

**Governing Marine Protected Areas (MPAs) in China:
Towards the Repositioning of the Central State and the
Empowerment of Local Communities**

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Declaration

I, Wanfei Qiu, confirm that the work presented in this thesis is my own.
Where information has been derived from other sources, I confirm that this
has been indicated in the thesis.

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Abstract

There are growing academic and policy debates on how best to govern MPAs, concerning the benefits and risks of different governance approaches and instruments. This echoes the broader debates on the roles of state hierarchies, markets, and community participation in governing societal affairs. This study investigates the roles of different actors involved in governing MPAs, and the strengths and weaknesses of MPA governance in China.

The research questions are addressed through three detailed case studies. Despite some variations, the three case study MPAs show major similarities in governance structure. In all three cases, the attitudes of key actors towards biodiversity conservation and their influences on MPA decision-making can be characterised by:

- 1) an unenthusiastic state, which often adopts a non-interventionist strategy in MPA management and law enforcement, as long as the MPAs exist on paper;
- 2) corporatised local governments, which are keen to influence and dominate MPA decision-making and law enforcement to promote economic development;
- 3) a growing private sector, which can both strengthen or undermine MPA governance by forming alliances with government institutions; and
- 4) silent local communities, whose influence on MPA governance has been very limited.

In addressing the key conflicts in governing MPAs in China, the use of economic instruments appears to be the most important steering mechanism. Both state steering and community participation are used less effectively. Overall, the imbalance of power in governing MPAs and the over-reliance on market-based

approaches arguably leads to failures in protecting the interests of biodiversity and local communities. Restoring the balance of power in MPA governance in China may therefore mean repositioning the central state and empowering local communities, which will allow diversified and balanced use of different steering mechanisms. Returning to a balance of power will also provide for more effective and equitable governance outcomes.

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1

Introduction

1.1 Protected areas as a cornerstone for biodiversity conservation

Protected areas have been established worldwide to conserve nature in response to the rapid decline in natural resources and biodiversity. A protected area is ‘*a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values*’ (Dudley 2008: 8). Protected areas vary widely in their purposes and management strategies, but together they form a cornerstone in international and national conservation policies (Dudley 2008; UNEP-WCMC 2008). They have also become one of the most important types of land use on the planet. The World Database on Protected Areas (WDPA) records over 120, 000 sites, which cover 12.2% of the earth’s land area (UNEP-WCMC 2008).

The progress in designating marine protected areas (MPAs) lags far behind their terrestrial counterparts. Only 0.65% of the world’s oceans and 1.6% of the total marine area within all nations’ Exclusive Economic Zones are protected within MPAs, despite the global targets to protect 10-30% of the oceans by 2010-2012, as set by the Convention on Biological Diversity and at the Vth World Parks Congress (Wood 2008). Furthermore, many designated MPA sites have a low management effectiveness, due to various constraints such as a lack of funding, expertise and public support, insufficient data and information for decision-making, and inadequate commitment to the enforcement of relevant rules and regulations (Kelleher et al. 1995; Alder 1996). Designing appropriate governance arrangements is a central challenge in MPA initiatives (Jones and

Burgess 2005; Jones 2006).

1.2 Debates in conservation governance

The meaning of governance has undergone some major changes in history, from its ancient Greek precursor *Kubernan* (to steer), first used by Plato, to its diverse modern interpretations that may refer to anything from the exercising of government authority, the formation of policy networks to ‘governing without government’ (Kjær 2004). To date there has been no universally agreed definition of governance (Stoker 1998), which is a reflection of the diverse array of governing styles and modes of governance in different societies and policy areas.

The interest in governance in relation to biodiversity conservation and natural resource management is perhaps stimulated by Garrett Hardin’s highly influential article ‘The Tragedy of Commons’, in which he envisioned the ruin of the environment and natural resource base in a society that ‘*believes in the freedom of the commons*’ (Hardin 1968: 1244). Since then, the evolution of thinking on conservation governance has received impetus from advancements in various areas of scholarship, including the study on common-pool resource institutions (Ostrom 1990; Baland and Platteau 1996; Ostrom et al. 2002), the socio-economic impacts of protected areas on indigenous communities (West and Brechin 1990; Brockington and Schmidt-Soltau 2004; West et al. 2006), the economic valuation of nature, biodiversity and ecosystem services (Costanza et al. 1997; Daily et al. 2000), and the adoption of a holistic ecosystem approach to nature conservation (Grumbine 1994; Slocombe 1998; Browman and Stergiou 2005).

In the policy community, it has been widely recognised that governance affects the effectiveness of protected areas and other environmental policy initiatives (Borrini-Feyerabend 2003). The Vth World Parks Congress recommends governments and civil society to adopt ‘legitimacy and voice’, ‘accountability’,

‘performance’, ‘fairness’ and ‘direction’ as general principles of ‘good governance’ for protected areas, and to recognize the importance and legitimacy of the different governance types (WPC Recommendation V16 and 17, IUCN 2005). Governments and civil society organisations have embraced the recommendations from the scientific and policy communities, as reflected in the substantial changes in protected area governance across the world towards increased participation from a wider range of stakeholders (Dearden et al. 2005).

Despite these developments, debates on how best to govern protected areas and natural resource management continue. The relative importance of the state, communities, and the ‘invisible hands’ of the market in governing conservation initiatives has been the centre of such debates. Some see community empowerment and participation as the ultimate solution to conservation problems (*e.g.* Hutton et al. 2005); some see embracing market forces and rationalising protected area management as a fundamental requirement for modern conservation (*e.g.* Inamdar et al. 1999), while others call for abandoning new paradigms and returning to active enforcement of parks (*e.g.* Terborgh 1999), or granting communities with both autonomy and access to markets, with the state only playing a facilitating role (*e.g.* Ostrom et al. 2002). Efforts to close the divides between conservation paradigms and to reconcile different approaches have been limited, as Bawa et al. (2004: 859) describe ‘*over the last few decades we have seen a succession of generalized, monolithic conservation models replacing one another or competing with one another for attention and resources*’.

