

Integrated Coastal Zone Management in the People's Republic of China – An Assessment of Structural Impacts on Decision-making Processes

Maren Lau

FNU Working Paper 28

Research Unit Sustainability and Global Change

Center for Marine and Atmospheric Research

University of Hamburg

Bundesstrasse 55

20146 Hamburg

Germany

Tel: +49 40 42838-4830

Fax: +49 40 42838-7009

E-mail: lau@dkrz.de

<http://www.uni-hamburg.de/Wiss/FB/15/Sustainability>

Abstract:

Integrated Coastal Zone Management (ICZM) forms a generally accepted concept to ensure sustainable development in the coastal zone. The implementation of the ICZM framework as formulated, e.g. by the World Coast Conference, is often constrained by the political system within which it should be applied. This is the case in the People's Republic of China. This study takes a political science perspective based on approaches inherent in neo-institutional and administrative theories. This way the relevant political structures are explained and the impacts that the transformation of the socio-economic system had on institutions are located. This is extended by the reflection of related political power distribution. This part of the analysis mainly contains existing knowledge on (integrated) CZM in China but evaluates it from a so far neglected point of view. The second part of the paper is taking the successful local ICZM approach of Xiamen and a proposed approach for Shanghai as an example to show that the adaptation of a working approach to other parts of the country is impossible without modifications to the organizational structures of decision-making and implementation. So far the literature emphasizes mostly modifications in content. An important reason for structural elements being comparably important is the choice of ICZM issues and the local power distribution. It furthermore shows that these are also the determining factors obstructing the upscaling of a local approach to the national level, a fact which constrains the formulation of national guidelines in China and leaves only the bottom-up alternative of introducing ICZM to China – a hard task that leaves a disproportional responsibility to the local governmental level.

Keywords: Integrated Coastal Zone Management, People's Republic of China, Political Structure, Power Distribution, Jurisdictional Overlaps

I) Introduction

Integrated Coastal Zone Management (ICZM) aims to solve worldwide-perceived problems of the coastal zone. Especially population growth and urbanization trends pose a long-term threat to a sustainable development in the region. The People's Republic of China (PRC, China hereafter) 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 [1]. Both, demographic and economic growth, are the strongest in the coastal provinces.

The Chinese continental coastline consists of 18 000 km¹. 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 followed². 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 utilized political decentralization 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 [2].

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 discussed³. 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 emphasize the

¹ Adding the length of coast of around 6500 islands the People's Republic of China (PRC) claims sovereignty over, it even extends to 32 000 km. Regarding the issue of definition of the coastal zone see II.2.

² A detailed account on national programs and surveys undertaken is following in III.2.a and d.

³ This paper is largely oriented towards the CZM definition the World Coast Conference based their discussion and findings on [3]. See also section III.1.

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 such vast coastal areas as China's. Scientists have paid attention to this development since the 1980s [4]. Strikingly, the Chinese government has not explicitly addressed the problem as a task within ICZM.⁴ The issue is increasingly addressed by the media, though, and such the river deltas of China and especially the big cities located within them are acknowledged as the most threatened places by sea-level rise [8]. Due to their smaller economic importance some other low-lying areas along the coast are not particularly mentioned to be in danger. However, global studies on the effects of sea-level rise predict significant impacts [9]. On a regional scale aspects such as land subsidence and crustal vertical movement are also determining factors [4]. Adaptation methods considered in China still emphasize hard structures, underestimate negative impacts on the coastal ecosystem and thus even complicate the matter.⁵

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 [10]⁶. In the case of the PRC, hardly any of these formal aspects have been fully achieved⁷. Nonetheless, the Chinese government decided to implement ICZM [5] [6] 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 organization and implementation of Coastal Zone Management (CZM) in a country or region conditioned by the general political organization and implementation of this country or region.

⁴ China is indeed planning to establish ICZM nationwide [5] [6]. And in fact sea-level rise is officially mentioned as a planning demand in the China Ocean Agenda [7], but not as a problem to be addressed within the ICZM concept.

⁵ 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.

⁶ 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 still hampering an adoption of CZM [10].

⁷ With China in the focus this paper concentrates on the constraints caused by the political system.

Furthermore decision-making processes that are determined by the organization of CZM affect implementation. These decision-making processes are reflected by institutional functions and responsibilities for certain tasks relating to CZM. This paper predominantly uses the self-definition of the institutions that have an organizational 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 [3]⁸. 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 [11]. Therefore China's Agenda 21 suggests that "pilot areas will be selected to formulate the guidelines for integrated CZM" [12]. 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 [13] [14]). While it is not this paper'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, organizational structures have on these two ways of adopting a concept to a country's or even a locality's reality. Sceptics 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 paper will take both directions of adoption into account, top-down and bottom-up, and emphasize the organisational structure's impacts on implementing ICZM in China.

⁸ Major guidelines had been developed before by UNEP, FAO and the World Bank [10]. 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.

This paper 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 paper provides a local structure that pays attention to the political organizational component involved.

I.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 pollutants⁹. 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, organizational and structural factors inherent in every management system are systematically underestimated. A possibility to integrate these can be found in political science¹⁰, especially administrative politics¹¹ and institutional politics¹². The first group focuses on the

⁹ A recent study on evaluation of coastal zone sustainability using an indicator system has been produced by Shi et al. [15].

¹⁰ For methods and scope of political science please refer to Zuckerman [16] and Ball [17].

¹¹ For further information on administrative politics please refer to Simon [18] and Knoke [19] (especially chapter 4 on organizational power p. 85-117).

¹² For further information on studies of institutional politics on China please refer to Lieberthal and Oksenberg [20], and Lieberthal and Lampton [21] 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 [22], Lane and Ersson [23], Windhoff-

organization of a system and its agents, whereas the latter group emphasizes 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.¹³ This paper aims at filling this gap.

In the wake of the World Coast Conference (WCC 1993) the World Bank [27] 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 [28], 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 [3] also contains Winsemius' [29] general study on CZM development stages.

Many authors dedicated their studies to the CZM issue and produced a wide range of perspectives. French [30] gives an important account on the coastal zone's definition and further emphasises the issue of coastline protection. Hinrichsen [13] [14] takes a view on the impact the growth of population has on the development of the coastal 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 [31] 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) [32] 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

Héritier [24] 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 [25].

¹³ An exception and recent example for a study considering a single political factor, i.e. public participation, is McCleave et al. [26]. The authors compare two examples for decentralized ICZM: a local government run program (Xiamen) and a community-based program (Atlantic Coastal Action Program, Canada).

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 [33] 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 [34] 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 [35] [36] 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 up by Dong [37] 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 [11] [26] [38] [39] and Shanghai [40] can be found. McCleave et al. [26] compares the successful Xiamen approach to a local attempt in Canada and emphasises the aspect of decentralization especially for stakeholder participation. GEF et al. [38] [39] are project reports on the Xiamen site and Chua et al. [11] takes up the issue of lessons learned there. Shi et al. [40] 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 paper aims at contributing to the issue by providing such a political perspective and pinpointing the organizational 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 organizational 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 organization 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.

I.2) Methodology

This paper 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 organization 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 paper 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 Xiamen¹⁴. 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). A large part of these sources are accessible in Chinese only. In case of bi-lingual publications, the Chinese version was used for verification.

¹⁴ This workshop 'Sharing Lessons Learned in Sustainable Coastal Development' was organized 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.

This study does not take a single case as an example, as Buen [41] 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.

II) 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 paper.

II.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, 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.¹⁵

II.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.¹⁶

The official Chinese account [44] gives a coastline length of 18 000 km of mainland coast plus 14 000 km of shore length for coastal islands.¹⁷ The estimated number of islands taken into account differs from 5000 to 6500.¹⁸ In the following this paper 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 [34]. Wang [35] 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.¹⁹ In contrast, LOICZ [48] uses elevation grids in order to define the coastal zone.²⁰

¹⁵ Information on geophysical conditions can be drawn from Zhao [42] and Ren [43].

¹⁶ 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 [27] has stressed the importance of a sound definition of the area to be managed by ICZM.

