alpha_8^j S_i \quad (1)$$

where A_i^i denotes the arrivals in country i from country j (WTO, 2003a); D_i^j is the great-circle distance between the capitals of the two countries (longitude and latitude are taken from the index-gazetteer of the Times Atlas, 1994); y_i is per capita income in the destination country (WRI, 2002); T_i is the annual average temperature in the destination country (New et al., 1999); H_i is the number of world heritage sites per million square kilometers in the destination country (UNESCO, 2006); C_i is the length of the coast line of the destination country (CIA, 2004); G_i is the land area of the destination country (CIA, 2004); and S_i is an index of the political stability of the destination country (Kaufmann et al., 1999); besides the constant c, we also estimated a dummy value for whether the tourists stay in their home country ($i=j$), and also for whether the country has ADS.[169]

Table 6-6 shows the results. Distance deters, but more so for tourists from Hong Kong and Singapore than for tourists from China and Taiwan. Poverty in the destination country deters too, and more so for tourists from Hong Kong and Taiwan than for tourists from China; surprisingly, tourists from Singapore do not care about poverty. Tourists from Taiwan and China do not care about the climate, but people from Hong Kong and Singapore do. The optimal holiday temperature for the Hong Kongese is 16.9°C but tourists from Singapore like it cooler (15.3°C). The Taiwanese do not like World Heritage Sites, but the others are indifferent. The Taiwanese and Chinese do not care about coasts, but tourists from Hong Kong and Singapore do prefer to travel to countries with long coast lines. Large countries attract more tourists; this effect is stronger for the Taiwanese than for the others. Political instability deters tourists from Singapore; the others are indifferent. Countries with ADS are considerably more popular than countries without; ADS applies to Chinese tourists only.

[168] Red Tourism describes attractions related to the Socialist revolutionary era. It also resembles a type of tourism that is increasingly promoted by national and local tourism providers, for instance through according tour offers.

[169] Note that we take the average tourist flows over five years. The ADS dummy is also averaged over the same five years.

		China		Taiwan		Hong Kong		Singapore	
		full	consolidated	full	consolidated	full	consolidated	full	consolidated
Constant		18.12 (3.66)	13.77 (1.60)	20.06 (4.89)	23.67 (3.85)	26.89 (4.28)	26.83 (3.61)	31.02 (3.17)	32.55 (2.99)
Domestic		-5.14 (3.89)							
Distance		-1.69 (0.44)	-1.26 (0.17)	-2.60 (0.51)	-2.82 (0.43)	-3.52 (0.46)	-3.72 (0.40)	-3.26 (0.30)	-3.22 (0.31)
Income		0.44 (0.23)	0.64 (0.13)	0.99 (0.39)	1.07 (0.19)	0.87 (0.35)	1.21 (0.20)	0.24 (0.28)	
Temp		0.24 (0.13)		0.18 (0.18)		0.28 (0.16)	0.43 (0.15)	0.39 (0.14)	0.46 (0.14)
$Temp^2$	10-2	-0.77 (0.40)		-0.26 (0.62)		-0.50 (0.57)	-1.29 (0.50)	-1.19 (0.46)	-1.50 (0.45)
Heritage	10-2	-0.03 (0.02)		0.50 (0.66)	-0.08 (0.05)	1.26 (0.63)		0.82 (0.55)	
Coast	10-4	0.10 (0.09)		0.14 (0.14)		0.27 (0.11)	0.31 (0.11)	0.25 (0.10)	0.29 (0.10)
Area	10-6	0.31 (0.11)	0.32 (0.09)	0.44 (0.18)	0.49 (0.14)	0.42 (0.14)	0.33 (0.13)	0.38 (0.10)	0.35 (0.11)
Stability		0.31 (0.40)		0.59 (0.73)		1.06 (0.67)		1.24 (0.49)	1.38 (0.34)
ADS		2.45 (1.06)	3.45 (0.81)						
R^2		0.71	0.72	0.65	0.65	0.79	0.77	0.82	0.79
N		61	72	37	48	32	39	39	42

Table 6-6: regression results for Han Chinese tourists abroad

Altogether, this part of the analysis shows that ethnicity cannot be the sole basis for meaningful results on tourist behaviour.[170] It shows that although the same ethnicity is given in all four tourist-generating countries[171], the Han Chinese behave differently according to their nationality. This leads to the conclusion that also social, political and recent historical conditions determine behaviour. We therefore concentrated on the Chinese from the People's Republic of China, which form the largest market of the four countries investigated.

6.3.2 Regression results: provinces

For provinces, we cannot follow the general-to-specific variable selection procedure used for nations because we have some 60 explanatory variables and only 31 observations. Therefore, we summed the separate indicators for cities, mountains, sights and spots. We used three alternative indicators for nature: relative and absolute area of nature reserves, and their number. We used three alternative sets of indicators for "geography": (1) temperature, precipitation and humidity; (2) latitude and longitude of the provincial capital; and (3) regional dummies. This leads to 9 models. We first estimated each model including all explanatory variables (see above), successively eliminating the insignificant and jointly insignificant ones.

Table 6-7 summarises the results. For domestic tourists, latitude and longitude do not describe the data very well. Regional dummies perform slightly better than do the climate variables, but as only the dummy variable for the Northeast is significant, we decide to add this dummy to the "climate" model. The absolute area of a nature reserve performs better than the other two indicators. This consolidated model was used for sensitivity analysis on the supposed tourist attractions.

[170] While it is perfectly valid to distinguish inbound tourists into Overseas Chinese and (ethnically diverse) foreigners, as Xiao (1997) does. The study proves that preferences of tourists differ along ethnicity and furthermore, the interaction – and with it the acceptance – of tourists and the residents of tourist cities is clearly depending on tourists' ethnic origin.

[171] Except Singapore, where 75% are Han, yet, it is a reasonable test ground for the country analysis, as we can see a difference also in the preference for political stability, which is likely to spring from a high sense of security in the municipality.

	domestic		Foreign	
	# sig	out of	# sig	out of
Airports	0	9	0	9
Railways	1	9	4	9
Highways	8	9	2	9
Area	2	9	4	9
Coast	5	9	0	9
Mountains	0	9	0	9
Cities	9	9	0	9
Spots	0	9	7	9
Sights	9	9	0	9
GDP/capita	9	9	9	9
Population density	9	9	6	9
Humidity	3	3	1	3
Temperature	1	3	3	3
Precipitation	0	3	1	3
Size of natural area	2	3	2	3
Number of nature reserves	1	3	2	3
Share of natural area	0	3	1	3
Latitude	0	3	3	3
Longitude	1	3	0	3
East	0	3	0	3
North	0	3	0	3
Northeast	3	3	0	3
Northwest	0	3	0	3
South	0	3	0	3

Table 6-7: summary of regression results: the number of times an explanatory variable is significant at the 5% level.

The aggregate "mountain" indicator is not significant, and this is true for the three alternative "mountain" indicators as well. The aggregate "spots" indicator is not significant, and this is true for all alternative "spots indicators", with the exception of "spots imp", which is added to the model. The aggregate "sights" indicator is significant, and so are the alternative indicators. However, the estimated parameters do not deviate significantly from each other. The sights from *Travel-China-Guide* outperform those of *Yiqilai*; the former guide is more influential. We therefore retain the aggregate indicator. The aggregate "cities" indicator is significant, and so are the alternative indicators. Again, estimated parameters do not differ significantly. The cities of *Yiqilai* are a better predictor than are the cities from CNTA. We therefore retain the aggregate indicator.

Table 6-8 shows the regression results. Domestic tourist numbers are higher in provinces with more railways and highways, with a coast, with relatively rich inhabitants, with a higher population density, and with higher humidity. Tourist numbers are also higher in the Northeast (Heilongjiang, Jilin, Liaoning). Tourists are attracted by natural areas and by sights, but they avoid "cities" and "spots imp".

For foreigners visiting China, we followed the same procedure. Table 6-7 summarises the results of the initial regressions. The regression with the regional dummies performed poorly. Latitude and longitude performed slightly better than climate, so we combined these in a direct test of explanatory power; in the final model, latitude is maintained, but the climate

variables are all insignificant. The absolute area of nature reserves outperforms both the relative size and the relative area.

Variable	Coefficient	Std. Error	t-statistic
Constant	-13.720	1.698	-8.08
Ln(Railways)	0.206	0.098	2.12
Ln(Highways)	0.797	0.141	5.64
Ln(Coast+1)	0.019	0.008	2.36
Ln(Cities)	-0.514	0.086	-5.96
Ln(Sights)	0.503	0.076	6.60
Ln(GDP/capita)	0.444	0.096	4.64
Ln(Population density)	0.730	0.056	13.14
Ln(Humidity)	0.831	0.294	2.83
Ln(Natural area)	0.106	0.050	2.11
Northeast	0.871	0.198	4.40
Ln(Spots imp)	-0.150	0.069	-2.17
R^2	0.986	N	31

Table 6-8: regression results: number of domestic tourists (dependant variable: ln)

The resulting consolidated model was again subject to sensitivity analyses on the tourist attraction indicators. The aggregate “cities”, “mountains” and “sights” indicators are not significant, and the same is true for each of the alternative indicators. The aggregate “spots” indicator is significant, whereas most of the alternative indicators are not, with the exception of “C spots” and “imp/pres” spots”.

Variable	Coefficient	Std. Error	t-Statistic
Constant	-9.358	2.164	-4.32
Ln(Railways)	0.856	0.137	6.26
Ln(1+Spots C)	0.352	0.141	2.49
Ln(1+Spots imp/pres)	-1.245	0.373	-3.34
Ln(GDP/capita)	1.752	0.208	8.41
Ln(Population density)	0.352	0.115	3.06
Ln(Natural area)	0.225	0.106	2.12
Ln(Latitude)	-3.651	0.514	-7.10
R^2	0.923	N	31

Table 6-9: regression results: number of foreign tourists (dependant variable: ln)

Table 6-9 shows the regression results. Like domestic tourists, foreign tourists are attracted to provinces with a dense railway network, relatively rich inhabitants, and a dense population. Foreign tourists do not care about highways, the coast and the climate. Like domestic tourists, foreign tourists are attracted to provinces with large nature reserves. Foreign tourists prefer the South of China. Unlike domestic tourists, foreign tourists do not care about “cities” or “sights”, but they are attracted to “C spots” and deterred by “imp/pres” spots”.

6.3.3 Discussion

Mountains are not significant; this is surprising for the domestic market. Airports are also not significant for either tourist groups; this is interesting, as most foreign tourism depends on

flights as rail travel is too slow for most tours. It shows that a rise in number of airports in some regions has not culminated in a concomitant rise in number of foreign (or domestic) tourists. Thus, the sightseeing features are a major reason to go and not the easy access.
A small number of variables are significant for both markets. A dense railway network is important. The railway is the main Chinese transportation mode (Xu 1999), therefore, it is not surprising to find that a dense railroad network affects domestic tourism positively. For foreign tourists, the access to sightseeing features outside the major cities also largely depends on railroad connections.

Tourists are attracted to wealthy provinces. In agreement with the high development rate of the coastal Eastern and Southern regions of China, domestic tourists generally prefer the rich coastal regions. Through lack of data we cannot say where domestic tourists come from, but given that one needs money to travel, travellers also tend to come from richer regions (either the major cities of provinces or all regions of the wealthy Eastern/Southern coastal regions) and this limits the current market quite significantly. This does not mean that in other regions no developments regarding tourism take place, it is just beginning.
Population density has a positive effect on tourism numbers, too. Generally, Chinese people are not irritated by the fact that sightseeing areas are often very busy, if not overcrowded, while foreigners expect to find this and, to them, it is part of the China experience.

Both groups prefer nature. The extent of the natural area is significant and not the number of nature reserves in a province, nor the number of nature spots. Nature spots are advertised, but tourists are apparently not seduced, even though they do like nature. This may alert Chinese planners that a rise in numbers of natural attractions does not make up for the loss of nature through uncontrolled development.
Nature is more important to Chinese tourists than is culture. In fact, imperial spots are avoided, while the other cultural spots are irrelevant. For foreign tourists, C spots are attractive, which indicates that Chinese culture is the second main reason for foreigners to go to China. Chinese tourists have a similar preference for nature when travelling abroad. This result corresponds to Kim et al. (2005) and Ghimire and Li (2001, table 4.7). The disinterest of domestic Chinese tourists in culture does not rule out that the same tourists would be interested in foreign culture when going abroad. This is in fact indicated by Kim et al. (2005), who show that the Chinese are interested in other cultures provided they are as old as their own. Sofield and Li (1998 after Petersen 1995) identify a notion of cultural pilgrimage in domestic tourism as an impact of a strong sense of Chineseness. This would suggest a stronger indication for cultural preference in our results.

Domestic tourism is also significantly influenced by the following variables: highways, coast, humidity, cities (negative), imperial time spots (negative), the Northeastern regions and tourist sights. A dense highway network correlates with the domestic tourism numbers. Coach or bus is the second popular transportation mode for Chinese tourists but as it is very exhausting, generally less secure and more time consuming than the railway, it is less suitable for carrying foreign tourists, especially for longer distances.
Coastal provinces attract domestic tourism. Like many East-Asian people, the Chinese generally do not sunbathe, as a fair complexion is highly prestigious. They may like to be at the coast, but in China a day at the beach is not comparable to tourist behaviour in the Mediterranean. It is highly questionable whether the variable coast here can serve as an indicator for a preference of water/beach. It may rather reflect the bias towards rich and trendy.

Domestic tourism numbers negatively correlate to the number of cities as promoted by official Chinese sources. This lack of interest in cities is in contrast to the high population density and high GDP in provinces preferred by tourists. In fact, cities as tourist destinations are less sought after, which does not preclude that the province has many cities or is less populated. This corresponds with their preference for nature.
Tourist sights – as promoted by tourism providers - are preferred by domestic tourists, whereas tourist spots are insignificant. The Travel-China-Guide, the commercial provider, is more significant than Yiqilai, the self-help network. This could be explained by the unusual format of the latter for China. The fact that sights are significant, while spots are not, leads to the conclusion that advertisements by official and other providers are more important to Chinese tourists than the actual spots themselves.

For foreign tourism, a smaller number of variables is significant. The Southern region is preferred. This makes sense considering the high number of Overseas Chinese[172] that contribute to the foreign tourism number in China. These mainly stem from clans in the Southern and partly Eastern coast (Fujian and Zhejiang). For visitors from Macau and Hong Kong alone, the main entrance gate to China is Guangdong in the South (Zhang and Lam 1999). Likewise, Taiwanese citizens enter China via Hong Kong, as a direct connection between Taiwan and the People's Republic is limited to specific holidays, e.g. Chinese New Year[173].

For foreign tourism, the number of tourist spots is significant. Due to the character of our database, these rather reflect the existence of reasonably well-known and recommended attractions. This distinguishes them from the tourist sights that tend to reflect a providers' choice of attractions. However, the mix of all sources by our database best reflects their preferences; this indicates that they inform themselves more broadly. In contrast, Chinese tourists depend on a fewer number of sources and are likely to be more influenced by the promotion of attractions.
Although both Chinese tourists and foreign tourists are interested in provinces with a high share of natural area, it is the provinces with a high number of cultural spots that attract most foreign tourists. This is understandable, as the Chinese culture is unique and therefore likely to be a major reason for many tourists to visit the country. Ethnic Chinese may visit the country in search of their cultural roots.

Foreign tourists avoid the combination of imperial and modern times. Altogether, the spots of imperial and modern time code combination (4) are few in number compared to modern only (170) or imperial only (488). It may be a cautious indicator that foreign tourists seek originality and prefer the ruins to modernised, re-built variations of ancient themes.

Cities, which are shunned by domestic tourists, are irrelevant to foreign tourists. This again indicates that sightseeing features are less important for a city. For foreigners, it is the spot that makes them visit places, rather than the city. In this context, the less easy access to spots in rural areas compared to spots in cities is not likely to hinder foreign visitors. A lower than average growth rate for international visitors wanting to go to major cities, such as Beijing and Shanghai, also corresponds to their loss of the East theme, as Cheung (1999) has observed for Hong Kong.[174] The urban theme of a city is not important for foreigners visiting China.

[172] Generally, Chinese official statistics distinguish between foreigners, Overseas Chinese and so-called compatriots from Hong Kong, Macao, Taiwan. We term the last two categories together as Overseas.
[173] This relaxation policy has only been introduced in 2005 and is still restricted to very few flights.
[174] Cheung (1999) states Hong Kong has gradually lost its traditional East theme – that was in marketing strategies always linked to the modern West theme of the place. There is some indication that the same happens to Beijing and especially Shanghai as the old towns are sacrificed to yet another modern skyscraper.

Coastal and climate variables are insignificant to foreign tourism. This does not contradict the finding of Wen et al. (2003) that 80% of inbound tourists to China in 1995 went to coastal localities. They explain the coastal bias with the numerically strong group of Overseas Chinese that originate mainly from Fujian and Guangdong and the group of business travellers that concentrate on the special economic zones that are mainly situated along the coast. Our regression analysis shows that it might be the coastal provinces that draw inbound tourists but not the coast length. As we found that coast is significant for domestic tourists but not for foreigners[175] this feeds the assumption that foreigners do not go to China for a beach holiday, which is not surprising given the high pollution and artificial surroundings of most Chinese beaches.[176] Likewise, it is not climatic conditions that drive foreigners to make a holiday in China. From the database by Hamilton and Lau (2006) on the role climate plays in tourist destination decision-making, five out of eight travellers to China consider climate irrelevant.[177] The other three travellers ranked climate lower than nature and cultural sights[178]; only one of them explicitly gathered information on climate in China.

Comparing the preferences of foreign and domestic tourists in China, we find major differences between these groups. If the preferences that domestic and foreign tourists have for China vary, they are also likely to differ for other destinations. A foreign tourism provider targeting the Chinese market would have to adapt to the local market.

6.4 Market potential

Table 6-10 shows the market share of international tourism from China, according to the consolidated regression model of Table 6-6.

ADS 2001		ADS 2006		No ADS	
Macau	0.359	**Japan**	0.188	**USA**	0.288
Japan	0.117	**Macau**	0.073	**Canada**	0.131
Thailand	0.099	**Brazil**	0.045	**Japan**	0.090
USA	0.094	**Norway**	0.035	**Macau**	0.035
Malaysia	0.086	**Finland**	0.033	**Brazil**	0.022
Philippines	0.060	**Denmark**	0.032	**Cayman Islands**	0.022
Canada	0.043	**Switzerland**	0.032	**Norway**	0.017
Brazil	0.007	**Luxembourg**	0.032	**Finland**	0.016
Cayman Islands	0.007	**Germany**	0.031	**Denmark**	0.015
Norway	0.006	**Mongolia**	0.029	**Switzerland**	0.015
Finland	0.005	**Austria**	0.028	**Luxembourg**	0.015
Denmark	0.005	**France**	0.027	**Germany**	0.015
Switzerland	0.005	**Iceland**	0.024	**Mongolia**	0.014
Luxembourg	0.005	**Belgium**	0.024	**Austria**	0.013
Germany	0.005	**Netherlands**	0.024	**France**	0.013
Mongolia	0.005	**Italy**	0.020	**Iceland**	0.012
Austria	0.004	**Thailand**	0.020	**Belgium**	0.011
France	0.004	**USA**	0.019	**Netherlands**	0.011
Iceland	0.004	**Malaysia**	0.017	**Italy**	0.010
Belgium	0.004	**Spain**	0.015	**Thailand**	0.010

Table 6-10: market share (fraction) of international tourists from China for ADS-countries

[175] Mind we address the whole of inbound tourism as foreign tourism here therefore we can compare our findings to the ones by Wen et al. (2003).
[176] The evaluation through the travel cost method by Chen et al. (2004) concludes that the investigated beach in Xiamen is a recreational asset and an entrance fee should be introduced to serve its protection against deterioration.
[177] Whereas from the whole sample 50% deem climate important.
[178] or did not rank at all.

In the first columns, the situation in 1997-2001 is shown. The most popular countries and their order roughly correspond to the observed pattern shown in Table 6-1.

The Approved Destination Status (ADS) is highly significant in explaining the destination choice of Chinese tourists. In the middle columns, we have updated the ADS to the situation of June 2006. Japan, Brazil, the countries of the European Union and Mongolia, all gain considerable market share, at the expense of Macau, Thailand, the USA, Malaysia, the Philippines and Canada. In the last columns, we show the market share if all (or no) countries had ADS; on current trends, that may happen in the not too distant future; see Figure 6-2.

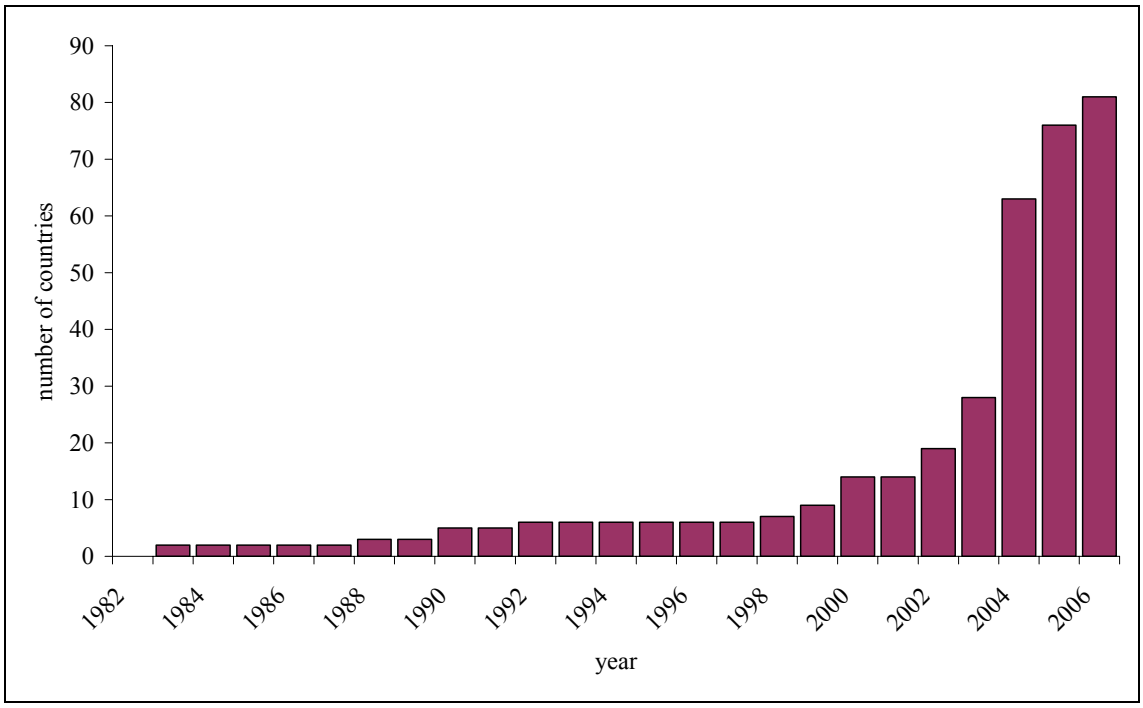

Figure 6-2: number of countries with ADS as a function of time

The USA and Canada would benefit most, while the countries of Southeast Asia would drop out of the top 19 destinations. Thailand, currently the third-most popular country,[179] would only be at place 20 and would see its market share fall by a factor 10.
The results in Table 6-10 show the power of the ADS system and how this power is diminished as more and more countries acquire ADS.

6.5 Conclusion

We studied the behaviour of Chinese tourists, both in China and abroad, using regression analysis. For comparison, we also looked at the behaviour of other tourists. We found that the preferences of Chinese and other tourists are different, both in China and abroad. It is no surprise that foreigners seek different things in a holiday in China than do the Chinese. When abroad, the Chinese behave differently than their kin from Hong Kong, Singapore and Taiwan. This implies that tourist operators wanting to tap the vast potential of the Chinese tourism market will have to design China-specific tourist offers.
When travelling in China, the Chinese are attracted to rich and densely populated areas, but repelled by cities. They prefer easy access by road and rail and are attracted by nature. Cultural attractions are less important and may even put tourists off.

[179] According to the model; according to the data Thailand is the second-most popular destination.

When travelling abroad, the Chinese are attracted to large and rich countries, and are less deterred by distance than other travellers. The climate, coast, culture, and political stability of the destination do not matter. This implies that countries in northern and western Europe are preferred to the Mediterranean. The system of Approved Destination Status used to be very important, but this is eroding as more countries acquire ADS. At present, particularly Canada and the USA suffer from not having ADS, while Southeast Asian countries suffer most from the expansion of the ADS to other countries.

This study is restricted in its scope by the paucity of data. Tourism data is crude, available per year (rather than season), per country (rather than province or state), and aggregated (rather than disaggregated between different holiday types). Data for potential explanatory variables (such as hotel prices and travel costs) cannot be had. This implies that the current study should be repeated using surveys of Chinese travellers. To our knowledge, such data does not exist. It is clear, however, that it is wrong to assume that the Chinese are like other tourists, even their ethnic kin. Given the scale of Chinese tourism, such research is badly needed.

Chapter 7: an analysis of the travel motivation of tourists from the People's Republic of China

7.1 Introduction

Since the Chinese economic reforms, government policy towards travelling and tourism activity has changed. The population of the People's Republic of China gained significant rights and possibilities to travel in their own country and to conquer the international tourism market with package tours. Most analyses about expectations of the tourist industy for the Chinese market overstress the importance of Chinese tourist income, but this ignores the complexity of the issue and may miss what actually is the motivation behind the Chinese tourist invasion. Where do Chinese tourists like to go and why? This chapter is based on a newly compiled database of the preferences of domestic and foreign tourists for Chinese tourist destinations and focuses on travel motivation by the Chinese. Furthermore, does tourism promotion in China have an impact on destination choice? The results of an analysis of Chinese marketing strategies are translated into recommendations for foreign travel promotion that targets the Chinese as tourists.

Tourism literature generally looks at behaviour of tourists. Therefore, tourists are the subject of investigation in terms of their preferences for visiting certain destinations. Most studies are interview-based and consist of a quantitative analysis. These often distinguish push- and pull-factors that determine the reason for a tourist to choose a travel destination. It is widely accepted that such factors are active in the decision-making process for a specific destination. However, a consensus on definition details is missing. It is obvious that what is for some a pull-factor becomes a push-factor with others.[180] This study is not intended to be part of the broad discussion but, instead, focuses on pull-factors in tourism.

According to Ryan (2003), work generates leisure behaviour and this further determines travel behaviour. His major hypothesis is that the key lies in work patterns while holidaymaking is a way to compensate for the stress and boredom of everyday life. The first argument follows the assumption that a work with a high routine level, especially with machines in factories, generates a pattern of automated holidaymaking, too. This is a major argument for the boom of package tours. In contrast, interesting work also generates heightened interest in leisure activity; therefore participation becomes more attractive than passiveness in travel behavior. The second argument stems from Ryan's compensation and spin-off theory. Two different motives can exist in parallel. The first assumes that holidays are taken to compensate for the stress and boredom of everyday life which leads the tourist to seek something new while travelling, or – the second assumption - work produces a similar pattern for leisure activity: this may lead to a 'home abroad'-style of holiday that emphasises relaxation in a familiar environment. Both of Ryan's arguments are interacting and have an overlapping character.

Plog (from Ryan, 2003) takes a perspective highlighting the motivation of tourists rather than their behaviour. He distinguishes allocentric from psychocentric travellers, defining their motivation to take risks, their so-called venturesomeness (Plog 2002)[181]. In his understanding

[180] This becomes most apparent in a study by Zhang and Lam (1999) who attempt to relate push- and pull-factors to social demographic aspects and travel frequency. In their study push-factors range from novelty to 'visiting cultural and historical attractions'. In our understanding the first ranges as a predominantly pull-factor related to the push-dimension of escape, the second is related to the destination and is thus clearly a pull-factor by nature.

[181] Following Plog (2002) it is not the income level that drives people to travel, but their level of venturesomeness. The travel behaviour of the Brazilian top-earners is exemplary for people with a low level of venturesomeness, as they only rarely leave their country and prefer the calculable habit of domestic beach holidays. There is no information available on the

the allocentric traveller is the explorer type that seeks new destinations, whereas the psychocentric prefers the familiar and shuns risks. Following Plog, Ryan (2003) further defines the motivations of travellers as either 'getting away from a place' (push) or 'desire to see some other area' (pull). We take up both of the Ryan and Plog ideas and assume that the motivation of novelty may be most complementary to the desire for a home-like environment. Both are a form of escape but, for the traveller seeking a home-like environment, this is the only condition for choosing a destination, whereas for the novelty-seeking traveller a further dimension is opened, i.e. where to find something new. In this way, the clear push-factor of escape might be supplemented by the predominantly pull-factor of novelty. Here the travel destination is the core of the decision. As a contribution to the push- and pull-factor discourse that puts focus on different details of motivation (Lau and McKercher 2004),[182] we offer a new perspective taking predominantly the size of the country of origin and the size of the destination country into account. Before this background, we analyse in how far the novelty factor impacts on the strength of push- and pull-factors. It shows that a big country of origin generates a more complex decision pattern than a small country of origin.

We cannot interpret tourist motivation in such detail as interview-based analysis and, therefore, focus on relatively basic assumptions. Reisinger and Turner (2002a) point out that cultural influences - besides aspects such as activity level and information flow – and their relationship towards nature are important. For the discussion on tourist motivation, we assume that a tourist has a basic preference for either a natural or a cultural environment when pursuing a holiday.[183] The literature takes up both notions within its push- and pull-factor discussion. These are the only factors that are always included in the sets of variables, albeit not exclusively and in different interpretations (Tisdell and Wen 1991; Xiao 1997; Zhang and Lam 1999; Klenosky 2002; Reisinger and Turner 2002a,b; Pearce and Lee 2005; Lau and McKercher 2004; Enright and Newton 2005). Moreover, prior analyses of the results that are presented in the literature lead to the conclusion that different variables can be attributed to the groups of culture and nature and still provide reasonable evidence for different preference patterns[184].

Figure 7-1 shows this study's major field of investigation. Generally, we focus on pull-factors[185], emphasising the novelty-seeking aspect in contrast to home-likeness. However, both motivation types are linked to tourist individual preference and whether a holiday is

---

venturesomeness of Chinese people. Reisinger and Turner (2002a) only make statements on the higher adventurous spirit of Koreans in contrast to Japanese travellers. Within our scope we discuss this aspect for Chinese in our conclusive remarks.

[182] Other studies focussed on travel experience (Pearce and Lee 2005; in parts also Zhang and Lam 1999), demographic factors and travel frequency (Zhang and Lam 1999), and leisure behaviour (Xiao 1997).

[183] Xu (1999) follows a similar idea when identifying either a natural or a cultural destination character in his case studies on Guilin (natural) and Suzhou (cultural).

[184] Although it also shows that nature is defined more broad and as a pull-factor feeds into more attributes than e.g. culture. Klenosky's (2002) study points at cultural experience exclusively related to novelty, whereas natural resources also feed into outdoor recreation and enjoyment of nature, which makes motivation factors more diverse. Yet, it is not a reason to assume that cultural experience is generally only related to novelty. Of course repeat visitors can be motivated to visit a country out of the same reason, especially when the country's culture is as unique as China's. Pearce and Lee (2005) show that nature and self-development are significant factors for the motivation of tourists with higher travel experience (novelty has no relation to travel experience). In contrast, Lau and McKercher (2004) indicate that natural and cultural amenities are more important to the first-time visitor than, for instance, food, entertainment and friendly people that are aspects repeat visitors perceive as more important. All studies have in common that the aspects of culture, nature and novelty are discussed as important features and partly prove to be decisive. This supports the distinction into the groups of nature and culture.

[185] Klenosky (2002) does this using the laddering methodology. Basically, the discussion on push- and pull-factors shows that they are mostly inseparable. The push-factor for a tourist may be as basic as the relaxation/adventure-option. However, it is not as simple as push-factors determine whether to go and pull-factors where to go. We argue that preferences of tourists for culture and nature are inherent in the tourist's personality and that this fact impacts on push-motivation as well as the choice of which pull-factors are chosen to determine the destination. Yet, we look at China as a destination and therefore emphasise the pull-dimension of tourist attractions.

more related to nature or culture. Despite the difference in motivation, all tourists will be interested in the destination attributes, the novelty-seekers to make sure there is something of particular interest to them individually, the home-abroad types of tourists to make sure their basic needs to feel like home-away-from-home are met. In our analysis, we therefore focus on the nature of the destination, in our case on the province-level administrative units of China.

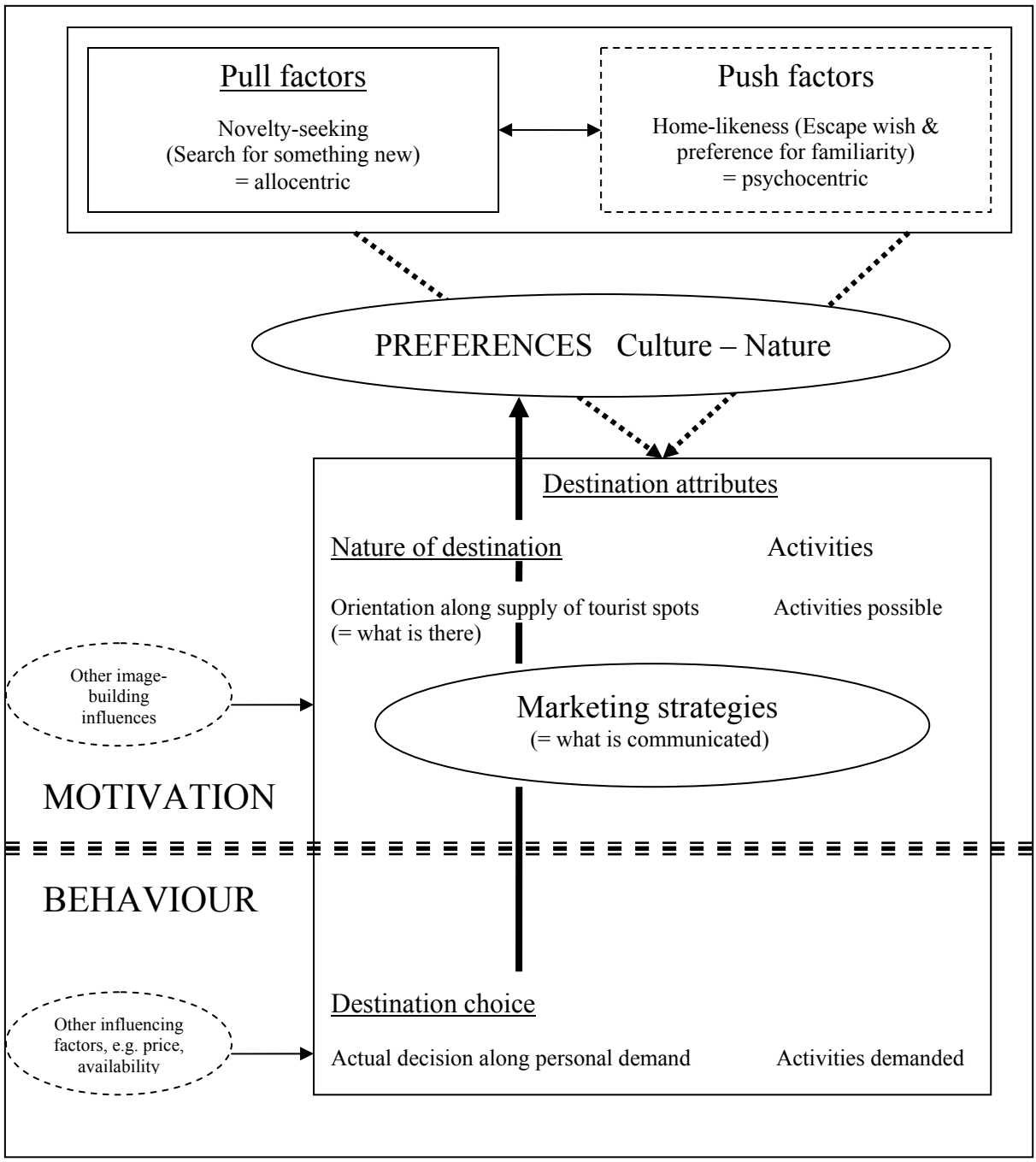

Figure 7-1: outline of the study

The activities[186] attributes are reduced in strength during holiday choice and we only include them as a possible complement to a destination characteristic; i.e. we do not separately look at a winter holiday with skiing opportunities, but only include the possibility of skiing if a

[186] Ryan (2003) does this by distinguishing into nature of destination and accommodation and activities undertaken during the holiday. Yet, Pearce and Lee (2005, after Moscardo et al. 1995) emphasise the link between motivation, activities and destination choice.

certain destination is mainly set out to meet this demand. Generally, we focus on the supply of tourist spots defined as what there is to see. In the following we distinguish between tourist spots - that denote tourist attractions derived from our own database, tourist sights – which are all attractions listed by the sources we used, and tourist sites – i.e. adopted from UNESCO terminology for world heritage sites. Further, we look at marketing strategies defined as what is communicated to the potential tourist. Other image-forming influences on the tourist are neglected.