The debate on protected area governance is particularly relevant to the study of marine protected areas (MPAs) in China. As in other countries, conservation and natural resource governance in China has undergone major changes and shifts over the past few decades, as the country emerged from a much more centralised regime (Xu and Melick 2007; Qiu et al. 2009). This is taking place in the context

of the wider Chinese society taking major steps in reforming the public administration and economic systems, with the key emphasis being on decentralisation and liberalising market forces (Harvey 2005; Liew 2005). However, the political system and the ‘party-state’ have remained relatively untouched during the series of reforms, leading to the formation of the so called ‘socialist market economy’ (Deng 1984), or government-controlled economic liberalisation. This unique ‘social experiment’ has in many ways inherited or even intensified the main conflicts in traditional Chinese society, for example, between the central executive and the periphery, between economic growth and social equity, and between development and environment. Managing MPAs in China is heavily influenced by these driving forces of social change in the wider society, which give rise to complex and often contested people-park relationships (Jim and Xu 2004; Xu and Melick 2007). The Chinese government has designated more than 2,000 protected areas that altogether cover 15% of the country’s territorial area. It has, however, often been more concerned with the numbers and total area of nature reserves rather than their effectiveness (Xu and Melick 2007). Detailed empirical studies on how MPAs are governed can shed light on the strengths and weaknesses of different governance approaches in an emerging country with an ever-increasing population and economic pressure as well as incomplete, ongoing institutional reforms.

1.3 Research aims and questions

Drawing on a range of different theories and schools of thoughts, this study aims to develop an understanding of how MPAs are governed in China and how different steering mechanisms are being used to address the key conflicts encountered in MPA management. The discussion is driven mainly by empirical case studies. The research questions addressed in this thesis are:

- 1) How are MPAs governed in China? What are the roles and influences of

different actors and the power relationships between them?

- 2) What are the key social impacts on local communities as a result of MPA establishment, in terms of equity and stewardship of natural resources?
- 3) How are different steering mechanisms being used to resolve related conflicts? What are the resulting characteristics, strengths and weaknesses of MPA governance in China?
- 4) What can be done to improve MPA governance and to achieve a better balance of power in order to govern MPAs in a more effective and equitable way in China?

1.4 Definitions of key terms

This study adopts a more traditional definition of governance, that is, **governance is about steering decisions and behaviours amongst various actors in the pursuit of societal interests**. This definition allows for case-specific interpretations of governance in different contexts. As such it remains open to two key questions in the study of governance: who gets to steer the process and how best can it be steered in a specific context?

Steering *'implies the need for overall strategic management, goal setting, coordination and control of specific governance arrangements'* (Bell and Hindmoor 2009: 47).

Institutions refer to *'a complex of positions, roles, norms and values lodged in particular types of social structures and organising relatively stable patterns of human activity with respect to fundamental problems in producing life-sustaining resources, in reproducing individuals, and in sustaining viable societal structures within a given environment'* (Turner 1997: 6). In contemporary sociology the term often refers to complex social forms that sustain themselves such as governments, the family, human languages, universities, hospitals, business corporations and

legal systems (Miller 2008).

Decentralisation is defined as *‘the transfer of authority and responsibility for public functions from the central government to subordinate or quasi-independent government organizations or the private sector’* (Litvack and Seddon 2000). There are different forms of decentralisation: political, administrative, fiscal and market decentralisation. Political decentralisation gives citizens and their elected representatives more power in public decision-making. Administrative decentralisation seeks to redistribute authority, responsibility and financial resources for providing public services among different levels of government. Fiscal decentralisation involves the transfer of authority in collecting taxes and revenues and in making expenditure decisions. Market or economic decentralisation is considered as the most complete form of decentralisation, which is about privatization, deregulation and the shifting of responsibility for functions from the public to the private sector (*ibid*). In China, decentralisation usually takes the form of administrative and fiscal decentralisation. It is also important to distinguish between decentralisation and devolution. Decentralisation is the situation in which important policies and decisions are made by the central government but are administrated and implemented by sub-national governments. Devolution refers to the transfer of maximum decision-making power to sub-national governments (Oxhorn 2004). In China, true devolution is rare, as the central government still retains a concentration of decision-making power, including the power to appoint or remove key local officials, as discussed in Chapter 3.

Empowerment refers to an *‘ongoing process centered in the local community, involving mutual respect, critical reflection, caring, and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources’* (Cornell Empowerment Group 1989, cited in Perkins and Zimmerman 1995).

Stewardship refers to *'efforts to create, nurture, and enable responsibility in landowners and resource users to manage and protect land and its natural and cultural heritage'*, or simply *'people taking care of the Earth'* (Brown and Mitchell 2000: 73).

1.5 Thesis structure

The following chapters of the thesis can be divided into four parts. The first part is a review of theories and literature relevant to this study. Chapter 2 starts with an introduction to the concept of governance and different modes of governance, as well as the different perspectives on state-market-community relationships in governing socio-economic development. This is then followed by a review of parallel developments in the scholarship of protected area governance, focusing on theoretic underpinnings of different governance approaches, and their strengths and limitations in biodiversity conservation. Chapter 3 starts with an outline of the historical changes in governance in China, from governance traditions in the imperial period to its current form. Next, the key reforms undertaken in the post-1979 period are examined, as well as the main driving forces of social and institutional change during this period. This is followed by a review of policy and regulatory frameworks for MPA management in China, as well as its administrative system.

The second part of the thesis provides a focus on the methodology and research methods employed in this study. Chapter 4 contains a description on why and how the case studies were chosen for this study, and different methods used to collect and analyse information and data.