¹⁷ The CIA world factbook [45] claims to include islands with citing a total coastal length of 14 500 km. The World Resources Institute (WRI) [46] states a coastline of 30 017 km length including non-overseas islands.

¹⁸ The official white paper on the Development of China's Marine Programs [47] gives a number of 5000 islands with an area of more than 500 km², the official Chinese news agency [44] – Xinhuanet - states a number of 5400 islands with a total area of 38.700 km² whereas Wang [35] [36] gives an overall number of 6500 islands. Official government data presumably include the Republic of China (ROC) on the island of Taiwan.

¹⁹ Information was gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.

²⁰ 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.

Wang [36] further states that China has a total land area on the coast of 350 000 km², whereas Xinhuanet [49] 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 emphasize 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) [50].²¹ 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 adjacent coastal area [51]²². 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 [36] the coastal zone would enclose 41% of China’s population. The World Resources Institute (WRI) [46] comes up with 24% of the population living in a 100 km belt of the coast, referring to population estimates of 1995.²³

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.²⁴ This paper 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.²⁵

²¹ 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 [31, 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. [10, p. 111].

²² Some official documents see the marine area as extension of the coastal area with a strong emphasis on exploitation and in part protection [7, p. 25.]. Nonetheless in content these documents almost exclusively address marine issues [47].

²³ The WRI uses GIS and a dataset distribution of population along administrative units and percentage calculation from UN population division totals from 1995.

²⁴ Compare Hinrichsen [13] 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 [52].

²⁵ These are results from own calculations with freely available county population data from the 1990 census [53] 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. 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.

Nicholls and Small [54] 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".²⁶ Despite this, Hinrichsen [13] 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 China²⁷ 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.²⁸

II.3) Economic interests and economic reforms

According to Wang [35] 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 [7] in 1996, followed by the White Paper on the Development of China's Marine Program²⁹ [47] in 1998³⁰ and culminating in the fact that marine development became an important part of the Ninth Five-year-plan (1996-2000) [56].

According to official accounts the marine industry had a total output of 350 billion Yuan (RMB) in 1999 [57]. 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 [58]. However, regionally the marine industries' importance differs. Most successful are Guangdong, Shandong, Shanghai, Fujian, Zhejiang and Liaoning [59].

²⁶ Wang [36] states that 70% of the country's urban areas are situated in the coastal zone.

²⁷ In the PRC an estimate of 100 million so-called floating population exists with the majority moving towards the coast [55].

²⁸ 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.

²⁹ 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.

³⁰ 1998 was the world ocean year.

What made the coastal region so wealthy? The reason was targeted economic and administrative reforms³¹. Under Deng Xiaoping's leadership the CCP realized the need for economic development in order to politically and socially stabilize the country. The decision to open China to the world – sometimes referred to as the 'open-door policy' [60] - 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 decentralization 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 1).³² 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" [61, p.309]. After the crackdown of the 'Pro-democracy demonstrations'³³ 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 [62] [63] [64]. Meanwhile seven economic regions within the coastal belt have emerged³⁴ (compare figure 1).

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

³¹ These were initiated after the destructive experience of the Cultural Revolution (1966-1976) which had left the Chinese nation in a state of economical, organizational as well as social vacuum. The death of Mao Zedong, founder of the PRC, eventually cleared the path for the return of Deng Xiaoping.

³² These SEZs were: Shenzhen, Zhuhai, Xiamen and Shantou as well as Hainan, which was later in 1988 upgraded to provincial level.

³³ This is the so-called Tiananmen-incident on the 4. June 1989.

³⁴ 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).

to mitigate the problems of the global coastal zone. Generalization 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.

III) Integrated Coastal Zone Management

III.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 generalization.

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 paper 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 organizational structure and the latter emphasizing this organizational 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 organization - 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) [3] brought numerous scientists and responsible politicians of more than 90 nations, 20 international and 23 non-governmental organizations 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?³⁵ 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 2) have been extensively explained by Winsemius [29].³⁶ 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.³⁷ 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" [29, 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 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

³⁵ For the issue of CZM plans and programs in connection with a country's legislation, see III.2.a.

³⁶ 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 harmonize 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.

³⁷ 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.

as the administrative integration of the various levels into the program implemented by the annotated CZM policy makers.³⁸

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, urbanization, education, and tourism) each with its own sector-specific goals” and a close interaction with their target groups - private enterprises or entities [29, 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 emphasizes 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.³⁹

a) Issues and their conceptual frames

In the following a short overview of general CZM issues and conceptual frames is given.⁴⁰ Furthermore the variety of issues is reflected and it is shown that a distinction is possible by problem and practice oriented approaches.

Vallega [31, 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,

³⁸ 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.

³⁹ See also section III.2.b.

⁴⁰ The issues and concepts of China’s CZM are being discussed later in section V.

“economically diversified regional organisation” [31, 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.⁴¹

Similar to the number of approaches, the topics of CZM are also quite numerous. They can be organized 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” [65, 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 [30]. This emphasizes ICZM strategies, “that take account of population growth and distribution, urbanization trends, consumption patterns, generation of wastes and the use (and abuse) of available resources” [13]. In a way the concept of sustainability strengthens the interdisciplinary character of ICZM whereas the specifically holistic viewpoint emphasizes the practical details of the concept.

b) 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 [10]. This evaluation can be regarding issue or implementation factors likewise. The latter aspect of

⁴¹ This is already indicating the implementation tool of functional zoning to be discussed in III.1.b.

planning and implementation tools is most important and holds a great variety [10]. In this section the Chinese view should be emphasized.

For the Chinese CZM approach functional zoning was defined as a major tool [66] [67] [68]. 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 [27, p. 708].

The emphasis of the functional zoning can differ, either regarding its various uses (economic focus) or along its environmental value (ecological focus)⁴² [10, 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.⁴³ 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.⁴⁴ 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 categorize and who undertakes the categorization and is responsible for its implementation. This is subject of the organization of CZM. In the following the general requirements of CZM and their reality in China are discussed.

III.2) Formal CZM requirements and the situation in China

General CZM aspects that are considered as continuing obstacles in ICZM implementation [10] are related to a functioning legislation, the implementing agency and public participation. This paper 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 organizational 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

⁴² A basis for this are attempts to categorize the coastal resources and identify possible CZM issues.

⁴³ In the case of no use, total natural protection is achieved.

⁴⁴ China's sea is divided into five kinds of zones: (1) utilization and development, (2) treatment and protection, (3) nature reserves, (4) special functions, and (5) reserved zones. Citing Li (1991) after UNESCAP [31, p.38]. The program on functional zoning was undertaken 1989-1992 [34], respectively 1989-1995 [69]. Wang [36] provides a similar division. On latest development of sea area use see Wang [66].

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. [27, p.708]

a) 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 [10, p.120].⁴⁵ Following this argumentation, China's Ocean Agenda 21 (1996) [7] and its Marine Development Program (1998) [47] could count as a management framework. Apart from that, the contents of these documents emphasize general CZM topics and only very superficially provide guidelines for 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).⁴⁶ 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 (1992) [71] and the Law of the Exclusive Economic Zone and Continental Shelf of the PRC (1998) [72]. The Law of the PRC on the Use and Management of Sea Areas (2001) [73] holds a special importance as it is the only law explicitly relating the management of newly defined areas to certain activities undertaken there.⁴⁷ It also regulates the jurisdiction over marine zoning between the State Oceanic Administration, the Fishery Department and the Maritime Safety Administration.⁴⁸ Furthermore, there are amended versions of laws that deal with the coastal zone or coastal related sectors, e.g. the Fisheries Law from 1986 [74] (amended 2002) and the Marine Environmental Protection Law from 1982 [75] (amended 1999 [76]). For China, a coastal zone management act was proclaimed until 2000.⁴⁹ But it seems that

⁴⁵ Again, the interpretations are diverse. Whereas Awosika et al. [10 p.107] do not at all connect the CZM plan to the legislation of a country, French [30, 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.

⁴⁶ This is for example the case in the State of Victoria, Australia [70]. 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.

⁴⁷ 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.

⁴⁸ 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.