A previous regression analysis (Lau and Tol 2006) used the measured behaviour of tourists related to their actual decision for a destination against their personal demand. Again other influencing factors, e.g. availability and price, had to be neglected as no data was available. Therefore, the number of tourists that made a choice for a specific destination within China is the basis of our database. The database contains what is there – not only what is said to be there, as these two dimensions may be quite different – and further emphasises the possible preference groups of culture and nature. The statistical analysis led to a statement on what Chinese people prefer to visit in their own country. By comparing it to the preferences foreigners have when visiting China, it was possible to pinpoint the specific preferences of Chinese travellers and to assess if tourist preferences for attractions and regions in a country broadly harmonise.

This study includes a further dimension and changes the focus from the area of behaviour analysis to motivation. We look at current marketing strategies that lead tourists to make their choice for a specific area; this way marketing strategies may have a certain impact on tourist motivation to go someplace in particular. Together with a thorough literature review, the information of Chinese preferences is used for a cautious opinion on what the Chinese may want to see when going abroad, especially on overseas trips. In combination with the observed effect of Chinese marketing strategies, we further translate our results into strategies Western tourism markets should take into account when targeting Chinese travellers.

The study is laid out as follows: The first part is theoretical. A short literature review focuses on studies of tourism behaviour and preferences, especially in China. The recent development of Chinese tourism and tourism policy is outlined. The concept of pull-factors is discussed and expanded by the factor of country-size. Furthermore, popular marketing strategies in China are analysed and hypotheses are formulated. The analysis of the second part uses insights from Chinese tourism preferences as developed from the new database. On the basis of this knowledge, a detailed source analysis on group frequency and regions follows, that emphasises among other things the ranking system of Chinese tourism attraction promotion. A further regional analysis takes classifications, countywide distribution and province distribution into account. We conclude with a discussion on Chinese tourism aspects as derived from our investigation.

7.1.1 Literature review

There is abundant literature on tourism, ranging from general studies with economic, geographical or policy-related focus to descriptive case studies of sociological and psychological perspective. Generally, tourism is perceived as a major industry that generates marketing analyses and often uses statistical methods to understand trends of tourist activity. Like other industries, the market is based on supply and demand – here of tourist features and of holidaymakers. During the last decades, travelling has become a major leisure activity globally. Some countries are exceptionally popular as destinations and a number of nations

are travel champions. Some propose that the Chinese are going to be one of them soon (FAZ 2003; CNTA 2003; HA 2005).

Global expectations of a rising number of well-off urban citizens that are able to afford travel is the reason for the gold fever in the industry and the potential of the Chinese tourism market. Unfortunately, there are very few studies that investigate Chinese tourists preferences in holidaymaking. One reason is that a survey-based study would seem too large a challenge in order to produce a result for generalisation, given a population of 1.3 billion. The other is that the Western perception of cultural importance is only slowly growing[187]. The Japanese triggered such an insight when they started travelling in the 1980s. Yet, Asia seemed to be uniform to most analysts and researchers. Therefore, many professionals still underestimate the distinction between Asian nations with their different cultures and varying preferences for food, accommodation, sightseeing, transportation etc. What seemed perfectly clear for distinctions in Europe, that there is a possible difference in travelling patterns and preferences for destinations between e.g. the French and the Polish, only slowly finds its way into evaluation of the Asian market. Notable exceptions are the studies by Reisinger and Turner (2002a,b).

This study is based on research that has China as a focus – either as a destination country for foreign tourism or as a tourist-generating country for outbound tourism. The former group is represented by the works of Tisdell and Wen (1991, Wen and Tisdell 2001) and Wen et al. (2003). Further, Au et al. (2005) focus on the impact regional and global crises have on foreign tourism and particularly look at SARS. Chinese as outbound tourists and their preferences are discussed by studies of Kim et al. (2005) and Zhang and Lam (1999). We further take studies on domestic Chinese tourism as a basis (Schwickert 1989, Zhang 1997). There are several studies that give a good overview on recent historic developments in tourism for China: Richter (1983) gives a very early account, Sofield and Li (1998) discuss the interaction of cultural policy with tourism policy, Zhang and Lew (2003) and Xu (1999) emphasise the economic dimension – the latter with three case studies, Bowden (2005) and Ghimire and Li (2001) discuss the relation of tourism development with poverty eradication programs, whereas Zhang et al. (1999) have the most comprehensive account on tourism policy development in China. Most of these studies discuss policy implications and partly include institutional dimensions, such as the change in administrative organisation (Richter 1983) and distribution of responsibilities. Yet, specific promotion techniques have never been part of the discussion. Further, there are a few evaluation studies, by Chu (1994) focussing on sightseeing areas, and by Chen et al. (2004) on the recreational benefit of beaches. A study by Xiao (1997) has the interaction of tourism and leisure as a subject and yields insight into the acceptance of tourism by local residents. Cheung (1999) investigates the meaning of a heritage trail. Both studies compare the preferences of foreign and domestic tourists. Further, some studies on the variety of preferences by Asian tourists, such as Reisinger and Turner (2002a,b) and Enright and Newton (2005) show a distinction between Chinese and other Asian tourists. However, the question of preferences for a particular kind of tourist attraction or a prefernce for the culture-nature dimension has not yet been subject to analysis.

In the course of investigating the motivation of Chinese tourists, we draw on the general studies of tourism motivation, especially the ones introducing push and pull-factors (Klenosky

[187] Sometimes insight exists, but is loosely argued. For instance Tisdell and Wen (1991) extensively elaborate on the difference in service provision in China. Yet, they neglect the difference in culture in this context, i.e. the Chinese take more interest in service that is likely to seem unnecessary to Western tourists, e.g. the constant provision of hot water, whereas service that is clearly expected by a foreigner, e.g. provision of cold drinks on a flight is perceived as luxury to the Chinese provider. Also basic cultural perception is often neglected, e.g. a different understanding of the notion of shame.

2002; Plog 2002; Ryan 2003). Other studies that do not particularly emphasise China or Asia, but discuss the role of travel experience for tourist preferences are Lau and McKercher (2004) and Pearce and Lee (2005). These are included in the discussion. Additionally, recent newspaper articles (FAZ 2003, HA 2005; Hoffmann 2005) shed light on the massive expectations the industry has and a number of official website presentations (CNTA 2001c; CNTA 2004; CNTO Toronto 2004) further explain the Chinese tourism policy. For the purpose of classifying tourism spots, we also depend on extensive, personal, travel experience in China.

7.1.2 The database – set-up and sources

We provide a comprehensive database of important tourist spots throughout China.[188] The data break down to the county level. Appendix 9 shows a detailed description of the compilation of the database. The database has already been the basis for statistical regression analysis by Lau and Tol (2006) in which they used province data, as there are no county data on tourist arrivals for China. Results of their study are used and discussed throughout this chapter. For the current study, the county level data of tourist spots are used for a qualitative analysis of the spatial distribution and the number of administrative units that feature important tourist spots. Furthermore, a GIS application of the administrative information was used to show their location within the provinces - complete with number and classification of tourist spots - and gives a rough idea of how far these are from the province capital. We assume that most spots are best accessible from the province capital, especially in the western and northern provinces.

In the following we distinguish tourist spots - that denote tourist attractions derived from our own database, tourist sights – which are all attractions listed by the sources we used, and tourist sites – i.e. adopted from UNESCO terminology for world heritage sites. Generally, tourist spots are classified into natural (N), cultural (C), natural and cultural at the same time (CN), and other (O) including all spots that cannot be exclusively associated with culture or nature. An additional classification (OM) is in combination with O.

For the further assessment of ranking, categorisation and status-giving as marketing instruments of official institutions we used the information provided by the China National Tourism Administration (CNTA) and compared it to the information given by a Chinese, non-commercial, self-help travel network with expert support (*Yiqilai zizhu lüyou wang*, Yiqilai hereafter). The latter reflects the preferences Chinese tourists have in contrast to what the official tourism administration defines as must-sees. Further, we added a third source, of a mainly commercial character, the Travel-China-Guide[189].

7.1.3 Development of Chinese tourism

Lately, the Chinese tourism market has become a major focus of economic expectations and, slowly, also of academic research. The Chinese market is unusual as the country was practically closed for foreign tourism until the economic and political reforms started by Deng Xiaoping in 1978. Until then even domestic travel had been subject to strict limitation, through a permit system for accommodation and transportation tickets (Sofield and Li 1998). As a means of generating foreign investment and gain foreign currency revenue (Jenkins and Henry 1982), foreign tourism was then actively supported by the Chinese government, e.g.

[188] The data can be found at www.uni-hamburg.de/Wiss/FB/15/Sustainability

[189] In appendix 9 (table A1) this source ranges under half-commercial, half-official, as the Xi'an International Studies University is involved.

with the successive opening of tourist cities to foreigners[190] (Richter 1983), and generally in giving privileges to foreigners, through advanced booking conditions, provision of high-quality accommodation[191] and special shopping opportunities (Zhang 1997). Despite some organisational problems, the trend was steady until the breakdown of the democracy movement in 1989, which lead to a decrease in the tourism growth rate by 17.2% (cf. Hall 1994, Table 4.1). This was a turning point in tourism policy, as now domestic tourism became the focus instead of foreign tourism. The development of domestic tourism was further generated by some aspects supporting tourism demand and facilitating tourism activity, namely the pay rise act of 1993 leaving the salary-earners of the public sector and state-owned enterprises with more disposable money, and the 5-day-week that extended leisure time, as well as an increase of holidays to three 'golden' weeks a year in the mid-1990s; i.e. Spring festival, May Day and National holiday in October (Xiao 1997; Zhang 1997; Zhang and Lam 1999; Zhang and Lew 2003; CNTO Toronto 2004). Despite some remaining restrictions, the 1990s saw an opening of the country and the Chinese were allowed to travel to a growing number of destinations that were not necessarily politically favored by the government. This was regulated by the designation of an Approved Destination Status (ADS), which a potential destination country required before being able to welcome Chinese travellers on package tours. In March 2006, 81 countries had received this status (CNTA 2006a). [192]

7.2 Where do the Chinese go for their holidays? – pull-factors, policies and marketing strategies, and hypotheses

The Chinese domestic tourism market is steadily growing. The same is valid for the Chinese outbound tourism market. In order to understand what foreign tourism destinations need to supply for raising Chinese tourist interest, we need to consider what the domestic tourism market in China has to offer. Generally, there are only few things you cannot do in China[193]. In a country as vast as China there are also only very few climate zones that are not covered, similarly most vegetation zones[194] are represented. The same goes for geophysical attributes such as mountains, plains and access to the sea and lakes.

Other aspects that may influence decisions on going abroad include how important the standards of accommodation and transport facilities are valued to be in China. Some studies seem to suggest that Chinese travellers prefer to spend less money than average, as they prefer to stay with relatives and friends or join discounted package tours (Tisdell and Wen 1991)[195]. Further, preferences in food are especially important to Asian people[196]. If this can be generalised for Asian populations and considering that the range of differing cuisine is broad

[190] During Mao's time only a dozen tourist cities were open to foreigners, 1979 this number had increased to 60 and 1982 it were over 100 (Richter 1983).

[191] Interestingly, Tisdell and Wen (1991) cite a study by Zhao Jian, who claims that 70% of all foreign visitors interviewed wanted middle or lower class hotels instead of high-class hotels that were primarily provided.

[192] For information on the order of approved countries and official guidelines refer to Kim et al. (2005). Verhelst (2003) discusses ADS in relation to the Shengen area.

[193] One activity already draws Chinese tourists to Germany: fast car driving on a German Autobahn.

[194] Sofield and Li (1998) state that China's biodiversity ranks eighth in the world and first in the Northern hemisphere.

[195] Mind their study refers to overseas Chinese spending less money in China than foreign guests due to the reasons mentioned. There is a chance that Chinese from the People's Republic travelling abroad have different preferences in this regard.

[196] This becomes evident through the fact that Western hotels when they started targeting at Japanese tourists changed to offering Japanese/Asian breakfast additionally to the Continental and American sets. Compare also Reisinger and Turner (2002a) and Hoffmann (2005). In Germany the food in Chinese restaurants is often not high enough to satisfy guests from China (FAZ 2003).

even within China, the food factor is rather likely to hold Chinese tourists in their own country or at least have them remain in Asia than drawing them to Europe[197].

Latest marketing studies suggest that the Chinese are big shoppers, even more dedicated than the Japanese were, when they started to travel worldwide (FAZ 2003; CNTA 2003; DZT 2005; Hoffmann 2005)[198]. This contradicts a study by Kim et al. (2005) that had shopping opportunities and level of economic development rank in the last of ten positions[199]. Natural and cultural interest preferences of Chinese ranged at positions 2 and 4 respectively. So the fact that a country or region is wealthy and offers extensive shopping opportunities may be decisive to some Chinese travellers, at least at the moment. And a certain dedication to consumption harmonises with the transition that the economy and society is currently experiencing in China. For most Chinese tourists, though, it does not seem to be a reason to go abroad or even travel long-distance. As the world economy changes, in terms of shopping it becomes increasingly attractive to stay in Asia. Western companies largely produce in Asia and products are cheaper when travel distance is considered. Furthermore, Asia's own supply of goods is fast catching up with the quality provided in Europe. Even if a certain well-off group of Chinese tourists puts prestigious shopping at the core of their interest, generally, other tourism features of natural and cultural kind are more likely to be decisive in choice of destination by them.

Schwickert (1989) states that the Chinese style of leisure is more related to cultural landscapes and therefore the natural surroundings are less important. In order to assess this assumption, we investigated to what extent Chinese tourists are interested in different sorts of tourist spots. For this, it is advantageous that the Chinese tourism industry initially developed along foreign preferences. These conditions only slowly changed throughout the last ten years, when domestic tourism became more important and the internet facilitated the planning of a journey even further[200]. However, the development of domestic tourist preferences was conditioned futher by foreign choice. For a long time, domestic and foreign marketing strategies emphasised similar items. Even if this is changing - for instance the category of 'Red Tourism' has only emerged very recently in domestic Chinese tourism[201] - it does so very slowly. It therefore allows this study to provide a general idea of Chinese tourist preferences at home that are likely to hold also for Chinese destination decisions for long-distance travelling. An analysis of Lau and Tol (2006), that is based on the same database, suggests that domestic tourists prefer nature and foreign tourists additionally value culture when travelling in China. Generally, foreign tourists are more interested in tourist spots whereas for domestic tourists the officially appointed 'must-sees' (tourist sights) are of more concern.

[197] Another aspect is the function of social interaction a meal has for Chinese people. Reisinger and Turner (2002b) define a clear link from this kind of social interaction to the Chinese tourists' satisfaction.

[198] Another misleading assumption often mentioned is that Chinese people are most keen on gambling. Mostly in this context it is argued that gambling is prohibited in China (Hoffmann 2005). However, it is often underestimated that Macao is close by and gambling is less of a reason to travel to Europe or America, despite Monte Carlo and Las Vegas. Moreover, Kim et al (2005) eliminated the gambling variable from their list of attributes.

[199] Whereas they support the statement that Japanese and Korean tourists are mostly interested in shopping and easy travel plan arrangements. Therefore it is likely that the shopping aspect is a good example for evaluating 'the Asian people' instead of taking the diverse cultures into account.

[200] This way the lack of commercial tourism operators is balanced. Zhang et al. (1999) describe an imbalance of distribution channels of tourism in early periods. Although this had changed, the expansion of foreign tourism operators to the domestic market was still welcome (People's Daily 2003d,e).

[201] This does not mean that there were no revolutionary - 'Red Tourism' - spots visited in the 1990s, but they were rather along the way to major sights that had been developed to serve foreign tourists' expectations.

7.2.1 Pull-factors: Chinese outbound tourism

Regardless what they specifically investigated, tourism studies come to the conclusion that the tourist image of a destination is important and that the pull-factors are very decisive for destination choice, since they represent the attractiveness of a particular destination (Zhang and Lam 1999; Ryan 2003). Push-factors are more person-specific and less easily defined. They also often get intermingled with pull-attributes, because of unclear definitions (compare Zhang and Lam 1999). Also, as holidaymakers become more selective, escape motives are undermined and pull-factors become more determining (Ryan 2003). In the following, we aim at facilitating research through a focus on major research questions for deciding on a domestic or foreign holiday as a subject:

- What motivates a domestic tourist to go abroad for the next trip?
- What are the major decision-making factors when choosing a country?
- In how far are the tourist travel preferences – novelty seeking or home-abroad type of holidaymaking - determining the choice of a destination abroad?

Generally, this study is not laid out to fully answer these questions, however, we make assumptions on this matter in order to locate certain decision-making patterns. Classical pull- and push-factors play a major role here. We assume that the domestic Chinese market functions similarly to the US domestic market - which is the largest domestic market worldwide - and further assume that people seek what they like to see first at home, as it is more convenient for travellers to stay in their domestic market as long as their needs are met. When going abroad they mainly seek what they do not have at home. But generally tourists have similar preferences for making holiday at home or abroad, and so we distinguish between novelty-seekers and home-abroad types of tourist. The main question is whether there is an influence on the performance of pull- and push-factors, for big countries like the USA and China with an important domestic market and abundant opportunity to fulfil the needs of a holiday in the own country[202]. We therefore took a closer look at the potential implications that the size of the country of origin has on pull- and push-factors.

Figure 7-2 presents our assumptions. Generally, it is more difficult for small countries to have a pull-effect on tourists that search for a home-like environment than it is for big countries. This is due to the fact that big countries usually feature a range of different environments and therefore have a better initial position to satisfy the demand for home-likeness.
Small countries that like to attract tourists from other small countries must be quite alike regarding the features that create home-likeness; otherwise the country will not be selected as a potential destination at all. Therefore the actual push-element of tourists who favour a home-abroad type of holiday, i.e. escape, weighs heavier than any specific features that the small country provides. In other words, when the condition of home-likeness is met - perhaps combined with elements such as better weather - the tourist is quite indifferent to where he/she travels[203].
In contrast, for small countries that like to attract home-abroad type of tourists from big countries, it is a specific feature at the destination that creates this home-likeness[204]. This is

[202] Again Brazil serves as an example where the domestic market is much more important than outbound tourism. In this sense it seems indeed decisive if people tend to be novelty-seekers or home-abroad holidaymakers.
[203] An example for this kind of tourists are the majority of Germans or British travelling to Mallorca with package tours and expecting to be provided their own food, their language spoken, an opportunity to meet other people of their nationality - all aspects meeting homelikeliness - in combination with better weather (which of course does not serve the novelty character).
[204] An example is the American tourist from a rural mountainous area that seeks a relaxation holiday in a similarly natural environment. There are numerous areas in the US that meet this demand. A small European country that should meet this

because a big country generally has more diverse features to offer to a broader group of tourists, who may also prefer home-likeness. These specific features can range from food preferences to landscape or activities that are sought[205]. Therefore, in this constellation the pull-factor of a specific feature is likely to weigh more than in the other case.

origin country size	Small	
Destination country size / motivations	like home	something new
Big	PUSH (big country features home-like environment)	PULL
Small	PUSH (escape) / PULL (specific feature)	PULL (specific feature)

origin country size	Big	
Destination country size / motivations	like home	something new
Big	PUSH (big country features home-like environment)	PULL (specific feature)
Small	PUSH (escape) / PULL (specific feature)	PULL (specific feature)

Figure 7-2: changes in the significance of pull-factors through the size of country of origin

Generally, the pull-factors responsible for novelty-seeking tourists to choose a destination are similar irrespective of the size of the country of origin; push-factors are negligible here. However, for novelty-seeking tourists from small countries the pull-factor of another small country must represent a specific feature that the origin country does not supply[206]. All in all a big destination country is more likely to feature something new for the novelty-seeker from a small country, i.e. the tourist does not need to focus on specific features to guarantee a novelty experience. In contrast, the novelty-seeking tourist from a big country of origin seeks something specific in any case - in a small destination country as well as in a big destination country. Again, this is due to the fact that it is likely for the origin country also to hold a broad range of features. Under this condition it is a specific feature that draws the tourist towards making a holiday in another big country, considering that this is presumably more expensive and time-intensive than travelling within the home country. A large number of potential pull-factors in their own country generates the need for a specific pull-factor at the destination.

tourist's need for homelikeliness would firstly need to feature mountains. Therefore Denmark is not a top candidate, neither are the Netherlands.

[205] To draw our imaginary American tourist to Austria, for instance, still something else has to catch his/her attention. In this case it may be the fact that Arnold Schwarzenegger comes from Austria or the fact that the Alps are world-famous.

[206] It is more likely for a novelty-seeking tourist from Finland to go to Greece than to go to Sweden.

This shows that, for China, it is generally easier to draw tourists from small countries. Being a big destination country itself, it only has a minimal opportunity of influencing home-abroad type tourists from other big countries and needs specific pull-factors, e.g. Chinese culture, to generate an incoming flow of novelty-seeking tourists from big countries.
The same is true for big countries targeting Chinese tourists that likewise need specific pull factors for novelty-seeking tourists. All small countries that are interested in drawing Chinese tourists, as they come from a big country, need specific features for both groups - tourists that seek novelty or prefer home-likeness. Thus, even for home-abroad type of tourists, the push-factor of escape is less important than the specific pull dimension. Therefore, for Western countries to provide a home-abroad, it is important to note Chinese cultural preferences, e.g. for food, but also aspects of social interaction (compare Reisinger and Turner 2002a, b), otherwise these countries would need to rely heavily on their novelty aspects and this limits the potential overall number of Chinese tourists. Still there is need for a comprehensive interview-based study to acknowledge the share of Chinese tourists that tend to prefer home-likeness to novelty.

7.2.2 Policies and marketing strategies: Chinese domestic market

In order to interest domestic and foreign tourists in a country, the formulation of marketing strategies is important. In China, marketing is to a large degree dependent on official institutions and their policies. Generally, three periods of tourism policy are distinguished for China (Zhang et al. 1999):

- 1978-1985, when tourism still carried a strong political dimension and already showed economic implications,
- 1986-1991, when the economic dimension came to the fore, and
- 1992 until today, when a gradual development in the socialist market economy model is detectable

In order to understand past tourism development and assess future progression, it is inevitable to understand the great influence of government agencies on tourism in China. As in other developing countries, the government is actively involved in developmental as well as operational roles (Zhang et al. 1999; Jenkins and Henry 1982). According to the principles of the China National Tourism Administration (CNTA) from 2000, the government is still seen as having a guidance role in tourism development (CNTA 2004 and 2001c; China Window 2006).

The CNTA predecessor was founded in 1964 (Schwickert 1989)[207]. In 1978 the China Travel and Tourism Bureau – formerly under the jurisdiction of the Ministry of Foreign Affairs - was elevated to ministerial level (Richter 1983, Zhang et al. 1999). Major organisations under this institution were the China Travel Service (CTS), the Overseas Chinese Travel Service and the China International Travel Service (CITS) (Richter 1983)[208]. The China Youth Travel Service (CYTS) was established in 1980 (Zhang et al. 1999).

Since 1978, tourism administration followed a policy of decentralisation, which resulted in an increase of provincial level initiatives to promote tourism[209] (Richter 1983). Until then,

[207] The agency was renamed in the course of restructuring in 1982 (Zhang et al. 1999).
[208] The CITS itself was founded in 1954 (Schwickert 1989).
[209] This policy was later put into a different perspective though the implementation of unique means of control over the tourism industry. In 1980 the government introduced Foreign Exchange Certificates (FEC) as a currency for foreigners that was mandatory for any purchase in the so-called friendship stores and this way excluded the Chinese population from purchase there. In reverse foreigner's contact to the common Chinese salesmen was restricted as they could not give change

tourism was not accepted by the government as an "appropriate form of economic activity" (Sofield and Li 1998, p.369) but only served the political purpose of promoting the achievements of socialist China (Zhang et al. 1999). Tours organised in these times emphasised this with visits to factories or peasants and workers communes (Sofield and Li 1998). Interestingly, today's agricultural and industrial tourism in China is a legacy of these early forms of tourism in the People's Republic. It is a Chinese adoption of the idea of the creation of tourism spaces through the instrumentalisation of heritage (see Shaw and Williams 2004).

Generally, before 1979, heritage was not promoted. This changed with the Heritage Conservation Act of 1982, which focussed not only on the "buildings, sites, and memorabilia associated with the revolutionary movement" but also addressed "those ancient cultural sites, […] those valuable artworks and handicrafts representative of different eras in Chinese history" (Sofield and Li 1998, p.371). Again it is interesting, that the revolutionary legacy is again booming in China nowadays, under the label of 'Red Tourism'. Sofield and Li (1998) point out that there is still an implementation gap between the conservation measures attempted – mainly showing through provinces and local level administrations keenly drawing up lists of heritage sites - and applying the heritage conservation act due to uneven distribution of financial responsibility. This also becomes evident when looking at the problems that heritage protection has in preserving the Great Wall from falling into ruin. China's most famous attraction has no specific office that manages its preservation and local governments are mostly interested in its immediate tourism value than in its preservation (Sui 2004)[210].

With the renaming of the responsible agency to CNTA and a major revision of jurisdiction, tourism administration was detached from enterprise responsibilities, which remained with the CITS. These developments were pursued at the same time as the Heritage Conservation Act was introduced. Zhang et al. (1999) describe this period of tourism as 'disorder tourism', as the policies of the introduction of foreign investment and the decentralisation of tourism control resulted in unintended consequences. Besides, quantity was overemphasised sometimes for the sake of quality. A recurring example for this is the oversupply of luxury hotels that far exceeded demand - that was limited through arrivals and transportation availability (Zhang et al. 1999; Tisdell and Wen 1991 after Zhao Jian). To overcome this condition of disorder, in the second period from 1986-1991, the government enacted a Tourism Commission and adopted tourism plans; thus, it took a new role as coordinator and planner. Further, the government invested in a comprehensive, tourism education system and acknowledged the importance of international marketing promotion (Zhang et al. 1999).

In the meantime, tourism has become a major economic activity and is seen as one of the major pillars of Chinese economy for the future (Zhang and Lew 2003), with 11% of the GDP by 2020. The CNTA has formulated major policies in order to increase tourism development. Tourism is an important theme of the 10th Five-Year-Plan that outlines long term development goals of tourism for 2015 and 2020[211]. In 2000, the CNTA also conducted a survey on classification and evaluation of tourist areas. This led to the categorisation into 4A-A tourist

to high-value FEC bank notes; this basically omitted even the purchase of fruits on a street market. However, FEC were highly valued by the Chinese population and exchange from FEC to RMB (Renminbi) was a profitable black-market activity for both groups. The Chinese government renounced the FEC system in the mid-1990s.

[210] There are also other opinions – like that of Ho Kwon Ping – who claims that the government in China is well aware of the problems mass tourism is producing. He stresses that the government has no mindset problem but has to act against time (World Economic Forum 2003).

[211] The Tourism Development Program for the 10th Five-Year-Plan was formulated in 2000 and is based on two forums held in Nanjing and Harbin (CNTA 2001b).

spots (CNTA 2001a) we discuss further below. Given that tourism became an issue in the late 1970s with an early emphasis on attractions in the mid-1980s the second focus came rather late.

Interestingly, the question whether today's tourism policy in China is one of promoting centralisation or de-centralisation is disputed. For China 'the regional distribution of tourism exaggerates regional inequality in economic activity and income' (Wen at al. 2003, p.84). On the grounds of this regional inequality slowly decreasing, Wen et al. (2003) see a trend of centralisation as tourism brings "considerable economic benefits to inland China" (p.84). However, our analysis detects no considerable support of weaker economic regions through the promotion of tourist attractions there. This is striking as one would expect regional tourism to be related to the promotion of attractions. Further, compared to Wen et al. (2003) who mainly distinguished between coastal and inland regions, we add a different perspective to the definition of regions through adoption of the official view, as we discuss below.

Through the same mechanism that uses tourism development as a means of regional development, tourism policies in China are often related to other policy fields. A prominent example is that of cultural policy that often becomes intermingled with tourism planning, as Sofield and Li (1998) indicate[212]. Generally, the Chinese policy of heritage protection is much less strict than for example in Japan[213] (Sofield and Li 1998). In comparison, a neglect of heritage value is detectable, instead of attempting to save the authentic character of sights. Cultural policy is often used in a propagandistic manner, as e.g. minorities theme parks (so-called folk villages) are used to demonstrate the tolerance of Chinese socialism and thus embodies the governmental policy not only towards minorities but also democracy and religious freedom. For the sake of economic benefit and through political implications, heritage quality and educational value are low and "spectacle and entertainment seem to be rated more highly" (Sofield and Li 1998, p. 386). For this study, we may assume that the notion that is imparted by the government also finds an expression in the attitude of the people towards, e.g. authenticity.

The means by which the Chinese government promotes tourism are numerous, for instance, in 1992 the CNTA combined natural and cultural heritage sites to scenic routes, e.g. the Silk Road Tour or the Yangtse Tour (Sofield and Li 1998 after Wei 1993). In 1993, festivals and celebrations were used to promote regional tourism (Sofield and Li 1998 after Zhang 1995). Traces of these attempts are still recognisable especially when looking at local tourism providers.

Another obvious means of tourism promotion is the creation of tourist spots through the means of allocating attractions. Cheung (1999) describes the construction of a Heritage Trail in Hong Kong. It was designed to enrich the attractions of Hong Kong by a cultural element. In fact, it showed that the trail serves international tourist expectations of Hong Kong by representing the exotic East and for domestic tourists to serve as examples of the Old China. The perceptions of the two groups of tourists are therefore different. This shows that the

[212] Cultural policies related to tourism development stress the importance of minorities' heritage and festivities and other local traditions. When culture – or the preservation of heritage - serves as an argument to interfere in minorities' affairs the context becomes even clearer, e.g. the Chinese protection attempts of the Potala Palace that are officially justified as compensation for former neglect (of course the circumstances of neglect are no issue) are perceived by the Tibetans as another example for the death of their culture and a "showpiece of tourism for Chinese package tours" (Sofield and Li 1998, p. 375, citing Lodi Gyari – principal adviser to the Dalai Lama and president of the International Campaign for Tibet - after Hong Kong Sunday Morning Post, 7.8.1994).

[213] The authors' argument goes that Japanese heritage protection especially values traditional construction methods. Yet, the Chinese strive to follow traditional methods in preserving the Forbidden City (Bork 2006).

creation of spots can at the same time serve the utility of additional income, yet it can seldom predict the tourist connotations or expectations. Another example is the Shenzhen Mini World theme park that was first created to add to international tourism numbers, but later it showed that domestic tourists by far outnumber the initial target group. The creation of sights holds the risk of false planning, yet often favourable circumstances prevent major loss.

In the course of using tourism as a development tool in poverty stricken regions, in particular, nature reserves have been established. Other kinds of less capital-intensive means to support the rise in domestic tourism is the expansion of eco-tourism, exploration tourism, adventure tourism and agricultural tourism (Bowden 2005). Especially the younger generation of domestic tourists is increasingly interested in activity holidays, such as free-climbing or rafting.

There are a small number of major commercial players existing in tourism marketing lately. In the course of our study we examine some of these providers as sources for tourism information. We distinguish between sources using different languages and therefore targeting different groups of tourists. Furthermore, we make a qualitative analysis of marketing strategies popular in China. For this purpose we formulate a number of hypotheses that are examined during the study.

7.2.3 Hypotheses: tourism markets in China

The first group of hypotheses looks at the different tourism markets in China and defines the tourism information sources responsible for these markets:

(1): The Chinese domestic tourism market and the international tourism market in China are both important, albeit different.
(1a): Both markets are served by different sources of tourism information. These are distinguished for the foreign and domestic market by the language used, which determines the main target group.
(1b): The sources also differ in content. This is valid for foreign and Chinese official sources, as well as for foreign and Chinese commercial sources.

The second group of hypotheses relates to the promotion of tourism attractions and regions by different Chinese sources and focusses on the strategies applied:

(2): The number of overall spots that get promoted by the official Chinese sources (national level) and Chinese local level sources is high.
(2a): The use of marketing techniques to promote certain kinds of attractions - 'creation of sights' - takes place on the local level. The national level does not systematically promote locally supported attractions, i.e. the groups of promoted spots vary per level.
(2b): Local level attractions only get supported by the national level through the use of the ranking system, therefore the support is indirect.

The third group of hypotheses especially recognises the strategy of ranking attractions within the context of promoting regions:

(3): While China's official tourism provider uses the ranking system to promote certain areas and certain kind of sights, the ranking system is used more for the domestic tourism market.
(3a): Ranking supports the weakest provinces as a development tool.
(3b): A balance is envisaged across the various regions.

Further assumptions that are under investigation are whether the provinces that are preferred by the domestic market are also the ones with the highest GDP. This would mean that the market is clearly laid out when we further assume that most tourists also come from wealthier regions. As there are no departure numbers per province, we discuss the probability according to available data. Another assumption is that the provinces that dominate the domestic market are recommended by official Chinese sources irrespective of use of the ranking system.

7.3 Descriptive analysis

According to Lau and Tol (2006) there are major differences between the variables that reflect the preferences of foreign and domestic tourists in China. Consequently, if the preferences of domestic and foreign tourists have for China vary, they are also likely to differ for other destinations. Therefore it is inevitable to assume that the Chinese have particular preferences when going abroad, too. In order to evaluate if these preferences are influenced by information sources, this study produces an analysis of the share each source has in promoting tourist spots. Furthermore, the hypotheses detailed above are investigated. Additionally, popular marketing strategies are discussed and conclusions are drawn for the role the source of information might play in tourists deciding to visit a specific province.

7.3.1 Sources analysis: group frequency

A short analysis shows the significance of each of our source groups while building the database. The frequency of the source occurrence is decisive and Table 7-1 shows the distribution.

source combination by groups	total number per combination	total number per frequency
1-5	80	80
1-4	8	162
2-5	113	
1 3-5	9	
1-3 5	9	
1 2 4 5	23	
1-3	4	267
2-4	26	
3-5	49	
1 3 4	3	
1 3 5	3	
1 4 5	22	
1 2 4	33	
1 2 5	2	
2 4 5	77	
2 3 5	48	
1 2	19	789

2 3	12	
3 4	53	
4 5	251	
1 3	1	
1 4	176	
1 5	9	
2 4	170	
2 5	56	
3 5	42	
index	27	27

Table 7-1: source frequency: occurrence of sources in various group combinations

Only 6% of the tourist spots was represented by all groups, another 2% were only included by the Travel-China-Guide-index, another 12% and 20% were represented by four and three groups, respectively. This shows that more than half (60%) of all included tourist spots were represented by only two source groups (two sources altogether of different groups, compare appendix 9). In order to investigate the separate source groups' significance the number of their total occurrence, singularly and in combination, is calculated. Table 7-2 shows the distribution. For single occurrence the local Chinese source group is most prominent with 1093 occurrences. This indicates the importance of domestic tourism in China, as these sources are mostly in Chinese[214]. The second important group is that of foreign sources (793), which may indicate that the foreign market is mainly served by foreign sources. The group of the official CNTA follows closely (680); this may indicate that the official sources, which also target foreigners as their clients, have more importance than the more recent commercial providers.

Groups	Frequency
4	1093
5	793
2	680
4+5	624
2+4	530
3	460
2+5	408
1	401
1+4	354
3+5	353
3+4	341
2+3	300
1+2	178
1+5	157
1+3	117

Table 7-2: source combination frequency: occurrence of groups (single and in combination) sorted by frequency

The analysis of combined groups gives more information on the role these groups play for the marketing of tourist spots. In combination, the groups of *local Chinese and foreign sources*

[214] Some do exist with an additional English website, although these always lack the detail and sometimes are not even in use yet.

lead in number, as expected from their singular numbers. Both markets are important, but are served by different sources. Hypotheses 1 and 1a are therefore supported. The number is only slightly higher than the combination out of *local Chinese sources and official Chinese* source (CNTA). This proves Hypothesis 2, although it is not the highest combination. However, they would be more expected to correlate than the local and foreign sources, in terms that important spots should be mentioned by both levels, national and local. This result shows that the local and the national level assumptions on what is worthwhile seeing are not necessarily matching. Hypothesis 2a is therefore supported. If a creation of sights takes place on the local level, the national level does not necessarily support it. Instead the foreign sources are represented with a higher number in combination with local sources. This may indicate a high quality of foreign sources, as they seem to cover most of what is assumed to be interesting to tourists by all possible sources and levels. Therefore, the foreign sources provide a good mixture out of local and national must-sees. The next lower number of combinations is that of *foreign and official Chinese sources,* this indicates that there is only little overlap between them. And it proves that the foreign sources do not merely copy the official data. Hypothesis 1b is supported as the contents of foreign and official Chinese sources differ.