The third part of the thesis provides an outline of the case studies. Chapters 5-7 follow a similar structure in discussing each of the three case studies. Each of the

case study chapters starts with an introduction to the biogeographical and socio-economic background, and the rules and regulations governing the management of the MPA. This is followed by an examination of the existing resource uses within the MPA, how effectively they are being managed, and the potential ecological impacts. Next, the specific roles and influences of key actors in governing the MPA are explored. This leads to a discussion on the direct and indirect impacts on community stewardship and equity of MPA establishments. Finally, each of the three case study chapters ends with a concluding section, with summaries of the characteristics of MPA governance, and the strengths and weaknesses in the use of different steering mechanisms in governing the MPA. Building on the discussions in Chapters 5-7, the differences and similarities in the three case studies are explored in Chapter 8, focusing on the main driving forces, governance structures and steering mechanisms used to address the key conflicts in governing MPAs. This is followed by a discussion on the measures that are needed to improve MPA governance in the future and the need to reconcile the strengths of different conservation approaches.

The last part of this thesis is the conclusion (Chapter 9), which highlights the key findings, reflections and recommendations from this study.

2

Debates on governance and governance of protected areas

Overview

Most protected areas have well defined geographic boundaries that separate them from surrounding areas on maps. In reality, however, they are rarely immune to external forces that drive the social and economic changes in the wider society. Protected areas are not isolated islands in either ecological or social terms; they are embedded in the complex social and political settings of a society. Therefore before going into the discussions of protected area governance, the general governance literature will be reviewed in this chapter as an overarching framework.

The first section of this chapter provides a brief introduction to the various definitions of governance. The second section gives an introduction to the four modes of governance: governance as hierarchies, markets, networks and communities. The third section is an outline of different schools of thoughts on the relationships between state, market and community institutions in influencing social norms and steering socio-economic development. Drawing on the governance literature, parallel paradigm shifts in conservation and protected area governance is reviewed in the fourth section, from the traditional ‘fortress conservation’ approach to the increasing importance of community, market and collaborative management institutions in governing protected areas. Finally, in the fifth section of this chapter, attempts to close the divides between the paradigms and to reconcile different governance approaches will be explored.

2.1 Definitions of governance

The use of the term governance has a long history. As Pierre and Peters (2000) noted, the term of governance is not new, but what is new are recent changes of its meanings. It originated from the Greek verb *kubernan* (to steer or pilot) and was used by Plato with regard to how to design a system of rule. The Greek term gave rise to the Medieval Latin *gubernare*, also referring to steering or piloting (Kjær 2004). It is generally accepted that the traditional use of governance is synonymous to government, which refers to the formal institutions of the state and their monopoly of legitimate coercive power (Stoker 1998). Modern definitions of governance recognize the increasing influence of private sector and civil society in governing societal affairs (Kjær 2004). There is no universal definition of governance. Below are some examples for definitions of governance.

Kooiman (1993: 2) states that governing means *'all activities of social, political and administrative actors that can be seen as purposeful efforts to guide, steer, control or manage societies'* and governance is *'the patterns that emerge from governing activities of social, political and administrative actors'*.

Rhodes (1997:15) outlines that *'governance refers to self-organizing, interorganizational networks characterized by interdependence, resource-exchange, rules of the game, and significant autonomy from the state'*.

Stoker (1998:17) defines governance as *'ultimately concerned with creating the conditions for order rule and collective action'* and *'governance refers to the development of governing styles in which boundaries between the public and private sectors have become blurred'*. There are five propositions as complementary areas to be considered under the governance framework:

1. Governance refers to a set of institutions and actors that are drawn for tackling

social and economic issues.

2. Governance identifies the blurring of boundaries and responsibilities for tackling social and economic issues.
3. Governance identifies the power dependence involved in the relationships between institutions involved in collective action.
4. Governance is about autonomous self-governing networks of actors.
5. Governance recognizes the capacity to get things done which does not rest on the power of government to command or use its authority. It sees government as able to use new tools and techniques to steer and guide.

The World Bank defines governance as *'the traditions and institutions by which authority in a country is exercised for social and economic development'* (Kaufmann et al. 1999: 1). Governance is considered to include three areas: 1) the process by which governments are selected, monitored and replaced, 2) the capacity of government to effectively formulate and implement sound policies, and 3) the respect of citizens and the state for institutions that govern economic and social interactions among them.

Hyden (1999: 185) views governance as *'the stewardship of formal and informal political rules of the game. Governance refers to those measures that involve setting the rules for the exercise of power and settling conflicts over such rules'*.

According to Pierre (2000: 2), *'governance refers to sustaining co-ordination and coherence among a wide variety of actors with different purposes and objectives such as political actors and institutions, corporate interests, civil society, and transnational organizations'*.

Bell and Hindmoor (2009: 2) adopt a state-centric relational perspective and define governance as *'the tools, strategies and relationship used by governments to help govern'*.

Amongst the various definitions of governance, some (*e.g.* Rhodes 1997) emphasize self-governing of non-state actors, while some (*e.g.* Bell and Hindmoor 2009) highlight the centrality of the state in governing. Most (*e.g.* Stoker 1998; the World Bank 1999; Pierre 2000) recognize the role of a diverse array of actors in governing activities, public and private, state and non-state. Some draw more on formal institutions (*e.g.* the World Bank 1999) than others. It seems that a central question and debate in governance is what constitutes the best mechanism of steering in a specific context, which gives rise to the four main modes of governance.

2.2 Modes of governance

Four modes of governance have been identified in the governance literature: state hierarchies, the market, policy networks, and community self-governance. They each represent different sets of institutions in shaping social norms and values and steering socio-economic development.

2.2.1 Governance as hierarchies

In this mode, governance is achieved through hierarchical systems of command and control based on laws and regulations issued by the state. Sub-national governments may enjoy some degree of autonomy, but the ultimate legal authority lies with the state. This mode is characterised by the classical Weberian model of society, in which the state is seen as the epitome of the collective interest and is separated from the rest of the society. The Weberian model of state bureaucracy characterised the public services in advanced western democracy for more than a century (Pierre and Peters 2000).