⁴⁹ These efforts are being pursued since the early 1990s. Compare UNESCAP [32, p.38].

it is going to take until 2005 or even 2007 to achieve an overall CZM legislation.⁵⁰ Therefore, the legislation of CZM in China can be considered as preparatory.

b) 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 [27, 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.

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

⁵⁰ Information gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.

were a feature of the Western world [77]. 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 [78]. 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 organizations independent of the government [1, 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 [26].

e) CZM agency

Another general requirement closely related to the political system of a country focuses on the implementing CZM agency. Usually it is emphasized 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 organization emphasize the need for highest political status and clearly defined leadership [27] [79] [26] [10]. Due to a lack in consistent presentation in the literature⁵¹ the following section gives major information on the organization 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.⁵²

⁵¹ 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 bilingual compilation in the appendix.

⁵² 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.

The Chinese coastline consists of eleven administrative units - eight provinces, one autonomous region and two municipalities (compare figure 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.⁵³ These 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 V.1.

The SOA is subordinated to the Ministry of Land and Resources (MLR) as a managed unit [80]⁵⁴ and consists of six departments, of which the Department of Marine Environmental Protection, the Department of International Cooperation, the Department of Sea Area Management and the Department of Science and Technology are most important for this analysis.⁵⁵

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 organizations as well as training and other service institutions (e.g. the marine data and information centre) [81].⁵⁶ 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.⁵⁷

⁵³ Hong Kong Special Administrative Region and Macao Special Administrative Region are not included into the CZM management structure.

⁵⁴ On behalf of the State Council the SOA is managed by the MLR.

⁵⁵ The Administrative Office and the Department of Personnel are not directly involved in management activities.

⁵⁶ For details see table in the appendix.

⁵⁷ Compare also III.2.d.

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.⁵⁸ It should be understood though that the mere counting of offices in a region does not necessarily reflect the region's status and importance.

d) 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 [27] [10]. Therefore the existence of assessment programs and demonstration projects is likely to indicate the status a country is giving its CZM efforts.

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 [34] [35] [36] [37]. 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.⁵⁹

⁵⁸ 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.

⁵⁹ 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 [87], also in China marine protected areas are classified into several groups. Nonetheless the Chinese terminology is only loosely adopting these classifications.

Generally, during the 1990s many international cooperation projects have been proposed on issues regarding the coastal zone and its management [47]. Regardless of the high number of proposals and project descriptions found in information on various international agents or Chinese sources on CZM international cooperation, the number of successfully implemented projects seems to be quite small. However, the quality of cooperation 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.⁶⁰

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 Qinggang/Hainan in the north of the South China Sea [66], Xiamen remains the only city with an own CZM project.

As already indicated, many projects' proposals were not realized 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 [83]. Following a statement of Li Haiqing, deputy director for international cooperation 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.

⁶⁰ 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.

IV) 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.

IV.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, emphasize that *guanxi* often generate a corrupt environment. This way they clearly obstruct the effectiveness of the state.⁶¹ 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.⁶²

IV.2) Formal power aspects

a) 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

⁶¹ 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 [84] [85], whereas in administrative studies corruption and reciprocity both become features of ineffectiveness and are described as ‘social norms’ [86]. Further reading on *guanxi* is provided by Gold et al. [87].

⁶² For information on political patronage relation-networks see Heilmann [88].

hierarchy.⁶³ Generally, the authority in such a political system is organized in a strict hierarchy and has influence on every level of government activity.⁶⁴

b) 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 [93] [94] 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.

In figure 3 Lieberthal’s concept was adopted for agencies of the Ministry of Land and Resources in Shanghai.⁶⁵ 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 decentralization, 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.

c) Central - local power distribution and administrative reforms

The Chinese governmental organization 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 measures⁶⁶ are important. The provincial level (*shengji*) encompasses all

⁶³ On the Nomenclature system compare Gottwald/Kirchberger [84], Heilmann/Kirchberger [89], Zhao [90] and Huai [91].

⁶⁴ 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 [92].

⁶⁵ Referring to Lieberthal’s chart 2 [93].

⁶⁶ 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

provinces, municipalities directly under the State Council (Beijing, Tianjin, 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 centralized control.⁶⁷

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 organization and specific changes in CZM organisation due to the administrative reforms in China are vital. This provides for an estimation of local power distribution.⁶⁸

V) Impacts of the Chinese political system

V.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 1998.⁶⁹ 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.⁷⁰

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 4). This was the status giving the agency the most possible

status. Sub-provincial cities along the coast are: Dalian, Qingdao, Ningbo, Hangzhou (located between Shanghai and Ningbo), Xiamen, Guangzhou and Shenzhen.

⁶⁷ 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 [1, p. 120].

⁶⁸ 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.

⁶⁹ Since then only minor changes have taken place in 2001 [95]. 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 [96]. 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.

⁷⁰ The term ‘commission’ is only still used out of traditional motives and will be subject to gradual abolishment. Compare Heilmann [97] referring to an interview with Gu Jiaqi, in: Ta Kung Pao, Hong Kong, 11.3.1998.

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.⁷¹ In 1993 the SOA became incorporated into the Commission of Science and Technology [41, p.110] [98] [99] [100] [101]⁷². This way it experienced an administrative downgrading, while its responsibilities grew, i.e. one year later in Xiamen the first demonstration site was being established under the co-operation of SOA and international groups such as GEF, UNDP and IMO.

In 1998 another re-organization 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 [41].⁷³ This time the re-organization 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.⁷⁴ Of comparable importance is the cooperation 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).⁷⁵ Another important agent in the coastal zone is the

⁷¹ Zhang [34] refers to the year 1988. Many Marine Nature Reserves were established in the beginning of the 1990s.

⁷² 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 [100] [101]). 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 [98] [99]).

⁷³ 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 [97].

⁷⁴ In this context also compare the SOA set-up with its own Department of Science and Technology in the appendix.

⁷⁵ 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.

Ministry of Agriculture with its Department of Fishery and therefore significant regional interest in the coastal zone as part of resource allocation.⁷⁶

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 cooperation, which is taken care of by SOA's Department of International Cooperation.⁷⁷

The conditions of the first version can be verified by a look into media presentations of the SOA [51]. In this case the SOA's leading responsibility is undisputed. This is also true for the third option of international cooperation, which is organized 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 cooperation with other agencies for some of these tasks will be clarified and overlapping responsibilities illustrated and evaluated.

V.2) CZM issues (SOA)

The SOA itself emphasizes its objectives in safeguarding marine rights and interests in managing the sea area use, co-ordinating the utilization 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 emphasizes 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 [33] [34] [37] [51] [102].

⁷⁶ The Ministry of Agriculture had been renamed and restructured until 1988.

⁷⁷ As every governmental institution in China the SOA, too, has an office for international relations.

a) Jurisdiction overlap

The SOA [102] 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; pre-1998 it was ranked a commission) [103]
- the Chinese Academy of Sciences (CAS) [104]
- the Ministry of Land and Resources (MLR; by whom the SOA is managed) [105]
- the State Environmental Protection Administration (SEPA; former NEPA) [106]
- the National Bureau of Forestry (NBF) [107]
- the Ministry of Agriculture (MOA) with its Fishery Department [108]

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 categorized according to their co-operation status. In figure 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) [109], the Ministry of Construction (MOC) [110], the National Tourism Administration (NTA) [111], the Economic and Trade Commission (ETC) [112], the Development Planning Commission (DPC) [113], and the Maritime Safety Administration (MSA) [114] subordinated to the Ministry of Communication [115]. There are three categories illustrating relation conditions, ranging from (1) clear jurisdictional overlap⁷⁸, 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

⁷⁸ 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 [41]. Additional information on ministries and commissions can be gained at www.chinaonline.com.

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 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 utilization 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

sites⁷⁹. 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 [41]. The relations of the other agencies in the italic section of figure 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 [39, p.10], does not seem reasonable.

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.

VI) 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

⁷⁹ Ramsar denotes the Convention on Wetlands in Ramsar, Iran 1971. Ramsar sites fulfil the criteria for wetlands of international importance. The organization assists governments with guidelines for development and conservation of the sites [116].

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.

VI.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 organized by the SOA, but not formally adopted⁸⁰. 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 negligible⁸¹. 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.