Altogether the data derived through the ranking system were the least important group. This source of information only contributed about 30% of all spots. In combination with other sources, its part is at 60%. From the combinations of sources, the *ranking system*[215] *and local Chinese sources* showed the highest number (354 from 1325 or 26% of combinations with the ranking system altogether). It can be concluded that the local source favourites also profit the most if they are also mentioned in the ranking system. Hypothesis 2b is therefore supported. The lowest context is found between the *ranking system and sources that have foreigners as a main target group*. It is possible to say, therefore, that ranking is more an instrument for the domestic tourism market in China, which supports Hypothesis 3. Although there have been attempts to introduce the ranking system to foreign tourists as well, and presenting some of the lists in English, the fact that these lists are mainly outdated (from 2001), and also lack some sub-categories (English sources only show 4A, 3A and A), makes them rather negligible as a marketing instrument for reaching foreign tourists.

Another interesting result is the low correlation between the *commercial Chinese source and the foreign source* group. This also supports Hypothesis 1b as the contents differ, although Hypothesis 1 has to be rejected as foreigners are the target of both groups. Although they clearly target the same group of tourists, the contents of these sources are quite different. This could mean that an additional market should be deliberately opened by the Chinese commercial sources. By using their knowledge of the region (in contrast to the foreign sources), they can strive to become competitive.

7.3.2 Regional analysis: an introduction

Splitting China into separate regions is common in the literature[216]. For instance, Wen et al. (2003) and Wen and Tisdell (2001) pursue an argumentation of regional development in the context of tourism development and apply a distinction between coastal and non-coastal areas. This distinction originates in the observation that the coastal regions of China developed earlier than the inland regions, largely due to their advanced status allowed by the Chinese government. By this means, they had the advantage of early economic support by foreign

[215] The ranking system is explained in detail further down.

[216] Apart from the distinctions introduced here there is another way in defining along major economic zones, e.g. the Yangtse River Delta or the Pearl River Delta Economic Zones. However, data compilation is difficult and inconsistencies are possible (Invest Hong Kong 2004).

investment in special economic zones. However, these conditions have changed. Although the coastal regions advantage is still felt, foreign investment is also now supported in non-coastal areas. Another regional distinction is along broader geographic regions, although highly artificial. This shows up especially when looking at the southern region that actually extends far into the north[217].

Figure 7-3: map of official regions

Figure 7-3 has a map of distribution based upon the frequently used regional system that can be described as quasi-official, since it has been adopted for the statistical yearbooks, for instance. One could argue that it would be better to add a central region[218] to complement the arbitrary south/north distinction. In our case, it is necessary to adopt the official version as we want to reveal any potential purposes in official policies by using this distinction. We therefore distinguish coastal (11 provinces) and non-coastal (20) provinces as well as the regions North (5), Northeast (3), East (7), South (6), Southwest (5) and Northwest (5). A statistical regression analysis by Lau and Tol (2006) shows a preference of domestic tourists for the Northeast and of foreign[219] tourists for the South.

7.3.3 Tourism marketing strategies: ranking, status-giving, and categorisation

The CNTA and related departments strive to standardise the management of tourism in China. In addition to macro-management, that is represented through a set of regulations and the increasingly important position tourism takes in the Five-year-plans, methods for evaluating 'star-rated hotels and creation of top tourist cities' are at the core (CNTA 2001b; CNTA 2001c; China Window 2006). The following section introduces a number of strategies related to tourist attractions, i.e. ranking, status-giving and categorisation. The former two are

[217] This is interesting for the foreign preference of the South. In contrast, the Northeast is clearly defined.
[218] Bowden (2005) apparently uses an interior region for comparison that rather is a non-Northeast, non-Eastern and non-Southern region.
[219] This is including overseas Chinese.

represented by at least two of three sources (CNTA, Yiqilai and Travel-China-Guide). These sources represent the official Chinese provider, a self-help network and a commercial provider, respectively. Additionally to showing the use of these strategies, we shed light on the regions that are being supported by them.

7.3.3.1 Ranking

A popular strategy by the official Chinese sources is the listing of spots according to their importance as perceived by the tourism industry. This ranking of sights that are worth seeing into the categories 4A (equivalent to most important), 3A, 2A and A (understood as more important than sights not included in this system) was introduced in 2001. The sights are appointed this status throughout the year, i.e. not specifically at the beginning or end of the year[220]. The ranking system was included in our database through group 1 using the CNTA list for the end of 2001. For this further analysis on the trend of promoting spots through ranking, we used the ranking lists of the years 2001 to 2004. This way we are able to say which provinces are treated with advantage, and whether these supported provinces changed over the years. In the course of this analysis we are able to evaluate Hypotheses group 3.

		N	NE	E	S	SW	NW
	number of provinces in region	**5**	**3**	**7**	**6**	**5**	**5**
ranks CNTA	*2001*	20	***100***	43	17	40	0
	2002	***60***	33	14	33	20	40
	2003	20	33	***43***	33	40	20
	2004	40	33	43	***50***	20	0
	total most occurrences	40	33	***43***	33	40	0
	total least occurrences	40	0	***43***	33	40	40
tourist numbers	*domestic tourists*	40	0	***57***	50	20	0
	Foreign tourists	20	0	***71***	50	20	0
	total	20	33	***57***	50	20	0
tourist cities CNTA	*total*	0	***66***	14	17	0	0
tourist cities Yiqilai	*total*	20	0	0	17	***40***	0
mountains travel-china-guide	*total*	0	0	***29***	0	20	20
mountains Yiqilai	*total*	0	0	***43***	17	20	20
all percent points refer to top provinces' occurrence related to a region							
total describes the total occurrence in all categories in percent							

Table 7-3: marketing strategies: share of most supported provinces per region

[220] A comparison with the Yiqilai-version of this ranking system supports this. The Yiqilai list of early 2002 already contains deviations from the CNTA list from 2001.

The trend for the ranking system shows mainly a decrease in total numbers per year. Altogether, 1405 sights were designated a 4A–A rank by 2004: 594 in 2001, 470 in 2002, 298 in 2003 and only 43 in 2004. The rank of 2A was appointed most often (648) followed by 4A (487) and 3A (174) and A with 96. For all years and all ranks, Zhejiang (98) was the most supported province closely followed by Shandong (95) and Beijing (93). Altogether, the Eastern region was represented most continuously followed by the Southwest, North and South. The Northwest was not represented at all in the most often represented ranks and is therefore least important, while the Northeast is fairly well represented in the upper ranks and not at all in the lowest ranks, which makes it a comparatively important region within the ranking system. This corresponds to some extent with the regression results (Lau and Tol 2006), as domestic tourists favor the Northeast and the ranking tool mostly aims at the domestic market. Table 7-3 shows the share of provinces per region that were being supported the most. The methodology applied here concentrates on the 10 most represented provinces and only through these defines the regions that are supported by the use of marketing instruments, such as the ranking system.

Interestingly, among the 10 most supported provinces are 8 that are also already leading in total tourist numbers (domestic and foreign 2002).This is the same for domestic tourism, but for foreign tourism there are only 6 supported provinces. This agrees with the assumption that the ranking system was not created to support the weakest provinces in the tourism industry. Hypothesis 3a receives a preliminary rejection.
Another interesting observation is that although domestic tourism numbers do not place the Northeast among the most favoured provinces, the regression results by Lau and Tol (2006) show that domestic tourists favour this region (ceteris paribus). The rankings of 2001 confirm their results. Consequently, these rankings are reflected by domestic tourism numbers in 2002. However, one could argue that it is not very likely that the effect of the ranking as a tool could show so soon. This would rather support the assumption that the rankings are orientated along existing numbers. In order to understand the motivation of rankings better, we further investigated which provinces were supported in more detail.

Provinces with a high total number of ranked sights also have a high number of sights across all ranks (4A-A)[221]. There is no general indication that provinces with a lower number of ranked sights are somehow more supported by being appointed more 4A ranks[222]. Provinces that are not appointed high numbers of ranked spots in one of the 4A-A categories are also provinces with low total numbers of sights[223]. Generally, for the first year of appointment (2001), the ranks 4A and 2A and for 2002 and 2003 2A ranks were mostly represented. In 2004 only 4A ranks were appointed. The 10 provinces with most sights did not get them appointed early in the process[224]. Six provinces[225] (out of ten with the largest numbers of ranked sights) got a significant number of sights appointed in 2003. This leads to the conclusion that there is a system of support behind these rankings, although it is not correlated to the rank height (which would mean that a lower number of total ranks lead to more 4A appointments), but rather to the total number of ranked sights (which means more lower ranks are appointed in order to increase the total number). This becomes evident as the 2002 and

[221] Notable exceptions are Yunnan (80) and Sichuan (67) - both Southwestern region-, that have a very high number of ranked sights altogether, but these are not rooted in number of sights of the 4A rank (18 and 14 respectively), but rather 3A (44 each).
[222] An exception is Fujian (Eastern region) that has a low total number of ranked sights (28) but most of them are 4A sights (22). Similar is valid for Guangxi (southern region, 27) with 16 4A and 10 3A sights.
[223] These are (number of sights in brackets): Guizhou (10), Ningxia (10), Hainan (7), Xizang (Tibet) (6), and Qinghai (3) (two each Southwest and Northwest and one Southern region province).
[224] Except Beijing and Shandong. Sichuan was clearly preferred in 2002.
[225] These are Hebei, Hubei, Liaoning, Zhejiang, Henan and Jiangsu.

2003 appointments clearly focussed on the 2A rank. It therefore seems quite likely that appointing the sights as ranked – and therefore important – even though not in the highest category, was supporting high tourism numbers in the provinces and is less focussed on expectations. The relation of 2001 ranking appointments of the Northeast and high domestic tourism numbers in 2002 is therefore less likely to be causal.

In contrast, more than half of the provinces with the lowest numbers of appointed sights were incorporated ealier (the trend was clearly only decreasing for them). Here a trend of creating spots was not pursued, but the provinces were made part of the system early, perhaps to prevent complaints of omission. This leads to the conclusion that some of the provinces with higher numbers were clearly supported (but this happened later in the process and therefore did not have an impact on tourist numbers at that time), whereas other provinces were rather neglected (but potential objections by them were shunned through early appointments). Therefore, the appointment of ranks to a fairly high number of tourism sights in China by the official tourism administration is used as an instrument in tourism marketing for specific regions, but not as a regional development tool. Hypothesis 3a is rejected. This is also verified by a detailed view of the regions supported most. Table 7-3 shows that the Eastern region again has the most continuously appointed ranks in 2001, 2003 and 2004. In 2001 the Northeastern region was clearly supported. In 2002 the Northern region was clearly preferred as was the Southern region in 2004[226]. The regions Northeast and South represent the areas most preferred by domestic and foreign tourists, respectively (Lau and Tol, 2006). The ranking instrument therefore has first supported the domestic market, whereas the foreign market was aimed at later. This is sensible as the domestic market is clearly in the focus of development right now.

Interestingly, the regions of the provinces featuring the most and the least ranks in total number are surprisingly balanced, i.e. the East, South, Southwest and North are equally represented with 2 provinces and equivalent percentage point in the most and the least ranks[227]. This could lead to the conclusion that there is a system of equalisation behind the attribution of ranks to certain regions. Hypothesis 3b is cautiously accepted.

7.3.3.2 Status-giving

Since 1986 a major focus of government tourism policies was on attractions (Zhang et al. 1999). The regression analysis includes several status-giving categorisations, e.g. the most famous tourist sights in China. We used two sources in order to do justice to both possible preference extremes, i.e. the Chinese tourists' preferences represented by Yiqilai[228] and the Chinese tourism industry preferences represented by the Travel-China-Guide[229]. Interestingly, the latter source presents over three times as many sights as must-sees as does the self-help network (253:76). This is equal to a share of 8.1 sights per province compared to mere 2.5 sights per province. It can be concluded that this overrepresentation is due to its commercial character. Interestingly, the sources bias towards N or C sights is different. The commercial provider targeting foreign tourists has 2.5 times as many cultural sights, whereas Yiqilai that exclusively addresses Chinese tourists has 1.5 more natural sights categorised as most worthwhile to visit. This underpins the conclusion by Lau and Tol (2006) that foreigners are

[226] Altogether the Northwestern region was least supported followed by the Southwest.
[227] The only deviation is the Northeast represented by one province in the most ranks and the Northwest represented with two provinces in the least ranks.
[228] We deliberately used the smaller list of 'China's key wonders' (zhongguo mingsheng qiguan), which presented categories that were roughly comparable to the other source's presentation instead of the non-sorted 'Our country's important tourism scenic spots' (guojia zhongdian lüyou fengjingqu).
[229] The list used is the index of China's major attractions, which is sorted into 13 categories plus 9 sub-categories.

more interested in cultural sights than domestic tourists in China. It also corresponds with the idea that nature is a preferred target for domestic Chinese tourists.

Generally, status-giving categorisations are often used by the Chinese tourism industry, e.g. that of historical and tourist cities. This policy was included in the National Tourism Plan 1986-2000 that initially focussed on 21 top tourist cities (Zhang et al. 1999)[230]. The sources used (CNTA and Yiqilai) provide diverse numbers[231]. Overall Yiqilai provides a number of cities more than double that of CNTA[232]. It shows that the provinces of Heilongjiang, Jiangsu, Hubei and Liaoning are supported by the official CNTA numbers, as these are comparably higher than the ones by Yiqilai. Whereas the Yiqilai source in comparison supports the provinces of Yunnan, Henan, Sichuan and Hebei. If we consider that the Yiqilai numbers represent tourist preferences more, and the CNTA numbers reflect more the official policies of the tourism industry, these results are indeed interesting. Apart from the fact that the areas covered are not matching, they also represent quite different parts of the country. CNTA strongly supports the Northeast of the country - which confirms the regression results of the domestic tourism preferences for the Northeast (Lau and Tol, 2006). In contrast, the self-help network prefers the Southwest of the country, although to a much lower degree. In table 7-3 the same system is applied as for the ranking system analysis, albeit with the leading 8 provinces[233]. It shows that the tourists themselves have indeed a different preference than the promotion of the official source indicates. However, only the trend described by the official source shows in the regression of domestic tourist numbers by Lau and Tol (2006).

In China, there are quite unique cultural features that influence the preferences of Chinese tourists, such as the concept of mountains being important for the cosmos (refer to appendix 9 table A4). Therefore mountains are chief places of pilgrimage irrespective of Buddhist or Daoist affiliations.[234] An analysis of the mountains referred to by different sources (Yiqilai and Travel-China-Guide) shows the following results. Both sources concur on the group of sacred mountains (*wuyue*)[235] and the most important Buddhist and Daoist mountains in China (group of 8, 4 each)[236]. Again the total numbers of mountains is deemed to be almost twice as important with Yiqilai. The sources also show different categories[237]. Due to a much smaller sample number for mountains,[238] table 7-3 concentrates on the smaller and uneven number of supported mountains, excluding the *wuyue*. This shows us which regions are important and become supported by the fact that famous mountains are attributed to them. Both sources show a preference for mountains in the Eastern region[239]. Regarding the classification of mountains as far as they are represented in our database, the N mountains are dominant with 20 out of 26 (7 are not in the database). This would harmonise with the expectations that

[230] In 2006 the number of important tourist cities was 39 (CNTA 2006b). However, we refer to the earlier numbers.

[231] The names of top tourist cities and second rank tourist cities (CNTA) are exclusive. The numbers are lower overall than the ones derived from Yiqilai. They distinguish between excellent tourist cities and most famous historical tourist cities as non-exclusive categories.

[232] The regression result of domestic tourists shunning cities was achieved without including Yiqilai as a source.

[233] These were the best to identify.

[234] Despite this, mountains are insignificant within the regression analysis by Lau and Tol (2006).

[235] These are five mountains for all four directions and the middle: Taishan (East), Hengshan (South), Huashan (West), Hengshan (North) and Songshan (Middle).

[236] This means they agree more or less, one deviation by the Travel-China-Guide seems to be a mistake, so it was ignored.

[237] For instance, the Travel-China-Guide introduces the category of 'other famous mountains'. Yiqilai goes along with that (in two ranks even), but also has internationally famous mountains.

[238] That is in contrast to the tourist city analysis.

[239] Altogether the Travel-China-Guide supports less mountains and these concentrate on Guizhou and Jiangxi – both inland provinces, one Southwestern, one Eastern. Gansu – another inland province to the Northwest – and Zhejiang are supported by both sources. Zhejiang is a coastal Eastern province and Yiqilai supports another two eastern coastal provinces (Fujian and Jiangsu) and one more Southern coastal province with Guangdong. The Southwest is represented by the inland municipality Chongqing.

Chinese tourists seek natural areas, although mountains are insignificant to domestic tourists (Lau and Tol, 2006).

7.3.3.3 Categorisation

A categorisation of attractions that is unique to Chinese sources is that of industrial and agricultural sights. Altogether there are 306 such sights listed (HNTA 2005a)[240]. These split into about two-thirds of agricultural sights and one third industrial sights. Most provinces feature more agricultural sights than industrial sights, with Jiangsu, Anhui and Guangdong showing the largest difference between the two options (16:4, 17:6 and 14:6 respectively). Only five provinces have more industrial sights than agricultural sights (Fujian, Jilin, Shandong, Shanxi and Zhejiang) and two are even (Gansu and Liaoning). This does not correlate with the percentage that the agricultural or industrial industries represent in these provinces. It is interesting that agricultural sights are so prominent, given that only very few provinces have a comparable share of agriculture in their GDP. Another reason for deviations is that this categorisation is highly artificial, which becomes clear when taking a closer look at the definitions behind them (HNTA 2005b).

Agricultural sights range from:
- visiting rural homes and villages with options of experiencing rural life by working in the fields
- agricultural entertainment, i.e. pick fruits, fishing, plant vegetables, enjoy picnics, but also learn about the techniques of plantation
- agricultural technology miracles, i.e. visit high-tech farms, learn about new or rare species
- and countryside holidays.

It is clear that the options range from activity visits and educational experiences to leisure stays. Agricultural tourism is especially promoted as a means of supporting poor regions (Bowden 2005). Industrial sights cover mainly the experience of watching a production process and learning about products and firms. Sectors are as different as the movie industry, automobile and Chinese liquor (*maotai*) production. A famous example is the opportunity to visit the Shanghai Baogang steel plant. There is a third group of sights included in this kind of categorisation: commercial and trade sights, which usually comprise technical economic zones within urban areas. Generally, the agricultural and industrial sights are situated in the suburbs of big and middle-sized cities, with the urban population as the target.[241]

After discussing the variety of marketing strategies that are used in Chinese tourism promotion, we further investigate if certain regions are promoted by different sources and in how far the distribution of spots is relevant for tourist numbers.

7.4. Regional analysis: sources

We take a closer look at occurrence of preferred regions by different sources compared to the result derived through the compilation of our database. We compare the average tourist spots numbers (own database) and tourist sights numbers by the Travel-China-Guide and Yiqilai for classifications of culture (C) and nature (N) for provinces in the various regions. Table 7-4 reflects the aggregated results.

[240] Again the sources show huge differences in numbers given; we took the most comprehensive list.
[241] The definitions of these categories do not match our own classifications. Lau and Tol (2006) did not include them in their regression analysis.

		N	NE	E	S	SW	NW
	number of provinces in region	**5**	**3**	**7**	**6**	**5**	**5**
tourist spots	*C*	***21,5***	10,2	17,2	16,7	19,2	15,2
	CN	20,5	8,1	***27***	15,6	20	9,1
	N	12,4	19	21,4	17,4	***24***	5,8
	O	15,2	***34,1***	17,4	18,9	9,8	4,5
	OM	14,5	***27,7***	20,5	15,7	12	9,6
	total number	17,6	15,7	***19,9***	17	19,6	10,2
tourist sights travel-china-guide	*C*	***26,5***	3	16,9	15,1	12,7	25,9
	N	17,9	2,4	***30,1***	20,3	16,3	13
	total	***24***	2,8	21	16,4	13,5	22,3
tourist sights Yiqilai	*C*	22,9	5,7	***26,8***	24,9	11,5	7,6
	N	18,4	2,4	11,5	11,5	23	***32,2***
	total	19,6	4,2	16,8	18,9	18,2	***22,4***
data refer to percentage of attractions per province in a region total number is the sum of the foregoing total describes the total occurrence in all categories C = cultural; CN = cultural-natural; N = natural; O = other; OM = other-mixed (compare appendix 9)							

Table 7-4: regional analysis: share of regions per classification and sources

Regarding the tourist spots the Eastern region is represented most, although with a relatively constant percentage of attractions per provinces; followed by the Southwest and North. The representative distribution among the regions differs more for the various classifications. C spots are quite evenly distributed across all regions except the Northeast. CN spots are strongly represented within the East. N spots mostly exist within the Southwest followed by the East and Northeast. The representation of O and OM spots is clearly dominated by the Northeast.

Altogether it shows that the Northeast indeed dominates regarding 'other' spots, clearly confined against its under-representation for C and CN spots. The Northeast also scores a fair result for natural spots N. In this context, a preference of domestic tourists for the Northeast makes sense. It furthermore corresponds with results by Lau and Tol (2006) that nature is an important feature for domestic tourism, albeit the size of natural areas and not the number of spots. As the Northeast still features vast forest areas that are not necessarily listed as specific tourist attractions in our database, the result is coherent.

Some differences are detectable for the commercial provider and the self-help network. The former shows an equal representation for C spots in the North and Northwestern regions. The N spots, in contrast, are represented in the East and less often in the South. Altogether the North is represented most strongly. For the self-help network, C spots are located in the East, South and North. N spots are clearly dominated within the Northwest which results in a total

dominance of the Northwest even for both (C plus N). The Northeast is clearly underrepresented by the self-help net and the commercial provider. Also the South does not score very highly.

Apart from the commercial provider suggesting the North as most representative for the C spots, the results are not coherent with the relative importance of actual existence of spots in the various regions. Moreover, the commercial provider and the self-help net have completely different opinions in their representations of C and N sights. Taken that our database is the most complete, since it is derived from a number of sources, these results may point at the fact that the providers investigated favour different regions, and deviate from the actual supply. We are left to speculate why this is the case. An explanation may be that foreign and domestic markets are indeed different and preferences deviate from official opinions regarding the classification of culture and nature.

7.4.1 Regional analysis: provinces

Further assumptions that are under investigation are whether the provinces that are preferred by the domestic market are also the ones with the highest GDP. In fact this is the case.[242] Considering that travelling costs money, we assume that most tourists also come from these provinces. Therefore the market is clearly laid out across the East followed by the South and North.

Another assumption is that the regions that dominate the domestic market are recommended by Chinese sources[243]. This is only partly true. The ranking system shows an overall preference for the East. The status-giving instrument of tourist cities supports these regions only on average. For tourist sights by commercial providers, the North is clearly preferred and the South comes close to it, nonetheless the South is not especially supported (instead it is the Northwest). Tourist sights by the self-help net also only show a high score for the North, which also is still lower than the Northwest.
We conclude that although in some parts of the analysis marketing strategies are identified as supporting regions that show high tourism already, an overview of all marketing features reveals that this is not a consistent system. However, a clear support of underrepresented regions is not detectable.

7.4.2 Regional analysis: classifications

The total 1325 spots in our database are split into 42% of C spots, followed by 31% of N spots, 14% of CN spots and 10% of O spots; with 3% OM spots. There are 22 provinces that form the top ten of all classifications, which shows that the groups are not homogenous across the classifications, i.e. there are different provinces representing the highest numbers for O spots, for instance, than for N spots. For details refer to appendix 10. Except for Henan (total position ten, two classes) all provinces that are represented in the top ten positions are at least represented in three classes. All of them have at least one top position (position 1-3) in one of the classes, except for Shanghai and Zhejiang (total position 8 and 9) that are only represented in the lowest position group (positions 7-10) four times and three times, respectively. This shows that the provinces leading in total tourist spots numbers are represented strongly (at least three times, except Henan) but do not necessarily need to be represented among the

[242] As we lack numbers of departure per province we are unable to give evidence, yet we discuss the probability according to available data.
[243] Here the CNTA and Travel-China-Guide are investigated.

highest positions for one or more of the classes.[244] It also means that no province can be clearly defined as being the representive cultural or natural attraction. Classifications are mostly heterogeneously distributed. It also means that promotion is less likely to be defined along different types/classes of attractions.

7.4.3 Regional analysis: county-based

The county-based analysis gives insight on the spatial distribution of tourist spots. The mean spots number per province is 42.7. Per province, a mean of 13.4 administrative units at the county level and below[245] (administrative unit hereafter) feature tourist spots. For the whole country, only 8.1% of all administrative units feature tourist spots. The highest concentration of tourist spots per administrative unit is found in Jiangsu[246]. From the top ten provinces with the most administrative units featuring spots, six also have the most tourist spots in total[247]. Anhui is the province with the least mean spots number per administrative units that feature spots (1.5) and Jiangsu ranks highest with 7 tourist spots per administrative unit on average. Generally, a higher concentration may facilitate access to tourist spots, but less spreads development of tourism evenly within the provinces.[248]

We therefore take a closer look at the distribution by using GIS application. We produced maps with the administrative units featuring tourist spots (with number of spots) - total per province and sorted by classification C, N, CN, O and OM. Additionally a five-fold buffer was created to display the distance of these units with spots from the province capital, reflecting distance of 50, 100, 150, 200 to 250 kilometres from there. Through this we were able to investigate how far the major share of tourist spots is away from the province capital. We assume that the transportation options are generally most convenient from the province capital[249], especially as the domestic tourism is highly depending on train transportation and also foreign tourism is dependent on a dense railway network (Lau and Tol, 2006). Bus connections are the second most important travel option. For domestic tourism the regression results of railway and highway length confirm this. Flight connections are still less important and our results on the insignificance of airport numbers for a share of tourism by the province (domestic and international) suggest the same.

The distance analysis takes 363 administrative units for the whole country into account. In terms of accessibility the distance analysis reveals that 26.7% of all spots counted within a province are situated within the 0-50 km buffer of the province capital or municipality centre.

---

[244] Shanghai and Zhejiang are therefore not over represented among classes but still through a consistent (low homogenous) representation make the top ten by numbers. Another observation is that a province is represented twice very high and once low, which also qualifies of being part of the top ten provinces for total numbers, these are Guangdong and Heilongjiang. Both provinces lead with O and OM spots, and are lower represented in C and N, respectively. Surprisingly, is the representation of Shaanxi at the second position in C spots and otherwise not among the top ten for any of the other classes. Similarly is the positioning of Shanxi at positions 5 and 4 in C and OM, equally not qualifying the province for a position among the top ten for total numbers.

[245] I.e. including towns and their districts, prefecture districts and counties, as well as autonomous counties and regions, and the more rare industrial and agricultural districts, forest and mining districts, islands and archipelagos and special districts and the administrative danweis of major districts, that may have military purpose.

[246] This is followed by Tianjin, Beijing, Xizang and Guangdong. The high concentration for Tianjin is especially notable as the municipality features a medium number of spots in total but has only five administrative units that feature spots.

[247] Out of this group only Guizhou, Sichuan and Hebei rank comparably higher in number of administrative units than in total tourist spots numbers.

[248] However, the numbers on administrative units per province were not used in the regression analysis, as the system how total numbers of administrative units in the provinces are achieved is unclear. They do not seem to be dependent on the size of province, nor the number of population. Therefore our numbers can only give information on the spatial concentration of spots per province but not on the context with tourism numbers.

[249] Chu (1994) includes this factor as distance to population centres. Zhang (1997) defines domestic tourism as predominantly urban demand.

Interestingly the second highest number is that of 19.8% that are situated outside the buffer zones considered, i.e. more than 250 km away from the province capital. Following our earlier assumption that accessibility depends on distance to capital, this leads to the conclusion that a significant number of spots are not easily accessible.

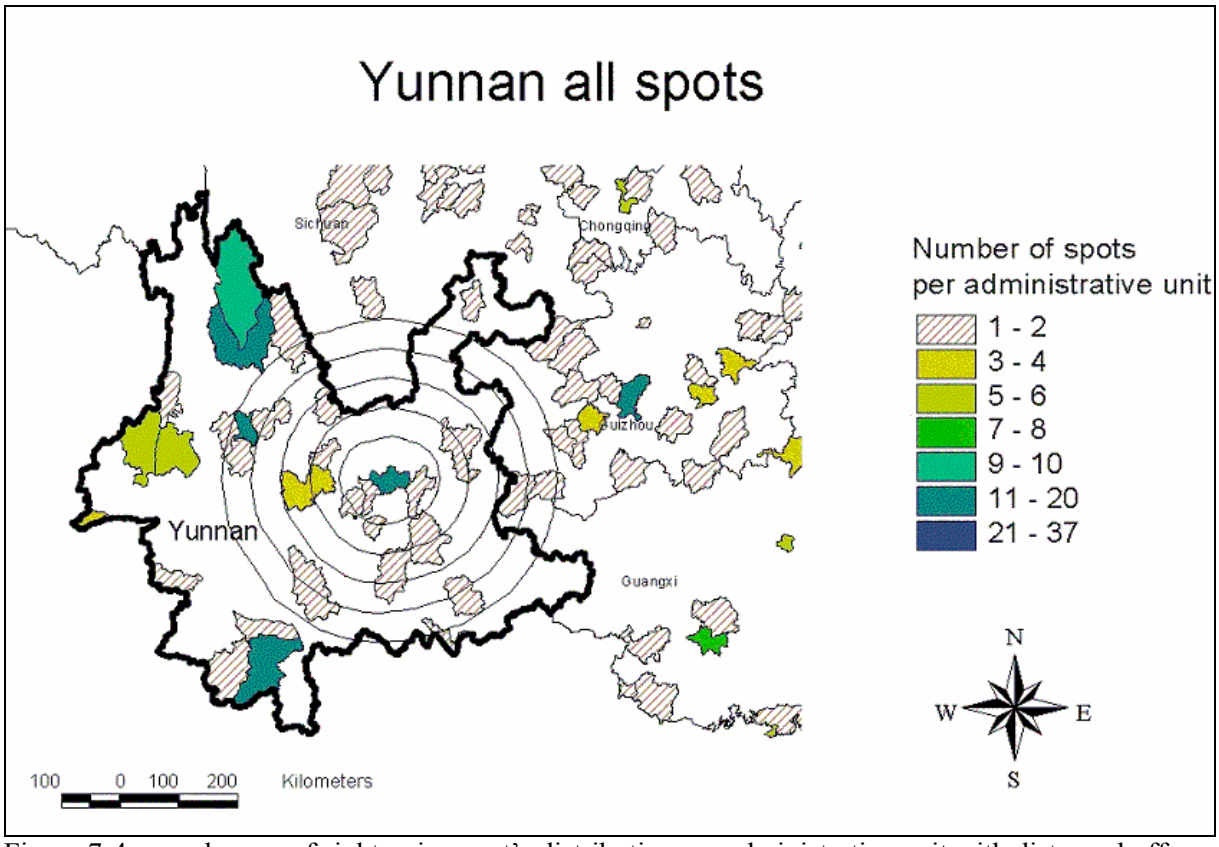

Figure 7-4: sample map of sightseeing spot's distribution per administrative unit with distance buffers

Chu (1994) points out that a sightseeing area also depends on the distance to neighbouring tourist areas. As we look at the sightseeing potential at the province level, we take up this idea and apply it to administrative units with spots in the buffer zones, but related to other neighbouring provinces. Figure 7-4 has a sample map that reveals the concept applied for Yunnan. This way we add to the 363 counted units another 216 units that are located in buffers of neighbouring provinces. Table 7-5 has the results of total numbers of units considered in all buffers.

Zones	number of units within province	number of units in neighbouring province
0-50 km	97	3
50-100 km	57	13
100-150 km	50	56
150-200 km	50	59
200-250 km	37	85
outside buffer	72	-

Table 7-5: total number of administrative units per buffer

It becomes clear that in buffers from 100 km upwards, the number of administrative units with spots in neighbouring provinces is already higher than the ones in the provinces actually

considered. While distinguishing into spots within a province or a neighbouring province, it shows that 16.8% of all administrative units with spots are within the province considered and in the 0-50 km buffer zone. Surprisingly, the next highest number is that of 14.7% of units with spots in the 200-250 km buffer in neighbouring provinces. Within the buffers 100-150 km and 150-200 km, the units with spots in neighbouring provinces outnumber the units within the provinces buffered. Looking at the four highest positions, these make up over 50% of all units considered and a half of these are located in neighbouring provinces. In contrast, only 37% altogether are located in neighbouring provinces. This shows that a significant number of province capitals are located close to the borders of neighboring provinces – from 100 km upwards, which is due to shape of provinces and a significant number of attractions being situated there. For the matter of accessibility, this means that it is important for tourism development in China to allow easy access to units with spots across provincial borders. In relation to railway connections this is a challenge as lines mostly link major cities (like Beijing-Shanghai) or focus on province-wide transportation, with less capacity and long running hours. Another factor is difficult ticket availability in remote areas, which influences the return to a capital in a neighbouring province, which is especially important for individual tourists on short trips (e.g. day trips).

The analysis on the basis of administrative units with spots gives the opportunity to comment on the distribution of spots in China (for all spots we did that at the beginning of this paragraph). Regarding the categories of zones considered, i.e. along the actual number of spots located in an administrative unit (see map in figure 7-4) the analysis shows that the majority of units, i.e. 67.5%, has 1-2 spots. The number of units quite expectedly decreases with a rise in number of spots[250]. The same goes for all classifications by N, C, CN, O and OM. Again, Chu (1994) pointed out that neighbouring tourist areas should also be evaluated along their nature, i.e. if they are alike or different. We therefore take a look at the actual distribution of sights per classification; yet, we refrain from detailed analysis per province[251].

Results show that there are more units with N spots than with C spots. Interestingly, this result differs from the total share of N and C spots in the database. We can therefore conclude that N spots may be less prominent than C spots in total, but their distribution across the country is larger. Compared to total numbers, the distribution of C spots drops by more than 10%. All other classifications show a slight increase in percentage points. Interestingly, there are no N spots placed in administrative units of the group of 18-21 and 22-37. This could be explained by the fact that N spots are usually more ample than C spots or O spots; in this sense a small administrative unit has less spatial capacity to host as many spots. To find an explanation for O and OM spots to be mostly situated in administrative units with a lower number of spots than 14 is more difficult. Perhaps the rather modern nature of such spots is used to compensate for the low number of spots - historical C or grown N - in general. The distribution of CN spots is similar to that of N spots. This again leads to the conclusion that the distribution of N spots is related to a lower total number of spots per unit. This may also explain why domestic tourists who apparently favour nature are therefore not necessarily going where a high number of spots are. As ‘spots’ were insignificant to domestic tourists in the regression analysis, this harmonises with our earlier results.

A closer look at the regional distribution of provinces per strength of C, N CN, O and OM spots *units* in table 7-6 reveals that the Southwest clearly leads for classifications C, CN and N (and is clearly among the least representative for O and OM spots). Whereas the Northeast only scores high for O spots (and is rather among the least representative regions for CN spots)

[250] Except for the group of 18-21 spots per unit that outnumbers the group of 14-17 by a small percentage.
[251] This is left to a follow-up analysis using the existing database.

the South very dominantly leads for OM spots. This makes the South and Southwest the most incongruent regions. The Northwest is clearly among the least representative regions for N and O classifications.

		N	NE	E	S	SW	NW
	number of provinces in region	**5**	**3**	**7**	**6**	**5**	**5**
tourist spots	*C*	18,7	12,5	14,1	17,3	***19,7***	17,6
	CN	20,3	5,3	21,3	10,6	***29,8***	12,8
	N	10,5	14,2	20,9	14,5	***30,4***	9,5
	O	20,7	***29,6***	15,6	14,8	11,9	7,4
	OM	7	7,6	8,1	***68***	4,7	4,7
data are percentage of adm. units with attractions per province/region total number is the sum of the foregoing C = cultural; CN = cultural-natural; N = natural; O = other; OM = other-mixed (compare appendix 9)							

Table 7-6: regional analysis: share of regions per classification and spots per administrative unit

The results for the analysis of administrative units, with spots per region and classification, only partly corresponds to the results we achieved with the database for the representation of the regions per classification, based on provinces with tourists spots (compare table 7-4). The only results that are clearly confirmed is a high importance of N and O spots that also show in the distribution of spots among Southwestern and Northeastern regions, respectively. The most widely deviating results show in the Southwestern dominance of C and CN spot distribution. This means that there is an average number of such spots per province that is distributed comparatively broadly among administrative units. This also points towards a relatively difficult access because of this wide distribution.

As we also like to consider the more classic distinction of regions into coastal and non-coastal, we add a specific observation. The number of administrative units with spots directly located at the coast is not related to the coast length of the provinces. On average 25.6% of the units with spots are located at the coast. With significant regional differences though: Hainan, Fujian, Shandong and Zhejiang have a higher than average percentage, 70%, 40%, 36.4% and 26.7% respectively. The least share of coastal units with spots show in Guangxi (11.8%), Jiangsu (7.7%) and Hebei with mere 5.9%. This is interesting, as the latter has a strong reputation as a province with beach resorts[252], Guangxi is also investing into this theme and Jiangsu has a high percentage of wetlands along its coastline. We can cautiously assume that a beach holiday is not a major factor in drawing tourists to the coastal provinces[253], but other features must be more dominating. In this regard the wish to visit a rich and trendy region may be more determining[254].