However, much of the conventional knowledge of governance is dismissive of

hierarchies as a model of governance (Pierre and Peters 2000). Starting from the 1960s, the limitations of the traditional instruments of the state in western democracies led to a series of failures in regulating and providing adequate welfare to the society, which are the two main functions of the central state (Mayntz 1993). During the world crisis of capitalism in the 1970s, the overloaded state was forced to look for alternatives to solve the social and economic problems, and using market forces and sharing responsibilities with societal actors are important strategies (Cox 1999). In the 1970s and 1980s, a series of reforms were advanced by neo-liberal political leaders such as Reagan and Thatcher, including deregulation, privatization, contracting out of public services, and the creation of semi-autonomous agencies to replace the governmental centers (core executive) of command and control (Rhodes 1997; Smith 1999). At that time, a strong state was deemed as a barrier to economic development, and the neo-liberal worldview promoted market liberalisation as the most effective strategy for delivering social and economic development (Mohan and Stokke 2000). The reforms led to gradual decentralisation of power and responsibilities to sub-national governments, and to the formation of policy networks and partnerships with international, private and civil organizations (Kettl 2000; Brinkerhoff and Brinkerhoff 2002; Jones and Bull 2006). Rhodes (1997) uses the term '*hollowing-out of the state*' to describe the diminishing power of central government apparatus.

Despite the general trend of reducing command and control from the states, the role of the state remains important and critical in a surprisingly large number of geographical and policy contexts (Pierre and Peters 2000). In Britain, for example, some ideas of the former Labour government, such as the increasing use of audits, tend to centralize power even more (Pierre and Peters 2000). In East Asian economies (Japan, South Korean, Taiwan, Hong Kong and Singapore), strong leadership by highly competent and efficient state bureaucracies facilitated the rapid and sustained rise of economies and improvements in overall human welfare

during the 1960s-1990s, creating the so-called 'East Asia Miracle' (World Bank 1993). Increasingly, state hierarchies co-exist with market, networks and communities (Kjær 2004). In the context of EU policy making, Jordan *et al.* (2005) conclude that both '*strong government*' and '*strong governance*' (pure society self-steering) are rather rare, and different types of policy instruments are constantly interacting with each other and co-evolving, therefore 'hybrid types' of governance are often in practice. Hence '*governing without government*' is misleading, and '*governing with more than government*' would be more appropriate (Kjær 2004). Drawing on all these observations and perspectives, Pierre and Peters (2000) argue that the changing role of the state and its capacity to pursue collective interests under external and internal constraints are at the heart of governance studies. The heyday of 'big government' is perhaps gone, but states will arguably continue to perform their steering role in the context of market liberalisation, decentralisation and a rising civil society.

2.2.2 Governance as markets

In a typical neo-liberal view, markets as an alternative governance mechanism can solve the problems encountered by the state. The market is believed to be a more efficient and just resource-allocating mechanism than politics (Pierre and Peters 2000). By introducing markets and competitions, public services can be delivered more efficiently and the rent-seeking behaviour in state bureaucracies can be reduced (Kjær 2004). It is also believed to empower citizens as they exercise their power as consumers (Pierre and Peters 2000). Markets can also function as vast data processors and exchange networks (Mirowski 2009). Neo-liberalism evolved from classical 'invisible hand' liberalism, but a key divergence is that neo-liberalism seeks to reconstruct the state, rather than destroying it, and to consolidate political power by operating within and through enhanced state interventions to create new forms of governance and socio-political conditions more suited to a market-driven global economy (Jessop 2002; Mirowski 2009).

Nevertheless, markets too have limits. The incentive and capacity of the market to provide certain kinds of public goods, such as environmental protection, health, education and criminal justice, are constrained (Kjær 2004; Sandel 2009). Another type of public good - trust, reciprocity and cooperation - can be corroded by contracts and competition (Pierre 2000). Michael Sandel, in a public lecture convened by the British Broadcasting Company, reminded the audience that *'markets leave their marks on social norms'* and turning all types of social relationships and practices into market goods can erode or crowd out non-market norms, such as moral and ethical obligations to public goods (Sandel 2009). In addition, the existence and proper functioning of the market depends on conducive conditions created by the state, which include laws on property rights, inflation control, and investments in technology and innovation (Kjær 2004). The recent collapse of financial markets in many economies demonstrates that without proper government regulation and monitoring, a dominance of self-interest and greed can seriously undermine societies' collective interests (The Economist 2008).

2.2.3 Governance as communities

The idea of communitarian governance is that communities can solve common problems with minimum state involvement. The premise of communitarian governance is that individuals in a community can overcome selfishness and act in a concerted and enlightened way (Pierre and Peters 2000). The state, or even local governments, is believed to be too big, remote and bureaucratic to represent the interests of small communities (Pierre and Peters 2000). It often lacks the resources, information and patience to learn and adapt to local circumstances (Dryzek 2005). The idea of community self-governance has been advanced by neo-institutional scholars, whose work demonstrates that under a set of enabling conditions, communities across the globe are capable of devising and enforcing

rules to ensure the sustainability of common-pool resource systems (Ostrom 1990; Ostrom et al. 2002). The allocation of property rights to local resource users and their autonomy in making and enforcing access and harvesting rules are at the heart of common-pool resource governance, and national governments should facilitate such community efforts rather than imposing their own rules (Ostrom et al. 1999; Agrawal and Ostrom 2001).

In both community- and network- centred governance, local resource users and other actors are bound together through social capital (Jones and Burgess 2005), defined as *'features of social organization, such as networks, norms and trust, that facilitate coordination and cooperation for mutual benefits'* (Putnam 1995: 67). Social capital lowers the transaction costs of working together, increases compliance and facilitates cooperation and collective action (Pretty 2003; Pretty and Smith 2003). High levels of social capital present in the communities enable community members to undertake collective tasks far more efficiently than state bureaucracies, and far more equitably than market-based solutions (Agrawal 2003). Connectedness within, between and beyond communities, described in terms of bonding, bridging and linking social capital respectively, enhance the economic and social well-being of local people (Fukuyama 1995a).