VI.2) Shanghai's proposed CZM structure

Shi et al. [40] published a proposed CZM structure for Shanghai. As illustrated in figure 6 it is a strictly hierarchical set-up, indicated by the pyramid form of organization. The SOA is situated on top, indicating formal power. A so-called management organization, 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

⁸⁰ Information gathered during a personal interview on the 18 September 2002 with Yang Kailiang, director of the Shanghai Marine Department, Integrative Section.

⁸¹ Information gained through personal communication with anonymous scientists.

would probably be open to support related CZM measures and co-operate with the SOA in case of possible early participation. Also the scientific input happens far too late to be considered an important intervention.

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 organization 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.

VI.3) Xiamen's CZM structure

This structure has been successfully implemented in Xiamen for a couple of years now and illustrates the CZM organization of the first demonstration site for CZM in China (figure 7). The effort was supported in 1994 by international organizations⁸². 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, who is also supervising the Executive Committee.⁸³ The input of the local government and the SOA into the Executive Committee can be considered equal.

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

⁸² These are the Global Environmental Facility (GEF), the United Nations Development Programme (UNDP) and the International Maritime Organization (IMO).

⁸³ 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. [11]. A more recent publication by McCleave et al. [26] informs that the structure has been consolidated in 1999, when the Xiamen demonstration project formally ended.

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 group⁸⁴ directly into the local government that supervises the Executive Committee.

VI.4) Alternatives

a) 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 characterized 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.

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 relativize an established economic lobby such as Shanghai's.

b) 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 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

⁸⁴ 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. [11] describes a one way input of the municipal government into the expert group, whereas McCleave et al. [26, 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.

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.

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 [26], local initiatives organized. 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" [26, p. 70/71].

VII) 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 organization 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.⁸⁵ 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 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 organizational 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

⁸⁵ According to the self-presentation of the agency these are objectives related to functional zoning. The relevant department is the Sea Area Management Department [67] [68]. Compare www.soa.gov.cn/jigou/1/zhize.htm.

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.

Acknowledgements:

The DINAS-COAST project (EVK2-2000-22024) provided welcome financial support. PEMSEA kindly allowed me to participate in the Second Forum of the RNLG in Xiamen. Furthermore, my research would not have been possible without the hospitality of all interviewees in Shanghai and Xiamen, who were so kind to give up part of their valuable time. I very much benefited from comments by Richard Tol and two anonymous reviewers. All errors and opinions are mine.

Appendix: SOA - Structural Set-up

<u>State Oceanic Administration (SOA) – Departments</u>	Department of General Affairs including the Financial Department	办公室 (<i>bangongshi</i>) 财务司 (<i>caiwu si</i>)	
	Department of Marine Environmental Protection	海洋环境保护司 (<i>haiyang huanjing baohu si</i>)	
	Department of International Cooperation	国际合作司 (<i>guoji hezuo si</i>)	
	Department of Sea Area Management	海域管理司 (<i>haiyu guanli si</i>)	

	Department of Science and Technology	科学技术司 (<i>kexue jishu si</i>)	
	Department of Personnel	人事司 (<i>renshi si</i>)	
<i>Additional Departments:</i>	Political Department	机关党委 (<i>jiguan dangwei</i>)	
	Supervision Commissioner	纪委监督专员办公室 (<i>jiwei jiandu zhuanyuan bangongshi</i>)	
	Auditing Bureau	审计办公室 (<i>shenji bangongshi</i>)	
<u>SOA – Subordinated units</u>	Northern Seas Branch	北海分局 (<i>beihai fenju</i>)	Qingdao
	East China Seas Branch	东海分局 (<i>donghai fenju</i>)	Shanghai
	South China Seas Branch	南海分局 (<i>nanghai fenju</i>)	Guangzhou
	First Institute of Oceanography	第一海洋研究所 (<i>diyi haiyang yanjiu suo</i>)	Qingdao
	Second Institute of Oceanography	第二海洋研究所 (<i>dier haiyang yanjiu suo</i>)	Hangzhou
	Third Institute of Oceanography	第三海洋研究所 (<i>disan haiyang yanjiusuo</i>)	Xiamen
	Institute of Polar Research	极地研究所 (<i>jidi yanjiu suo</i>)	Shanghai
	Office of Polar Expedition	极地考察办公室 (<i>jidi kaocha bangongshi</i>)	Beijing
	Institute for Ocean Development Strategy	海洋发展战略研究所 (<i>haiyang fazhan zhanlue yanjiu suo</i>)	Beijing
	Institute for Ocean Technology	海洋技术中心 (<i>haiyang jishu zhongxin</i>)	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 (<i>dayang kuangchan ziyuan yanjiu kaifa xiehui bangongshi</i>)	Beijing
	Institute of Sea Water Desalination and Multipurpose Utilization	海水淡化与综合利用研究所 (<i>haishui danhua yu zonghe liyong yanjiu suo</i>)	Tianjin
	Research and Development Center for Water Treatment Technologies	水外理技术研究开发中心 (<i>shuiwaili jishu yanjiu kaifa zhongxin</i>)	Hangzhou
	Marine Environmental Forecasting Center	海洋环境预报中心 (<i>haiyang huanjing yubao zhongxin</i>)	Beijing
	Marine Environmental Monitoring Center	海洋环境监测中心 (<i>haiyang huanjing jiance zhongxin</i>)	Dalian
	Center of Oceanographic Standards and Metrology	海洋标准计量中心 (<i>haiyang biao zhun jiliang zhongxin</i>)	Tianjin
	Center for Satellite Application in the Oceans	卫星海洋应用中心 (<i>weixing haiyang yingyong zhongxin</i>)	Beijing

	Marine Surveillance Headquarters	海监总队 (<i>haijian zongdui</i>)	Beijing
	Marine Data and Information Service	海洋信息中心 (<i>haiyang xinxi zhongxin</i>)	Tianjin
	Training and Education Center	教育培训中心 (<i>jiaoyu peixun zhongxin</i>)	Beijing
	Secretariat of Chinese Marine-related Societies	学会秘书外 (<i>xuehui mishu wai</i>)	Beijing
	China Ocean Press	海洋出版社 (<i>haiyang chubanshe</i>)	Beijing
	China Ocean News	海洋报社 (<i>haiyang baoshe</i>)	Beijing
<i>Additional units:</i>	Ningbo Ocean School	宁波海洋学校 (<i>ningbo haiyang xuexiao</i>)	Ningbo
	Underwater Technology Institute	海洋水下工程科学研究院 (<i>haiyang shuixia gongcheng kexue yanjiu yuan</i>)	Shanghai
	International Ocean Institute China Operational Center	国际海洋学中国业务中心 (<i>guoji haiyang xueyuan zhongguo yewu zhongxin</i>)	Tianjin
	Ocean Information Association	信息协会海洋分会 (<i>xinxi xiehui haiyang fen hui</i>)	Tianjin
	Centre for Aquaculture Breeding Disease Prevention Technology Development	水产养殖病害防治技术开发中心 (<i>shuichan yangzhi binghai fangzhi jishu kaifa zhongxin</i>)	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 (<i>nanjing daxue haian zu haidao kaifa guojia shiyanshi</i>)	Nanjing University
	Special Committee on Ocean Geography	中国地理学会海洋地理专业委员会 (<i>zhongguo dili xuehui haiyang dili zhuanye weiyuanhui</i>)	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 (<i>zhongguo kexueyuan nantai haiyang yanjiu suo</i>)	
<u>SOA – Local Offices (per administrative unit from North to South)</u>	Marine and Fisheries Department	海洋与渔业厅 (<i>haiyang yu yuye ting</i>)	Liaoning
	Marine Department	海洋局 (<i>haiyang ju</i>)	Dalian
	Marine Department	(<i>haiyang ju</i>)	Hebei
	Marine Department	(<i>haiyang ju</i>)	Tianjin
	Marine and Fisheries Department	(<i>haiyang yu yuye ting</i>)	Shandong
	Marine and Aquatic Products Department	海洋与水产局 (<i>haiyang yu shuichan ju</i>)	Qingdao
	Marine and Fisheries Department	(<i>haiyang yu yuye ju</i>)	Jiangsu

	Marine Department	(<i>haiyang ju</i>)	Shanghai
	Marine and Fisheries Department	(<i>haiyang yu yuye ju</i>)	Zhejiang
	Marine and Aquatic Products Department	(<i>haiyang yu shuichan ju</i>)	Ningbo
	Marine and Fisheries Department	(<i>haiyang yu yuye ju</i>)	Fujian
	Bureau for Ocean Management	海洋管理办公室 (<i>haiyang guanli bangongshi</i>)	Xiamen
	Marine and Fisheries Department	(<i>haiyang yu yuye ju</i>)	Guangdong
	Marine Department	(<i>haiyang ju</i>)	Guangxi
	Marine and Fisheries Department	(<i>haiyang yu yuye ting</i>)	Hainan
<i>Additional Department:</i>	Bureau for River and Land Exploitation and Planning	图们江地区开发领导小组办公室) (<i>tumenjiang diqu kaifa lingdao xiaozu bangongshi</i>)	Jilin

No distinction is made between *ju* 局 and *ting* 厅 as departments, whereas *bangongshi* 办公室 is translated as bureau.