[252] This is with Beidaihe as a famous cadre resort.

[253] Of course there are examples of beach holiday resorts especially in the provinces with a high number of administrative units of spots located directly on the coast, such as Shandong. But also here the use of beaches is diverse and spans from high cadre beaches, beaches used by sanatoriums to marine military bases and typical city beaches (Schwickert 1989). Although seashore tourism is a topic by the official Oceanic Administration Network (COIN 2004c) still a beach holiday in China has not the same position than in other (South)-Asian countries. Xu (1999) specifically mentions beach-holiday in his case study on Beidaihe; yet, he here focuses on the difference between danwei-financed and individual tourism.

[254] This is partly indicated by Xu (1999), too.

7.5. Discussion and conclusion

While considering the literature on travel motivation by the Chinese, in the following we translate our results into strategies that Western tourism markets should take into account when targeting Chinese travellers. In this context, we also discuss the success of Chinese tourism promotion in China.

7.5.1 Chinese tourists and their travel motivation

Generally, the trend towards individual travel, as detected by some studies, points at a higher degree of venturesomeness. Unfortunately there is no information available on the venturesomeness of Chinese people. However, Plog (2002) shows a direct connection between venturesomeness and variables that strongly resemble culture and nature aspects. Yet, the variables he suggests as related to venturesomeness are mostly cultural and to a much lower degree natural. As Lau and Tol (2006) show, Chinese domestic tourism is more related to natural aspects (in contrast to foreign tourism that includes both). Therefore there is a good reason to believe that Chinese (domestic) tourists are less venturesome than the average foreign tourist that visits China. Considering that this basic attitude is the same for domestic travel and holiday abroad, this would mean that the Chinese are venturesome less than average and probably will not conquer the West as tourists. After Plog (2002), the income argument is less decisive. We therefore propose a need for more detailed studies on the psychology behind Chinese travel behaviour, when aiming at the prediction of numbers of Chinese travellers to be expected worldwide.

Historically, the Chinese are more likely to be dependables rather than venturers (when considering basic development such as that witnessed during the Cultural Revolution and attitudes developed in the reality of a Socialist society), but there is a good chance that historical legacy turns out to be less important and that the younger generation has a different attitude. This speaks for a perspective taken by Zhang and Lam (1999) who rate the motivation of Chinese outbound tourism along a development scale. They emphasise that Chinese traveller motivation may be different to that of a more mature tourism market.

A study by Kim et al. (2005) shows that the Chinese have a preference for democratic countries that have long history and are culturally different from China. Furthermore, they defined Germany and Australia as the places preferred most by Chinese tourists because of their beautiful scenery. The wish to experience different cultures is also expressed as a feature of self-development used by Pearce and Lee (2005). They also relate an interest of culture and nature to the travel experience. When interest in nature is positively correlated to travel experience, the Chinese boom may undergo a time lag, as the Chinese tourism market is still in an early developmental stage.

The assumption by Ryan (2003, after Wearing and Wearing 1996 and Ryan 2001) that tourists are collectors of experiences and thus providing a meaning to the places through which they pass may be an argument for the Chinese going on the one-week Europe tour to see all the places they have heard of with their own eyes. Yet, the assignment of meaning can also lead to unexpected results. Although the once-in-a-lifetime-visit to a holy mountain is a culturally defined necessity in China, Lau and Tol (2006) show that holy and famous mountains are not significant for domestic Chinese tourism. This may indicate that Chinese tourists are also not especially interested in visiting mountains when going abroad. If they do so, they are more likely to be drawn by the aspect of nature; this again would correspond with Chinese interest in natural surroundings.

On the other hand Sofield and Li (1998) showed that nature is perceived differently in China through massive cultural connotations; therefore nature may be less of a preference for Chinese trips abroad. The authors also explain that the strong context of an attraction with cultural interpretations in China leads to a tourism experience of its own worth[255]. This also means that the authenticity as Western tourists in China expect it – and that is often not met – as well as the authenticity Chinese travellers expect are basically different. It is a factor that decides whether the average Chinese traveller is bound to go and see the real Eiffel tower or is satisfied with consuming a dwarfed reproduction at the Shenzhen Mini World and retains this experience in a photograph. However, the authors also admit a difference between the cultural interpretations of own heritage and that of other cultures. As Chinese people lack a shared cultural knowledge of e.g. European culture, the tourist gaze may be stronger and lead the traveller to search for the real experience.

Although expected tourism numbers can be disputed, given the strength of the Chinese nation in number of citizens, for many countries it is tempting to welcome only a small percentage of projected Chinese travellers. In the following we focus on the question as to how far promotion in China is impacting on tourism numbers. In parallel, we develop basic recommendations about international promotional content for Chinese travellers.

7.5.2 Tourism promotion in China and recommendation to international providers

Apart from promotion strategies that need to focus on specific preferences of Chinese tourists, it is important to look at service conditions in the destination country. Reisinger and Turner (2002a) identified the following conditions a tourism provider must meet in order to satisfy Chinese travellers:

- punctuality in the sense of timing and responsiveness of service
- interaction as preference for certain forms of social interaction
- perceptions of understanding as the ability of the host to anticipate and understand the individual needs of the tourist, i.e. – among others – to speak the language
- rules of feeling display and disclosing personal feelings in public
- satisfaction with the provider and the time spent together.

It is questionable if these characteristic aspects only hold for Chinese tourists going abroad (in Reisinger and Turner's (2002a) study it is Australia) or if they also hold for domestic tourism in China. Punctuality is especially problematic when viewed in a domestic Chinese context. Reisinger and Turner (2002a) recommend for host countries that receive Chinese guests be punctual and competent in Mandarin. The latter recommendation is increasingly realised and partly met by tourism providers in Europe (FAZ 2003; Spiegel Online 2005; Hoffmann 2005).

Our analysis shows that the domestic tourism market in China is clearly laid out in the Southern and Eastern regions when looking at provinces that are visited; furthermore case studies of Xu (1999 on Guilin and Suzhou) indicate that most visitors come from these regions. One aspect that may have contributed to a calculable market is the fact that tourism cities were chosen early and project development was financially aided as part of long-term policies (Zhang et al. 1999). Although tourism has been selected as a key industry for development in economic backward regions (Wen and Tisdell 2001), our analysis indicates that the same economically strong regions are still being supported through official marketing

[255] For instance the Yellow Crane Terrace is immortalised by a poem of Li Bai 1300 years ago. The consumption of a reproduction still produces an authentic tourism experience through the shared cultural knowledge of the poem (Sofield and Li 1998).

strategies. Thus, domestic tourism promotion follows existing tourism numbers and a use of marketing strategies as a regional development tool is not detectable. In contrast, a balance of supported regions is obviously envisaged.

Altogether the sources are not homogenous in content, for there are many different opinions on which attractions and which regions are important in China. This notion is not simply to explain different markets. Official and commercial providers have a greater influence on decisions made by domestic rather than foreign tourists. The use of status-giving instruments harmonises with the preferences of domestic and foreign tourists for culture-nature preferences. But it is difficult to say, if the instruments meet a demand or if the preferences are generated to a specific extent in the first place. This is valid for both official and commercial providers. The only deviating source in domestic tourism is the Yiqilai self-help net. This may indicate that preferences that are reflected by official and commercial sources are in fact generated preferences. Yet, only official trends show in tourism numbers, indicating that official sources are still decision-making. However, our analysis for all marketing strategies shows that there is no consistent system behind tourism promotion in China; a generalisation for all Chinese sources is not possible.

As classifications are most heterogeneously distributed among provinces, i.e. no province is clearly leading in cultural or natural attractions, for tourism promotion in China it is less useful to define classes or types of attractions. Yet, this is the common way, as the Travel-China-Guide-Index and the lists that we analysed by CNTA and Yiqilai show. Promotion is also orientated towards cities, whereas it becomes clear that especially domestic tourists rather shun provinces where cities are promoted and also foreigners care more about other attractions than tourist cities (Lau and Tol, 2006). This may indicate that foreign countries should promote regions and attractions more instead of relying on the interest in cities shown by the Chinese tourist. It is probably more advantageous to promote a natural surrounding or setting of a city than the urban lifestyle itself.

Tourism preferences are influenced by sources and marketing strategies as well as major differences between domestic and foreign tourist preferences in China (Lau and Tol, 2006). It is likely, therefore, that preferences also differ for other destinations. This makes it critical to identify what Chinese people generally prefer.
Results from our database analysis define C classifications as the most prominent. From these, the imperial epoch has the highest score. Although most frequent in number, cultural attractions are less important and imperial time spots in fact deter Chinese domestic tourists (Lau and Tol, 2006).
This may explain why tourism promotion emphasises ‘Red Tourism’ and with it another time epoch, yet, this also does not raise domestic tourism numbers. Such an emphasis is, in contrast, worthwhile for foreign tourists given that they prefer cultural attractions and that most of them in China are from imperial times. According to Kim et al. (2005), foreign countries should especially indicate long historical traditions in order to interest Chinese travellers.

The Chinese are interested in their own country, otherwise domestic tourism would not be booming, but they are less interested in their own culture. This again speaks for a preference of natural features in the own country. Yet, Kim et al. (2005) point out that for Chinese going abroad it is especially the foreign cultures with a comparable length of historic tradition that attract them. In this case, it would not be valid to say that we can generalise from domestic travel preferences to international travel motivation. This would also mean that the Chinese

are more the novelty-seeking type of tourists with a certain aspect of home-likeness, i.e. they show a special interest in cultures that can compete with their own[256].

The amount of natural area is preferred by both domestic and foreign tourists and less the number of nature spots (Lau and Tol, 2006). Therefore, planning of natural tourism in China should consider emphasizing the preservation of nature rather than its utilisation through a larger number of tourist nature spots. Likewise countries that like to attract Chinese visitors can build on a supply of natural tourism experience.

In our analysis, the numbers of N spots is not related to an overall high number of spots per administrative unit. As domestic tourists prefer natural areas, they are less likely to go to places that have exceptionally high numbers of attractions per administrative unit. Therefore, promotion of high attraction numbers may tend to deter domestic tourists, although this needs to be tested properly.

An additional analysis of spots classification, with more detail than the broad culture-nature dimension, is necessary to explain regional preferences. The Northeast is clearly preferred by domestic tourists. The number of tourists is high, as is that of N and O spots anyway. A simple regional analysis leads to the conclusion that N is the major preference that is supplemented by O spots. In combination with the fact that imperial time spots deter domestic tourists, this also points at an importance of O preference. The itineraries of Chinese travellers to Germany show that many attractions included would fit our O category (FAZ 2003; Hoffmann 2005). In combination with an extensive study on preferred attraction classifications, this may guide countries to even more tailored offers.

After Lau and Tol (2006), the distance nominator for China and Taiwan deters less than it does for citizens from Hong Kong and Singapore. Generally, the Chinese dislike travelling far, so it is less likely for them to come to Europe. Western countries need a strong pull-factor.

Our analysis includes the dimension of easy access to attractions. A significant number of attractions is not easily accessible, i.e. more than 250 km away from the province capital or municipality centre[257]. The position of capitals in neighbouring provinces are likewise important and show that the accessibility of attractions is to high degree dependent on easy access across province borders in order to facilitate tourism. In terms of railway linkage and ticket availability, these are huge challenges for China. Generally, providing access to sightseeing spots is important. Yet the transportation system is not only dependent on availability but also on traveller preferences and prices. Lau and Tol (2006) indicate that a rise in airport numbers does not necessarily lead to higher visitor numbers.

According to Lau and Tol (2006), coasts are irrelevant to Chinese international travel preferences, whereas they favour their own coastal provinces. Likewise the regional analysis of coastal administrative units, with spots directly on the coast, reveals that in China 'coast' does not reflect a beach holiday but rather the wish to visit a rich and trendy region. Therefore, foreign countries should refrain from emphasising beach promotion also and rather create an image according to nature and modern features when targeting Chinese tourists.

[256] It is also a very Han-centric approach - often detected in Chinese attitude towards minorities - to link the interest in and the respect to a foreign culture to the length of history.

[257] Considering Xu's (1999) case study on Suzhou these spots are less likely to be a destination for day-trips. The average day-visitor travels only 150-200 km. This is often due to a limited transportation system.

Overall it becomes clear that the motivation of the Chinese to travel - and especially to travel abroad – is unique. Yet, it is not only culturally defined. In order to be able to answer the question if and to what extent the Chinese tourism invasion will take place, there is still a strong need for more interview-based studies that focus on Chinese travel motivation directly. Also, such studies need to cover a larger group of tourists from a wide range of regions[258]. Our picture of Chinese travel motivation is still fragmented, despite a number of attempts to investigate it recently.

[258] This is in contrast to the study by Kim et al. (2005) who limited their sample to travellers leaving from Shanghai airports.

Chapter 8: Chinese tourism and decision-making

8.1 Motivation, information and power – the tourism perspective

The novel application of the garbage can used three aspects – motivation, information and power – to reveal the relevance of the political system to the problem of sea-level rise and decision-making in the coastal zone (chapter 2). These same aspects are relevant to decision-making in tourism, albeit in a different way.

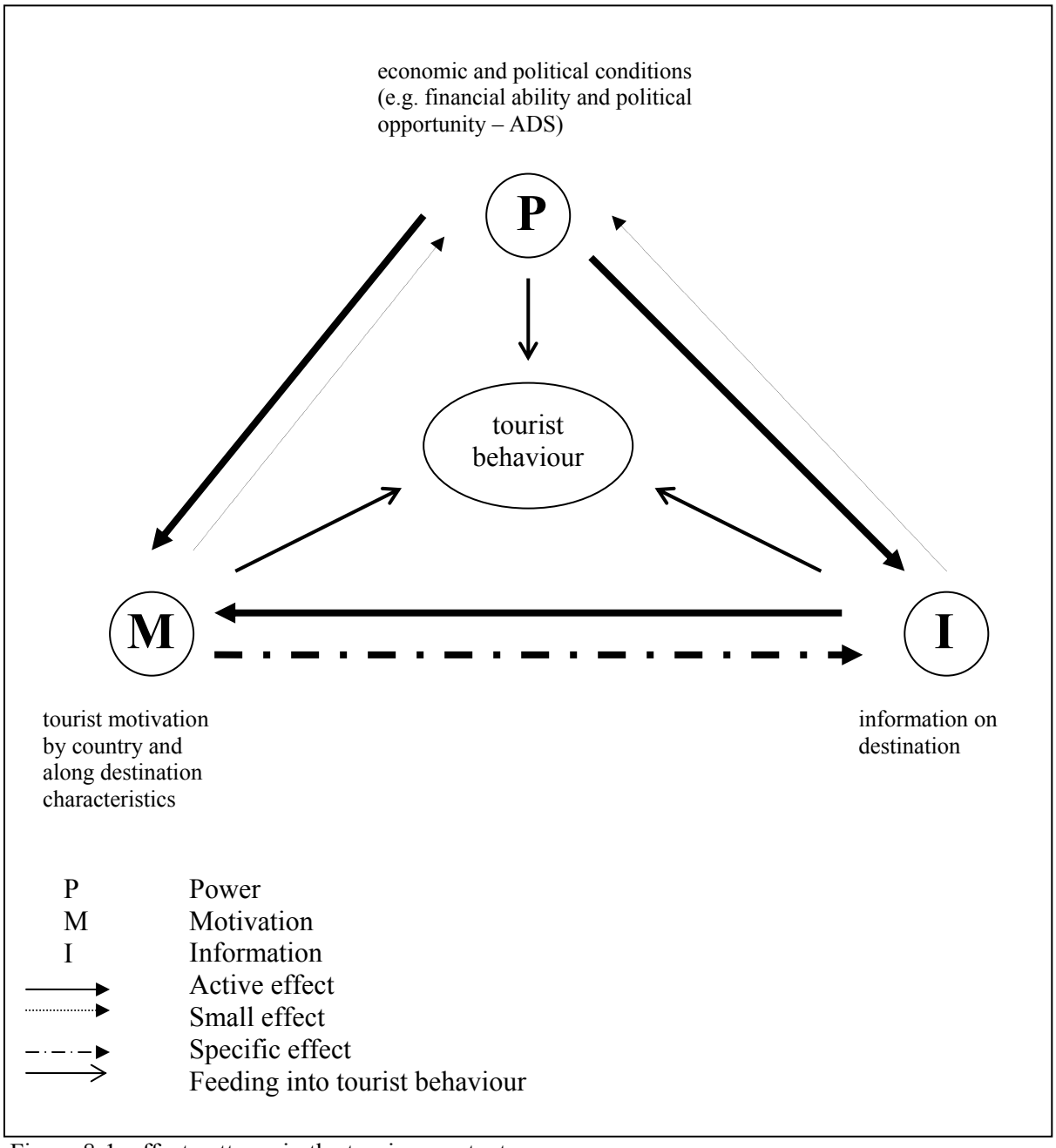

Figure 8-1: effect patterns in the tourism context

Figure 8-1 shows that the power structures of economic and political conditions have major effects on tourist motivation to travel, whereas the information that is available to them has no influence. A specific effect of tourist motivation on travel information is seen, as the motivation of many people to travel somewhere may also generate a better provision of

information on that place.[259] However, the feedback from tourists and information into the tourism industry is less important.[260] Instead, all dimensions feed into tourist behaviour. This allows an evaluation of the behavioural studies in tourism research from a broader perspective, embracing power, information and motivational aspects altogether.

8.2 The effects of uncertainty in climate change on the emerging tourism industry in China

Apart from the fact that all three dimensions of information, motivation and power impact on tourist behaviour, climate change is a particular issue that may modify tourist motivation for travelling to China. Climate is important to tourism in general (chapter 5). For the time being it is not as important for tourists going to China and only marginally for domestic tourists (chapter 6). Yet, climate change not only affects the climate or weather conditions. In China, it is very likely that the number of natural disasters due to climate change will rise (CCCIN, Xinhuanet 2006). At the same time, nature is also a main reason for domestic tourists to stay in China for their holidays, as they are less interested in visiting their own cultural heritage sites. In contrast, foreign tourists are drawn by both the natural and the cultural features in China.

The pull-factor of ancient culture in China is comparable to that of Egypt. Even today it is still the political stability in China that sustains a steady interest by foreign tourists; in contrast to Egypt where terrorism has had a significant role in disrupting confidence (Essner 2003). Critical developments, either politically or naturally induced but likewise affecting the tourist security in a country leads them to reorientate themselves in their decision-making for a holiday destination. Under most circumstances, this is relatively independent of personal preferences and motivation.[261] The SARS crisis in China was a good example of what may happen, when security in China becomes threatened. This time the Chinese government was able to absorb the shock to the economy through planned intervention (subsidies). Yet, climate change may affect the tourism environment of China more detrimentally and for a longer time. Thus, changes in natural conditions reduce tourism assets, e.g. through desertification[262], loss of forests that cause land erosion[263], or reduced water availability, have negative impacts on the economy and lower tourist comfort[264].

China as a tourist destination may lose attractiveness and even become a comparably insecure destination in 50-100 years time, because of natural disasters and unfavourable developments. Additionally, the probability of social and political insecurity rises when instability due to environmental problems and non-sustainable development emerges. Domestic tourism is very important to the country, but Chinese tourists may increasingly turn to international travel, with GDP rising and more Chinese being able to travel abroad in the near future. They may be

[259] For instance when travellers go to some place for reasons other than those that are usually decisive for a particular holiday destination, e.g. to join a sports event rather than visiting a place for its cultural or natural features.

[260] Bearing in mind that tourism industry conditions are also determined by personal status: e.g. the financial capacity of tourists determines whether and how far they travel.

[261] Another aspect is tourist faith in a specific political system. Owing to information control, it is possible for the government to make the public and to some extent other countries believe that they control a crisis. Some tourists will evaluate this critically, others less so.

[262] Beijing is already victim to a rising number of sandstorms from the Gobi desert.

[263] In the rainy season some attractions in mountainous regions become inaccessible due to afforestation erosion.

[264] During drought times, water use in hotels has already been limited in some regions (People's Daily 2000b). The provision of water resources for the Olympics in Beijing 2008 is a future challenge (Beijing2008 2006). It is one reason for the rapid construction of the eastern line of the South-North-Water-Transfer. Yet, China's water shortage will continue and is a major threat to the country's growth and – in the long run - possibly also to its stability (Ramirez 2005, citing L. Brown, and E. Economy). Berritella et al. (2005) offer a different perspective. Investigating the impacts of raised water prices in water scarce areas they conclude that, through a change in virtual water trade, China's trade balance would improve while its welfare would decrease in the global scenario.

additionally motivated if other countries are better able to compensate for climate change. This way, the Chinese economy – and also the tourism industry as a major pillar and future growth sector – is prone to feel the impacts of climate change.

The tourism policy of the Chinese government has proved already that developments can be steered, especially in a centralised state such as China. In this case a political crisis – the so-called 'Tiananmen-incident' and the international sanctions that followed – opened a window of opportunity to support domestic tourism at the relative expense of foreign tourism in the country. However, this was a quasi-voluntary shift in institutional policies and to some extent in the structures of the tourism economy. It shows that structural change can generate motivation, in this case through the easing of regulations and through the provision of information. Information, to some extent, determines tourist behaviour and as long as information provided by the government has the strongest impact (chapter 7), information control is a particularly effective constraint.

The potential for governmental influence to ease the impacts of climate change is still questionable. In terms of the reallocation of industries, because of sea-level rise, the tourist industry has the best opportunities. Although it is also still concentrated in the coastal areas, the feature 'coast' itself is only of marginal importance to Chinese tourism[265], both foreign and domestic (chapters 6 and 7). The coastal region is also the wealthiest part of the country and so these local governments are financially more capable of reacting to climate change than the poorer inland regions. This is not to underestimate the expense of responding to sea-level rise irrespective of the measures taken, with dike-building costing more than a managed retreat, and especially since compensation in China tends to be low. Furthermore, sea-level rise is only one impact of a range of problems due to climate change that have to be solved in the near future. For instance, problems in water allocation are also felt in the inland regions. The active support of less affluent regions by governmental policy, in terms of tourism development, is not detectable (chapter 7). Still, a tourist industry is more capable of supporting regions with few structural and organisational constraints.

Climate change will probably have impact on the tourism industry (Hamilton and Tol 2004). Domestic tourists may orientate themselves towards travel abroad, causing a decline of the tourism industry that is difficult to predict. In terms of the ADS-system, the Chinese government has so far used it as a bargaining tool in international negotiations and it has a significant impact on destination choice by Chinese tourists (chapter 6). One day, a return to a restrictive outbound policy may serve as a political instrument to hold domestic tourists in China. A major drawback of the future pillar industry may generate a closer attendance to the issue of climate change, especially as policy change is comparably easy in this sector.

[265] The preference for the coastal regions probably represents an elemental step in the development of tourist behaviour. Chinese tourists are at the time very interested in the notion of 'rich and trendy'- also when going abroad (chapter 6). Similar to the development in Hong Kong (Cheung 1999), this is likely to change in the future, when the modern theme will be substituted by a trend to visit 'original' places. Thus the motivation of tourists has an additional psychological component.

PART IV: CONCLUSION

Chapter 9: conclusion and outlook

9.1 Summary

The garbage can theory proved to be applicable to new issues – such as climate change – and long-term problems – such as adaptation to sea-level rise. The analysis in chapter 2 combined the garbage can approach with the three dimensions of a political system – policy, politics and polity – of which the latter has been underestimated in climate change research so far. Polity has been equated with power structures and the analysis showed that power is decisive in decision-making regardless of the political system. Thus, the revised garbage can perspective showed that a global analysis of political and institutional structures is necessary in research into climate change.

Decision-making in the coastal zone is a complex issue. Many agencies are involved and, even when a CZM scheme is in place, meaningful co-operation is not guaranteed (chapter 3). A transparent jurisdiction and political system are necessary for a functioning legislation in a country like China, where classical stakeholder participation is less decisive and, therefore, power structures among agencies and the ability to co-operate gain in importance. Informal power structures are often underestimated or completely excluded from analysis, as they are difficult to measure, however, they should not be ignored. For example, the *guanxi* determine almost all spheres of life and activity in China.

Developments within the Chinese coastal areas are are only considered in the short term, which is a reasonable approach given the immense economic growth and the expected urbanisation rate of the region (Cheng, 2002). As shown in chapter 4, however, adaptation to sea-level rise is a long-term task, which the Chinese government acknowledges when it calls for an overall strategy of adaptation and mitigation (Ding Yihui, special advisor on climate change to the Chinese Meteorological Administration, after Yao, 2002). The focus in this thesis on adaptation to sea-level rise showed that decision-making frameworks, and their compliance with existing organisational structures of the political system, are a major problem. Further studies on other impacts of climate change may challenge the wisdom of using the disaster management framework in climate change scenarios.

Futher global climate change and rise in mean temperature will have impacts on the tourism industry. The analysis of chapter 5 showed that climate is a defining factor for destination choice by tourists. With climate change, the attractiveness of a destination is changed and, with a significant time lag, also the perception of that destination by tourists.
The analysis also showed that access to the sea and lakes is the second most important factor for tourists when choosing a destination. As an ancillary effect of global warming, sea-level rise will have a large effect on the tourism industry.[266] Although visiting beaches is less important for foreign and domestic tourists in China, the effects of climate change and how the coast is perceived will be felt. Tourists will not necessarily adapt to new situations, e.g. loss of an unspoilt sea view, by changing their preferences – they would rather change their destination.

Decisions by tourists are not only affected by external factors. Their motivation to travel depends on personal preference and to some degree cultural influence. In chapter 6, it was shown that it is wrong to assume that the Chinese behave like other tourists, even their ethnic kin. Cultural influence is tightly connected to other, especially social and political, influences.

[266] Access to the sea will change considerably and the quality of beaches will mostly deteriorate because of slope changes and intensified erosion.

In comparisons of preferences between Chinese domestic tourists and foreign tourists in China, significant differences were detected. Generally, Chinese tourists shun cities, love nature, seek out the 'rich and trendy' and avoid cultural spots (at least, of domestic importance). Chinese international tourism depends on the ADS-system as a political instrument. The distribution of Chinese tourists among global destinations is likely to shift if the system is eliminated.

In chapter 7, what motivates the Chinese to travel domestically and abroad was investigated, taking the pull-factors for travel abroad into account. A regional analysis of tourist attractions in China emphasised the importance of access to tourist spots. The preference of Chinese tourists for nature was more influenced by the natural surroundings, in general, than the absolute number of nature spots in a region. The preference of domestic Chinese tourists for the northeast of the country, and perusal of the sightseeing attractions on offer, supports the finding that Chinese preference is for attractions other than cultural or natural. These preferences are also evident in the destinations Chinese tourists visit abroad, e.g. German tours for Chinese tourists include a visit to a motor factory. Whereas the regression analysis in chapter 6 showed a relative importance of promoted sights (at least by official and commercial sources, less so by the self-help net) against the actual existence of spots, the descriptive analysis of the database in chapter 7 reveals a very heterogeneous picture for the sights promoted by the different sources. This shows how diversity adds to complexity, even in China, where there are fewer sources of information than elsewhere.

Chapter 8 unites some of the aspects that were investigated in chapters 6 and 7. The revised garbage can perspective revealed the importance of three features in organisational decision-making – motivation, information and power. Thus, the features important in organisational decision-making also apply to individual decision-making by tourists. What motivates a tourist is determined by personal preference and by push/pull-factors, including the degree of venturesomeness (after Plog 2002) as well as a preference for places like home or novelty. Information is important in moulding tourist behaviour, as are constraints or determining factors in the form of economic capacity or political restrictions from the ADS-system.

9.2 Novel academic findings and insights for policy-making practices

The analyses in this thesis have developed a number of novel insights with relevance to policy-makers in the fields of adaptation and the tourism sector.

9.2.1 Novel academic findings

The novel application of the garbage can concept revealed that it is applicable to new issues, such as climate change and hierarchical political systems, especially when informal power structures already existent. Science often limits itself to a specific detailed view on a topic, sometimes because it is most easy to investigate, sometimes due to problems in measurement. Therefore to some scientists some questions easily become a non-provable matter, and thus are not worked upon. Political science, like many other social sciences, is criticised for not being exact enough and for being too elaborate. The garbage can application developed in this thesis confirms that a narrow examination of a topic is inadequate, except in the special case when a broad integration is being pursued[267].

[267] I always wondered why so many decisive studies on highly problematic matters focused on the actors, for example, and only briefly acknowledged the existence of other external, systematic or organisational features, while ignoring their part in the whole picture. I also wondered why so many scientists are seemingly satisfied with this state of affairs, even those writing on truly holistic concepts like sustainability or integrated schemes. To them, another application of the garbage can may

Since everything comes back to politics – where a problem may require a solution that needs implementation which, in turn, is faced with constraints that also need resolution – maybe politics should be given more attention. The complexity of politics is often underestimated and, as for any other scientific discipline, improved comprehension must precede any attempts at changing the system. The novel application of the garbage can concept to the three dimensions of the political system (polity, politics, and policy) exploits an interdisciplinary environment to provide a new tool for basic research in this field.

Beyond the demonstration of the broader applicability of the garbage can analysis, it also revealed that the lack of framework compliance and information control are major constraining aspects in using new concepts, such as integrated coastal zone management. The implementation of scientific schemes depends on institutional capacity as well as on functioning organisational systems. A holistic view of the political system determines that organisational constraints in implementation (part of polity) are as important as the actor's perspective (politics) and the topic that is addressed (policy). This seems to be particularly appropriate to vast problems: climate change is only a trigger for manifold changes in natural and earth systems, which again lead to changes in social and economic fields. Scientific method is both inductive and deductive; either by attempting to learn from small-scale applications and striving to extrapolate from relevant features in local projects (by direct application to other localities), or, by formulation of broad schemes for downscaling to the local level. These two need not be contradictory (and generally are considered to be complementary). However, the applicability of the lessons learned from one project or locality to the problems of other projects or localities are often not clear. Organisational schemes help to identify features and constraints, and since they are not static but open to new insights themselves, it seems that a synthesis of broad and narrow formulations and implementations allows us to learn from experience as well as from theory.

In this sense, the incorporation of informal power structures in Chinese CZM schemes and the attempt to find a suitable organisational framework for the adaptation to sea-level rise, in China, is a novel experiment in this field.

9.2.2 Insights for policy-making practices

The major insight for policy-makers presented in this thesis is the repeated acknowledgement of the importance of organisational structures for successful co-operation between institutions, most especially where clear jurisdiction is lacking. Moreover, the existence of a specified legislation should not lead to the assumption that it is also always applied. This clearly depends on the political system. Long-term issues, such as the adaptation to sea-level rise, despite other important matters, need to be planned for as early as possible. This also applies to the sustainability approach.

The tourism industry profits from the following insights:
- that Chinese tourists are distinct, also from their ethnic kin
- that, generally, climate is a determining aspect in tourism decision-making

strike them as futile. However, I hope that the overview of all three parts of the political system, including the often underestimated polity, convinces sceptical researchers that a mere mentioning of 'other aspects' may detract from their real influence on their own findings. Influential factors must be acknowledged even when they lie outside the main field or area of expertise. An interdisciplinary approach enriches because it brings scientific elements together.

- that climate change is likely to impact on tourism, albeit via a rising number of natural disasters, rather than a classical shift in climate (China already covers most climate zones and it is too large a country for its diversity to be affected severely)
- that in domestic tourism, the Chinese are mostly influenced by official and commercial information on tourism sights (in contrast to the self-help network) although overall the information is very diverse
- that Chinese tourists have specific preferences that on the first sight seem contradictory; they prefer nature and rich/trendy regions, whereas they shun cities but prefer easy access to attractions.

9.3 Outlook

Research on China is comparably elaborate and data allocation is constrained by controlled media coverage and bureaucracy.[268] Specific contact requirements (*guanxi*) further complicate the matter. It proved to be exceptionally difficult for CZM and sea-level rise issues. There are fewer constraints for studying tourism in China. Although official data for detailed statistical analysis are lacking, this constraint may be overcome by future research using questionnaire-based surveys for data acquisition.

The separate analyses of this thesis build a solid base for further research. The analysis of CZM structures in China showed that these must be considered very carefully for all kinds of issues and the different local interests that are involved. It is still not possible to answer the question whether Chinese CZM functions in a satisfactory way. There is a strong need for extended research with case studies to assess the effectiveness of Chinese CZM, e.g. on prevention of loss due to storm surges or the management of conflicts in the coastal zone, to fill in the theoretical framework.

This thesis showed that climate is a factor in decision-making for tourists through the analysis of a survey about the role climate plays in tourist destination choice and decision-making. However, the results of a small sample of tourists visiting China shows that climate is not necessarily a decisive factor for foreign tourism to China. Further surveys of international tourists to China may reveal a different view and alter these preliminary results. It would be interesting to learn whether a large number of diverse cultural and natural features in a country results in climate being less significant or not.

The regression analysis (chapter 6) suffers from a number of drawbacks. Tourism data are crude, available per year (rather than season), per country (rather than province or county), and aggregated (rather than separated by holiday type). Data for potential explanatory variables (such as hotel prices and travel costs) cannot be obtained. The analysis would benefit from being repeated using direct surveys of Chinese travellers. In order to be able to answer the question of if and to what extent the Chinese tourism invasion will take place, there is still a strong need for more interview-based studies that focus on Chinese travel motivation. Also, such studies need to cover a larger group of tourists from a wide range of regions[269]. Despite a number of attempts so far, the picture of Chinese travel motivation is still fragmented.

[268] Research largely depends on background knowledge, official information and personal contacts. It is still very difficult to gain reliable information on (planned and implemented) projects or specific developments to illustrate, for instance, the success of CZM and the decision-making processes involved.

[269] This is in contrast to the study by Kim et al. (2005) who limited their sample to travellers leaving from Shanghai airports.

The tourism analyses in the thesis build on two newly constructed datasets. One is a survey on the role climate plays in destination choice and decision-making for German tourists. The questionnaire we used proved to be useful and can be used for comparable surveys for tourists from other countries, such as China. The second database is a detailed account of tourist attractions in China, both natural and cultural. This dataset breaks down to the county-level. As soon as county-level tourism data for arrivals and departures are available, then this database can be used for a more detailed analysis of Chinese preferences and motivation.

Interestingly, Chinese tourists do not behave like other tourists, as their motivation is not simply culturally defined. Given the high potential of Chinese tourism and the importance of the sector for the development in the country, as defined by the Chinese government, there is a high possibility that tourism in China will suffer from the impacts of climate change. This may be through an increased vulnerability to natural disasters and a lower capacity to adequately cope with them. As these impacts are relevant to the foreign and domestic tourism in China and they will also effect the outbound travel motivation of Chinese tourists, the Chinese economy will be affected. Further research on climate change impacts in China should also include investigation of the capacity of the tourism industry to adapt.

The capability of China to adapt to climate change relates to a large number of sub-topics. The adaptation to sea-level rise serves as an example of a long-term problem. Short-term impacts and the mitigation of climate change on policy had to be ignored in this thesis. There is likely to be a correspondence between decision-making processes from both perspectives. Future research on climate change policy and decision-making in China needs to include both aspects in order to create a holistic view of the problem.

Decision-making is a complex matter – regardless of where it takes place, whether among institutions or by individuals. The latter can be investigated much easier than the former, assuming that the appropriate data is available. The analysis of decision-making within the political system is strongly dependent on the holistic quality of an approach. This thesis shows that all three spheres of a political system – policy, politics and polity – are tightly connected and cannot be analysed separately. Policy-making analysis in climate change can be reviewed under this condition. This thesis has demonstrated that power – or the organisational structure of a political system – is decisive for successful policy-making independent of the political system. However, the relative contribution of power cannot be estimated yet and a comparable analysis approach may shed more light on the specific circumstances of different governmental systems and their impacts on policy success.

9.4 General conclusion

This thesis has made a contribution to decision-making analysis. In the context of climate change it is important to include structural aspects in policy evaluation. In terms of decision-making by individuals and motivation by tourists, how they are influenced by economic and political conditions and the impact on their behaviour. A revised version of the garbage can theory of organisational decision-making helped in identifying these aspects. Generally, the literature discussing the original concept is sceptical as to whether the garbage can is applicable to long-term issues and to hierarchical governance systems. While discussing the long-term issue of adaptation to sea-level rise and applying the garbage can to decision-making in China, both doubts are proved unfounded. Yet, the garbage can is only one theory among a number of approaches to decision-making analysis that specifically include institutions. For instance, the Contextual Interaction Theory (Bressers 2004) and the Advocacy Coalition Framework (Sabatier and Jenkins-Smith 1999) are also complex

approaches to decision-making analysis that emphasise the participants role in shaping decision situations. Applied to various facets of decision-making processes in climate change, they may yield additional insights into the constraining aspects of political structures and frameworks.