There are two types of problems with communitarian governance: the first type questions the *'consensual image'* of communities, *i.e.* the defining characteristics of a community or communities, and the second questions the potential of scaling up, *i.e.* the ability of communitarian governance in addressing larger-scale and complex problems. The perception of community as a small spatial unit, a homogeneous social structure, and shared norms, as often held by advocates of community's role in natural resource management, has fundamental weaknesses (Agrawal and Gibson 1999). The capacity of local people to cooperate with each other *'depends on levels of 'social capital' and this is highly unevenly distributed and the product of long historical processes and entrenched cultural values'*

(Brett 2003: 14). It has increasingly been recognized that even small communities are complex entities, and participatory approaches may further reinforce existing inequality within a community and fuel the social divisions within communities (Cooke and Kothari 2001). Mohan and Stokke (2000) argue that instead of romanticising the role of local communities, there is a need to examine the political use of local communities by powerful actors. In addition, the extent to which the collective interests of small communities represent that of wider society varies, indicating the inherent risk of localism (Pierre and Peters 2000). Brett (2003) suggests that the appropriateness and success of participation depends on the scale and complexity of the problem to be addressed. He argues that participation can be most successful in small scale projects focusing on local communities, while a range of large scale and complex problems have to rely on technology and strategic decisions made by national governments and increasingly at global levels. For example, environmental problems are increasingly becoming complex and global, and local and regional self-governance faces huge challenges in addressing the broad issues that drive large-scale environmental changes (Ostrom et al. 1999).

In addition, governance approaches that are drawn on social capital may have a 'dark side', which implies that the strong social bonding within a group can lead to exclusion of others, restricting individual freedom and reinforcing corruption, illegitimate control and inequity (Portes and Landolt 2002). Using a case study of forest resource management in India, Robbins (2000) shows that the social capital between foresters and local producers helped to institutionalize corruption. Corruption in turn enables illegal tree harvesting, while worsening the lives of others, who are unable to pay the bribe. He argued that *'where existing or emergent patterns of social power are strong, idealized state legal institutions for resource management are adapted into binding relationships whose de facto rules differ from those outlined in de jure obligations. These state-defined common property rules, founded on principles of equity, are fashioned into inequitable de*

facto rules, cemented in local social capital and trust. Corruption is common property management gone bad' (Robbins 2000: 428).

2.2.4 Governance as networks

Self-governing and inter-organizational networks are at the centre of the 'new governance' (Rhodes 1996). The concept is based on the observation that local governance in the United Kingdom is characterised by complex systems of organizations from both public and private domains (Rhodes 1991). Networks are formed by '*organizations which need to exchange resources (e.g. money, information, expertise) to achieve their objectives, to maximize their influence over outcomes, and to avoid becoming dependent on other players in the game*' (Rhodes 1996). Such self-organizing networks are already playing important roles in areas such as public service delivery in the United Kingdom (Rhodes 1996). In 'new governance', governing is therefore about managing self-organizing networks (Rhodes 1996).

Policy networks mobilize resources and facilitate cooperation between the public and private sectors; as such they enhance the implementation of public policies and promote trust and reciprocity amongst the actors involved (Pierre and Peters 2000). However, there is the danger that policy networks represent the interests of the actors involved rather than collective interests (Pierre and Peters 2000). Pierre and Peters (2000: 20) argue that '*one of the dilemmas of the contemporary state is that while it needs networks to bring societal actors into joint projects, it tends to see its policies obstructed by those networks*'.

The rise of self-governing networks poses challenges to governance. First, when a network adopts its own policies that deviate from state policies, it becomes resistant to controls from the state (Rhodes 1996). For example, local authorities in the United Kingdom have successfully resisted cuts in their expenditures by the

central government, despite the increasing control from the latter (Marsh and Rhodes 1992). By exerting more control, the central government risks destroying inter-government networks developed through previous policy processes (Marsh and Rhodes 1992). Second, the rise of policy networks also poses challenges to accountability because *'institutional complexity obscures who is accountable to whom for what'* (Rhodes 1996: 662). If governments are only partially responsible for service delivery, for example, how much accountability can citizens demand from them? And if the networks are strong self-governing entities, how can they be held accountable? The existence of policy networks separates control and responsibility (Pierre and Peters 2000).

Nevertheless numerous studies have also shown that in managing policy networks, a facilitator is usually needed, and this facilitator is often a government agency. Such a facilitator can influence decision-making within a network by setting the rules of interaction between the actors, or altering the structure of a network by introducing new actors or removing existing ones (Kjær 2004). Such a facilitator is most needed when actors involved in a network face difficulties to reach consensus or compromises due to divergence in interests. This supports the view that states and policy networks often have a mutually dependent relationship (Pierre and Peters 2000). In this respect, the formation of networks may involve coordination between different actors from the state, private sector and local communities.

2.3 State, market and civil society in governance

The relative importance of the state, market and civil society institutions in influencing the values and lives of ordinary people and governing socio-economic development has been an old topic in political philosophy. In a modern society, all three types of institutions-state, market and civil society, coexist and co-evolve, each with its own strengths and constraints, as discussed in section 2.2. It is also

becoming more difficult to draw boundaries between different institutions, as they are often inter-connected with and inter-dependent on each other, *e.g.* the dependence of the market on conditions set by the state (section 2.2.2), and the dependence of the state on networks in implementing policies (section 2.2.3). Nevertheless there are recognisable divergences between different schools of thought that contribute to on-going debates on the relative roles of state, market and civil society in governing, which in general fall into three categories: state-centric, market supremacy, and the power of people.

2.3.1 State-centric views towards governance

The state-centric views towards governance stem from the ideas of early philosophers, such as Plato and Aristotle. In their views, the state is the civil form of a society and its duty is to ensure a just and ‘good society’ in which order, peace and civic virtues can flourish and citizens dedicate themselves to the common good (Edwards 2004). Thomas Hobbes explored the relationship between the state and individual citizens through the social contract theory and arrived at the conclusion that all people should submit their natural rights to an absolute - undivided and unlimited - sovereign power, known as the Leviathan. In a world in which such a power does not exist, the society falls into a ‘state of nature’, in which the right of each to all things leads to serious conflicts, especially when resources are scarce, and eventually ‘a war of all against all’ (Lloyd and Sreedhar 2009). Max Webber distinguished between three different types of political leadership: charismatic (religious), traditional (patrimonial and feudalism) and legal (law and bureaucracy), and alluded to a modern state built upon a rational-legal authority, and function through a bureaucratic structure (Bendix 1977).