References:

- [1] Heilmann S. Das politische System der Volksrepublik China. Wiesbaden: Westdeutscher Verlag, 2002. p. 164-167.
- [2] Holbig H. Lokalverwaltung in der VR China – Zum Wandel parteistaatlicher Kontrollstrukturen seit 1979. CHINA aktuell 2001; 2: 1215-1228.
- [3] World Coast Conference 1993: Proceedings. Volumes 1 and 2. CZM-Centre Publication No.4. Den Haag, 1993.
- [4] Du BL. Preliminary Vulnerability Assessment of Chinese Coastal Zone due to Sea Level Rise. In: World Coast Conference 1993: Proceedings, Volume II. CZM-Centre Publication No.4. Den Haag, 1993. p. 569-575.
- [5] NOAA: China - ICM Country Profile. www.icm.noaa.gov/country/China.html (last viewed: 11 July 2002).
- [6] The Administrative Center for China's Agenda 21: 5-10 Integrated Management of China's Coastal Zone. www.acca21.org.cn/ppc21n5-10.html (last viewed: 1 October 2004)
- [7] State Oceanic Administration. China Ocean Agenda 21: COA 21. Beijing: China Ocean Press, 1996.
- [8] China Daily. Rising Sea Levels Cause Concern. 12 April 2001. www.china.org.cn/english/2001/Apr/11050.htm (last viewed: 8 December 2002).
- [9] Nicholls RJ, Leatherman SP. Sea Level Rise and Coastal Management. In: McGregor D, Thompson D, editors. Geomorphology and Land Management in a Changing Environment. Chichester: John Wiley and Sons, 1995. p. 229-244.
- [10] Awosika L, Boromthananat S, Cornforth R, Hendry M, Koudstaal R, Ridgley M,

- Sørensen J, de Vrees L, Westmacott S. Management arrangements for the development and implementation of coastal zone management programmes. In: World Coast Conference 1993: Proceedings, Volume 1. CZM-Centre Publication No. 4. Den Haag, 1993. p. 107-179.
- [11] Chua T-E, Yu H, Chen G. From sectoral to integrated coastal management: a case in Xiamen, China. *Ocean and Coastal Management* 1997; 37 (1): 233-251.
- [12] State Council of the PRC. China's Agenda 21 – White Paper on China's Population, Environment, and Development in the 21st Century. Beijing: China Environmental Science Press, 1994.
- [13] Hinrichsen D. Coasts in crisis. 1995.
www.aas.org/international/ehn/fisheries/hinrichs.htm (last viewed: 17 January 2003).
- [14] Hinrichsen D. The Northwest Pacific – Sea Dragons Ascending. In: Hinrichsen D, editor. *Coastal Waters of the World – Trends, Threats and Strategies*. Washington D.C.: Island Press, 1998. p. 147-155.
- [15] Shi C, Hutchinson SM, Xu S. Evaluation of coastal zone sustainability: an integrated approach applied in Shanghai Municipality and Chong Ming Island. *Ocean and Coastal Management* 2004; 71: 335-344.
- [16] Zuckerman AS. *Doing Political Science – An Introduction to Political Analysis*. Boulder: Westview Press, 1991.
- [17] Ball AR. *Modern Politics and Government*. Fifth Edition. London: Macmillan Press Ltd., 1993.
- [18] Simon HA. *Administrative Behaviour*, 2nd ed. New York and London: The Free Press and Collier-MacMillan Ltd., 1965.
- [19] Knoke D. *Political Networks – The Structural Perspective*. Cambridge: Cambridge University Press, 1990.
- [20] Lieberthal K, Oksenberg M. *Policy Making in China – Leaders, Structures, and Processes*. Princeton: Princeton University Press, 1990.
- [21] Lieberthal KG, Lampton DM. *Bureaucracy, Politics, and Decision Making in Post-Mao China*. Berkeley, Los Angeles and Oxford: University of California Press, 1992.
- [22] Papadakis E. *Environmental Politics and Institutional Change*, Cambridge: Cambridge University Press, 1996.
- [23] Lane J-E, Ersson S. *The New Institutional Politics – Performances and Outcomes*. London and New York: Routledge, 2000.
- [24] Windhoff-Héritier A.. *Political Choice – Institutions, Rules, and the Limits of Rationality*. Frankfurt am Main and Boulder, Colorado: Campus Verlag and Westview Press, 1991.
- [25] Hamrin CL, Zhao SS, editors. *Decision-making in Deng's China – Perspectives from Insiders*. New York and London: M.E. Sharpe, 1995.
- [26] McCleave J, Xue X, Hong H. Lessons learned from 'decentralized' ICM: an analysis of Canada's Atlantic Coastal Action Program and China's Xiamen ICM Program. *Ocean and Coastal Management* 2003; 46 : 59-76.
- [27] World Bank. *The Noordwijk Guidelines*. In: World Coast Conference 1993. Volume II. CZM-Centre Publication No.4. Den Haag, 1993. p. 705-714.
- [28] Intergovernmental Panel on Climate Change. *Preparing to Meet the Coastal Challenges of the 21st Century*, Conference Report for the World Coast Conference (1-5 November

- 1993), 1994.
- [29] Winsemius P. Integration is necessary for Coastal Zone Management. In: World Coast Conference 1993. Proceedings. Volumes 1. CZM-Centre Publication No.4. Den Haag, 1993. p. 417-423.
- [30] French P. Coastal and estuarine management. London: Routledge, 2002. p. 188-219.
- [31] Vallega A. Fundamentals of Integrated Coastal Management. Dordrecht: Kluwer Academic Publishers, 1999.
- [32] UNESCAP (United Nations Economic and Social Commission for Asia and the Pacific). Towards integrated coastal zone management in Asia. New York, 1995.
- [33] UNESCAP (United Nations Economic and Social Commission for Asia and the Pacific). Stakeholder Participation & Consensus Building for Integrated Coastal Zone Management, Draft Consultant Report. September 14, 1998.
- [34] Zhang GC. Coastal Zone Management in China. In: World Coast Conference 1993: Proceedings, Volume II. CZM-Centre Publication No.4. Den Haag, 1993. p.733-740.
- [35] Wang Y. Coastal Management in China. In: Fabbri P, editor. Ocean Management in Global Change. London: Elsevier Applied Science, 1992. p. 460-469.
- [36] Wang Y. China. In: Hotta K, Dutton IM. Coastal Management in the Asia-Pacific Region: Issues and Approaches. Tokyo: Japan International Marine Science and Technology Federation, 1995. p. 177-186.
- [37] Dong A. 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.
- [38] GEF, UNDP, IMO. 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, 1997.
- [39] GEF, UNDP, IMO. 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, 1997.
- [40] Shi C, Hutchinson SM, Yu L, Xu S. Towards a sustainable coast: an integrated coastal zone management framework for Shanghai, People's Republic of China. *Ocean and Coastal Management* 2001; 44 : 411- 427.
- [41] Buen J. 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, 2001. www.pnl.gov/chian/Hovedop.pdf (last viewed: 15 January 2003)
- [42] Zhao SQ. Physical Geography of China. Beijing, N.Y: Science Press, John Wiley & Sons, 1986.
- [43] Ren M-E. Modern Sedimentation in the Coastal and Nearshore Zones of China. Beijing, Berlin: China Ocean Press, Springer-Verlag, 1986.
- [44] Xinhuanet. 1-3 Natural Resources. <http://202.84.17.11/english/statis/141541461.htm> (last viewed 17 January, 2003).