Uncertainty and ambiguity are often factors in decision-making processes especially when they are related to climate change. A hierarchical governance system determines rather strict power structures. However, it is not decisive for a successful and timely association of problems and solutions. Long-term problems and relatively new issues – where management experience is lacking – are also independent of the governance system. Yet, organisational structures are important for successful decision-making. In terms of the role of institutions in decision-making, the power structures are generally related to information control and framework compliance (chapter 2). The institutional set-up itself is decisive (chapter 3) as is the framework in which a program or scheme is to be integrated in order to comply with existing structures – formal and informal ones (chapters 3 and 4). In the case of climate change – and here especially the adaptation to sea-level rise – the current institutional jurisdiction demonstrates a major responsibility for the water sector. Yet, regarding the expected outcomes of climate change, a framework based on disaster management seems most useful. In order to combine these results, a new structure that takes account of the broad issue of climate change and generates major political (institutional) change is proposed (chapter 4). Yet, the act of establishment of such an institutional structure needs to take into consideration that all three dimensions of the political system (polity, policy and politics) are inseparable – therefore issues and participating institutions, information control and political will – are equally important and policy change is very dependent on existing organisational structures and framework compliance when directed to a new issue. Climate change has made its way onto the agenda and some participants to the debate purport political will, yet this is not enough: aspects of political power need to be actively included in decision-making processes of policy in order to overcome their hitherto unappreciated importance.

Research on coastal zone management (CZM) in China, as well as on topics related to climate change, is scarce. In this thesis, the CZM concept in China has been identified at the national and the local level. While international recommendations for integrated coastal zone management aim at a downscaling of concepts, the bottom-up approach focuses on locally developed programs and a horizontal adoption of lessons learned. Conceptual frameworks have to comply with organisational structures and additionally the major players need clear identification and jurisdiction (chapters 3 and 4). For issues of climate change, the organisational structures are generally new and, therefore, the situation resembles that for political change. This thesis proposes a CZM organisation for more than one locality in China and a general management framework for climate change. Organisational constraints are identified at both levels – local and national – and the recommendations are formulated for optimal utilisation. However, these theoretical concepts have never been tested in reality. A major reason for this, is that development has not reached its height yet, in respect of climate change. For CZM, there is not enough data available to the researcher, e.g. on conflicts between stakeholders, therefore an empirical test of the theoretical concept is constrained. Given the strict control of information in China, this may not change in the near future.

Tourism in China has not been a subject of intense research before. Particular focus in this thesis was on the aspects that are part of the decision-making process for (Chinese) tourists. Chinese preferences proved to be distinct even from ethnic influences. In order to get a more complete picture of tourist decision-making, the same aspects that were important for organisational decision-making were included in the analysis. Tourist behaviour is a function

of the tourist motivation as much as of informational and economic considerations or political limitations. The latter aspects have been largely neglected in tourism literature. However, they impact on expectations - such as the high number of Chinese tourists expected to travel to Europe. Recent developments in the European tourism sector show that the initial estimations were too high. Some operators have already reduced their offers for Chinese travellers, as the expected tourist numbers have not been met (Jung 2006)[270].

China surely needs to adapt to sea-level rise and, whereas the range of methods available is quite clear, the organisation of response is less so. This shows that the hierarchical political system in China does not necessarily support straightforward decision-making. Too many aspects of the political system are pervasive in organisational decision-making. Therefore, the structure of the political system is as important as the major players that make and implement the decisions as well as the way issues are chosen and formulated. For decision-making by Chinese tourists, climate is not a decisive factor in destination choice but climate change may overturn this view. Essentially, decision-making by both organisations and individuals is equally complex, involving the same aspects of motivation, information and power, yet with different emphases.

[270] Visa regulations of the German government are the main reason for the low numbers: a political limitation by the destination country impacting on Chinese tourist behaviour that has been neglected previously.

APPENDIX 1 Websites of governmental agencies, information networks, institutions and organisations

Administrative Center for China's Agenda 21 (ACCA21) *Zhongguo 21 shiji yicheng guanli zhongxin*: www.acca21.org.cn (Chinese and English)

Agrometeorological Institute (AI) (of the Chinese Academy of Agriculture Science) *Nongye kexue yuan nongye huanjing yu chixu fazhan yanjiu*: www.ami.ac.cn (Chinese and English)

Asian Disaster Reduction Centre (ADRC): www.adrc.or.jp

Center for International Earth Science Information Network (CIESIN): http://sedac.ciesin.org

China Climate Change Information Network (CCCIN) *Zhongguo qihou bianhua xinxi wang*: http://www.ccchina.gov.cn (Chinese and English)

China Earthquake Administration (formerly State Seismological Bureau): www.cea.gov.cn (Chinese)

China Gateway *Zhongguo fazhan menhu wang*: www.chinagateway.com.cn (Chinese and English)

China Internet Information Center (CIIC): www.china.org.cn (multi-lingual)

China Meteorological Administration (CMA) (also State Meteorological Administration): www.cma.gov.cn (Chinese and English)

China National Bureau of Statistics (CNBS): www.stats.gov.cn

China National Tourism Administration (CNTA): www.cnta.gov.cn

China Oceanic Information Network (COIN) *Zhongguo haiyang xinxi wang*: www.coi.gov.cn (Chinese and English)

China Population Information and Research Centre (CPIRC): www.cpirc.org.cn

China Window: www.china-window.com

Chinese Academy of Sciences (CAS): www.cas.ac.cn (Chinese and English).

Deutsche Zentrale für Tourismus e.V. (DZT): www.deutschland-tourismus.de

Economic and Trade Commission (ETC): www.setc.gov.cn (Chinese and English).

Euromonitor (2002): www.gmid.euromonitor.com

LOICZ: www.nioz.nl/loicz

Maritime Safety Administration (MSA) (also Marine Affairs Administration): www.msa.gov.cn (Chinese)

Ministry of Agriculture (MOA) *Zhongguo nongye xinxi wang* (also China Agriculture Information Network): www.agri.gov.cn (Chinese)

Ministry of Civil Affairs: www.mca.gov.cn (Chinese)

Ministry of Communication (MOCom): www.moc.gov.cn (Chinese)

Ministry of Construction (MOC): www.cin.gov.cn (Chinese)

Ministry of Health: www.moh.gov.cn (Chinese)

Ministry of Land and Resources (MLR): www.mlr.gov.cn (Chinese and English)

Ministry of Science and Technology (MST): www.most.gov.cn (Chinese and English)

Ministry of Water Resources (MWR): www.mwr.gov.cn (Chinese and English)

National Bureau of Forestry (NBF): www.forestry.gov.cn (Chinese)

National Development and Reform Commission (NDRC) (formerly Development Planning Commission (DPC)): www.sdpc.gov.cn (Chinese)

National Tourism Administration (NTA): www.cnta.com (Chinese and English)

People's Daily online *Renmin wang*: http://english.peopledaily.com.cn (multi-lingual) and http://unn.people.com.cn related to www.people.com.cn (*Renmin wang*) (Chinese)

Ramsar: www.ramsar.org

State Environmental Protection Administration (SEPA) *Zhongguo huanjing baohu zongju*: www.sepa.gov.cn and www.zhb.gov.cn (Chinese and English).

State Oceanic Administration (SOA): www.soa.gov.cn (Chinese)

Transnationale: www.transnationale.org

Travel-China-Guide: www.travelchinaguide.com

UNCLOS: www.unclos.com

Xinhuanet (China News Agency): www.xinhuanet.com (multi-lingual)

Yiqilai zizhu lüyou wang: www.17lai.com

Zhujiang Water Resources Network *Zhujiang shuili wang*: www.pearlwater.gov.cn (Chinese)

APPENDIX 2 Coastal population data for the 100 km belt (own calculations)

PROVINCE NAME	COUNT	Area Province m²	Area m²	Population
Beijing Shi	1	16094632719,81810	23377224,7800	602597
Tianjin Shi	23	11333391970,70530	10458838552,7910	4810949
Hebei Sheng	80	181599280529,57700	31051024151,4620	17546693
Liaoning Sheng	140	141458510702,18600	72764042455,1320	23658725
Shanghai Shi	32	5059848595,92342	6297301519,0650	5786321
Jiangsu Sheng	137	97466127459,96750	62186135422,8450	51521407
Zhejiang Sheng	245	97970924884,03710	67476892255,3400	35867668
Fujian Sheng	173	119759590624,02700	58514411432,1300	24892914
Shandong Sheng	190	148384601196,78200	77563834548,6450	43106009
Guangdong Sheng	274	177971100585,65400	104860572965,5490	50354262
Guangxizhuangzu Zizhiqu	51	237779946153,57200	39585572269,4230	14632612
Hainan Sheng	65	35916198707,90280	35933574244,0630	5776537
total				278556694
unaligned area	43		2298236083,3670	no value

APPENDIX 3 SOA - structural set-up

State Oceanic Administration (SOA) – Departments	Department of General Affairs including the Financial Department	办公室 (*bangongshi*) 财务司 (*caiwu si*)	
	Department of Marine Environmental Protection	海洋环境保护司 (*haiyang huanjing baohu si*)	
	Department of International Co-operation	国际合作司 (*guoji hezuo si*)	
	Department of Sea Area Management	海域管理司 *haiyu guanli si*)	
	Department of Science and Technology	科学技术司 (*kexue jishu si*)	
	Department of Personnel	人事司 (*renshi si*)	
Additional Departments:	Political Department	机关党委 (*jiguan dangwei*)	
	Supervision Commissioner	纪委监督专员办公室 (*jiwei jiandu zhuanyuan bangongshi*)	
	Auditing Bureau	审计办公室 (*shenji bangongshi*)	
SOA – Subordinated units	Northern Seas Branch	北海分局 (*beihai fenju*)	Qingdao
	East China Seas Branch	东海分局 (*donghai fenju*)	Shanghai
	South China Seas Branch	南海分局 (*nanhai fenju*)	Guangzhou
	First Institute of Oceanography	第一海洋研究所 (*diyi haiyang yanjiu suo*)	Qingdao
	Second Institute of Oceanography	第二海洋研究所 (*dier haiyang yanjiu suo*)	Hangzhou
	Third Institute of Oceanography	第三海洋研究所 (*disan haiyang yanjiusuo*)	Xiamen
	Institute of Polar Research	极地研究所 (*jidi yanjiu suo*)	Shanghai
	Office of Polar Expedition	极地考察办公室 (*jidi kaocha bangongshi*)	Beijing
	Institute for Ocean Development Strategy	海洋发展战略研究所 (*haiyang fazhan zhanlue yanjiu suo*)	Beijing
	Institute for Ocean Technology	海洋技术中心 (*haiyang jishu zhongxin*)	Tianjin
	Office of China Ocean Mineral Resources Research and Development Association	大洋矿产资源研究开发协会办公室 (*dayang kuangchan ziyuan yanjiu kaifa xiehui bangongshi*)	Beijing
	Institute of Sea Water Desalination and Multipurpose Utilisation	海水淡化与综合利用研究所 (*haishui danhua yu zonghe liyong yanjiu suo*)	Tianjin
	Research and Development Center for Water Treatment Technologies	水外理技术研究开发中心 (*shuiwaili jishu yanjiu kaifa zhongxin*)	Hangzhou
	Marine Environmental Forecasting Center	海洋环境预报中心 (*haiyang huanjing yubao zhongxin*)	Beijing
	Marine Environmental Monitoring Center	海洋环境监测中心 (*haiyang huanjing jiance zhongxin*)	Dalian
	Center of Oceanographic Standards and Metrology	海洋标准计量中心 (*haiyang biaozhun jiliang zhongxin*)	Tianjin

	Center for Satellite Application in the Oceans	卫星海洋应用中心 (*weixing haiyang yingyong zhongxin*)	Beijing
	Marine Surveillance Headquarters	海监总队 (*haijian zongdui*)	Beijing
	Marine Data and Information Service	海洋信息中心 (*haiyang xinxi zhongxin*)	Tianjin
	Training and Education Center	教育培训中心 (*jiaoyu peixun zhongxin*)	Beijing
	Secretariat of Chinese Marine-related Societies	学会秘书外 (*xuehui mishu wai*)	Beijing
	China Ocean Press	海洋出版社 (*haiyang chubanshe*)	Beijing
	China Ocean News	海洋报社 (*haiyang baoshe*)	Beijing
Additional units:	Ningbo Ocean School	宁波海洋学校 (*ningbo haiyang xuexiao*)	Ningbo
	Underwater Technology Institute	海洋水下工程科学研究院 (*haiyang shuixia gongcheng kexue yanjiu yuan*)	Shanghai
	International Ocean Institute China Operational Center	国际海洋学中国业务中心 (*guoji haiyang xueyuan zhongguo yewu zhongxin*)	Tianjin
	Ocean Information Association	信息协会海洋分会 (*xinxi xiehui haiyang fen hui*)	Tianjin
	Centre for Aquaculture Breeding Disease Prevention Technology Development	水产养殖病害防治技术开发中心 (*shuichan yangzhi binghai fangzhi jishu kaifa zhongxin*)	Tianjin
	National Laboratory for Seacoast and Coastal Island Development	南京大学海岸遇害岛开发国家实验室 (*nanjing daxue haian zu haidao kaifa guojia shiyanshi*)	Nanjing University
	Special Committee on Ocean Geography	中国地理学会海洋地理专业委员会 (*zhongguo dili xuehui haiyang dili zhuanye weiyuanhui*)	National Geographical Society
	South China Sea Research Unit of the Chinese Academy of Sciences	中国科学院南海海洋研究所 (*zhongguo kexueyuan nanhai haiyang yanjiu suo*)	
SOA – Local Offices (per admi-nistrative unit from North to South)	Marine and Fisheries Department	海洋与渔业厅 (*haiyang yu yuye ting*)	Liaoning
	Marine Department	海洋局 (*haiyang ju*)	Dalian
	Marine Department	(*haiyang ju*)	Hebei
	Marine Department	(*haiyang ju*)	Tianjin
	Marine and Fisheries Department	(*haiyang yu yuye ting*)	Shandong
	Marine and Aquatic Products Department	海洋与水产局 (*haiyang yu shuichan ju*)	Qingdao
	Marine and Fisheries Department	(*haiyang yu yuye ju*)	Jiangsu
	Marine Department	(*haiyang ju*)	Shanghai
	Marine and Fisheries Department	(*haiyang yu yuye ju*)	Zhejiang
	Marine and Aquatic Products Department	(*haiyang yu shuichan ju*)	Ningbo

	Marine and Fisheries Department	(*haiyang yu yuye ju*)	Fujian
	Bureau for Ocean Management	海洋管理办公室 (*haiyang guanli bangongshi*)	Xiamen
	Marine and Fisheries Department	(*haiyang yu yuye ju*)	Guangdong
	Marine Department	(*haiyang ju*)	Guangxi
	Marine and Fisheries Department	(*haiyang yu yuye ting*)	Hainan
Additional Department:	Bureau for River and Land Exploitation and Planning	图们江地区开发领导小组办公室) (*tumenjiang diqu kaifa lingdao xiaozu bangongshi*	Jilin

No distinction is made between *ju* 局 and *ting* 厅 as departments, whereas *bangongshi* 办公室 is translated as bureau.

APPENDIX 4 Coastal and marine nature reserves along China's coast

Name	Chinese	location province (county)	size	habitation status (human)	kind of reserve	kind of wetland	classification Ramsar / SOA (national) / SOA (local)	year of establish-ment	listings in other programs	additional info
Yalu Jiang Estuary	鸭绿江口	Dandong city Liaoning; border river to North Korea			estuary ecosystem	detailed wetland type unknown			East Asian-Australasian Wader Protection Network	
Changhai Dao = Changshan Qundao	长海岛= 长山群岛	Liaoning					island development experiment area			
Dalian Spotted Seal Marine Reserve[271] (dalian banhaibao)	大连斑海豹	Dalian city, Liaoning	11700 ha	none	marine nature reserve; spotted seal, fish etc.	coast and seafloor: steep rocks; water depth between 5 and 40 m , site contains over 70 islands and islets; ca 148 km coastline, also coastal mudflats	Ramsar (2002)	unknown, assumed 1983; Ramsar 2002		wetlands stabilise sedimen-tation for Dalian City
Shuangtaihe Estuary = Liaodong Bay	双台河口= 辽东湾	Panjin municipality, Liaoning	8000 ha (SOA)		wetland ecosystem, birds and seals	detailed wetland type unknown	SOA Local Marine Nature Reserve (1991)	1991 by the provincial government and SOA	East Asian-Australasian Wader Protection Network	

[271] spotted seal under state protection (1982); Liaoning provincial government bans traditional hunting (1983); currently nature reserve managed by Dalian Aquatic Product Bureau, that is sub-ordinated to the Ministry of Agriculture

Changli Golden Seashore Nature Reserve (changli huangjin haian)	昌黎黄金海岸	Changli county, Hebei	30000 ha		seaside landscape' (SOA) and bordering sea area; coastal ecosystem; marine ecosystem, including lancelets	coastal shore with shelter-forest belt, dunes, sand dyke offshore and lagoon	SOA National Marine Nature Reserve	1990 by the State Council and SOA		
Tianjin Palaeocoast and Wetland Nature Reserve (guhaian yu shidi); Beidagang, Mapengkou	古海岸于湿地, 北大港, 马棚口 (唐沽区)	Tanggu district (South), Tianjin	21180 ha (SOA); 71180 ha (WCC 1993, SOA)		ancient relics, estuary ecosystem, birds and marshland grasses	coastal wetlands, marshland	SOA National Marine Nature Reserve (1992)	State Council and SOA 1992		wetlands were previous lagoons and estuaries 2000 years B.C., therefore marine relics are being found; ancient shell dykes and oyster beaches
Beitang	陂塘	Tanggu district (north), Tianjin			coastal wetland	detailed wetland type unknown				
Yellow River Delta	黄河三角洲	Shandong			estuarine ecosystem	detailed wetland type unknown	unknown	unknown	East Asian-Australasian Wader Protection Network; Crane Protection Network (1997)	
Chengshan-tou Marine Nature Reserve	成山头	Rongcheng city, Shandong	2000 ha		lagoon system	marine	SOA Local Marine Nature Reserve	1991 by provincial government and SOA		
Chang Dao	长岛	Shandong					island deve-lopment ex-periment area			

Miao Island Marine Nature Reserve (miao dao)	庙岛	Changdao county, Shandong	5250 ha		island ecosystem in warm temperate zone (SOA list); marine ecosystem, bird migration	detailed wetland type unknown	SOA Local Marine Nature Reserve	1991 by provincial government and SOA		
Yancheng (yanhai tantu zhenqin) Rare Seabirds Beach	盐城沿海滩涂珍禽	Yancheng municipa-lity on the Jianghuai Plain; Jiangsu; Sheyang or Dafeng county	453 000 ha; 582 km coastline (Ramsar)	core area of 17 400 ha uninhabited	rare seabirds, red-crowned cranes	expansive tidal mudflat (largest in China - Ramsar)	Ramsar	1984 (as Ramsar: 2002)	UNESCO Man and Bioshere Network (1992); East Asian and Australasian Wader Protection Network (…); Crane Protection Network of Northeast Asia (1997) [source: WWF]	3 mio birds of 200 species migrate through Yancheng Beach; general great diversity of species; management plan 1997; coastline accreting rapidly (1000 ha/year)
Dafeng (milu) Deer Nature Reserve	大丰麋鹿	50 km southeast of Dafeng city in Dafeng or Dongtai county	78 000 ha (WWF; Ramsar); part of Yancheng Bioshere Reserve (Ramsar)	land use certificate and eco-tourism	Pere David's Deer; Chinese water deer	complex of woodlands, marshy grasslands, marshes and intertidal flats	Ramsar	s. Yancheng	UNESCO (1993; lt. Ramsar)	over 500 deers; WWF HK; GEF Wetland Project office and the National Bureau of Forestry are holding training courses on wetland management and waterbird monitoring

Lianyungang	连云港	Lianyungang city (urban district), Jiangsu			coastal wetland	detailed wetland type unknown				
Chongming Dongtan Wetland Nature Reserve (also: dongwang-sha)	崇明东滩 (东旺沙)	Chongming county, Shanghai	32 6000 ha (Ramsar), 4900 ha (SOA)	58000 people in surrounding area	coastal wetland, estuary of the Changjiang, birds, fish and seals	irrigated land and intertidal mudflats	SOA Local Marine Nature Reserve (1991); Ramsar site (2002)	1991 by the municipal government and SOA; (Ramsar states this happenend 1998)	East Asian-Australasian Wader Protection Network (1999; Ramsar); submission to join the Crane Protection Network	accumula-tion of mud and sand from the Yangze; Class A wetland of international importance in China's Biodiversity Conservation Plan
San Jinshan Island Marine Nature Reserve (san jinshan dao)	三金山岛	Shanghai	3000 ha		tropic vegetation	detailed wetland type unknown	SOA Local Marine Nature Reserve	1991 by municipal gov and SOA		
Nanji (liedao) Archipelago	南麂列岛	Pingyang county, Zhejiang	20106 ha (SOA)		molluscs and algae, general marine ecosystem	marine; detailed wetland type unknown	SOA National Marine Nature Reserve	1990 by the State Council	UNESCO (date unknown)	lies within the transition belt of the temperate and subtropic zones
Zhoushan Liuheng Dao	舟山六横岛	Zhejiang					island development experiment area			
Ningbo Marine Relics Reserve	宁波海洋遗迹保护区	Ningbo city, Zhejiang	450 ha		ancient seawall and coast defense trace	marine	SOA Local Marine Nature Reserve	1991 municipal government and SOA		
Haitan Dao	海坛岛	Fujian					island development experiment area			

Shenhuwan Ancient Forest Relics Reserve (or Ancient Submarine Forest) (shenhu wan haidi gusenlin yizhi)	深沪湾海底古森林遗址	Jinjiang county, Fujian	3100 ha		ancient forest relics on sea bottom	marine	SOA National Marine Nature Reserve	1992 by the State Council and SOA	also: Quanzhou Bay	forest relics, oyster shell reefs and metamorphic rock
Xiamen Lancelets Nature Reserve	夏门海洋珍稀生物自然保护区	Xiamen city, Fujian	6300 ha		lancelets and ecosystem	detailed wetland type unknown	SOA Local Marine Nature Reserve	1991 by municipal gov and SOA		
Hoi Ha Wan (Hai xia wan) within Sai Kung West Country Park (xigong xijiaoye gong yuan)	海下 (西贡西郊野公园)	New Territories, Hong Kong (xinjie dalu; Xianggang)	unknown	unknown	marine park, habitat protection and education centre	detailed wetland type unknown	WWF project (first proposal 1988, approved 1996 and centre building approved 1998)	1996 by WWF HK and HK government		centre expected to open spring 2003
Mai Po Marsh & Inner Deep Bay[272] (mipu zhaoze ji houhaiwan neiwan)	米埔沼澤及后海灣內灣	New Territories, Hong Kong (xinjie dalu; Xianggang)	1513 ha (Ramsar)	partly licensed used for traditional Gei wai (shrimp ponds); exact numbers of inhabitants unknown (if any)	habitat protection; dwarf mangroves, shrimp and fish ponds,	shallow bay and intertidal mudflat, including saline mudflats	Ramsar (1995);	1975 and 1995 (Ramsar)	East Asian-Australasian Wader Protection Network	Maipo and Inner Deep Bay or mipu and houhaiwan neiwan are not being managed together (see WWF chin. site); also Shenzhen Bay
Nan'ao Dao	南澳岛	Guangdong					island deve-lopment experiment area			

[272] Wild Animals Protection Ordinance under British jurisdiction (since 1975); Inner Deep Bay is a Water Quality Control Zone (1991); HK Special Administrative Region government (agriculture and fisheries dept.) manages the Mai Po Marshes Nature Reserve with the World Wide Fund of Nature HK (WWF HK)

Zhanjiang Mangrove National Nature Reserve (hongshulin)	湛江红树林	Zhanjiang city, Guangdong	20279 ha	apparently none, tourist and recreation facilities	mangrove protection	mangrove forests and mudflats	Ramsar (2002); Provincial Mangrove Forest Nature Reserve (1991) with 1533 ha; National Mangrove Forest Nature Reserve (1997) enlarged to 20000 ha; master plan implementa-tion (1999)	1991 by the provincial government; 2002 (Ramsar)		fishing and aquaculture practiced within reserve; surveys and research by many universities
Huidong Harbour Sea Turtle National Nature Reserve (huidong gangkou haigui)	惠东港口海龟	Huidong county, Guangdong	400 ha	none	sea turtle nesting and habitat protection	sandy beach with gentle slope and marine area	Huidong County Nature Reserve (1985); provincial level reserve (1986), national reserve (1992 by state council); Ramsar (2002)	1985 by Huidong county government; 1986 by Guangdong province; 1992 by State Council (supervision: Marine and Fishery Department Guangdong); 2002 (Ramsar)		currently rezoning due to multi-use conflicts (disturbance of natural turtle habitat by fishery); expansion of area from 4 km² to 18 km² planned since 2000 and was expected for 2001
Weizhou Dao	涠洲岛	Guangxi AR					island development experiment area			

Shankou Mangroves (hongshulin)	山口红树林	Hepu county, Guangxi AR, Shatian peninsula	8000 ha (SOA), 4000 ha (Ramsar)	48 545 people living in transitional area of the reserve	mangrove ecosystem	low tide and high tide species	SOA National Marine Nature Reserve (1990); Ramsar (2002)	1990 by the State Council	UNESCO (2000)	two areas on either side [?] of the Shatian Peninsula
Beilun Estuary Mangrove Nature Reserve (hekou hongshulin)	北仑河口红树林	Fangcheng county, Guangxi AR	2680 ha		mangrove ecosystem	detailed wetland type unknown	SOA Local Marine Nature Reserve	1990 by government of the autonomous region and the local SOA		
Xisha Coral Reef (Paracel Islands)	西沙	Hainan			coral reef	marine				
Nansha Coral Reef (Spratley Islands)	南沙	Hainan			coral reef	marine				
Dongzhai-gang (Hongshulin) Mangroves	东寨港红树林	near Qiongshan city in Qiongshan county; Hainan	5400 ha (Ramsar)		mangroves, (migrating) bird habitat protection, subtropical tidal wetland biodiversity	subtropical tidal wetland, curved coastlines, gentle harbours, shallow marine waters; extensive mangrove forests in intertidal zone	Ramsar	1980 (as Ramsar: 1992)	k.A.	58 plant species with 29 mangrove species; 118 bird species; 93 fish and shrimp species
Dazhou Island Marine Ecosystem Nature Reserve (dazhou dao)	大洲岛	Wanning county, Hainan	6000 ha (SOA list), 7000 ha (SOA text)		island and surrounding sea ecosystem	mainly marine, detailed wetland type unknown	SOA National Marine Nature Reserve	1990 by the State Council and SOA		
Sanya Coral Reef Nature Reserve (sanya shanhu jiao)	三亚珊瑚礁	Sanya city, Hainan	8500 ha		coral reef ecosystem	marine	SOA National Marine Nature Reserve	1990 by the State Council and SOA		80 species

APPENDIX 5 Fields of research covered by interviews of chapter 4

Categories	cat code	Sub-categories	number of interviews relevant to sub-category
A	A1	institutional power	1
Institutions	A2	various institution's functions	10
(functions and	A3	various institutions change in functions	2
structures)	A4	structural political problems	2
B	B1	CZM org (nat / loc)	4
Coastal Zone	B2	definition coastal zone	2
Management	B3	CZM zones (mar /terr)	2
	B4	CZM and slr	1
C	C1	dike building responsibility	9
Dike building	C2	flood protection, dikes slr	3
and	C3	dike terminology definition	1
Flood protection	C4	dike financing	2
	C5	local hydro dev. (time frame / policy)	3
D	D1	disaster management conflict loc resp	2
Disaster	D2	shanghai example (oil slick/ dam breach)	2
management	D3	disaster management gen flood control	2
	D4	flood control, alternative adaptation	6
E	E1	land reclamation resp./org	3
land reclamation	E2	sediment transport and land reclamation	1
F	F1	slr impact research	4
Sea-level rise	F2	slr monitoring	4
	F3	slr vulnerable zones (backwater effect/ salination)	4
	F4	change in sedimentation (coastal erosion)	1
	F5	subsidence (human-induced)	4
	F6	subsidence countermeasures	2
	F7	slr research, adaptation resp	5
G	G1	statistics	1
Others	G2	socio-economic research	1
	G3	point zero problem	2

APPENDIX 6 List of interviewees cited in chapter 4

Du Bilan (retired director), Research Unit for Marine Development and Planning (State Oceanic Administration), *Beijing (18 October 2003).*

Li Kungang (Director), State Flood Control and Drought Relief Headquarters (Ministry of Water Resources), *Beijing (16 October 2003).*

Lu Dong Yun, Shanghai Administration for Ocean Affairs (Maritime Safety Administration), *Shanghai (10 October 2003).*

Mao Wei De (Head), Water Environment Monitoring Center (Shanghai Hydrology Administration), *Shanghai (12 October 2003).*

Wei Zi Xin (vice director), Shanghai Institute of Geological Survey (Shanghai Housing and Land and Resources Administration), *Shanghai (10 October 2003).*

Ms. Xu, Water Affairs Administration, International Co-operation Department, *Shanghai (10 October 2003).*

Zhao Xitao, Institute for Geology and Geophysics (Chinese Academy of Sciences), *Beijing (17 October 2003).*

APPENDIX 7 **Questionnaire for the survey of chapter 5**

Guten Tag!
Vielen Dank, dass Sie sich bereit erklärt haben, uns bei einer Reisestudie der Universität Hamburg behilflich zu sein. Bitte geben Sie den ausgefüllten Fragebogen direkt an unsere Mitarbeiter zurück.

1) Welchen Zweck erfüllt Ihre Reise? (Mehrfachnennungen möglich)

☐ Geschäftsreise ☐ Urlaubsreise ☐ Besuch von Familie oder Freunden ☐ Andere (bitte einfügen) _____

2) Welches ist Ihr derzeitiges Reiseziel?

Land: _____ Hauptort: _____

3) Wie lange dauert Ihre Reise insgesamt? _____ Tage

4) Wann haben Sie diese Reise gebucht?

☐ letztes Jahr
☐ Januar – März 2004
☐ April – Juni 2004
☐ innerhalb der letzten 2 Wochen

5) Bitte nennen Sie die Organisationsform Ihrer Reise:

☐ Individualreise
☐ über ein Reisebüro (jedoch keine Pauschalreise)
☐ Pauschalreise (über ein Reisebüro / direkt beim Veranstalter)
☐ keine dieser Möglichkeiten

6) Bitte bringen Sie drei der folgenden Eigenschaften Ihres Reisezieles in die Reihenfolge, in der sie für die Wahl dieses Reisezieles entscheidend waren:

☐ Natur / Landschaft
☐ kulturelle / historische Sehenswürdigkeiten
☐ Gastfreundlichkeit
☐ Möglichkeit zu Sport- und Freizeitaktivitäten
☐ Klima
☐ Preis
☐ bequeme und schnelle Anreise
☐ Unterkunftsmöglichkeiten
☐ landesübliche Küche
☐ Zugang zum Meer / zu Seen

1 = am entscheidensten

2 = am zweitwichtigsten für die Entscheidung

3 = am drittwichtigsten für die Entscheidung

7) Wo haben Sie sich über Ihr Reiseziel informiert? Dies kann persönlich oder aber im Internet geschehen sein. (Mehrfachnennungen möglich)

☐ Reiseveranstalter
☐ Reisebüro
☐ Freunde / Familie
☐ Reiseführer
☐ Fluggesellschaft
☐ Auswärtiges Amt
☐ Anzeige / Werbung
☐ Bücher / Filme
☐ Fremdenverkehrsverein
☐ eigene Erfahrung im Reiseland
☐ Wetterinformationsanbieter
☐ Zeitung / Fernsehen (inkl. Videotext)
☐ Andere (bitte einfügen) _____

→

8) Kennen Sie das Reiseland von früheren Reisen?

☐ ja (weiter bei Frage 9) ☐ nein (weiter bei Frage 14)

9) Wie oft haben Sie dieses Land bereits besucht?

☐ einmal ☐ mehrmals

10) Wann haben Sie dieses Land zuletzt besucht?

im Jahre _____ für die Dauer von etwa _____ Wochen

11) In welchen Zeitraum fiel bei diesem letzten Besuch Ihre Anreise? (bitte nur eine Angabe)

☐ Dez. – Feb. ☐ März – Mai ☐ Juni – Aug. ☐ Sept. – Nov.

12) Wo waren Sie bei Ihrem letzten Aufenthalt?

☐ am selben Ort ☐ in der selben Region ☐ im selben Land

13) Bitte bewerten Sie auf einer Skala von 1 bis 5 (1 = wichtig; 5 = unwichtig), inwieweit die damals erlebten Wetterbedingungen im Reiseland wichtig waren für die Entscheidung, noch einmal eine Reise dorthin zu machen:

	1	**2**	**3**	**4**	**5**	
wichtig	☐	☐	☐	☐	☐	**unwichtig**

14) Beschreiben Sie bitte in Stichworten, welche Klimabedingungen einen Reisenden an Ihrem Reiseziel im Monat Juli erwarten:

_____

15) Haben Sie sich vor dieser Reise über das Klima an Ihrem Reiseziel informiert?

☐ ja (weiter bei Frage 16) ☐ nein (weiter bei Frage 21)

16) Wann haben Sie sich über das Klima an Ihrem Reiseziel informiert? (Mehrfachnennungen möglich)

☐ als diese Reise geplant wurde
☐ als die Reisezeit feststand
☐ als das Reiseziel feststand
☐ als die Buchung erfolgt war
☐ kurz vor der Reise
☐ ohne konkrete Reiseabsicht
☐ im Zusammenhang mit einer früheren Reise in das Land

17) Wenn Sie sich über das Klima an einem Reiseziel informieren, z.B. in Reiseführern oder im Reisebüro, für welche Angaben interessieren Sie sich besonders? (Mehrfachnennungen möglich)

☐ Höchsttemperatur
☐ Regentage
☐ Bewölkung
☐ Tiefsttemperatur
☐ Windverhältnisse
☐ Luftfeuchtigkeit
☐ Durchschnittstemperatur
☐ UV-Strahlung
☐ Sonnenscheindauer
☐ Wassertemperatur
☐ Niederschlagsmenge
☐ keine dieser Möglichkeiten

18) Welche Darstellung von Klimainformationen bevorzugen Sie? (Mehrfachnennungen möglich)

☐ Karten, Satellitenbilder
☐ Grafiken
☐ Zahlenangaben
☐ Textform
☐ Andere (bitte einfügen)
_____

→

19) Wie bedeutsam waren die Klimainformationen der von Ihnen benutzten Quellen für die Wahl Ihres Resisezieles? (Bitte beachten Sie, dass einige dieser Quellen auch im Internet zu finden sind.)

benutzte Informationsquellen:	Bitte bewerten Sie auf der Skala: sehr bedeutsam	1	2	3	4	5	gar nicht bedeutsam
Reiseveranstalter		☐	☐	☐	☐	☐	
Reisebüro		☐	☐	☐	☐	☐	
Reiseführer		☐	☐	☐	☐	☐	
Freunde / Familie		☐	☐	☐	☐	☐	
Fluggesellschaft		☐	☐	☐	☐	☐	
eigene Erfahrung im Reiseland		☐	☐	☐	☐	☐	
Anzeige / Werbung		☐	☐	☐	☐	☐	
Bücher / Filme		☐	☐	☐	☐	☐	
Fremdenverkehrsverein		☐	☐	☐	☐	☐	
Auswärtiges Amt		☐	☐	☐	☐	☐	
Wetterinformationsanbieter		☐	☐	☐	☐	☐	
Zeitung / Fernsehen (inkl. Videotext)		☐	☐	☐	☐	☐	
Andere (bitte einfügen) _____		☐	☐	☐	☐	☐	

20) Bitte bringen Sie <u>drei</u> der folgenden Eigenschaften in die Reihenfolge, in der diese für Sie beim Suchen von Klimainformationen wichtig sind:

☐ Vertrautheit der Informationsquelle

☐ Vielfalt der Informationen

☐ einfacher Zugang zu den Informationen

☐ Verständlichkeit und Darstellung von Informationen

☐ Informationen sind kostenlos

☐ Zuverlässigkeit der Informationsquelle

1 = am wichtigsten

2 = am zweitwichtigsten

3 = am drittwichtigsten

21) Welche Werte erwarten Sie an Ihrem Reiseziel im Monat Juli? (Bitte schätzen Sie!)

Höchsttemperatur: _____ ° C

Durchschnittstemperatur: _____ ° C

Wassertemperatur: _____ ° C

Sonnenschein: _____ Stunden am Tag

Luftfeuchtigkeit: _____ %

Regen: _____ Tage im Monat

22) Haben Sie die Wetterlage an Ihrem Reiseziel während der vergangenen Woche verfolgt?

☐ ja ☐ nein ☐ interessiert mich nicht

23) Wissen Sie, wie die Wetterbedingungen an Ihrem Reiseziel im Juli des letzten Jahres waren?