Although modern theories of politics and governance have advanced, and such

state-centric views are not as common now as a few centuries ago (Kjær 2004), some scholars still share the view that governments and state agencies still remain the ‘*central architects of governance strategies*’ (Bell and Hindmoor 2009: 20). Far from giving away their power, governments have chosen to transform themselves and adapt to changes in social and political structure, and to ‘*govern better rather than govern less*’ (Wallington et al. 2008: 3). Governments retain a privileged position in formulating policies and laws, to which the functions of market, policy networks and communities are all confined (Pierre and Peters 2000). They can steer global affairs from behind the scenes by setting agendas for international organisations (Drezner 2007). In some areas, governments have even extended their hierarchical control to increase governing capacity in the face of new challenges posed by the emergence of new technologies, market failures, and security and environmental threats (Bell and Hindmoor 2009). As Bell and Hindmoor (2009) argue, the state has proven to be more resilient than many have thought.

2.3.2 *The supremacy of the market*

It is often believed that the rise of neo-liberalism and the fundamental belief in free market is a threat to the power of the state. For example, as Harvey (2005: 2) describes:

(Neo-liberalism) proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices. ... Furthermore, if markets do not exist, then they must be created, by state action if necessary. But beyond these tasks the state should not venture. State interventions in markets (once created) must be kept to a bare minimum because, according to the theory, the state cannot possibly possess

enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit.

For some scholars (*e.g.* Kjær 2004), the word ‘governance’ has been hijacked by neo-liberal policy makers to justify neo-liberal reforms, such as reductions in public expenditure. It has also been recognised that neo-liberalism underpins the ‘good governance’ agenda promoted by the World Bank, the International Monetary Fund and other multinational development agencies. Such a ‘*good governance*’ agenda builds on the organizations’ previous Structural Adjustment Programs (SAPs) aiming to introduce market-oriented policies, privatization, and incentives for private savings and investments (Nanda 2006). In general, ‘good governance’ requires addressing problems in development in two areas: unrepresentative characters of governments and inefficiency of non-market systems (Weiss 2000). Projects formulated under these ‘good governance’ programs have been carried out in a large number of developing countries receiving financial and technical aid, *e.g.* between 1996 and 2000, the World Bank initiated significant governance reforms in the public sector in at least 50 countries (Development Committee 2000, cited in Nanda 2006). Such projects have been widely criticized, for example, Doornbos (2004: 377) argues that the ‘good governance’ approach of the World Bank ‘*appears to have been the creation, in developing country contexts, of state-market relationships that have been characteristic of Western neo-liberal systems*’. Other critics are also concerned with the ‘good governance’ concept being vague and ambiguous (Orlandini 2003, Weiss 2000), as well as its overemphasis on economic interests (Weiss 2000) and its ignorance of cultural and historical conditions in different countries and societies (Nanda 2006). Kjær (2004) points out that developed and developing countries face somewhat different challenges in economic governance; while the former is facing an increasing organizational complexity, globalization and problems of coordination, the latter is still struggling with weak state

institutions and subsequent problems of incorporating non-state actors in formulating and implementing development policies. Therefore there is no surprise that the neo-liberal reforms have resulted in little overall change in governance in the aid recipient countries (Nanda 2006).

It has been observed that neo-liberalism has been undergoing some form of 'evolution'. According to Peck and Tickell (2002), there has been a shift from 'roll-back neo-liberalism' (deregulations and discreditation of Keynesian welfare state systems) to 'roll-out neo-liberalism', which is the *'purposeful construction and consolidation of neo-liberalised state forms, modes of governance, and regulatory relations'* (Peck and Tickell 2002: 384). This is consistent with Mohan and Stokke (2000)'s analysis that 'fundamentalist neo-liberalism', *i.e.* the removal of the state and liberating market forces, is in retreat to 'revisionist neo-liberalism' that also emphasizes institutional reforms and social development. In the latter approach, civil society and community participation can strengthen democratic institutions and help the state to be more responsive to market changes (Mohan and Stokke 2000). Through its continued 'evolution', neo-liberalism becomes a much stronger and more pervasive force penetrated into and sustained by state institutions and gains wider social acceptance, despite the many problems it created (Peck and Tickell 2002). Mirowski (2009: 565) argues that neo-liberals believe that *'the market (suitably re-engineered and promoted) can always provide solutions to problems seemingly caused by the market in the first place'*, for example, using emission trading schemes to abate pollution.

Another problem in neo-liberalism is equity (Peck and Tickell 2002). Neo-liberals see inequity not only as a natural product of market economies, but also the strongest motor force for progress-*'people should be encouraged to envy and emulate the rich'* (Mirowski 2009: 564). Neo-liberalism claims to enhance economic growth and human welfare while simultaneously suggesting that no human mind can understand the true architect of market and social order, and the

masses need to be impelled to accept such order by a strong state, which neutralizes the negative impacts of freedom and democracy (Mirowski 2009). From this perspective, Mirowski (2009) concludes that the neo-liberal movement must seek to consolidate political power by operating from within the state, as only a strong state can ensure the conditions for a free market economy.

2.3.3 The power of people

In this last paradigm, civil society institutions represent more legitimate, equitable and promising alternatives to state and market institutions. Following European and American traditions, two types of civil society can be identified: in the first type the dominant economic forces of capitalism form an intellectual and cultural hegemony that seeks acquiescence in the capitalist order amongst the bulk of populations, and in the second type, civil society is formed by the marginalised and disadvantaged under the capitalist order as organized resistance to a tyrannical regime (Foley and Edwards 1996; Cox 1999). People-centred approaches towards governance typically share the second and more bottom-up view of civil society. For example, Alexis de Tocqueville views the proliferation of associations as against a tyranny of the majority in American populist politics (Cox 1999). For Antonio Gramsci, the development of civil society is a result of leadership and movement from below and is capable of transforming regimes (*ibid*).