- [45] CIA. The World Factbook 2002. www.cia.gov/cia/publications/factbook/geos/ch.html (last viewed: 22 January 2003).
- [46] World Resources Institute. http://earthtrends.wri.org/pdf_library/country_profiles/Coa_cou_156.pdf (last viewed 24 March, 2003).
- [47] State Council of the PRC. Development of China's Marine Programs. 1998. www.lib.noaa.gov/china/programs.htm (last viewed: 22 April 2003).
- [48] LOICZ. www.nioz.nl/loicz (last viewed 20 April 2003).
- [49] Xinhuanet. 1-3 Natural Resources. <http://202.84.17.11/english/statis/141541462.htm> (last viewed 17 January, 2003).
- [50] UNCLOS. www.unclos.com (last viewed: 22 February 2003).
- [51] People's Republic of China. State Oceanic Administration – Zhonghua Renmin Gongheguo Guojia Haiyangju". Brochure (bi-lingual), 2002.
- [52] China Population Information and Research Centre. www.cpirc.org.cn/e5cendata1.htm (last viewed: 20 December 2002).
- [53] Center for International Earth Science Information Network (CIESIN). China County Population Data. China Dimensions. Columbia University. <http://sedac.ciesin.org>.
- [54] Nicholls R, Small C. New Estimates of 'Near-Coastal' Population: Implication for Hazard Exposure and Mitigation. Paper submitted to EOS TRANSACTIONS. American geophysical Union, 2002.
- [55] Li Z. Spatiality and Urban Citizenship in Late Socialist China. Public Culture 2002; 14 (2). www.uchicago.edu/research/jnl-pub-cult/backissues/pc37/zhang.html (last viewed: 22 April 2003).
- [56] China Daily. 18 September 2000. Cited by: China Internet Information Centre. www.china.org.cn/e-15/15-3-o/15-3-o-7.htm (last viewed: 22 April 2003).
- [57] Ministry of Land and Resources. www.mlr.gov.cn/project/querystat/multidocview_eng.jsp?ICID=2002-11-26-1878956077 (last viewed: 20 November 2002).
- [58] Asia-Pacific Economic Cooperation (2004): Economic Value of Marine Sectors in China. 2004/IOM FIII/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).
- [59] Ocean Information Network. 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).
- [60] Galbraith JK, Lu JQ. 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).
- [61] Yeung Y, Hu X. Conclusions and Synthesis. In: Yeung Y, Hu X, editors. China's Coastal Cities – Catalysts for Modernization. Honolulu: University of Hawaii Press, 1992.

- [62] China Internet Information Center. www.china.org.cn/e-china/openingup/sez.htm (last viewed: 15 November 2002).
- [63] Transnationale. www.transnationale.org/anglais/pays/CHN.htm (last viewed: 15 November 2002).
- [64] China Daily. www.chinadaily.com.cn/news/2002-03-21/62013.html (last viewed: 16 November 2002).
- [65] Abaza H, Baranzini A, editors. Implementing Sustainable Development – Integrated Assessment and Participatory Decision-making Processes. United Nations Environment Programme. Cheltenham: Edward Elgar Publishers, 2002.
- [66] Wang SG. 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.
- [67] Xue XZ, Hong HS, Charles AT. Cumulative environmental impacts and integrated coastal zone management: the case of Xiamen, China. *Journal of Environmental Management* 2004; 71: 271-283.
- [68] People's Daily. China Sets up Marine Functional Zones. 10 September 2002. http://english.people.com.cn/200209/10/print2002910_102974.html (last viewed: 1 October 2004).
- [69] Zhong ZR. Natural resources planning, management, and sustainable use in China. *Resources Policy* 1999; 25 : 211-220.
- [70] State of Victoria. Coastal Management Act 1995. Act No. 8/1995. Reprint No. 1. Melbourne: Anstat Pty, 1999.
- [71] State Council of the PRC. 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: 24 April 2003).
- [72] State Council of the PRC. 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 26 June 2002).
- [73] State Council of the PRC. Law of the People's Republic of China on the Use and Management of Sea Areas (Zhonghua Renmin Gongheguo Haiyu Shiyong Guanli Fa). Adopted 27 October 2001. Beijing: Haiyang chubanshe, 2001.
- [74] State Council of the PRC. 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).
- [75] State Council of the PRC. Marine Environmental Protection Law of the People's Republic of China. Adopted 1 March 1983. www.novexc.com/marine_environmental_prot.html (last viewed: 12 August 2002).
- [76] Jiao YK, Ruan CL, Yu HM. The New Marine Environmental Protection Law of the People's Republic of China. *Tropical Coasts* 2000 7 (2) : 24-31.
- [77] Kinzelbach W. Probleme und Tendenzen in der Praxis des Umweltschutzes in China. In: Glaeser B, editor. *Umweltpolitik in China – Modernisierung und Umwelt in Industrie, Landwirtschaft und Energieerzeugung*. Bochum: Studienverlag Brockmeyer, 1983. p. 399-

415.

- [78] Hong HS, Xue XZ. 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.
- [79] Yu HM. ICM Institutional Arrangements – Some Practical Considerations. Paper presented at: Sharing Lessons Learned in Sustainable Coastal Development, Xiamen, PRC, 21 September 2002. Congress material.
- [80] Ministry of Land and Resources. www.mlr.gov.cn/mlrintro/sanding/htm, www.mlr.gov.cn/mlrintro/structure.jsp (last viewed: 30 January 2003).
- [81] Oceanic Information Network. www.coi.gov.cn (last viewed: 22 April 2003).
- [82] Simard F. Marine Region 16: Northwest Pacific. A Report to the World Bank Environment Department. 1995. <http://erin.gov.au/coasts/mpa/nrsmmpa/global/volume4/pubs/v4chap16.pdf> (last viewed: 24 April 2003).
- [83] Li HQ. 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.
- [84] Gottwald JC, Kirchberger S. Modernisierung unter Vorbehalt – Zur inneren Entwicklung der Volksrepublik China. China Analysis No. 6. Center for East Asian and Pacific Studies. Trier University, 2001. www.chinapolitik.de/china/pubs/china_polsys/innenpolitik_china.pdf (last viewed: 10 January 2003).
- [85] Lü XB. Cadres and Corruption – The Organizational Involution of the Chinese Communist Party. California: Stanford University Press, 2000.
- [86] Chow KW. Conceptualizing Administrative Organization in China. In: Nagels SS, Mills MK, editors. Public Administration in China. Contribution in Political Sciences No. 323. London, Westport: Greenwood Press, 1993. p. 31-47.
- [87] Gold T, Guthrie D, Wank D. Social Connections in China – Institutions, Culture, and the Changing Nature of Guanxi. Structural Analysis in the Social Sciences, No. 21. Cambridge: Cambridge University Press, 2002.
- [88] Heilmann S. Das politische System der Volksrepublik China im Überblick. 1999. www.chinapolitik.de/china/pubs/china_polsys/polsys1.pdf (last viewed: 10 January 2003).
- [89] Heilmann S, Kirchberger S. The Chinese Nomenklatura in Transition. China Analysis No. 1. Center for East Asian and Pacific Studies. Trier University, 2000. www.chinapolitik.de/china/pubs/china_polsys/innenpolitik_china.pdf (last viewed: 10 January 2003).
- [90] Zhao C. The Central Government and Local Authorities During Transition Period. In: Advances in Chinese Social Sciences 2001. [http://notesweb.uni-wh.de/wg/wiwi/wgwiwi.nsf/vwFiles/scc_central/\\$FILE/Central.pdf](http://notesweb.uni-wh.de/wg/wiwi/wgwiwi.nsf/vwFiles/scc_central/$FILE/Central.pdf) (last viewed: 22 April 2003).
- [91] Huai Y. Organizational Hierarchy and the Cadre Management System. In: Hamrin CL, Zhao SS,