☐ ja ☐ bin mir nicht sicher ☐ nein

→

24) Haben Sie im Zusammenhang mit Ihrem Reiseziel in den letzten Jahren von außergewöhnlichen Wetterereignissen gehört?

☐ ja → (weiter bei Frage 25)
☐ bin mir nicht sicher
☐ nein
☐ interessiert mich nicht → (weiter bei Frage 27)

25) Wenn Sie von solchen außergewöhnlichen Wetterereignissen gehört haben, welche waren das?

_____

26) Hat die Kenntnis über außergewöhnliche Wetterereignisse an Ihrem Reiseziel Ihre Reiseplanung beeinflußt?

☐ ja, folgendermaßen: _____
☐ bin mir nicht sicher
☐ nein

27) Wie oft fahren Sie durchschnittlich in den Urlaub?

☐ weniger als einmal im Jahr
☐ einmal im Jahr
☐ zweimal im Jahr
☐ mehr als zweimal im Jahr

Angaben zur Person:

28) Wohnort: _____

29) Postleitzahl: _____

30) Geschlecht: ☐ weiblich ☐ männlich

31) Alter: _____

32) Beruf: _____

33) höchster Schulabschluß:

☐ Hauptschule / Volksschule
☐ Realschule / mittlere Reife
☐ Abitur
☐ Universität / Hochschule
☐ kein Abschluss

Vielen Dank für Ihre Unterstützung und eine schöne Reise!

Sollte dieser Fragebogen Ihre Neugierde geweckt haben, erhalten Sie von unseren Mitarbeitern gerne ein Informationsblatt über diese Studie.

APPENDIX 8 Countries with Approved Destination Status (CNTA 2006a)

Number	Country/Region	Since	Applied to
1	Hong Kong	1983	China
2	Macao	1983	China
3	Thailand	1988	China
4	Singapore	1990	China
5	Malaysia	1990	China
6	Philippines	1992	China
7	Australia	1999	Beijing, Shanghai, Guangzhou
		2004/7	Tianjin, Hebei, Shandong, Jiangsu, Zhejiang, Chongqing
8	New Zealand	1999	Beijing, Shanghai, Guangzhou
		2004/7	Tianjin, Hebei, Shandong, Jiangsu, Zhejiang, Chongqing
9	South Korea	1998	China
10	Japan	2000	Beijing, Shanghai, Guangzhou
		2004/9/15	Liaoning, Tianjin, Shandong, Jiangsu, Zhejiang
		2005/7/25	China
11	Vietnam	2000	China
12	Cambodia	2000	China
13	Myanmar	2000	China
14	Brunei	2000	China
15	Nepal	2002	China
16	Indonesia	2002	China
17	Malta	2002	China
18	Turkey	2002	China
19	Egypt	2002	China
20	Germany	2003	China
21	India	2003	China
22	Maldives	2003	China
23	Sri Lanka	2003	China
24	South Africa	2003	China
25	Croatia	2003	China
26	Hungary	2003	China
27	Pakistan	2003	China
28	Cuba	2003	China
29	Greece	2004/9	China
30	France	2004/9	China
31	Netherlands	2004/9	China
32	Belgium	2004/9	China
33	Luxemburg	2004/9	China
34	Portugal	2004/9	China
35	Spain	2004/9	China
36	Italy	2004/9	China
37	Austria	2004/9	China
38	Finland	2004/9	China
39	Sweden	2004/9	China
40	Czech Republic	2004/9	China
41	Estonia	2004/9	China

42	Latvia	2004/9	China
43	Lithuania	2004/9	China
44	Poland	2004/9	China
45	Slovenia	2004/9	China
46	Slovakia	2004/9	China
47	Cyprus	2004/9	China
48	Denmark	2004/9	China
49	Iceland	2004/9	China
50	Ireland	2004/9	China
51	Norway	2004/9	China
52	Romania	2004/9	China
53	Switzerland	2004/9	China
54	Liechtenstein	2004/9	China
55	Ethiopia	2004/12	China
56	Zimbabwe	2004/12	China
57	Tanzania	2004/12	China
58	Mauritius	2004/12	China
59	Tunisia	2004/12	China
60	Seychelles	2004/12	China
61	Kenya	2004/12	China
62	Zambia	2004/12	China
63	Jordan	2004/12	China
64	Northern Mariana Islands	2005/4	China
65	Fiji	2005/5	China
66	Vanuatu	2005/5	China
67	U.K.	2005/7	China
68	Chile	2005/7	China
69	Jamaica	2005/7	China
70	Russia	2005/8	China
71	Brazil	2005/9	China
72	Mexico	2005/9	China
73	Peru	2005/9	China
74	Antigua and Barbuda	2005/9	China
75	Barbados	2005/9	China
76	Laos	2005/9	China
77	Mongolia	2006/3	China
78	Tonga	2006/3	China
79	Grenada	2006/3	China
80	Bahamas	2006/3	China
81	Saint Lucia	2006/3	China

APPENDIX 9 Tourism Spots Database: Data and Sources

A1 The database

We aimed at providing a comprehensive database of important tourist spots throughout China, with data broken down to the county level. The data has been used for statistical regression analysis on a province level.[273] The county level data of tourist spots are the basis for the descriptive analysis of the spatial distribution and the number of administrative units that feature important tourist spots. The data are also useful for GIS application.

A1.1 Data sources

For compilation of tourist spots, we collected tourist spots from 6 sources on a national basis (Chinese and foreign origin as well as in Chinese and English language) and an additional 46 local Chinese sources (all in Chinese language). We used the information provided by the China National Tourism administration (CNTA) and compared it to the information given by a Chinese non-commercial self-help travel network with expert support (*Yiqilai zizhu lüyou wang*, Yiqilai hereafter). The latter reflects the preferences that Chinese tourists have in contrast to what the official tourism administration defines as must-sees. Further, we added a third source, of a mainly commercial character, the Travel-China-Guide.[274] All sources are freely accessible websites, except the two foreign sources for which we used the paperback print versions. Table A1 shows the different source groups and their numbers. Table A2 specifies the local sources used.

Source	Year	Mode of information selection	Mode of source	Source language	Level	Targeted at
www.cnta.com; www.17lai.com	2001-4	Absolute occurrence in ranking system 4A – A	Chinese official	English and Chinese	National	Foreign and domestic tourists
www.cnta.com; www.china.org	2004	Absolute occurrence	Chinese official	English and Chinese	National	Foreign and domestic tourists
www.travelchinaguide.com	2004-5	Absolute occurrence in ranking system	Chinese official and commercial	English	National	Mostly foreign tourists
See Table A2	2004-5	Absolute occurrence	Chinese official	Mostly Chinese	Provincial / local	Mostly domestic tourists
Let's go publications (ed.) (2000): *Let's go: China.* Macmillan. Basingstoke and Oxford; Cummings et al. (1991): *China Lonely Planet*. Hawthorn. Berkeley.	1991, 2000	Absolute occurrence	Commercial English guides	English	National	Foreign travellers, mostly individual

Table A1: source groups of provincial level analysis

[273] As there are no county data on tourist arrivals for China.

[274] In Table A1, this source ranges under half-commercial, half-official, as the Xi'an International Studies University is involved.

All sources were combined into five groups representing variations of language (Chinese or English), the status of the source (official and/or commercial), the scale of the application (national or local), and the target groups (domestic and/or foreign tourists). In cases where the information on tourist spots was presented in a ranking order (such as the 4A-A ranking system of official Chinese tourism marketing), the absolute occurrence within the ranking system was used. Two groups were categorised as such and therefore only one source represents each of these groups. All other groups were formed from more than one source. Only the group of local sources was presented by at least one source and for nearly half of the provinces (15) a second source was consulted.

Province	Local sources
Anhui	www.ahta.com.cn
Beijing	www.bjta.gov.cn ; www.visitbeijing.com
Chongqing	www.cqta.gov.cn
Fujian	www.fjta.com
Gansu	www.joingansu.com ; www.chinasilkroad.com
Guangdong	www.gdtravel.com
Guangxi	www.gxta.gov.cn
Guizhou	www.gz-travel.net
Hainan	http://hn.auyou.com ; www.sun-sand-sea.com
Hebei	http://hb.auyou.com ; www.hebeitour.com.cn
Heilongjiang	www.longtour.net
Henan	www.hnta.cn
Hubei	www.hubeitour.gov.cn ; http://hubei.auyou.com
Hunan	http://hunan.auyou.com ; www.hnt.gov.cn
Jiangsu	www.jstour.com
Jiangxi	http://jx.auyou.com ; www.travel-jx.com
Jilin	http://jl.auyou.com ; www.gotojilin.com
Liaoning	www.lntour.gov.cn
Nei Menggu	www.nmtravel.net ; www.nmtour.gov.cn
Ningxia	http://nx.auyou.com ; www.nx.com.cn
Qinghai	www.qhly.gov.cn ; http://qh.auyou.com
Shaanxi	www.sxtour.com
Shandong	www.sdta.cn ; http://sd.auyou.com
Shanghai	www.shanghaitour.net ; http://sh.auyou.com
Shanxi	www.sxta.com.cn
Sichuan	www.scta.gov.cn
Tianjin	www.tj66.com.cn ; www.tjtour.cn
Xinjiang	www.xinjiangtoure.gov.cn
Xizang	www.tibettour.com.cn ; http://xz.auyou.com
Yunnan	www.traveloyunnan.com.cn
Zhejiang	www.tourzj.com

Table A2: local sources

A1.2 Data details: years

We use sources from different years. The information from the internet was gathered throughout 2004 to mid 2005, although most English-language information on the Chinese websites is substantially older. In the case of 4A-A ranking by the CNTA this becomes most clear. The English-language lists on the web resemble the Chinese-language lists from 2001.

For province-based statistical regression analysis, i.e. for the database of spot numbers, end of 2001 data are used, as this is the information people had for their decision on a holiday destination in 2002. For the trend assessment of these ranked 4A-A spots, all accessible data from 2001-2004 in the Chinese language are taken. The foreign travel guides used are from 1991 and 2000. They therefore not only cover two different publications with possible bias for certain regions but also a time scale comparable to the other information used. The 1991 publication is not necessarily limiting the spots in the database[275] as spots newly opened to the public may have been incorporated into the 2000 publication.

A2 Data abstraction methodology

The compiled data was numerous and had to be limited to a workable size. Furthermore the data needed classification into groups of tourist attractions which had to serve the research questions. This process of sorting and classifying data is explained below.

A2.1 Classification of spots

Altogether we collected 2499 tourist spots. For groups 1 to 3 and 5, all spots mentioned by the sources were considered. We assumed that a local source always presents the most elaborate choice of spots in order to raise revenue through tourism expenditure in the region. Therefore, from the local Chinese sources only those spots that were mentioned before, by the other source groups, were included in the database. This explains the relatively low number of total collected spots. Generally, a considered spot was only included in the final database when it was mentioned by at least two sources from separate groups.

We finally extracted a database of 1325 important tourist spots for the whole of China. We further added information for classification of these spots. In order to do so we oriented ourselves along the classification the UNESCO (2006) uses for its heritage sites,[276] which is cultural (C) or natural (N), and we introduced the term CN as the combination of both.[277] Table A3 gives an overview. We also added another classification of other (O), including all spots that cannot be exclusively associated with culture or nature.[278] This group includes, for instance, golf courses, which are neither a natural sight - as they are artificially built, nor a cultural sight - as they do not represent a cultural item, unless sports are reclassified as cultural. Any spot that was represented in two classifications at a time – always in combination with O – falls under the classification of OM. These include, for example, the Dujiangyan Irrigation System in Sichuan, which is both a cultural feature, as it was started by Li Bing 250 BC, and a flood regulation structure, being constantly modernised and rebuild to latest standards. A classification either into C or O would not pay this tourist spot justice and so it is designated OM.

[275] Most features mentioned in the foreign sources are clearly classified as C (cultural) or N (natural) and only seldom as O (other) features. Please refer to the next paragraph on classification of spots for details of methodology.

[276] Although we do not adopt it for the individual spots, but re-define the categories. Further our CN classification does not resemble UNESCO's 'cultural landscapes'.

[277] The CN classification pays justice to the fact that often nature cannot be viewed in isolation from culture (Richards 2000). Sofield and Li (1998) formulate that "the distinctions which might be drawn in other countries between cultural forms and physical features are often not possible in China" (p.379) and "many of the most scenic localities are not only a gift of nature but also the product of thousands of years of wisdom and hard work by Chinese people" (p.378, after Zhang 1995, p.43).

[278] The O and OM classifications are stimulated by Shaw and Williams' (2004) view on natural theme park attractions.

Natural	N	Botanical Gardens Gorges Caves Rivers Mountains/Hills Scenic Areas Forest Parks Grasslands Hot Springs Pools Lakes Deserts Parks (including all *gongyuan*)
Mixed	CN	Parks with Temple Complexes (pre-1949) Mountains with Temple Complexes (including all holy mountains) Gardens with Temple Complexes Pools and Hot Springs (within temple complexes) Natural Museums Towns as tourism centres (e.g. seaside resorts) Ethnic Festivals
Cultural	C	Towers Tombs /Mausoleums Pagodas Imperial Palaces Temples / Churches / Mosques / Monasteries Ruins Former Residences / Birthplaces of Famous People Memoial Halls Squares Bridges Museums (except Natural Museums) Cultural Parks Ethnic Villages Ancient Towns, Towns as dynastic capitals Religious Festivals Ethnic Markets
Other	O	Aquarium Zoos Science and Technology Parks Golf Clubs Film Parks Amusement Parks TV Towers / Skyscrapers Art Galleries Exhibitions / Fairs / Performances Towns as centres of special crafts or industries Festivals (except ethnic or religious) Markets (tourism and industrial) Other Museums (e.g. industrial)
Mixed (O)	OM	Nature or culture, with M
Time periods	pres rev imp ant preh	present modern times (since 1949) revolutionary (1911-1945) imperial (221 BC - 1911) antiquity (2200 BC - 221 BC) prehistorical (until 2200 BC)

Table A3: classification key

OM-combinations of O and N are mostly resembling natural sights that are scenic and well known for specific sports activities, such as the Mengdong River in Hunan, which is a popular rafting area. Altogether there are 42 OM spots in the database, a mere 3.2%, which shows that most spots could clearly be classified within the four units of C, CN, N and O.

An additional classification aims at reflecting the time epoch most important for C, CN and to some extent O spots. We distinguished into

- the present modern times (pres) beginning with the founding of the People's Republic of China in 1949;
- the revolutionary period (rev) from 1911 to 1949;
- the imperial time (imp) starting with the first imperial dynasty that unified the country Qin (221 BC) until the fall of the last dynasty Qing in 1911;
- the antiquity period (ant) with the mystic dynasties of Xia, Shang and Zhou (2200 BC – 221 BC); and
- the prehistorical period (preh) of paleolithic, neolithic and bronze ages (until 2200 BC).

Table A3 shows that most attributions were straightforward - e.g. architecture is C, and nature, as for example lakes, are N – but there are some features that can be found in two distinct classes.

Gardens are considered N as botanical gardens, but gardens that predominantly combine architecture and nature – as typical for Chinese horticulture (Schwickert 1989), e.g. the Classical Gardens of Suzhou in Jiangsu province – are classified CN. Likewise is any garden with major integrated temple complexes.

Equally, Hot springs and Pools are generally considered N, if not combined with ancient temples or utility architecture, which turns them into CN.

All Parks are N including the public parks (*gongyuan*) that are featured in every Chinese town or city.[279] That way only parks with temple complexes (that must be at least from pre-1949) are considered CN. Exhibition and event parks, such as Science and Technology Parks, Film Parks and Amusement Parks are O.

Mountains are classified as N, unless there are major temples situated on them, in this case they are CN. All sacred or holy mountains of China - these are the five holy mountains (*wu yue*) and four major Buddhist and Daoist mountains each - are also CN. Only one mountain, that is exclusively brought into context with a temple sight counts as C. Table A4 shows an overview of all major Chinese mountains.

Museums are distinguished into Natural Museums that are classified CN, as they are not a natural feature themselves, museums with cultural focus are C, and other kind of museums – e.g. industrial ones – are O.

Towns as tourism centres, e.g. seaside resorts, are CN. Cities well known for their ancient, historical parts and former dynastic capitals are C. Towns as centres of special crafts and industries are O. Ethnic Villages range under C. Whereas Ethnic Festivals are CN, as these are mostly linked to natural features as well, Religious Festivals are C and all other Festivals are O.

[279] This may seem inadequate to the Western perception of a park, as the Chinese gongyuan are sometimes very small and mostly very artificial. They are widely paved and used as assembling points by the urban population to pursue qigong gymnastics, play Mahjong or dance waltz. But these parks serve the same purpose as larger and more natural ones in the West, i.e. to be a place to escape to from small apartments in urban areas (compare Schwickert 1989); this way it largely substitutes the lack of an own garden or balcony. Cultural preferences may be different, but the intention of providing these parks is comparable, therefore we include the gongyuan in N.

Province	Mountains *(wu yue)*
Anhui	Huangshan, Jiuhuashan, Qiyunshan, Tianzhushan, Langyashan
Beijing	
Chongqing	Jinyunshan, Jinfoshan
Fujian	Wuyishan, Qingyuanshan, Wanshishan, Tailaoshan
Gansu	Maijishan
Guangdong	Xiqiaoshan, Danxiashan
Guangxi	Huashan, Qingxiushan
Guizhou	Fanjingshan
Hainan	
Hebei	Cangyanshan
Heilongjiang	
Henan	Songshan, Jigongshan
Hubei	Wudangshan, Dahongshan
Hunan	Hengshan, Shaoshan
Jiangsu	Zhongshan, Tiantaishan
Jiangxi	Lushan, Longhushan, Jingganshan, Sanqingshan
Jilin	
Liaoning	Qianshan
NeiMenggu	
Ningxia	
Qinghai	
Shaanxi	Huashan, Lishan
Shandong	Taishan, Laoshan
Shanghai	
Shanxi	Hengshan, Wutaishan
Sichuan	Emeishan, Qingchengshan, Gonggashan
Tianjin	
Xinjiang	Tianshan
Xizang	
Yunnan	Yulongxueshan
Zhejiang	Putuoshan, Yandangshan, Tiantaishan

Table A4: mountains in China

A2.2 Filtering important spots

As a control factor we included a group '0' in the qualitative analysis stage, that indicates which tourism spots are either included in the World Heritage Sites of the UNESCO or the CNTA list of Major National Scenic Resorts. The latter list was verified by the list of Most Famous Sites (*guojia zhongdian lüyou fengjingqu*) by Yiqilai.[280] Surprisingly, the Chinese UNESCO list, published by CNTA deviates from the official UNESCO list. Altogether three sites were missing: two of which were classified UNESCO site only after 2001 (These are the Three parallel rivers of Yunnan and the Capital cities and tombs of the Koguryo Kingdom in Jilin). Therefore, this proves that the CNTA information on the web is outdated. One site was classified in the year 2001 and was also not included (Yungang Shikou (Grottoes) in Shanxi). A comparison with the Yiqilai list (in Chinese) showed even more and different deviations.[281]

The only list on the web for the UNESCO sites of Chinese origin, that was complete, was provided by the Travel-China-Guide. We therefore adopted the index-system of China's

[280] With only one exception: Dujiangyan in Sichuan was not included in here.

[281] In contrast to CNTA, this list included the three parallel rivers of Yunnan, but Yungang Shikou and the Koguryo Kingdom remains were equally missing. Instead of that the Ming tombs in Beijing were represented three times under different names. This also shows that a qualitative approach to the data is inevitable, as matching numbers could mislead.

major attractions by this provider and included all entries in our database, irrespective if they would have been included by our sampling system (i.e. mentioned by at least two sources out of two separate groups).[282] Even the use of the Travel-China-Guide-index as an active control group still excluded the Koguryo Kingdom remains from our database, which again is probably due to the fact, that it was assigned UNESCO status only in 2004 and was quite unknown before. The same applies to the three parallel rivers of Yunnan. A third UNESCO site was included in the database only by its representation through the index-system: Dali ancient town in Yunnan. Altogether 27 spots of the '0' control group are not included in the database. Most of them are N spots, mainly mountains.

[282] There are in fact six entries by the index that we could not verify with other sources. These were excluded from our database. They make 2.3% from the whole index-list.

APPENDIX 10 Distribution of spots per province and classification

Rank	Region	Tourist Spots total	Region	Number of C spots	Region	Number of CN spots	Region	Number of N spots	Region	Number of O spots	Region	Number of OM spots
1	YN	110	YN	39	JS	26	YN	46	HLJ	17	HLJ	5
2	JS	98	S“X	37	YN	16	SD	36	GD	12	GD	4
3	BJ	82	BJ	36	BJ	15	GX	29	JS	10	JS	4
4	SD	77	JS	33	GX	13	JS	25	HeN	9	SX	3
5	GX	63	SX	32	SD	12	GZ	23	SD	9	YN	3
6	GD	61	HeN	30	HeB	10	BJ	22	BJ	8	NX	2
7	HLJ	57	SH	29	SH	9	HLJ	19	SH	7	JX	2
8	SH	52	XZ	28	ZJ	9	HaiN	17	YN	6	TJ	2
9	ZJ	52	GD	26	XJ	6	LN	16	JL	5	XJ	2
10	HeN	46	ZJ	22	SC	6	ZJ	16	LN	5	SH	2
11	SX	46	HeB	20	GZ	6	AH	15	TJ	4	ZJ	2
12	HeB	45	SD	19	HLJ	5	FJ	14	SC	4	GX	2
13	S“X	45	HuN	16	GD	5	GD	14	HeB	4	JL	1
14	GZ	41	GX	16	HuB	4	HuN	13	FJ	3	HuB	1
15	LN	40	GS	15	GS	4	SC	12	ZJ	3	AH	1
16	XZ	40	LN	15	TJ	4	HeB	11	GX	3	HuN	1
17	SC	37	TJ	14	HuN	4	JL	10	QH	2	SC	1
18	HuN	36	SC	14	S“X	4	XJ	8	NM	2	LN	1
19	XJ	29	NX	13	SX	4	CQ	7	HuB	2	XZ	1
20	TJ	28	NM	11	FJ	3	JX	7	GS	2	SD	1
21	AH	27	HuB	11	LN	3	NM	7	HaiN	2	BJ	1
22	HaiN	27	XJ	11	XZ	3	XZ	7	XJ	2	CQ	0
23	FJ	25	GZ	11	HeN	3	HuB	6	HuN	2	FJ	0
24	GS	25	HLJ	11	CQ	2	QH	5	SX	2	GS	0
25	HuB	24	JX	10	JX	2	SX	5	CQ	1	GZ	0
26	JL	22	CQ	9	AH	2	SH	5	XZ	1	HaiN	0
27	JX	21	AH	9	HaiN	2	GS	4	GZ	1	HeB	0
28	NM	21	JL	6	NX	1	TJ	4	AH	0	HeN	0
29	CQ	19	HaiN	6	NM	1	S“X	4	JX	0	NM	0
30	NX	18	FJ	5	JL	0	HeN	4	NX	0	QH	0
31	QH	11	QH	4	QH	0	NX	2	S“X	0	S“X	0

References

Abaza, Hussein and Baranzini, Andrea (eds) (2002): Implementing Sustainable Development – Integrated Assessment and Participatory Decision-making Processes. United Nations Environment Programme. Cheltenham. Edward Elgar Publishers.

Adger, W. Neil (1999): 'Social Vulnerability to Climate Change and Extremes in Coastal Vietnam'. *World Development*, 27 (2): 249-269.

Adger, W. Neil and Kelly, P. Mick (1999): 'Social Vulnerability to Climate Change and the Architecture of Entitlements'. *Mitigation and Adaptation Strategies for Global Change* 4: 253-266.

Administrative Center of China's Agenda 21 (ACCA21) (1997): National Report on Sustainable Development. www.acca21.org.cn/nrc3s11.html (last viewed: May 5, 2003).

Administrative Center for China's Agenda 21 (ACCA21) (2002): 5-10 Integrated Management of China's Coastal Zone. www.acca21.org.cn/ppc21n5-10.html (last viewed: 1 October 2004).

Agrometeorological Institute (AI) (2003): *Qihou bianhua haipingmian shangsheng dui wo guo yanhai diqude keneng yingxiang ji ke caiqude shiying duice* (Possible impacts of sea-level rise due to global warming on our country's coastal zone and adaptation countermeasures needed). Chinese Academy of Agriculture Science. www.ami.ac.cn/climatechange2/85/sea/preface_1.htm (last viewed Sept. 17, 2003).

Ahmed, Zafar U. (1991): 'The influence of the components of a state's tourist image on product positioning strategy'. *Tourism Management* 12(4): 331-340.

Amelung, Bas and Viner, David (forthcoming): 'The vulnerability to climate change of the Mediterranean as a tourist destination'. In: Amelung, Bas, Blazejczyk, Krysztof, Matzarakis, Andreas and Viner, David (eds.). Climate Change and Tourism: Assessment and Coping Strategies. Kluwer Academic Publishers. Dordrecht.

Arthurton, Russell S. (1998): 'Marine-related physical natural hazards affecting coastal megacities of the Asia-Pacific region – awareness and mitigation'. *Ocean & Coastal Management* 40: 65-85.

Asia-Pacific Economic Co-operation (APEC) (2004): Economic Value of Marine Sectors in China. 2004/IOMFIII/028. Submitted by the People's Republic of China. www.subpesca.cl/apec_ssp/documents/pascua/04_iom_028_Economic%20Value.pdf (last viewed: 14 December 2004).

Au, Alan K.M., Bala Ramasamy and Yeung, Matthew C.H. (2005): 'The Effects of SARS on the Hong Kong Tourism Industry: An Empirical Evaluation'. *Asia Pacific Journal of Tourism Research* 10 (1): 85-94.

Awosika, L., Boromthanarat, S., Cornforth, R., Hendry, M., Koudstaal, R., Ridgley, M., Sørensen, J., de Vrees, L. and Westmacott, S. (1993): 'Management arrangements for the development and implementation of coastal zone management programmes'. In: World Coast Conference 1993. Proceedings, Vol. 1. CZM-Centre Publication No. 4. Den Haag. Pp. 107-179.

Ball, Alan R. (1993): Modern Politics and Government. Fifth Edition. London. Macmillan Press Ltd..

Baloglu, Seyhmus and Mangaloglu, Mehmet (2001): 'Tourism destination images of Turkey, Egypt, Greece, and Italy as perceived by US-Based tour operators and travel agents'. *Tourism Management* 22: 1-9.

Baloglu, Seyhmus and McCleary, Ken W. (1999): 'A model of destination image formation'. *Annals of Tourism Research* 26(4): 868-897.

Beerli, Asunción and Martin, Josefa D. (2004): 'Tourists' characteristics and the perceived image of tourist destinations: a quantitive analysis – a case study of Lanzarote, Spain'. *Tourism Management* 25(5): 623-626.

Beijing2008 (2006): Yangtze River water to 'flow' into Beijing. 30 June 2006. http://en.beijing2008.com/10/24/article212032410.shtml (last viewed 11 August 2006).

Bendor, Jonathan, Moe, Terry M. and Shotts, Kenneth W. (2001): 'Recycling the Garbage Can: An Assessment of the Research Program'. *American Political Science Review* 95 (1): 169-190.

Berritella, Maria, Bigano, Andrea, Roson, Roberto and Tol, Richard S.J. (2006): 'A general equilibrium analysis of climate change impacts on tourism'. *Tourism Management* 27 (5): 913-924.

Berrittella, Maria, Rehdanz, Katrin, Roson, Roberto, and Tol, Richard S.J. (2005): 'The Economic Impact of Water Pricing: A Computable General Equilibrium Analysis'. Research Unit Sustainability and Global Change, Working Paper FNU 96. Hamburg University and Centre for Marine and Atmospheric Science. Hamburg. http://www.uni-hamburg.de/Wiss/FB/15/Sustainability/Working_Papers.htm

Bigano, Andrea, Hamilton, Jacqueline M., Lau, Maren A., Tol, Richard S.J., and Zhou Yuan (2004): 'A global database of domestic and international tourist numbers at national and subnational level'. Research Unit Sustainability and Global Change, Working Paper FNU 54. Hamburg University and Centre for Marine and Atmospheric Sciences. Hamburg. http://www.uni-hamburg.de/Wiss/FB/15/Sustainability/Working_Papers.htm

Bigano, Andrea, Hamilton, Jacqueline M., and Tol, Richard S.J. (2006): 'The impact of climate on holiday destination choice'. *Climatic Change* 76 (3-4): 389-406.

Bork, Hendrik (2006): ‚Gebotener Glanz der verbotenen Stadt'. SZ (Süddeutsche Zeitung), 13 March.

Bowden, Jiaolan (2005): 'Pro-Poor Tourism and the Chinese Experience'. *Asia Pacific Journal of Tourism Research* 10 (4): 379-396.

Bressers, Hans T.A. (2004): 'Implementing Sustainable Development: How to Know What Works, Where, When and How'. In: Lafferty, William M. (ed.). Governance for Sustainable Development – The Challenge of Adapting Form to Function. Edward Elgar Publishing. Cheltenham and Northampton. P.284-318.

Bruce, J.P. (1999): 'Disaster Loss Mitigation as an Adaptation to Climate Variability and Change'. *Mitigation and Adaptation Strategies for Global Change* 4: 295-306.

Buen, J. (2001): Beyond nuts and bolts: How organisational factors influence the implementation of environmental technology projects in China. Post-graduate Thesis, Norwegian University of Science and Technology. www.pnl.gov/chian/Hovedop.pdf (last viewed: 15 January 2003)

Cahill, Anthony G. and Overman, Sam E. (1990): 'The Evolution of Rationality in Policy Analysis. In: Nagel, Stuart S. (ed.). Policy Theory and Policy Evaluation – Concepts, Knowledge, Causes, and Norms. Greenwood Press. New York, Westport, London. P.11-27.

Carey, J.J. and Mieremet, R.B. (1992): 'Reducing Vulnerability to Sea-level Rise: International Initiatives'. *Ocean & Coastal Management* 18: 161-177.

Central Intelligence Agency (CIA) (2002): The World Factbook 2002. Washington, D.C. www.cia.gov/cia/publications/factbook/geos/ch.html (last viewed: 22 January 2003).

Centre of Human Settlements (CHS) (2004): Water Sources in Shanghai. University of British Columbia. www.chs.ubc.ca/china/shanghai.pdf (last viewed 13.1.04).

CGIAR (2005): Yellow River Basin. Challenge Program on Water and Food. www.waterforfood.org/BB_Yellow_River_Basin.asp (last viewed Sept 15, 2005).

Chaudhary, Manjula (2000): 'India's image as a tourist destination – a perspective of foreign tourists'. *Tourism Management* 21: 293-297.

Chen Weiqi, Hong Huasheng, Liu Yan, Zhang Luoping, Hou Xiaofeng and Raymond, Mark (2004): 'Recreation demand and economic value: An application of travel cost method for Xiamen Island'. *China Economic Review* 15 (4) : 398-406.

Chen Xiqing (1998): 'Changjian (Yangtze) River Delta, China'. *Journal of Coastal Research* 14 (3): 839-858.

Chen Xiqing and Zong Yongqiang (1999): 'Major impacts of sea-level rise on agriculture in the Yangtze delta area around Shanghai'. *Applied Geography* 19: 69-84.

Chen Zhongyuan and Saito, Yoshiki (2001): Changjiang River (Yangtze) Delta. http://194.171.38.9/delta/changjiang/Changjiang_BP_sept%207.doc (last viewed Nov 3, 2004).

Chen Zhongyuan and Saito, Yoshiki (2003): 'Annex A. Summaries of Background Papers to the Report of the Workshop on the Planning and Management of Modified Mega Deltas'. In: Report on the Modified Mega Delta Workshop. First Iteration September 06, 2002. The Hague. Pp.A-2 – A-7.

Cheng Jianhua, Zeng Hao and He Dasheng (2002): The Construction of Round-Island Road and the Protection & Development of Sand Beach and Shoreline. Road & Bridge Construction Investment Corporation. Xiamen.

Cheng, Xiaotao (2002): Changes of Flood Control Situation in China & Adjustments of Flood Management Strategies. http://www.cws.net.cn/cwsnet/meeting-fanghong/chengxt.doc (last viewed Sept 15, 2005).

Cheung, Sidney C.H. (1999): 'The Meaning of a Heritage Trail in Hong Kong'. *Annals of Tourism Research* 26 (3): 570-588.

CHINA aktuell (1993a): China Monthly Data. 6: 604-605.

CHINA aktuell (1993b): Headline 8. Weitere Beschlüsse zur Reform der Staatsorgane. 7: 640-642.

CHINA aktuell (1993c): China Monthly Data. 7: 711-713.

CHINA aktuell (2003): Headline 7. Pläne für weitere Straffung der Staatsorgane. 1: 7-9.

CHINA aktuell (2004): Headline 3. Kader wegen Unterschlagung von Katastrophengeldern verurteilt. 9: 972.

China Climate Change Information Network (CCCIN) (2004): Brief Introduction of National Coordination Committee on Climate Change. http://www.ccchina.gov.cn/english/introduce.htm (last viewed Jan 30/2004).

CHINA DAILY (2000): Exploit Chinese Marine Resources. 18 September 2000. In: China Internet Information Centre (CIIC). www.china.org.cn/e-15/15-3-o/15-3-o-7.htm (last viewed: 22 April 2003).

CHINA DAILY (2001). Rising Sea Levels Cause Concern. 12 April 2001.www.china.org.cn/english/2001/Apr/11050.htm (last viewed: 8 December 2002).

CHINA DAILY (2002a): www.chinadaily.com.cn/news/2002-03-21/62013.html (last viewed: 16 November 2002).

CHINA DAILY (2002b): Centre to tackle disasters - Experts to help population to adapt to prevent natural crises. 11 January 2002. http://www.mlr.gov.cn/project/querystat/multdocview_eng.jsp?ICID=eng188 (last viewed Aug 8, 2003).

CHINA DAILY (2002c): New Official Website Helps Curb Global Warming. 14 October 2002. www.china.org.cn/english/2002/Oct/45668.htm (last viewed Feb 2, 2005).

CHINA DAILY (2003a): Global Warming Gives Rise to Global Warnings. 24 March 2003. www.china.org.cn/english/environment/59361.htm (last viewed July 17, 2003).

CHINA DAILY (2003b): Shanghai Fights to Stop Sinking. 6 July 2003. www.china.org.cn/english/2003/Jul/70034.htm (last viewed July 17, 2003).

CHINA DAILY (2004): Restoring Life to China's Rivers. 11 November 2004. http://english.people.com.cn/200411/02/eng20041102_162453.html (last viewed Sept. 15, 2005).

China Internet Information Center (CIIC) (2000): www.china.org.cn/e-china/openingup/sez.htm (last viewed: 15 November 2002).

China National Bureau of Statistics (CNBS) (2003): China Statistical Yearbook 2003. No.22. Beijing. China Statistics Press.

China National Committee for IDNDR (1998): The National Natural Disaster Reduction Plan of the PRC 1998-2010. www.zhb.gov.cn/english/SD/dr/idndr-0.htm (last viewed: May 5, 2003).

China National Tourism Administration (CNTA) (2001a): Classification and Evaluation of Tourist Areas (Spots). www.cnta.gov.cn/lyen/2policy/classification.htm (last viewed: 9 July 2005).

China National Tourism Administration (CNTA) (2001b): Mapping out tourism development program for the 10th Five-year plan. www.cnta.gov.cn/lyen/2policy/mapping%20out.htm (last viewed: 9 July 2005).

China National Tourism Administration (CNTA) (2001c): Principles and Policies. www.cnta.gov.cn/lyen/2policy/principles.htm (last viewed: 9. July 2005).

China National Tourism Administration (CNTA) (2003): Chinese tourists bring vitality to German market. www.cnta.gov.cn/lyen/gl/1_view.asp?id=2949 (last viewed: 9 February 2006).

China National Tourism Administration (CNTA) (2004): www.cnta.com/lyen/2cnta/about.htm (last viewed: 4 October 2004).

China National Tourism Administration (CNTA) (2006a): www.cnta.gov.cn/chujing/chujing.htm (last viewed: 9 March 2006).

China National Tourism Administration (CNTA) (2006b): www.cnta.com.cn/ss/wz_view.asp?id=16679 (last viewed 9 March 2006).

China National Tourist Office (CNTO) Toronto (2004): www.tourismchina-ca.com/statistics00.htm (last viewed 24 June 2004).

China Ocean Information Network (COIN) (1998): Marine Disaster Prevention and Control – Assessment of 1998 Marine Disasters and Prediction of 1999 Marine Disasters. www.coi.gov.cn/ehyzh/hyzhl.htm (last viewed: June 22, 2004).

China Ocean Information Network (COIN) (2000): 'Gross Output Value of Major Marine Industries by Coastal Regions'. In: Condition of China's Marine Economic Development in 2000. www.coi.gov.cn/economic/2000/2000.htm**.** (last viewed 22 April 2003).