This growing interest in civil society in governance studies has been driven by both the 'New Right' ('revisionist neo-liberalism') and 'New Left' (post-Marxism). However, there are fundamental differences in the views towards the state-market-society relationship between the two perspectives (Mohan and Stokke 2000). In the neo-liberal view, as explained in the last section, civil society organisations can be both means and obstacles for the flourishing of the market, and excessive freedom should be curbed by a strong state whenever necessary to

give way to the freedom of the market. In neo-liberalism, social capital is also a means to achieve market goals. For example, Fukuyama (2001) made explicit links between social capital, civil society and the free-market; in the economic arena social capital can reduce the transaction costs compared to more formal coordination mechanisms such as contracts and hierarchies, while the political function of social capital is to combat the excessive individualism produced by liberal democracy. In contrast, post-Marxism views civil society as a form of 'bottom-up' social mobilisation to challenge the hegemonic interests within both the state and the market (Mohan and Stokke 2000). In this latter perspective, by involving civil society in governing, those marginalised by dominant political and economic forces can take control of their own destiny. For example, the social movement theory views bottom-up social movements as having a deliberate conflictual relationship with government (Smith and Grønbjerg 2006). Neo-institutional scholars also share the view of a conflictual relationship between the government and communities, while recognising markets and property rights as means to empower community institutions (Agrawal and Ostrom 2001). It is considered that market influences can be mediated, or tamed through local institutions to produce desirable benefits for communities (Agrawal and Yadama 1997).

To summarise, there are different perspectives regarding the relative importance of state, market and community institutions in governing socio-economic development (Figure 2.1). Three key perspectives can be recognised: state centric, the power of people, and the supremacy of the market.

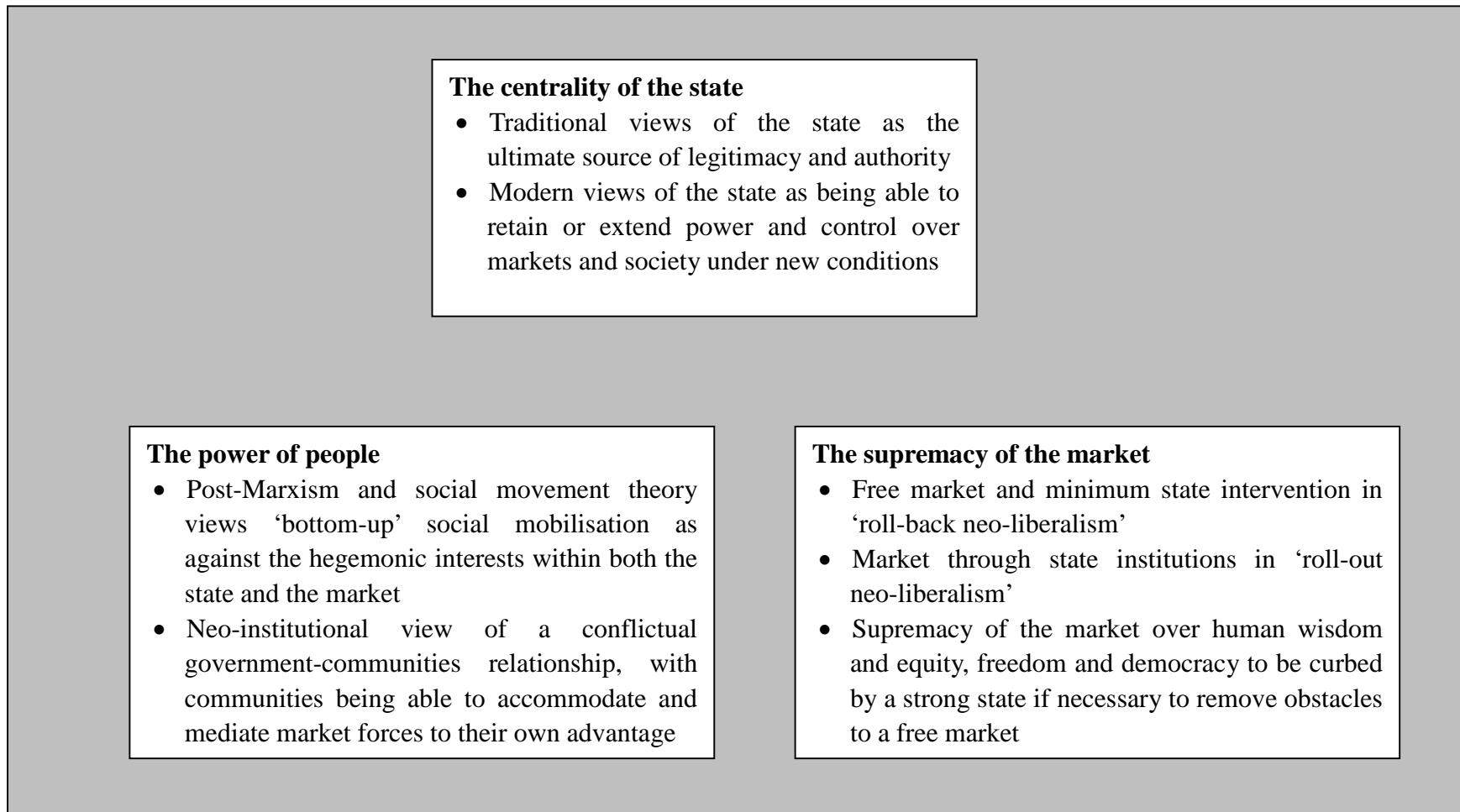


Figure 2.1 Perspectives on the relative importance of state, market and civil society institutions in governing socio-economic development.

2.4 Perspectives in biodiversity conservation and protected area governance

In biodiversity and natural resource governance, a general trend since the 1970s has been the increasing role of community initiatives and market-based interventions in policy areas traditionally dominated by top-down state control, which parallels the overall shift in the thinking on how best to govern socio-economic development as discussed in previous sections. Three perspectives of conservation governance have been recognized: command-and-control, community-based and market-based governance, which correspond to the three main perspectives in the broader governance literature (Figure 2.1). This section examines the theoretic underpinnings, strengths and constraints in each of the three perspectives in the context of biodiversity conservation and protected area management.