- editors. *Decision-making in Deng's China – Perspectives from Insiders*. New York and London: M.E. Sharpe, 1995. p. 39-50.
- [92] Heilmann S. Das politische System der Volksrepublik China im Wandel. *Mitteilungen des Instituts für Asienkunde*, Nr. 265. Hamburg, 1996.
- [93] Lieberthal K. China's Governing System and Its Impact on Environmental Policy Implementation. *China Environment Series* 1997; 1: 3-8.
- [94] Lieberthal K. *Governing China – From Revolution Through Reform*. New York and London: W.W. Norton & Company, Inc., 1995.
- [95] Liu J. Die Reorganisation von Ministerien und Kommissionen im Verlauf der Strukturreformen des Staatsrats der VR China. *CHINA aktuell* 2001; 7: 762-780.
- [96] Headline 7. Pläne für weitere Straffung der Staatsorgane. *CHINA aktuell* 2003; 1: 7-9.
- [97] Heilmann S. Die Reorganisation der chinesischen Zentralregierung 1998.
www.chinapolitik.de/china/pubs/china_polsys/polsys2.pdf (last viewed: 4 January 2003).
- [98] Schier P. Die 1. Tagung des VIII. Nationalen Volkskongresses. Teil II. *CHINA aktuell* 1993; 5: 454-459.
- [99] China Monthly Data. *CHINA aktuell* 1993; 6: 604-605.
- [100] Headline 8. Weitere Beschlüsse zur Reform der Staatsorgane. *CHINA aktuell* 1993; 7: 640-642.
- [101] China Monthly Data. *CHINA aktuell* 1993; 7: 711-713.
- [102] State Oceanic Administration. www.soa.gov.cn (last viewed: 11 April 2003).
- [103] Ministry of Science and Technology. www.most.gov.cn (last viewed: 11 April 2003).
- [104] Chinese Academy of Sciences. www.cas.ac.cn (last viewed: 22 April 2003).
- [105] Ministry of Land and Resources. www.mlr.gov.cn (last viewed: 10 April 2003).
- [106] State Environmental Protection Administration. www.sepa.gov.cn (last viewed: 8 April 2003).
- [107] National Bureau of Forestry. www.forestry.gov.cn (last viewed: 2 April 2003).
- [108] Ministry of Agriculture. www.agri.gov.cn (last viewed: 11 April 2003).
- [109] Ministry of Water Resources. www.mwr.gov.cn (last viewed: 2 April 2003).
- [110] Ministry of Construction. www.cin.gov.cn (last viewed: 11 April 2003).
- [111] National Tourism Administration. www.cnta.com (last viewed: 2 April 2003).
- [112] Economic and Trade Commission. www.setc.gov.cn (last viewed: 8 April 2003).
- [113] Development Planning Commission. www.sdpc.gov.cn (last viewed: 8 April 2003).
- [114] Maritime Safety Administration. www.msa.gov.cn (last viewed: 2 April 2003).
- [115] Ministry of Communication. www.moc.gov.cn (last viewed: 8 April 2003).
- [116] Ramsar. www.ramsar.org. (Last viewed: 5 March 2003).



Beihai: Open coastal cities
 // // // // : Economic regions

Figure 1: Administrative map of China's coast with Open Coastal Cities and economic regions

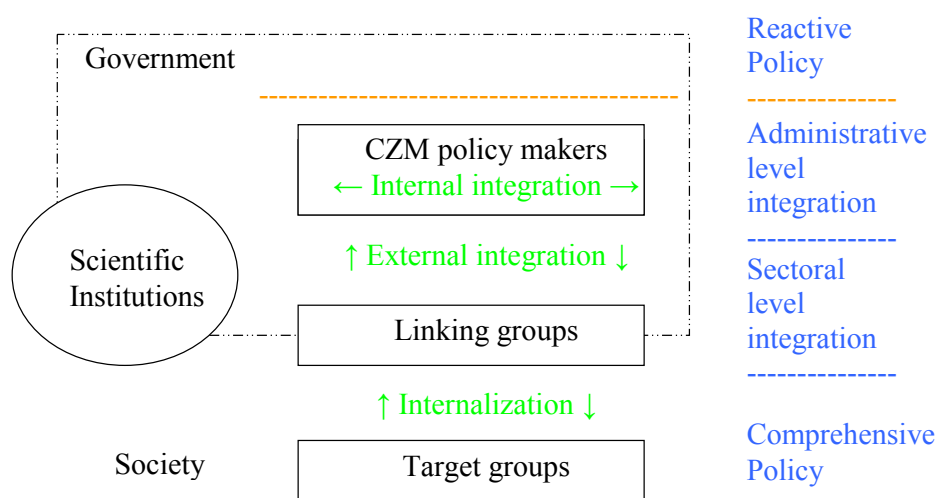


Figure 2: CZM development stages (adapted from Winsemius [29], figures 1 and 2)

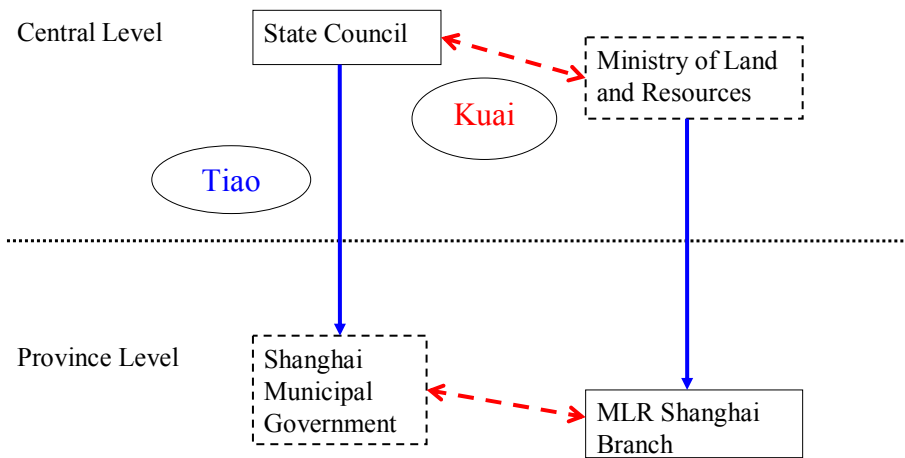


Figure 3: The *Kuai-tiao*-System (adapted from Lieberthal [93], chart 2)

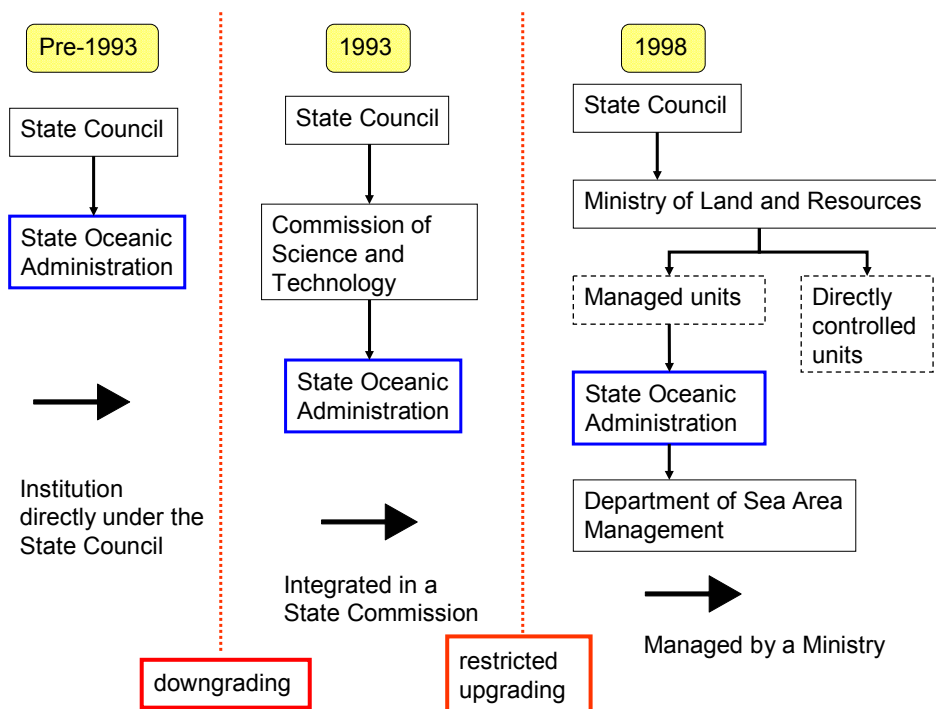


Figure 4: SOA structural development

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 5: CZM responsibility overlap