China Ocean Information Network (COIN) (2003): Targets for Tackling of Specific Subjects. www.coi.gov.cn/ccinet/ztyjjh.htm (last viewed Sept 17, 2003).

China Ocean Information Network (COIN) (2004a): *Haipingmian shangsheng dui zhujiang sanjiaozhou jinghai daoyude yingxiang* (Effects of sea-level rise on offshore islands in the Zhujiang Delta). www.coi.gov.cn/ccinet/jhdy.htm (last viewed Jan 12, 2004).

China Ocean Information Network (COIN) (2004b): *Haipingmian shangsheng dui Zhujiang sanjiaozhoude keneng shehui jingji yingxiang pingjia* (Evaluation of the possible social and economic effects of sea-level rise in the Zhujiang Delta). www.coi.gov.cn/ccinet/yxpj.htm (last viewed Jan 12, 2004).

China Oceanic Information Network (COIN) (2004c): Seashore Tourism. www.coi.gov.cn/eindustry/bhly.htm (last viewed: 25 March 2006).

China Population Information and Research Centre (CPIRC) (2002): www.cpirc.org.cn/e5cendata1.htm (last viewed: 20 December 2002).

China Window (2006): www.china-window.com/china_travel/china_tourism/policies-and-regulations.shtml (last viewed: 16 March 2006)

CHINA YOUTH DAILY (Beijing Qingnian Bao) (2003a): *Shanghai diqie shigong fasheng xianqing – ruogan dimian jianzhu zaopohuai* (In Shanghai's subway construction a dangerous situation occurred – some surface building damaged). 2 July 2003. http://unn.people.com.cn/GB/14748/1946985.html (last viewed July 14, 2003).

CHINA YOUTH DAILY (Beijing Qingnian Bao) (2003b): *Shanghai diqie shigu xianchang xianqing du duan – jiaotong ji zhenwu shou yingxiang* (Dangerous situation in Shanghai's subway accident continues – transportation and business affected). 4 July 2003. http://unn.people.com.cn/GB/14748/1951108.html (last viewed July 14, 2003)

Chow, K.W. (1993): 'Conceptualizing Administrative Organization in China'. In: Nagels SS and Mills, M.K. (eds). Public Administration in China. Contribution in Political Sciences No. 323. London, Westport. Greenwood Press. Pp. 31-47.

Christie, P. (2005): 'Is Integrated Coastal Management Sustainable?'. *Ocean & Coastal Management* 48: 208-23.

Chu Yifang (1994): 'Evaluation of Sightseeing Areas in China'. *Annals of Tourism Research* 21 (4): 837-839.

Chua Thia-Eng, Yu Huming, and Chen Guoqiang (1997): 'From sectoral to integrated coastal management: a case in Xiamen, China'. *Ocean and Coastal Management* 37 (1): 233-251.

Clawson, M. and Knetsch, J.L. (1966): Economics of Outdoor Recreation. Johns Hopkins Press, Baltimore.

Cohen, Michael D., March, James G. and Olsen, Johan P. (1972): 'A Garbage Can Model Of Organizational Choice'. *Administrative Science Quarterly* 17 (1): 1-25.

Cui M. and Zorita, E. (1997): Analysis of the sea-level variability along the Chinese coast and estimation of the impact of global climate change. Report GKSS 97/E/19. GKSS-Forschungszentrum Geesthacht GmbH, Geesthacht.

Cummings, Joe, Robert Storey, Robert Strauss, Michael Buckley and Samagalski, Alan (1991): China. Lonely Planet – A Travel Survival Kit. 3rd edition. Hawthorn and Berkeley.

Dahl, Robert A. (1986): 'Power as the Control of Behaviour'. In: Lukes, Steven (ed.). Power. Blackwell. Oxford and Cambridge. P. 37-58.

Dahl, Robert A. (1991): Political Analysis. Fifth Edition. Prentice-Hall International. London.

Darwin, R.F., Tol, R.S.J. (2001): 'Estimates of the Economic Effects of Sea-level Rise'. *Environmental and Resource Economics* 19: 113-129.

De Freitas, C. (2003): 'Tourism climatology: evaluating environmental information for decision-making and business planning in the recreation and tourism sector'. *International Journal of Biometeorology* 48: 45-54.

De Groot, T.A.M. and Orford, J.D. (2000): 'Implications for Coastal Zone Management'. In: Smith, D., Raper, S.B., Zerbini, S., and Sánchez-Arcilla, A. (eds.). Sea level change and coastal processes – Implications for Europe. Office for official publications of the European Communities. Luxembourg.

Dery, David (1990): Data and Policy Change - The Fragility of Date in the Policy Context. Kluwer Academic Publishers. Boston, Dordrecht and London.

Deutsche Zentrale für Tourismus e.V. (DZT) (2005): Incoming-Tourismus Deutschland - Edition 2005. www.deutschland-tourismus.de (last viewed: December 2005).

Dong A (1998): 'China's Integrated Management of Coastal Zone'. Paper presented on the Workshop on Integrated Coastal Zone Management and Non-living Marine Resources Development. Bangkok, Thailand, 9-11 September 1998.

Dror, Yehezkel (1994): The Capacity to Govern – A Report to the Club of Rome. Frank Cass Publishers. London.

Du Bilan (1993): 'Preliminary Vulnerability Assessment of Chinese Coastal Zone due to Sea Level Rise'. In: World Coast Conference 1993: Proceedings, Volume 2. CZM-Centre Publication No.4. Den Haag. Pp. 569-575.

Du Bilan (1997): '*Haipingmian shangsheng dui zhongguo yanhai cuiruoqu yingxiang chuxi'* (The Preliminary Vulnerability Assessment of China's Coastal Zone due to Sea Level Rise). In: Du Bilan, Tian Suzhen and Lü Chunhua (eds). *Haipingmian shangsheng dui zhongguo yanhai zhuyao cuiruoqude yingxiang ji duice* (The Impacts of Sea Level Rise on the major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies). Haiyang chubanshe (China Ocean Press). Beijing. Pp. 103-109.

Du Bilan, Liu Fakong, and Zhang Jinwen (1997b): '*Weixie zhongguo yanhai cuiruoqude haipingmian shangsheng ji yuce'* (The threat of sea-level rise to China's coastal vulnerable zones and its prediction). In: Du Bilan, Tian Suzhen, and Lü Chunhua (eds.). The Impacts of Sea Level Rise on the Major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies. China Ocean Press. Beijing. Pp.1-9 and www.coi.gov.cn/ccinet/lw2.htm (last viewed Jan 12, 2004).

Du Bilan, Tian Suzhen and Lü Chunhua (1997a): '*Haipingmian shangsheng dui zhongguo yanhai zhuyao cuiruoqude yingxiang ji duice'* (The Impacts of Sea Level Rise on the major

Vulnerable Areas of the China's Coastal Zone and Relevant Strategies). Haiyang chubanshe (China Ocean Press). Beijing.

Du Bilan, Tian Suzhen, Shen Wenzhou, Wang Fang, Gui Zhiqiang, Jiang Jingtong, and Wang Donghua (1997c): 'Potential impacts of sea level rise on China's coastal major vulnerable zones'. In: Du Bilan, Tian Suzhen, and Lü Chunhua (eds.): The Impacts of Sea Level Rise on the Major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies. China Ocean Press. Beijing. Pp. 10-29.

Du Bilan and Zhang Jinwen (2000): 'Adaptation strategy for sea level rise in vulnerable areas along China´s coast'. *Acta Oceanologica Sinica* 19 (4): 1-16.

ECONOMIST (2006): China and Tourism – Golden Years. 13 May 2006. P. 60.

Ehler, Charles N. (2003): 'Indicators to measure governance performance in integrated coastal management'. *Ocean & Coastal Management* 46: 335-345.

EM-DAT (2005): The OFDA/CRED International Disaster Database. Université Catholique de Louvain. Brussels. www.em-dat.net (last viewed : Aug 22, 2005).

Enright, Michael J. and Newton, James (2005): 'Determinants of Tourism Destination Competitiveness in Asia Pacific: Comprehensiveness and Universality'. *Journal of Travel Research* 43: 339-350.

Essner, Jonathan (2003): Terrorism's Impact on Tourism: What the Industry May Learn from Egypt's Struggle with al-Gama'a al-Islamiya. IPS 688 – Security and Development. http://sand.miis.edu/research/student_research/Essner_Tourist%20Terrorism.pdf (last viewed: 10 August 2006).

Euromonitor (2002): Global Market Information Database. www.gmid.euromonitor.com.

FAZ (Frankfurter Allgemeine Zeitung) (2003): Die Chinesen werden die neuen Reiseweltmeister. 22 December 2003. 297: 15.

Fodness, Dale and Murray, Brian (1998): 'A typology of tourist information search stratgies'. *Journal of Travel Research* 37: 108-119.

Fodness, Dale and Murray, Brian (1999): 'A model of tourist information search behaviour'. *Journal of Travel Research* 37: 220-230.

Forschungsgemeinschaft Urlaub und Reisen e.V. (F.U.R) (1998): Die Reiseanalyse RA 98. Köln. Zentralarchiv für empirische Sozialforschung.

Forschungsgemeinschaft Urlaub und Reisen e.V. (F.U.R) (2004): Reiseanalyse Aktuell. Online. http://www.fur.de/downloads/Reiseanalyse_2004.pdf (accessed 4 November 2004)

French, Peter W. (2002): Coastal and estuarine management. Routledge. London and N.Y.. Pp.189-219.

Fridgen, Joseph D. (1984): 'Environmental psychology and tourism'. *Annals of Tourism Research* 11(1): 19-39.

Galbraith, James K. and Lu Jiaqing (2000): Sustainable Development and the Open-Door Policy in China. UTIP Working Paper, No. 16. http://www.worldbank.org/research/inequality/SAIS/utip16.pdf (last viewed 22 April 2003).

Gallarza, Martina G., Saura, Irene Gil, and Garcia, Haydee Calderon (2002): 'Destination image: towards a conceptual framework'. *Annals of Tourism Research* 29(1): 56-78.

GEF, UNDP and IMO (1997a): Coastal Environmental Profile of Xiamen, MPP-EAS Technical Report No. 6. Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas.

GEF, UNDP and IMO (1997b): Strategic Management Plan for Marine Pollution Prevention and Management in Xiamen, MPP-EAS Technical Report No. 7. Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas.

Ghimire, Krishna B. and Li Zhou (2001): 'The Economic Role of National Tourism in China'. In: Ghimire, Krishna B. (ed). The Native Tourist – Mass Tourism within Developing Countries. UNRISD (United Nations Research Institute for Social Development). London. Earth Scan. Pp. 86-108.

Gössling, S., Bredberg, M., Randow, A., Svensson, P. and Swedlin, E. (forthcoming): 'Tourist perceptions of climate change: a study of international tourists in Zanzibar'. *Climatic Change*.

Gold, T., Guthrie, D., and Wank, D. (2002): Social Connections in China – Institutions, Culture, and the Changing Nature of Guanxi. Structural Analysis in the Social Sciences, No. 21. Cambridge. Cambridge University Press.

Gottwald, Jörn-Carsten and Kirchberger, Sarah (2001): Modernisierung unter Vorbehalt – Zur inneren Entwicklung der Volksrepublik China. China Analysis No. 6. Center for East Asian and Pacific Studies. Trier University. www.chinapolitik.de/china/pubs/china_polsys/innenpolitik_china.pdf (last viewed: 10 January 2003).

GUANGMING RIBAO (2002): *Qixiang ju: weilai 50 nian woguo pingjun qiwen jiang sheng 2.2° C* (Meteorological Bureau: Within the next 50 years our country's average temperature will rise by 2.2° C). 8 September 2002. www.peopledaily.com.cn/GB/shizheng/3586/20020908/817628.html (last viewed June 18, 2003).

Gunn, C.A. (1989): 'Vacationscape: Designing Tourist Regions'. 2nd ed. Van Nostrand Reinhold. New York. Pp. 23–38.

Guo Yuan, Lin Erda, and Liu Zhiping (1995): China: Studies addressing Global Climate Change. Interim Report on Climate Change Country Studies. www.gcrio.org/CSP/IR/IRchina.html (last viewed April 15, 2002).

HA (Hamburger Abendblatt) (2005): ‚Chinesen buchen 850 000 Übernachtungen'. 7 December. www.abendblatt.de/daten/2005/12/07/510960.html?prx=1 (last viewed 7 December 2005).

Hall, Colin Michael (1994): Tourism and Politics – Policy, Power and Place. Chichester. John Wiley and Sons.

Hall, Peter H. (1997): ‚The Role of Interests, Institutions, and Ideas in the Comparative Political Economy of the Industrialized Nations'. In: Lichbach, Mark I. and Zuckerman, Alan S. (eds.). Comparative Politics – Rationality, Culture, and Structure. Cambridge University Press. Cambridge. P.174-207.

Hamilton, Jacqueline M. (2003): 'Climate and the destination choice of German tourists'. Research Unit Sustainability and Global Change Working Paper FNU-15 (revised). Centre for Marine and Climate Research. Hamburg University.

Hamilton, Jacqueline M., and Lau, Maren A. (2006): 'The role of climate information in tourist destination choice decision making'. In: Gössling, Stefan and Hall, Colin Michael

(eds.). Tourism and Global Environmental Change – Ecological, Social, Economic and Political Interrelationships. Oxon and New Jersey. Routledge.

Hamilton, Jacqueline M., Maddison, David J. and Tol, Richard S.J. (2003): 'Climate change and international tourism: a simulation study'. Research Unit Sustainability and Global Change Working Paper FNU-31. Centre for Marine and Climate Research. Hamburg University.

Hamilton, J.M. and Tol, R.S.J. (2004): The Impact of Climate Change on Tourism and Recreation. Research Unit Sustainability and Global Change Working Paper FNU-52. Centre for Marine and Climate Research. Hamburg University.

Hamrin Carol Lee and Zhao Suisheng (eds) (1995): Decision-making in Deng's China – Perspectives from Insiders. New York and London. M.E. Sharpe.

Han Mukang, Hou Jianjun and Wu Lun (1995): 'Potential Impacts of Sea-Level Rise on China's Coastal Environment and Cities: A National Assessment'. *Journal of Coastal Research* 14: 79-95.

Handmer, J.W., Dovers, S., and Downing, T.E. (1999): 'Societal Vulnerability to Climate Change and Variability'. *Mitigation and Adaptation Strategies for Global Change* 4: 267-281.

Heilmann, Sebastian (1996): Das politische System der Volksrepublik China im Wandel. Mitteilungen des Instituts für Asienkunde, Nr. 265. Hamburg.

Heilmann, Sebastian (1998): Die Reorganisation der chinesischen Zentralregierung 1998. www.chinapolitik.de/china/pubs/china_polsys/polsys2.pdf (last viewed: 4 January 2003).

Heilmann, Sebastian (1999): Das politische System der Volksrepublik China im Überblick. www.chinapolitik.de/china/pubs/china_polsys/polsys1.pdf (last viewed: 10 January 2003).

Heilmann, Sebastian (2002): Das politische System der Volksrepublik China. Wiesbaden. Westdeutscher Verlag. Pp. 164-167.

Heilmann, Sebastian and Kirchberger, Sarah (2000): The Chinese Nomenklatura in Transition. China Analysis No. 1. Center for East Asian and Pacific Studies. Trier University. www.chinapolitik.de/china/pubs/china_polsys/innenpolitik_china.pdf (last viewed: 10 January 2003).

Henan Tourism Administration (HNTA) (2005a): *Quanguo gongnongye lüyou shifan dian* (The country's industrial, agricultural and trade tourism demonstration spots). www.hnta.cn./hnf/cyly/sfd.jsp or www.hnta.cn/hnf/cyly/cyly.htm (last viewed: 9 March 2006).

Henan Tourism Administration (HNTA) (2005b): www.hnta.cn./hnf/cyly/cyly_gk.htm (last viewed: 13 June 2005).

Hinrichsen, Don (1995): Coasts in crisis. www.aaas.org/international/ehn/fisheries/hinrichs.htm (last viewed: 17 January 2003).

Hinrichsen, Don (1998): 'The Northwest Pacific – Sea Dragons Ascending'. In: Hinrichsen, Don (ed). Coastal Waters of the World – Trends, Threats and Strategies. Washington D.C.. Island Press. Pp. 147-155.

Hoffmann, Catherine (2005): ‚Die Chinesen kommen', FAZ (Frankfurter Allgemeine Zeitung) 45: 49. 13 November.

Holbig, Heike (2001): ‚Lokalverwaltung in der VR China – Zum Wandel parteistaatlicher Kontrollstrukturen seit 1979'. *CHINA aktuell* 2: 1215-1228.

Hong Huasheng and Xue Xiongzhi (2002): 'How Scientific and Technical Support has Contributed to the Achievements of ICM Program in Xiamen'. Paper presented at: Sharing Lessons Learned in Sustainable Coastal Development, Xiamen, PRC, 20 September 2002. Congress material.

Hood, Christopher C. (1983): The Tools of Government. Macmillan Press. London and Basingstoke.

Hu Xunrun (1994): 'Comprehensive Planning'. In: Sun, Peter. (ed.). Multipurpose River Basin Development in China. Economic Development Institute of The World Bank. Washington, D.C.. Pp.31-34.

Hu, Y. and Ritchie, J.R.B. (1993): 'Measuring destination attractiveness: a contextual approach'. *Journal of Travel Research* 32(2): 25-34.

Huai Y. (1995): 'Organizational Hierarchy and the Cadre Management System'. In: Hamrin Carol Lee and Zhao Suisheng (eds). Decision-making in Deng's China – Perspectives from Insiders. New York and London. M.E. Sharpe. Pp. 39-50.

Intergovernmental Panel On Climate Change (IPCC) (1990): Strategies for Adaptation to Sea Level Rise. Report of the Coastal Zone Management Subgroup. Response Strategies Working Group.

Intergovernmental Panel on Climate Change (IPCC) (1994): 'Preparing to Meet the Coastal Challenges of the 21st Century'. Conference Report for the World Coast Conference (1-5 November 1993).

Intergovernmental Panel On Climate Change (IPCC) (2001a): Climate change 2001: Synthesis Report.. Working group I: The scientific basis. www.grida.no/climate/ipcc_tar/wg1/431.htm (last viewed: Jan 3 2004).

Intergovernmental Panel On Climate Change (IPCC) (2001b): Climate change 2001: Synthesis Report.. Working group II: Impacts, adaptation and vulnerability. www.grida.no/climate/ipcc_tar/wg2/499.htm (last viewed Jan 17, 2004).

Intergovernmental Panel On Climate Change (IPCC) (2001c): Climate Change 2001: Synthesis Report. Working Group III: Mitigation. http://www.grida.no/climate/ipcc_tar/vol4/english/157.htm (last viewed: Jan 3 2004).

International Water Management Institute (IWMI) (2005): The Challenge of Integrated River Basin Management in India. www.iwmi.cgiar.org/home/integrated_river_basin.htm (last viewed Sept 15, 2005).

Invest Hong Kong (2004): www.investhk.gov.hk/keysectors9.aspx?id=534&code=GPRDBKFATCST (last viewed 27 May 2004).

Japan International Co-operation Agency (JICA) (2002): Country Profile on Environment – China. Planning and Evaluation Department. www.jica.go.jp/english/global/env/profiles/pdf/07.pdf (last viewed: May 5, 2003).

Jenkins, C.L. and Henry, B.M. (1982): 'Government involvement in tourism in developing countries'. *Annals of Tourism Research* 9: 499-521 and in: Tisdell, Clem (ed) (2000). The Economics of Tourism. Vol. 2.

Jiao Yongke, Ruan Chunlin, and Yu Huming (2000): 'The New Marine Environmental Protection Law of the People's Republic of China'. *Tropical Coasts* 7 (2): 24-31.

Jones, Laurence F. and Olson, Edward C. (1996): Political Science Research – A Handbook of Scope and Methods. Harper Collins College Publishers. New York.

Jung, Alexander (2006): 'Zwei Nächte in Deutschland'. *Spiegel* 33: 80.

Kaufmann, D., Kraay, A. and Zoido-Lobaton, P. (1999): 'Governance Matters'. Policy Research Working Paper 2196. World Bank, Washington, USA.

Kim, Samuel Seongseop, Guo Yingzhi and Agrusa, Jerome (2005): 'Preference and Positioning Analyses of Overseas Destination by Mainland Chinese Outbound Pleasure Tourists'. *Journal of Travel Research* 44: 212-220.

Kingdon, John W. (1995): Agendas, alternatives and public policies. 2nd ed.. Harper Collins Publishers. New York.

Kinzelbach, W. (1983): Probleme und Tendenzen in der Praxis des Umweltschutzes in China. In: Glaeser, B. (ed). Umweltpolitik in China – Modernisierung und Umwelt in Industrie, Landwirtschaft und Energieerzeugung. Bochum. Studienverlag Brockmeyer. Pp. 399-415.

Klein, R.J.T. and MacIver, D.C. (1999): 'Adaptation to Climate Variability and Change: Methodological Issues'. *Mitigation and Adaptation Strategies for Global Change* 4: 189-198.

Klein, Richard J.T., Nicholls, Robert J., and Mimura, Nobuo (1999): 'Coastal Adaptation to Climate Change: Can the IPCC Technical Guidelines be Applied?'. *Mitigation and Adaptation Strategies for Global Change* 4: 239-252.

Klein, R.J.T., Nicholls, R.J., Ragoonaden, S., Capobianco, M., Aston, J., and Buckley, E.N. (2001): 'Technological Options for Adaptation to Climate Change in Coastal Zones'. *Journal of Coastal Research* 17 (3): 531-543.

Klein, Richard J.T., Nicholls, Robert J., and Thomalla, Frank (2003): 'The resilience of coastal mega-cities to weather-related hazards'. In: Kreimer, A., Arnold, M., and Carlin, A. (eds.). Building Safer Cities: The Future of Disaster Risk. Disaster Risk Management Series, No. 3. World Bank. Washington, D.C..Pp. 101–120.

Klenosky, David B. (2002): 'The 'Pull' of Tourism Destinations: A Means-End Investigation'. *Journal of Travel Research* 40: 385-395.

Knoke, David (1990): Political Networks – The Structural Perspective. Cambridge. Cambridge University Press.

Kozak, Metin (2002): 'Comparative analysis of tourist motivations by nationality and destinations'. *Tourism Management* 23: 221-232.

Lancaster, K.J. (1966): 'A New Approach to Consumer Theory'. *Journal of Political Economy* 74: 132–157.

Lane, Jan-Eric and Ersson, Svante (2000): The New Institutional Politics – Performance and Outcomes. Routledge. London.

Lau, Anita L.S. and McKercher, Bob (2004): 'Exploration versus Acquisition: A Comparison of First-time and Repeat Visitors'. *Journal of Travel Research* 42: 279-285.

Lau, Maren A. (2005): 'Integrated coastal zone management in the People's Republic of China – An Assessment of structural impacts on decision-making processes'. *Ocean & Coastal Management* 48: 115-159.

Lau, Maren A. and Tol, Richard S.J. (2006): 'The Chinese are Coming – An Analysis of the Preferences of Chinese Holiday Makers at Home and Abroad'. Research Unit Sustainability and Global Change, FNU Working paper 107. Center of Marine and Atmospheric Research, University of Hamburg. http://www.uni-hamburg.de/Wiss/FB/15/Sustainability/Working_Papers.htm

Let's go Publications (2000): Let's go: China. Basingstoke and Oxford. Macmillan.

Li Congxian, Fan Daidu, Deng Bing, and Wang Dejie (2000): 'Some Problems of Vulnerability Assessment in the Coastal Zone of China'. In: Mimura, N., and Yokoki, H. (eds.). Global Change and Asia Pacific Coasts. Proceedings of APN/ SURVAS/ LOICZ joint conference on coastal impacts of climate change and adaptation in the Asia-Pacific region. Tokyo. Pp.49-56 and www.survas.mdx.ac.uk/pdfs/3licongx.pdf (last viewed July 15, 2005).

Li Haiqing (2002): 'Sustainable Financing for GEF-Projects – A Chinese Perspective'. Paper presented at: Sharing Lessons Learned in Sustainable Coastal Development, Xiamen, PRC, 21 September 2002. Congress material.

Li Jiren, Kondoh, Akihiko, and Nakayama, Daichi (1999): Analyses on Floods of 1998 in China. http://dbx.cr.chiba-u.jp/gdes/sid/china98flood/manuscript.html (last viewed Aug 3, 2003).

Li Zhang (2002): 'Spatiality and Urban Citizenship in Late Socialist China'. *Public Culture* 14 (2). www.uchicago.edu/research/jnl-pub-cult/backissues/pc37/zhang.html (last viewed:22 April 2003).

Lieberthal, Kenneth G. (1997): ‚China's Governing System and Its Impact on Environmental Policy Implementation'. *China Environment Series* 1: 3-8.

Lieberthal, Kenneth G. (1995): Governing China – From Revolution Through Reform. New York and London. W.W.Norton &Company, Inc..

Lieberthal, Kenneth G. and Lampton, David M. (1992): Bureaucracy, Politics, and Decision Making in Post-Mao China. Berkeley, Los Angeles and Oxford. University of California Press.

Lieberthal, Kenneth G. and Oksenberg, Michel (1990): Policy Making in China – Leaders, Structures, and Processes. Princeton. Princeton University Press.

Lim, Christine (1995): 'Review of international tourism demand models'. *Annals of Tourism Research* 24(4): 835-849.

Lise, Wietze, and Tol, Richard S.J. (2002): 'The Impact of Climate on Tourism Demand'. *Climatic Change* 55 (4): 429-449.

Liu Jen-Kai (2001): ‚Die Reorganisation von Ministerien und Kommissionen im Verlauf der Strukturreformen des Staatsrats der VR China'. *CHINA aktuell* 7: 762-780.

Lohmann, M. and Kaim, E. (1999): 'Weather and holiday destination preferences, image attitude and experience'. *The Tourist Review* 2: 54-64.

Loomis, J.B. and Crespi, J. (1999): 'Estimated effects of climate change on selected outdoor recreation activities in the United States'. In: Mendelsohn, R and Neumann, J.E. (eds.). The Impact of Climate Change on the United States Economy. CUP. Cambridge. Pp 289-314.

Lü Chunhua, Sun Qing, and Dong Wei (1997): *Haipingmian Shangsheng dui zhujiang sanjiaozhou jingji he huanjingde keneng yingxiang ji fangyu cuoshi* (Possible effects of sea-level rise on economy and environment of the Zhujiang Delta and preventive measures). In: Du Bilan, Tian Suzhen, and Lü Chunhua (eds.). The Impacts of Sea Level Rise on the Major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies. China Ocean Press. Beijing. Pp.125-130 and http://sdinfo.coi.gov.cn/appraise/lw5.htm (last viewed Jan 12, 2004).

Lü Xiaobo (2000): Cadres and Corruption – The Organizational Involution of the Chinese Communist Party. California. Stanford University Press.

MacRae, Jr., Duncan (1985): Policy Indicators – Links between Social Science and Public Debate. University of North Carolina Press. Chapel Hill and London.

Maddison, David (2001): 'In search of warmer climates? The impact of climate change on flows of British tourists'. In: Maddison, David (ed.). The Amenity Value of the Global Climate. Earth Scan. London. Pp. 53-76.

Mansfeld, Yoel (1992): 'From motivation to actual travel'. *Annals of Tourism Research* 19: 399-419.

McCleave, Julia, Xue Xiongzhi, and Hong Huasheng (2003): 'Lessons learned from 'decentralized' ICM: an analysis of Canada's Atlantic Coastal Action Program and China's Xiamen ICM Program'. *Ocean and Coastal Management* 46 : 59-76.

Mendelsohn, R and Markowski, M. (1999): 'The impact of climate change on outdoor recreation'. In: Mendelsohn, R and Neumann, J.E. (eds.). The Impact of Climate Change on the United States Economy. CUP. Cambridge. Pp 267-288.

Migdal, Joel S. (1997): 'Studying the State'. In: Lichbach, Mark I. and Zuckerman, Alan S. (eds.). Comparative Politics – Rationality, Culture, and Structure. Cambridge University Press. Cambridge. P.208-235.

Ministry of Land and Resources (MLR) (2002): www.mlr.gov.cn/project/querystat/multidocview_eng.jsp?ICID=2002-11-26-1878956077 (last viewed: 20 November 2002).

Ministry of Land and Resources (MLR) (2003): www.mlr.gov.cn/mlrintro/sanding/htm**,** www.mlr.gov.cn/mlrintro/structure.jsp (last viewed: 30 January 2003).

Moore, Peter D., Chaloner, William G., and Stott, Philip Anthony (1996): Global Environmental Change. Blackwell Science Ltd.. London.

Morley, Clive L. (1992): 'A microeconomic theory of international tourism demand'. *Annals of Tourism Research* 19: 250-267.

Munn, R. E., la Rivière, J. W. M., and van Lookeren Campagne, N. (1996): 'Appendix 5. Inventory of Adaptation Strategies Relating to Climate Change: A Canadian Example'. In: Munn, R. E., la Rivière, J. W. M., and van Lookeren Campagne, N. (eds.). Policy Making in an Era of Global Environmental Change. Kluwer Academic Publishers. Great Britain. Pp.197-218.

Naßmacher, Hiltrud (2004): Politikwissenschaft. Fifth Edition. Oldenbourg Verlag. München and Wien.

National Coordination Committee of Climate Change of the PRC (2001): China and Global Climate Change. www.ccchina.gov.cn/english/source/ga/ca2003011801.htm (last viewed: Sept. 15, 2005).

National Oceanic and Atmospheric Administration (NOAA) (2002): China - ICM Country Profile. www.icm.noaa.gov/country/China.html (last viewed: 11 July 2002).

Neumann, J.E., Yohe, G., Nicholls, R.J., and Manion, M. (2001): 'Sea-level rise and its effects on coastal resources'. In: Claussen, E., Cochran, V.A., and Davis, D.P. (eds.). Climate change – science, strategies and solutions. Pew Centre on Global Climate Change. Brill Publications. Leiden.

New, M., Hulme, M. and Jones, P.D. (1999): 'Representing Twentieth Century Space-Time Climate Variability, Part I: Development of a 1961-1990 Mean Monthly Terrestrial Climatology'. *Journal of Climate* 12: 829-856.

Nicholls, Robert J. (2003): Case study on sea-level rise impacts. OECD Workshop on the benefits of climate policy: improving information for policy makers. OECD. Paris.

Nicholls, Robert J., Klein, Richard J.T. (2000): Adaptation Frameworks for Sea-level Rise Impacts. http://www.survas.mdx.ac.uk/docs/Romepap.doc (last viewed March 26, 2003).

Nicholls Robert J. and Leatherman Stephen P. (1995a): 'Sea Level Rise and Coastal Management'. In: McGregor, D. and Thompson, D. (eds): Geomorphology and Land Management in a Changing Environment. Chichester. John Wiley and Sons. Pp. 229-244.

Nicholls, Robert J. and Leatherman, Stephen P. (1995b): 'Global Sea Level Rise'. In: Strzepek, K. and Smith, J. B. (eds.). When Climate changes: Potential Impacts and Implications. Cambridge University Press. Cambridge.

Nicholls, R.J. and Small, C. (2002): 'New Estimates of 'Near-Coastal' Population: Implication for Hazard Exposure and Mitigation'. Paper submitted to *EOS TRANSACTIONS*. American Geophysical Union.

O'Toole Jr. and Laurence J. (2004): 'Implementation Theory and the Challenge of Sustainable Development: The Transformative Role of Learning'. In: Lafferty, William M. (ed.). Governance for Sustainable Development – The Challenge of Adapting Form to Function. Edward Elgar Publishing. Cheltenham and Northampton. P.32-60.

Oliver, J. E. (1996): 'Potential Impact of Global Warming'. In: Hidore, J. J. (ed.). Global Environmental Change: Its nature and impact. Prentice Hall. Upper Saddle River, N.J.. Pp.226-230.

Olmos, Santiago (2001): Vulnerability and Adaptation to Climate Change: Concepts, Issues, Assessment Methods. Climate Change Knowledge Network Foundation Paper. www.cckn.net/pdf/va_foundation_final.pdf (last viewed: May 23, 2003).

Olsen, Johan P. (1991): 'Political Science and Organization Theory – Parallel Agendas but Mutual Disregard'. In: Czada, Roland M. and Windhoff-Héritier, Adrienne (eds.). Political Choice – Institutions, Rules, and the Limits of Rationality. Campus Verlag. Frankfurt. P.87-119.

Olsen, Johan P. (2001): 'Garbage Cans, New Institutionalism, and the Study of Politics'. *American Political Science Review* 95 (1): 191-198.

Olsen, Stephen B. (2003): 'Frameworks and Indicators for Assessing Progress in Integrated Coastal Management Initiatives'. *Ocean & Coastal Management* 46: 347-361.

Oppermann, Martin (1995): 'Travel life cycle'. *Annals of Tourism Research* 22(3): 535-552.

Papadakis, Elim (1996): Environmental Politics and Institutional Change. Cambridge University Press. Cambridge.

Pearce, Philip L. and Lee, Uk-Il (2005): 'Developing the Travel Career Approach to Tourist Motivation'. *Journal of Travel Research* 43: 226-237.

PEOPLE'S DAILY (Renmin Ribao) (2000a): Youth's Awareness of Disaster Reduction to be Improved. 11 October 2000. www.china.com.cn/english/2000/Oct/2680.htm (last viewed May 2, 2003).

PEOPLE'S DAILY (2000b): East China Province Hit by Water Crisis. 12 June 2000. http://english.people.com.cn/english/200006/12/eng20000612_42764.html (last viewed 11 August 2006)

PEOPLE'S DAILY (2001): Guizhou Welcomes Overseas Investment in Boosting Tourism. 25 March 2001. http://english.people.com.cn/english/200103/25/print20010325_65916.html (last viewed: 19 July 2005).

PEOPLE'S DAILY (2002a): 'China Sets up Marine Functional Zones'. 10 September 2002. http://english.people.com.cn/200209/10/print2002910_102974.html (last viewed: 1 October 2004).

PEOPLE'S DAILY (Renmin Ribao) (2002b): Yangtze River Dyke Reinforcement Completed after 4 Years Work. 31 December 2002. http://english.people.com.cn/200212/31/eng20021231_109370.shtml (last viewed Jan 3, 2003).

PEOPLE'S DAILY (Renmin Ribao) (2003a): Global Warming affects China's Water Security: Meteorologists. 24 March 2003. http://english.peopledaily.com.cn/200303/24/eng20030324_113869.shtml (last viewed: Sept. 15, 2004).

PEOPLE'S DAILY (Renmin Ribao) (2003b): Shanghai defenses against broken dyke. 3 July 2003. http://english.peopledaily.com.cn/200307/03/eng20030703_119359.shtml (last viewed July 3, 2003).

PEOPLE'S DAILY (Renmin Ribao) (2003c): Natural Disasters Cost China US$ 22.7 Billion in 2003. 14 November 2003. www.ccchina.gov.cn/english/source/aa/aa2003111401.htm (last viewed Dec 12, 2003).

PEOPLE'S DAILY (2003d): 'Domestic Tourism Market Opened to Foreign Investment'. 23 July. http://english.people.com.cn/200307/23/eng20030723_120819.shtml (last viewed: 4 October 2004).

PEOPLE'S DAILY (2003e): TUI, China Travel Service Set Up Joint Venture. 9 September 2003. http://english.people.com.cn/200309/09/eng20030909_124002.shtml (last viewed: 12 January 2006).

PEOPLE'S DAILY (2006): Tourism. http://english.people.com.cn/data/China_in_brief/Economy/Tourism.html (last viewed: 12 January 2006).

People's Republic of China (2002): State Oceanic Administration – Zhonghua Renmin Gongheguo Guojia Haiyangju". Brochure (bi-lingual).

Pernetta, John C. and Elder, Danny L. (1992): 'Climate, sea level rise and the coastal zone: management and planning for global changes'. *Ocean and Coastal Management* 18: 113-160

Peters, Guy B. (2002): Governance: A Garbage Can Perspective. Political Science Series, No. 84. Institute of Advanced Studies, Vienna.

Phelps, Angela (1986): 'Holiday destination image – the problem of assessment: an example developed in Menorca'. *Tourism Management* 7 (3): 168-180.

Pike, Steve (2002): 'Destination image analysis – a review of 142 papers from 1973 to 2000'. *Tourism Management* 23: 541-549.

Plog, Stanley C. (2002): 'The Power of Psychographics and the concept of Venturesomeness'. *Journal of Travel Research,* 40: 244-251.

Ramirez, Luis (2005): Water Shortages Are Potential Threat to China's Growth, Stability. 18 March 2005. http://www.voanews.com/english/archive/2005-03/2005-03-18-voa41.cfm (last viewed 11 August 2006).

Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (PEMSEA) (2003): The Development of National Coastal and Marine Policies in the People's Republic of China: A Case Study. GEF, UNDP, IMO, Technical Report No.7. Quezon City. Philippines.