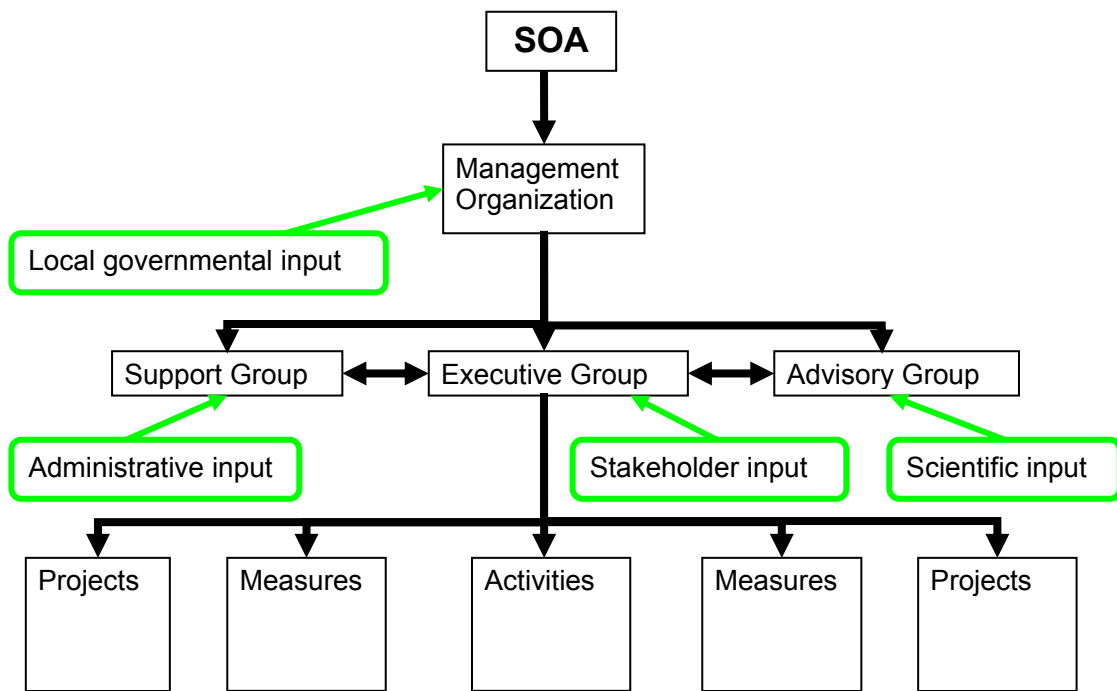


Figure 6: Shanghai proposed ICZM structure (simplified from Shi et al. [40], figure 2)

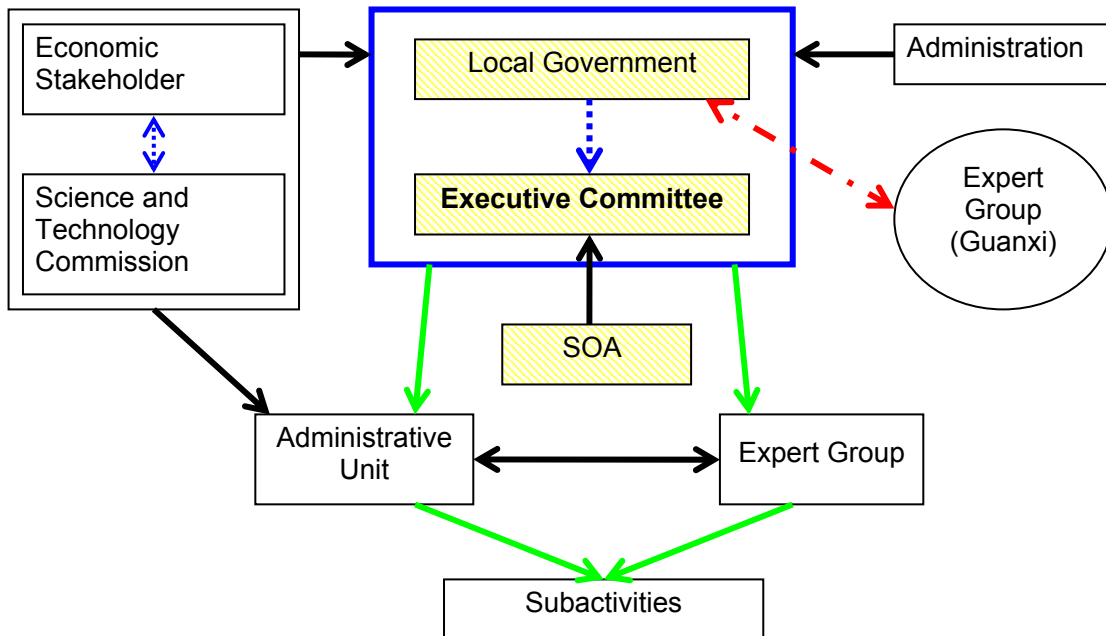


Figure 7: Xiamen ICZM structure (simplified from Chua [11], figure 3)

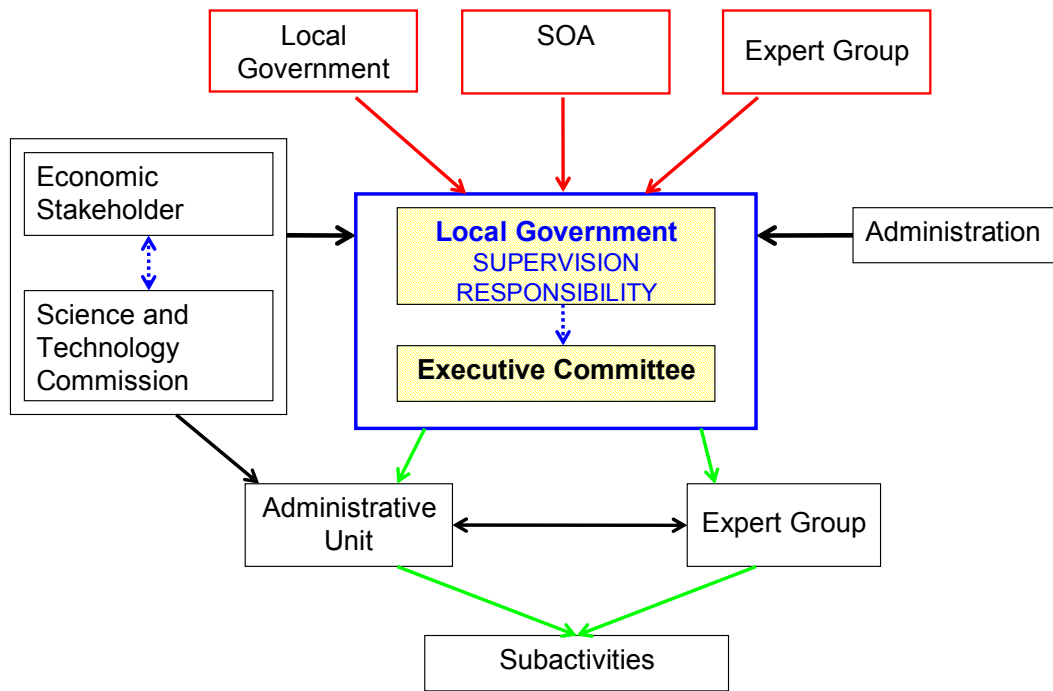


Figure 8: Modified ICZM structure