Reisinger, Yvette and Turner, Lindsay W. (2002a): 'Cultural Differences between Asian Tourist Markets and Australian Hosts, Part 1'. *Journal of Travel Research* 40: 295-315.

Reisinger, Yvette and Turner, Lindsay W. (2002b): 'Cultural Differences between Asian Tourist Markets and Australian Hosts, Part 2'. *Journal of Travel Research* 40: 374-384.

Ren Mei-E (1986): Modern Sedimentation in the Coastal and Nearshore Zones of China. Beijing and Berlin. China Ocean Press and Springer-Verlag.

Richards, Greg (2000): 'Tourism and Culture'. In: Briassoulis, Helen and van der Straaten, Jan (eds.). Tourism and the Environment – Regional, Economic, Cultural and Policy Issues. Second revised edition. Dordrecht: Kluwer Academic Publishers. Pp. 165-178.

Richter, Linda K. (1983): 'Political Implications of Chinese Tourism Policy'. *Annals of Tourism Research* 10: 395-413.

Ryan, Chris (2003): 'Recreational Tourism – Demand and Impacts'. Clevedon, Buffalo, Toronto and Sydney. Channel View Publications.

Sabatier, Paul A. and Jenkins-Smith, Hank C. (1991): 'The Advocacy Coalition Framework: An Assessment'. In: Sabatier, Paul A. (ed.). Theories of the Policy Process. Westview Press. Boulder. P. 117-166.

Scharpf, Fritz W. (1991): ‚Political Institutions, Decision Styles, and Policy Choices'. In: Czada, Roland M. and Windhoff-Héritier, Adrienne (eds.). Political Choice – Institutions, Rules, and the Limits of Rationality. Campus Verlag. Frankfurt. P. 53-86.

Schier, Peter (1993): ‚Die 1. Tagung des VIII. Nationalen Volkskongresses'. Teil II. *CHINA aktuell* 5: 454-459.

Schneider, Gerald (1991): Time, Planning, abd Policy-Making – An Evaluation of a Complex Relationship. Peter Lang European Academic Publishers. Bern.

Schubert, Klaus (1991): Politikfeldanalyse – Eine Einführung. Leske und Budrich. Opladen.

Schwickert, Petra (1989): Freizeitgestaltung und Binnentourismus in der VR China – Unter Berücksichtigung des autochthonen Erholungsstils im urbanen Raum. Universität Trier.

Scott, Daniel and McBoyle, Geoff (2001): 'Using a "Tourism Climate Index" to examine the implications of climate change for Climate as a Tourism Resource'. In: Matzarakis, A. and de Freitas, C. (eds.). International Society of Biometeorology Proceedings of the First International Workshop on Climate, Tourism and Recreation. http://www.mif.uni-freiburg.de/isb/ws/report.htm

Shaw, Gareth and Williams, Allan M. (2004): Tourism and Tourism Spaces. London. Sage Publications. Pp. 242-268.

Shi C, Hutchinson SM and Xu S (2004): 'Evaluation of coastal zone sustainability: an integrated approach applied in Shanghai Municipality and Chong Ming Island'. *Journal of Environmental Management* 71: 335-344.

Shi C, Hutchinson SM, Yu L and Xu S (2001): 'Towards a sustainable coast: an integrated coastal zone management framework for Shanghai, People's Republic of China'. *Ocean and Coastal Management* 44: 411- 427.

Shoemaker, S. (1994): 'Segmenting the U.S. travel market according to benefits realized'. *Journal of Travel Research* 32(3): 8-21.

Simard, Francois (1995): Marine Region 16: Northwest Pacific. A Report to the World Bank Environment Department.

http://erin.gov.au/coasts/mpa/nrsmpa/global/volume4/pubs/v4chap16.pdf (last viewed: 24 April 2003).

Simon, Herbert A. ([1945] 1965): Administrative Behaviour – A Study of Decision-Making Process in Administrative Organization. 2nd ed. New York and London. The Free Press and Collier-MacMillan Ltd..

SINOSPHERE (2004): Sea Level Along Chinese Coasts Continues to Rise. 7 (1): 33. Professional Association for China's Environment (PACE). www.chinaenvironment.net/sino/sino16.pdf (last viewed May 3, 2005).

Sirakaya, Ercan and Woodside, Arch G. (2005): 'Building and testing theories of decision making by travellers'. *Tourism Management* 26 (6): 815-832.

Smit, B., Burton, I., Klein, R.J.T., and Street, R. (1999): 'The Science of Adaptation: A Framework for Assessment'. *Mitigation and Adaptation Strategies for Global Change* 4: 199-213.

Sofield, Trevor H.B. and Li Fung Mei Sarah (1998): 'Tourism development and cultural policies in China'. *Annals of Tourism Research* 25 (2): 362-392.

SPIEGEL Online (2005): ‚Was Chinesen am liebsten aus Deutschland mitbringen', 19 August. www.spiegel.de/reise/metropolen/0,1518,370538,00.html (last viewed: 24 August 2005).

State Council of the PRC (1986): Fisheries law of the People's Republic of China. Adopted 20 January 1986. www.zhb.gov.cn/english/law_detail.php3?id=11 (last viewed: 24 April 2003).

State Council of the PRC (1992): Law of the People's Republic of China on the Territorial Sea and the Contiguous Zone. Adopted 25 February 1992. www.zhb.gov.cn/english/law_detail.php3?id=32 (last viewed April 24, 2003).

State Council of the PRC (1993): Marine Environmental Protection Law of the People's Republic of China. Adopted 1 March 1983. www.novexcn.com/marine_environemental_prot.html (last viewed: 12 August 2002).

State Council of the PRC (1994): China's Agenda 21 – White Paper on China's Population, Environment, and Development in the 21st Century. Beijing. China Environmental Science Press.

State Council of the PRC (1997): *Zhonghua renmin gongheguo fanghong fa* (Flood control law of the PRC). www.mwr.gov.cn/2cfg/Detail.wct?SelectID=4744&RecID=1 (last viewed July 25, 2004) and www.chinagateway.com.cn/english/1678.htm (last viewed: Aug. 26, 2003).

State Council of the PRC (1998a): Development of China's Marine Programs. www.lib.noaa.gov/china/programs.htm (last viewed: 22 April 2003).

State Council of the PRC (1998b): Law on the Exclusive Economic Zone and the Continental Shelf of the People's Republic of China. Adopted 26 June 1998. http://icm.noaa.gov/laws/PRC_EEZ_law.html (last viewed June 26, 2002).

State Council of the PRC (2001): *Zhonghua Renmin Gongheguo Haiyu Shiyong Guanli Fa* (Law of the People's Republic of China on the Use and Management of Sea Areas). Adopted 27 October 2001. Haiyang chubanshe, Beijing.

State Oceanic Administration (SOA) (1996): China Ocean Agenda 21: COA 21. Beijing: China Ocean Press, 1996.

State Oceanic Administration (SOA) (2001): China Sea level rise Bulletin 2000. Beijing.

State of Victoria (1999): Coastal Management Act 1995. Act No. 8/1995. Reprint No. 1. Melbourne. Anstat Pty, 1999.

Sui, Cindy (2004): 'Development poses serious threat to Great Wall of China'. The STAR. 17 September. http://thestar.com.my/lifestyle/story.asp?file=/2004/9/16/features/8896889&sec=features (last viewed: 4 October 2004).

Tian Suzhen and Ma Jirui (1997): '*Zhongguo yan'an haipingmian bianhua qushi tongji jieguode fenxi*' (Analysis of statistical results of sea-level change along China's coast). In: Du Bilan, Tian Suzhen, and Lü Chunhua (eds.). The Impacts of Sea Level Rise on the Major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies. China Ocean Press. Beijing. Pp.60-65 and www.coi.gov.cn/ccinet/lw1.htm (last viewed Jan 12, 2004).

Times Atlas of the World (1994): 9th Comprehensive Edition. Harper Collins. London.

Tisdell, Clement A., and Wen, Julie J. (1991): 'Foreign tourism as an element in PR China's economic development strategy'. *Tourism Management* 12 (1): 55-67.

Tol, Richard S.J. (2005): Adaptation and Mitigation: Trade-offs in Substance and Methods. *Environmental Science and Policy* 8 (6): 572-578.

Tol, Richard S.J., Klein, Richard J.T., and Nicholls, Robert J. (forthcoming): 'Towards Successful Adaptation to Sea-level Rise along Europe's Coast'. *Journal of Coastal Research*.

Transnationale (2002): www.transnationale.org/anglais/pays/CHN.htm (last viewed: 15 November 2002).

Travel-China-Guide: www.travelchinaguide.com (last viewed: 2 February 2006).

Um, Seoho and Crompton, John L. (1990): 'Attitude determinants in tourism destination choice'. *Annals of Tourism Research* 17: 432-448.

United Nations (UN) (2002): 'Policy and public commitment: the foundation of disaster risk reduction'. In : United Nations (ed.). Living with Risk: A global review of disaster reduction initiatives. Retrieved from: www.adrc.or.jp/publications/LWR/LWR_pdf/Chapter%203%20Section%203_1.pdf

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (1995): Towards integrated coastal zone management in Asia. New York.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (1998): Stakeholder Participation & Consensus Building for Integrated Coastal Zone Management Draft Consultant Report. September 14, 1998.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (1999): Water Hazards, Resources and Management for Disaster Prevention: A Review of the Asian Conditions IDNDR 1991-1999. http://www.unescap.org/enrd/water_mineral/disaster/watdis6.htm#_Toc445864443 (last viewed Feb 5, 2005).

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (2005): IV. Protection of regional natural environment. http://www.unescap.org/drpad/publication/integra/modalities/china/4ch04a.htm#table24 (last viewed Feb 3, 2005).

United Nations Educational Scientific and Cultural Organization (UNESCO) (2006): http://whc.unesco.org/en/list/?search=&search_by_country=&type=Mixed&media=&region=2&order=country (last viewed: 27 March 2006)

United Nations Framework Convention on Climate Change (UNFCCC) (1999): Coastal Adaptation Technologies. Technical Paper FCCC/TP/1999/1. http://unfccc.int/resource/docs/tp/tp0199.pdf (last viewed: March 2, 2003).

United Nations Framework Convention on Climate Change (UNFCCC) (2000): Methodological Issues – Methods and Tools to Evaluate Impacts and Adaptation. Progress Report FCCC/SBSTA/2000/INF.4. http://unfccc.int/resource/docs/2000/sbsta/inf04.pdf (last viewed Feb 12, 2004).

Vallega, Adalberto (1999): Fundamentals of Integrated Coastal Management. Dordrecht. Kluwer Academic Publishers.

Van Raaij, W. Fred (1986): 'Consumer research on tourism: mental and behavioral constructs'. *Annals of Tourism Research* 13: 1-9.

Van Tatenhove, Jan, Arts, Bas and Leroy, Pieter (2000): 'Political Modernisation'. In: Van Tatenhove, Jan, Arts, Bas and Leroy, Pieter (eds.). Political Modernisation and the Environment – The Renewal of Environmental Policy Arrangements. Kluwer Academic Publishers. Dordrecht, Boston and London. P.35-51.

Vemula, V.G., Hamid M.N., Kaplan, A., Phiromchai, S., Price, R., Lei G.C., and Yu X.B. (2004): Development of an integrated River Basin Strategy in the Yangtze River Basin. Case Study for the UNITAR Training Workshop on Water, Wetland and Biodiversity, Kushiro. www.unitar.org/hiroshima/kushiro04/team_presentations/team%202/Yangtzebasin_summ.pdf (last viewed Sept 15, 2005).

Verhelst, Véronique (2003): Study of the Outbound Tourism Industry of the People's Republic of China – The Probability of a Bilateral ADS Agreement between the PRC and the Shengen Area. M.A. thesis. Department of Oriental and Eastern European Studies, Katholieke Universiteit Leuven.

Von Prittwitz, Volker (1994): Politikanalyse. Lekse und Budrich. Opladen.

Walsh, K.J.E., Betts, H., Church, J., Pittock, A.B., McInnes, K.L., Jackett, D.R. and McDougall, T.J. (2004): 'Using sea level rise projections in urban planning in Australia'. *Journal of Coastal Research* 20: 586-598.

Wang B., Chen S., Zhang K. and Shen J. (1995): 'Potential Impacts of Sea-Level Rise of the Shanghai Area'. *Journal of Coastal Research* 14: 151-166.

Wang J., Wu N., and Jiao Z. (1993): 'The Relative Sea Level Trends Along China's Coast and Its Effects on the Extreme Sea Levels'. In: World Coast Conference: Proceedings, Vol.2. CZM-Centre Publication, No.4. Den Haag. Pp. 847-856.

Wang Shuguang (2002): 'Establishing the Management System for Sea Area Use, Promoting the Integrated Marine and Coastal Zone Management'. Congress material received at: Sharing Lessons Learned in Sustainable Coastal Development, Xiamen, PRC, 20-23 September 2002.

Wang Ying (1992): 'Coastal Management in China'. In: Fabbri, Paolo (ed). Ocean Management in Global Change. London. Elsevier Applied Science. Pp. 460-469.

Wang Ying (1995): 'China'. In: Hotta, Kenji and Dutton, Ian M. (eds). Coastal Management in the Asia-Pacific Region: Issues and Approaches. Tokyo. Japan International Marine Science and Technology Federation. Pp. 177-186.

Wen, Julie J., and Tisdell, Clement A. (2001): Tourism and China's Development – Policies, Regional Economic Growth and Ecotourism. Singapore, New Jersey, London, Hong Kong. World Scientific Publishing.

Wen, J.J., Tisdell, C.A., and Roy, K.C. (2003): 'Regional Inequalities in Tourism Development: Experiences of China and India'. In: Gosh, R.N., Siddique, M.A.B. and Gabbay, R. (eds.). Tourism and economic development: case studies from the Indian Ocean Region. Hamshire and Burlington. Ashgate Publishing Ltd. Pp.84-93.

Wheaton, E.E., and MacIver, D.C. (1999): 'A Framework and Key Questions for Adapting to Climate Variability and Change'. *Mitigation and Adaptation Strategies for Global Change* 4: 215-225.

Willows, R. I. and Connell, R. K. (eds.) (2003): Climate adaptation: Risk, uncertainty and decision-making. UKCIP Technical Report, UKCIP, Oxford.

Windhoff-Héritier, Adrienne (1991): ‚Institutions, Interests and Political Choice'. In: Czada, Roland M. and Windhoff-Héritier, Adrienne (eds.). Political Choice – Institutions, Rules, and the Limits of Rationality. Campus Verlag. Frankfurt. P.27-52.

Winsemius, P. (1993): 'Integration is necessary for Coastal Zone Management'. In: World Coast Conference 1993. Proceedings. Volumes 1. CZM-Centre Publication No.4. Den Haag. Pp. 417-423.

Witt, S.F. and Witt, C.A. (1995): 'Forecasting tourism demand: a review of empirical research'. *International Journal of Forecasting* 11: 447-475.

Woort, M. (1994): 'Resettlement and the Environment'. In: Sun, Peter (ed). Multipurpose River Basin Development in China. Economic Development Institute of the World Bank. Washington. Pp. 69-74.

World Bank (1993): 'The Noordwijk Guidelines'. In: World Coast Conference 1993: Proceedings, Vol.2. CZM-Centre Publication, No.4. Den Haag. Pp. 705-714.

World Bank (1999): China-Yangtze Flood Emergency Rehabilitation Project. Report No.PID7251. http://www4.worldbank.org/sprojects/Project (last viewed Sept 15, 2004).

World Coast Conference (WCC) (1993): Proceedings. Volumes 1 and 2. CZM-Centre Publication, No.4. Den Haag.

World Economic Forum (2003): China's Tourism Potential. www.weforum.org/site/homepublic.nst/Content/China+Business+Summit+2004%5CChina's +tourism+potential (last viewed: 4 October 2004).

World Resources Institute (WRI) (2002): World Resources Database 2002-2003. Washington. D.C..

World Resources Institute (WRI) (2003): http://earthtrends.wri.org/pdf_library/country_profiles/Coa_cou_156.pdf (last viewed 24 March, 2003).

World Tourism Organisation (WTO) (2003a): Yearbook of Tourism Statistics. Madrid.

World Tourism Organisation (WTO) (2003b). Chinese Outbound Tourism. Madrid.

World Wildlife Fund (WWF) (2003): River basin task force aims to strike a balance between the environment and development of the Yangtze River. Press release, 31 March 2003. www.ramsar.org/wn/w.n.china_yangtze_taskforce.htm (last viewed Sept 15, 2005).

Wu Yi Ao (1994): 'General Review, Experience, and Problems'. In: Sun, Peter. (ed.). Multipurpose River Basin Development in China. Economic Development Institute of the World Bank. Washington, D.C.. Pp.17-22.

Xiao Honggen (1997): 'Tourism and Leisure in China: A Tale of Two Cities'. *Annals of Tourism Research* 24 (2): 357-370.

XINHUANET (1997a) : 1-2 Natural Resources. http://202.84.17.11/english/statis/141541461.htm (last viewed 17 January, 2003).

XINHUANET (1997b) : 1-3 Natural Resources. http://202.84.17.11/english/statis/141541462.htm (last viewed 17 January, 2003).

XINHUANET (2002): Global Warming Accelerates China's Sea Level Rise. 12 April 2002. www.china.org.cn/english/30646.htm (last viewed: March 15, 2003).

XINHUANET (2003a): Global Warming does not Intensify Tropical Cyclones: Experts. 2 April 2003. www.china.org.cn/english/environment/60600.htm (last viewed May 12, 2004).

XINHUANET (2003b): Natural Disasters Incur 188.6 b Yuan Losses in 2003. 23 December 2003. www.cccchina.gov.cn/english/source/aa/aa2003122401.htm (last viewed May 12, 2004).

XINHUANET (2006): Natuaral disasters kill 1,382 people across China in the first half this year. 1 August 2006. http://211.147.16.25/ywwz/englishread.php?recid=45719 (last viewed 10 August 2006).

XINWEN CHENBAO (Morning Newspaper) (2003): *Shanghai 4 hao xian qiangxian di 3 ri quanjing jishi – wujing zhanshi zhan shadi* (Comprehensive report on the third day of rescue at Shanghai's line number 4 – military police and soldiers fight for sand dike). 4 July 2003, http://unn.people.com.cn/GB/14748/1951111.html (last viewed July 4, 2003).

Xu Gang (1999): Tourism and Local Economic Development in China – Case Studies of Guilin, Suzhou ands Beidaihe. English-language Series of the Institute of Asian Affairs, Hamburg, No. 4. Richmond. Curzon.

Xue Xiongzhi, Hong Huasheng, and Charles, Anthony T. (2004): 'Cumulative environmental impacts and integrated coastal zone management: the case of Xiamen, China'. *Journal of Environmental Management* 71: 271-283.

Yang H. (1996): 'Potential Effects of Sea-Level Rise in the Pearl River Delta Area: Preliminary Study Results and a Comprehensive Adaptation Strategy'. In: Smith, J. B., Bhatti, N., Menzhulin, G. V., Benioff, R., Campos, M., Jallow, B., Rijsberman, F., Budyko, M. I. and Dixon, R.K. (eds.). Adapting to Climate Change: An International Perspective. Springer Verlag. New York. Pp.265-276.

Yao Weijie (2002): 'China's warming climate worries experts'. In: SCIENCE TIMES (Kexue Shibao), in translation by Li Jinhui. 30 May 2002. www.china.org.cn/english/2002/May/33513.htm (last viewed Sept 15, 2005).

Ye Yaoxian (2001): Integrated urban Disaster Risk Management Lessons Learned from the Great Natural Disasters of Decades 1950-1999 in China. www.iiasa.ac.at/Research/RMS/dpri2001/Papers/Ye.pdf (last viewed: June 3, 2003)

Yeung Yue-man and Hu Xu-wei (1992): 'Conclusions and Synthesis'. In: Yeung Yue-man and Hu Xu-wei (eds). China's Coastal Cities – Catalysts for Modernization. Honolulu. University of Hawaii Press.

Yu Huming (2002): ICM Institutional Arrangements – Some Practical Considerations. Paper presented at: Sharing Lessons Learned in Sustainable Coastal Development, Xiamen, PRC, 21 September 2002. Congress material.

Yuan, S. and MacDonald, C. (1990): 'Motivational determinants of international pleasure time'. *Journal of Travel Research* 29 (1): 42-44.

Zahariadis, Nikolaos (1999): 'Ambiguity, Time, and Multiple Streams'. In: Sabatier, Paul A. (ed.). Theories of the Policy Process. Westview Press. Boulder. P. 73-93.

Zeng Wei (2002): '*Weixie bu zai shi chuanwen – haipingmian shangsheng jiang dailai shenmo*' (Threat is no longer a rumour – what will sea-level rise bring). NANFANG ZHOUMO (Southern Weekend). 18 January 2002. www.people.com.cn/GB/kejiao/230/3926/5261/20020118/650974.html (last viewed Jan 12, 2004).

Zhang Guangrui and Lew, Alan A. (2003): 'Introduction: China's Tourism Boom'. In: Lew, Alan A., Yu, Lawrence , Ap, John and Zhang Guangrui. Tourism in China. N.Y.. Haworth Hospitality Press. Pp. 3-11.

Zhang Guochen (1993): 'Coastal Zone Management in China'. In: World Coast Conference 1993: Proceedings, Volume 2. CZM-Centre Publication No.4. Den Haag. Pp.733-740.

Zhang Hai-lun and Wen Kang (2001): Flood Control and Management for Large Rivers in China. www.unescap.org/enrd/water_mineral/disaster/Flood%20china.doc (last viewed Sept 15, 2005).

Zhang Jinwen (1997): '*Zhongguo yan'an haipingmian shangshengde yuce moxing*' (Forecasting model for sea-level rise along China's coast). In: Du Bilan, Tian Suzhen, and Lü Chunhua (eds.). The Impacts of Sea Level Rise on the Major Vulnerable Areas of the China's Coastal Zone and Relevant Strategies. China Ocean Press. Beijing. Pp.47-54 and www.coi.gov.cn/ccinet/lw4.htm (last viewed: Jan 12, 2004).

Zhang Qiu Hanqin, Chong, King and Ap, John (1999): 'An analysis of tourism policy development in modern China'. *Tourism Management* 20 (4): 471-485.

Zhang Qiu Hanqin and Lam, Terry (1999): 'An analysis of Mainland Chinese visitor's motivations to visit Hong Kong'. *Tourism Management* 20: 587-594.

Zhang Wen (1997): 'China's domestic tourism: impetus, development and trends'. *Tourism Management* 18 (8): 565-57.

Zhao Chenggen (2001): 'The Central Government and Local Authorities During Transition Period'. In: Advances in Chinese Social Sciences. http://wga.dmz.uni-wh.de/wiwi/file/scc_central/Central.pdf (last viewed: 30 August 2006).

Zhao Songqiao (1986): Physical Geography of China. Beijing, N.Y. Science Press, John Wiley & Sons.

Zhao Xitao (1984): *Zhongguo haian yanbian yanjiu* (Research on China's coastal evolution). Fujian kexue zhishu chubanshe (Fujian Science and Technology Press). Fuzhou.

Zhao Xitao (1993): Holocene coastal evolution and sea-level changes in China. China Ocean Press. Beijing.

Zhao Xitao (1994): *Zhongguo yanhai huanjing bianqian* (Changes in the environment of China's coast). Haiyang chubanshe (China Ocean Press). Beijing.

Zhong Ziran (1999): 'Natural resources planning, management, and sustainable use in China'. *Resources Policy* 25: 211-220.

Zhu Erming (2000): The Prevention and Mitigation of Flood and Drought Disasters in China. http://www.lanl.gov/chinawater/documents/zhuerming.pdf (last viewed April 12, 2005).

Zhu Lizhen (2003): 'Project to Reinforce Dykes of Yangtze River Completed'. PEOPLE'S DAILY. 14 January 2003. http://english.people.com.cn/200301/14/eng20030114_110104.shtml (last viewed Jan 23, 2003.

Zuckerman, Alan S. (1991): Doing Political Science – An Introduction to Political Analysis. Wetview Press. Boulder and Oxford.

EXECUTIVE SUMMARY

In the People's Republic of China (PRC, China), both economic power and the population are concentrated in a coastal zone that is threatened by an imminent rise in sea level. How will China adapt to this impact of climate change? Does the fact, that China still has a hierarchical governmental system, ease decision-making for such novel and complex matters? This thesis is concerned with organisational decision-making in situations affected by uncertainty. It further considers, what distinguishes decision-making by organisations from that by individuals? Climate has proven to be a major aspect in choice of destination by international tourists, but is this also the case for Chinese tourists? Given the huge expectations that the tourist industry has for the Chinese market, the motivation of Chinese tourists and their preferences in choice of destination are important and unresolved factors.

China is a country in transition. Furthermore, China is a country facing massive changes. Rapid developments in the environment or in the socio-economic system affect both organisational and individual decision-making.These include political changes as far as they impinge upon administrative bureaucracies. Climate change is undoubtedly a major cause of administrative and policy change.

The two major topics of this thesis – sea-level rise and tourism – are united by a focus on the processes of decision-making. In research on China, these topics have not yet been investigated. Climate change as a problem - and with it the acknowledgement of a rise in sea level as one of its major impacts - has emerged very recently and the tourist industry in China has only developed since the 1980s.

This thesis consists of nine chapters split into four major parts:
I - introduction and method (chapter 1),
II - sea-level rise and decision-making in the coastal zone (chapters 2-4),
III - decision-making and tourism (chapters 5-8), and
IV - a conclusion (chapter 9).[1]

All analysis is carried out for China.[2] Qualitative methods of social and political science are used in Chapters 3, 4, 7 and 8, with statistical analysis in chapters 5 and 6. The major tools ranged from a questionnaire (chapter 5), to interviews (chapters 3 and 4) and to the analysis of newly compiled databases (chapters 5, 6 and 7).

Part II - sea-level rise and decision-making in the coastal zone - (chapters 2-4) emphasises decision-making within and among governmental institutions and highlights the constraints experienced especially while introducing long-term policies.

Chapter 2 discusses the garbage can model of organisational theory applied to the adaptative responses to sea-level rise in China, a major problem for climate change policy. The garbage can model suggests that organizational decision-making is characterized by "problematic preferences", "unclear technology" and "fluid participation" and is not rational but arises from organizational event streams associated with issues such as "problems", "solutions", "choice opportunities" and "participants", which exhibit the fluid and dynamic characteristics of mutual attraction, repulsion and changing composition. The garbage can approach was

[1] Different parts of this thesis have been published as research papers in international scientific journals or are at the time of writing are submitted for consideration. Two of them are co-authored (chapters 5 and 6).
[2] Chapter 5 is the only exception. It features an empirical study on the role of climate in tourist decision-making and was undertaken in Germany. China was included as a destination country and a small sample of tourists bound to China has been extracted for this thesis.

initially formulated to explain fuzzy decision-making structures within organisations and, subsequently, applied to decision-making among institutional groups and the many participants within governmental systems. Three main themes consistently occur in garbage can applications: motivation, information and power, and a straightforward decision based upon rational choice is constrained by the relevance of these themes to decision-making by institutions. Generally, it is argued that the more centralised and hierarchical a system, the less it is affected by uncertainty and ambiguity.[3]

The garbage can theory proved to be applicable to new issues – such as climate change – and long-term problems – such as adaptation to sea-level rise. The analysis in chapter 2 combined the garbage can approach with the three dimensions of a political system – policy, politics and polity – of which the latter has been underestimated in climate change research so far. A straightforward decision based on rational choice is constrained by the relevance these themes have in decision-making of institutions. The analysis equates polity with power structures and it shows that power is decisive in decision-making regardless of the political system. Framework compliance and information control are identified as major factors that are effective in a political system. Polity has been equated with power structures and the analysis showed that power is decisive in decision-making regardless of the political system. Moreover, the benefits of institutional change – in order to meet the demands of new challenges – are questionable as long as only parts of the system (policy, politics and polity) are addressed. Thus, the revised garbage can perspective showed that a global analysis of political and institutional structures is necessary in research into climate change.

Decision-making in the coastal zone is a complex issue. Many agencies are involved and even if a coastal zone management (CZM) scheme is in place, meaningful co-operation is not guaranteed. Chapter 3 discusses coastal zone management (CZM) in China and highlights the structural impacts the Chinese political system has on the decision-making processes involved. In order to describe the political conditions found in the country, general power structures are distinguished between the formal (the political system and the administrative set-up) and the informal (the personal networks of the *guanxi*-system). In this way, the polity of China is evaluated as an obstacle to the adoption of general CZM guidelines that are tailored for systems that are more democratic. In order to examine the potential of bottom-up, instead of top-down, approaches, two local CZM programs in the city of Xiamen and the municipality of Shanghai are compared. The very successful integrated CZM project of Xiamen is applied, in theory, to Shanghai. This device reveals that applicability not only depends on the organizational set-up of the CZM program (naming a responsible agency, allocating participating sectors, formulating goals and policies, identifying instruments, building a legislation, broad participation) but also on factors such as political will (of the responsible agency), a clear jurisdiction of responsibilities (of involved government agencies) and the acknowledgement of informal structures, such as the *guanxi*. An organizational set-up for CZM in China that includes informal power structures is proposed. A transparent jurisdiction and political system are necessary for a functioning legislation in a country like China, where classical stakeholder participation is less decisive and, therefore, power structures among agencies and the ability to cooperate gain in importance. Informal power structures are often underestimated or completely excluded from analysis, as they are difficult to measure, however, they should not be ignored. For example, the *guanxi* determine almost all spheres of life and activity in China.

Developments within the Chinese coastal areas are are only considered in the short term, which is a reasonable approach given the immense economic growth and the expected

[3] This only applies to the decision-making process, not to the quality of the solutions.

urbanisation rate of the region (Cheng, 2002). As shown in Chapter 4, however, adaptation to sea-level rise is a long-term task. Chapter 4 addresses decision-making under the condition of uncertainty, by discussing the current policies of adaptation to a rise in sea level in China. An analysis of ministry jurisdiction for coastal activities, such as land reclamation, coastal construction and dike building, reveals a relatively high representation by the Water Ministry, although it has no clear responsibility for the coastal area. Therefore, further emphasis is put on the possibility to integrate adaptation policies into existing organisational frameworks, such as coastal zone management or disaster management structures. The analysis concludes with a proposal for climate change management in China. The focus in this thesis on adaptation to sea-level rise showed that decision-making frameworks, and their compliance with existing organisational structures of the political system, are a major problem. Further studies on other impacts of climate change may challenge the wisdom of using the disaster management framework in climate change scenarios.

Part III - decision-making and tourism - (chapters 5-8) focuses on the short-term development of the tourism sector in China and turns from the inter-governmental decision-making analysis to that of the consumer.

Futher global climate change and rise in mean temperature will have impacts on the tourism industry. Chapter 5 investigates the role of climate in the destination choice of tourists in general. The basis is a survey conducted during two summer months in 2004 at major departure points in Hamburg, Germany. It shows that climate is the most important feature for the choice of destination for the tourists surveyed. However, with climate change, the attractiveness of a destination is changed and, with a significant time lag, also the perception of that destination by tourists. A small sample of eight travellers[4] to China indicates that climate seems less important for travellers to China than landscape and sightseeing spots. For this group, climate is more important for tourists than for business travellers, but even they rank it lower than interests in nature and cultural features. The analysis also showed that access to the sea and lakes is the second most important factor for tourists when choosing a destination. As an ancillary effect of global warming, sea-level rise will have a large effect on the tourism industry.[5] Although visiting beaches is less important for foreign and domestic tourists in China, the effects of climate change and how the coast is perceived will be felt. Tourists will not necessarily adapt to new situations, e.g. loss of an unspoilt sea view, by changing their preferences – they would rather change their destination.

Decisions by tourists are not only affected by external factors. Their motivation to travel depends on personal preference and to some degree cultural influence. Chapter 6 features a statistical regression analysis on the behaviour of Chinese tourists from different countries[6] and of the number of international and domestic tourists at the provincial level in China. The variables used range from climate, transportation facilities and the number as well as classification of sightseeing spots. The results yield tourists' preferences when travelling in China. Additionally, the preferences of Chinese tourists for the domestic tourism market are compared with foreign travellers' preferences; and they prove to be different. It is therefore wrong to assume that the Chinese behave like other tourists, even their ethnic kin. Cultural influence is tightly connected to other, expecially social and political, influences. In comparisons of preferences between Chinese domestic tourists and foreign tourists in China, significant differences were detected. Generally, Chinese tourists shun cities, love nature, seek

[4] The sample consists of four travellers on business and four tourists.
[5] Access to the sea will change considerably and the quality of beaches will mostly deteriorate because of slope changes and intensified erosion.
[6] From the PRC, Taiwan, HK and Singapore.

out the 'rich and trendy' and avoid cultural spots (at least, of domestic importance). A cautious interpretation of what Chinese tourists seek out when going abroad can be given. This largely corresponds to the results of other researchers using different methodologies. Furthermore, the role of regulation by the government-imposed ADS-system[7] on tourist flow from China is discussed. Chinese international tourism depends on the ADS-system as a political instrument. The distribution of Chinese tourists among global destinations is likely to shift if the system is eliminated.

China is seen as a major tourist generating country and the international tourism industry projects high expectations in the number of potential Chinese travellers. Chapter 7 investigates further the motivation of Chinese tourists to travel at all. In order to further understand the role of push and pull factors,[8] and climate as such a potential factor, an analysis into the notions of novelty-seeking and similarity-to-home in holiday choice is discussed in terms of size of the country of origin and size of the destination country. China is a large country; therefore, tourists are predisposed to domestic trips (regardless of their preference for novelty or similarity-to-home). This is valid for climate as well as other factors, since China covers almost all climate zones. A regional analysis of tourist attractions in China emphasised the importance of access to tourist spots. The preference of Chinese tourists for nature was more influenced by the natural surroundings, in general, than the absolute number of nature spots in a region. The preference of domestic Chinese tourists for the northeast of the country, and perusal of the sightseeing attractions on offer, supports the finding that Chinese preference is for attractions other than cultural or natural. These preferences are also evident in the destinations Chinese tourists visit abroad, e.g. German tours for Chinese tourists include a visit to a motor factory. Furthermore, the influence of source of information on destination choice in China is discussed. A detailed look at the selection of sources allows some conclusions to be drawn on what is communicated to which group of tourists in the country and whether official policy is more successful than commercial providers. Whereas the regression analysis in chapter 6 showed a relative importance of promoted sights (at least by official and commercial sources, less so by the self-help net) against the actual existence of spots, the descriptive analysis of the database in chapter 7 reveals a very heterogeneous picture for the sights promoted by the different sources. This shows how diversity adds to complexity, even in China, where there are fewer sources of information than elsewhere.

Chapter 8 puts Chinese tourist decision-making into context with the infrastructural findings of chapter 2 and unites some of the aspects that were investigated in chapters 6 and 7. The revised garbage can perspective revealed the importance of three features in organisational decision-making – motivation, information and power. Thus, the features important in organisational decision-making also apply to individual decision-making by tourists. What motivates a tourist is determined by personal preference and by push/pull-factors, including the degree of venturesomeness (after Plog 2002) as well as a preference for places like home or novelty. Information is important in moulding tourist behaviour, as are constraints or determining factors in the form of economic capacity or political restrictions from the ADS-system. Chapter 8 further evaluates the likely impacts of climate change on Chinese destination choice and tourism in China. A significant question is whether the growth of the tourism sector can be sustained if climate change negatively impacts on China as a tourist destination. The role of policy change and the formal ability of the Chinese governmental system to initiate this change are important for China when the government wants to guide the development of long-term and short-term solutions for the adaptation to climate change.

[7] The Approved Destination Status (ADS) is required for a country to receive Chinese tourists on package tours.
[8] In the tourism literature (Ryan 2003; Lau and McKercher 2004; Pearce and Lee 2005; Zhang and Lam 1999; Zhang and Lam 1999; Xiao 1997) these are factors determining why a traveller chooses to go on holiday and which destination is chosen.

This thesis has made a contribution to decision-making analysis. In the context of climate change it is important to include structural aspects in policy evaluation. In terms of decision-making by individuals and motivation by tourists, how they are influenced by economic and political conditions and the impact on their behaviour. A revised version of the garbage can theory of organisational decision-making helped in identifying these aspects. Generally, the literature discussing the original concept is sceptical as to whether the garbage can is applicable to long-term issues and to hierarchical governance systems. While discussing the long-term issue of adaptation to sea-level rise and applying the garbage can to decision-making in China, both doubts are proved unfounded.

China surely needs to adapt to sea-level rise and, whereas the range of methods available is quite clear, the organisation of response is less so. This shows that the hierarchical political system in China does not necessarily support straightforward decision-making. Too many aspects of the political system are pervasive in organisational decision-making. Therefore, the structure of the political system is as important as the major players that make and implement the decisions as well as the way issues are chosen and formulated. For decision-making by Chinese tourists, climate is not a decisive factor in destination choice but climate change may overturn this view. Essentially, decision-making by both organisations and individuals is equally complex, involving the same aspects of motivation, information and power, yet with different emphases.