2.4.1 Conservation through coercion and command-and-control

Until the 1970s, mainstream conservation policies and research had focused on conventional, top-down approaches through the making and enforcement of government regulations, often entailing the exclusion of people from nature by coercive means (Agrawal 1999; Hutton et al. 2005). This is often referred to as ‘*fortress conservation*’ and the ‘*fences and fines*’ approach (Hutton et al. 2005; Brockington 2004). The supposed need for such top-down approaches is well illustrated by Hardin’s argument:

Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit-in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all (Hardin 1968: 1244).

Hardin believes that the rapid growth of human population and resource users' greed and selfishness in exploiting natural resources will inevitably lead to the collapse of ecosystems and the natural resource base. He describes that in a typical commons situation, an individual user faces decisions on how much he extracts from the resource system. If every user controls the amount he takes from the resource system, sustainability, as well as the collective benefits for all individual users, can be maintained. However, under shared access, if some of the users restrict their resource use but others do not, then the former would lose their share of the resource and their sacrifice would not lead to an improvement in the overall status of the resource system. A rational resource user would therefore try to take as much as he could from the resource system in order to maximize his own gains (Hardin 1968).

Hardin's analysis of the commons problem is remarkably similar to Thomas Hobbes' '*war of all against all*' syndrome in a society without order and control (see section 2.3.1). Hardin believes that the solution to the tragedy of the commons is '*mutual coercion*', *i.e.* the imposition of private property rights, and external, coercive control of individuals' freedom to the commons. Hardin recognises that there are injustices in the imposition of '*mutual coercion*', but '*injustice is preferable to total ruin*' (Hardin 1968: 1247).

Hardin's analysis is supported by other '*theoretic metaphors*' that serve to guide public policy (Ostrom 1990). The prisoner's dilemma theory suggests that it is impossible for rational human beings to cooperate, and that individually rational strategies often lead to collectively irrational outcomes (Campbell 1985). The presumption for cooperation and collective action in groups was also challenged by Olson, who argued that '*unless the number of individuals is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational self-interested individuals will not act to achieve*

their common or group interests' (Olson 1965: 3). Underpinning all these models is the rational choice theory that dominates economic theory, and has influenced many other areas of scholarship including political science and sociology (Dietz et al. 2002). The rational choice theory considers all individuals as motivated by narrow self interests and struggling to maximize individual economic interests (Dietz et al. 2002). As Smith puts it 'we are not ready to suspect any person of being defective in selfishness' (Smith 1977 [1804]: 446).

Protected areas are often perceived as exemplifying the top-down and coercive approach in conservation (Agrawal 1999). Until the 1970s, most protected areas established in developing countries followed a strict 'preservationist' approach, controlled and managed centrally by state agencies and their representatives, and often leading to the displacement and exclusion of local people (Mehta and Kellert 1998). As early, primitive forms of modern protected areas, game reserves in Africa were established by European colonists and hunters at the start of the twentieth century, following the European tradition of aristocratic hunting, in which forests and lands were set aside for royal and elite hunting (Adams 2004). Despite their own enthusiasm for hunting, European colonists saw local subsistence hunting as being haphazard, wasteful and cruel, views which were subsequently proscribed by formal game laws in the name of 'poaching' (*ibid*). In the 1950s and 1960s, on the eve of independence of many African and Asian colonies, the processes of creating national parks were accelerated, mostly by the United States, in order to maintain the preservationist legacy, in the hope that 'poachers' will become conservationists. Such national parks were widely resented by local African people because of human-wildlife conflicts and were viewed as symbols of continued European neo-colonial rule (*ibid*). Therefore, from the very beginning, protected areas witnessed the struggle of poor local communities, who rely on natural resources for subsistence living, against rich outsiders, who want to see nature and wildness preserved for leisure, as well as for spiritual and aesthetic appreciation.

The designation of the Yosemite Valley in California as a state park in 1864 (made a national park in 1890) has been recognised as the first park created for modern conservation, designated to protect the remarkable wonders of the scenery (Adams 2004). In 1972, the creation of the Yellowstone National Park, the first ‘proper’ national park, was rooted on the illusory image of wild and unspoiled nature, and the park was viewed as a source of national identity and pride by its creators (*ibid*). Yellowstone also spawned a close relationship between protected areas and tourism (*ibid*). The reaction of the Yellowstone National Park, according to Adams (2004), was therefore mostly based on its cultural and economic values. In addition, Yellowstone’s seeming wildness was the result of a state-organised programme to remove native Indians from their original living places (Adams 2004). Despite the fact that the creation of the Yellowstone National Park was driven by interests far different from those of conservation, the model was soon emulated and adopted in other countries of the world, such as New Zealand, Canada and Australia, in a process that reflects the power of mainstream international conservation, particularly the western, US-based conservation organisations and conservation philosophy (Brockington et al. 2008). Even today, the overwhelming image of protected areas is one of restricted use for rural communities through government regulations, law enforcement and privatization (West et al. 2006).

2.4.2 Paradigm shifts in conservation

In the 1970s, alternative approaches to conventional, fortress conservation started to emerge. These alternatives include a range of people-oriented, decentralised and participatory approaches to biodiversity and natural resource conservation, which are framed in terms such as community-based natural resource management (Kellert et al. 2000), integrated conservation and development (Wells and Brandon 1992), community-based conservation (Little 1994),

conservation with development (Stocking and Perkin 1992), and collaborative management (Borrini-Feyerabend 1996).

The unpopularity of top-down approaches and the emergence and growing interests in alternative approaches can be attributed to several factors. First of all is the failure of top-down approaches in delivering conservation benefits due to a lack of government resources and capacity, particularly in developing countries (Wells and Brandon 1992; Inamdar et al. 1999). The amount spent on nature reserves by governments and foreign donors globally often fall far below the amount needed to effectively manage these areas. It was estimated that establishing and managing a representative network of protected areas covering 15% of the earth's landscape would cost \$27.5 billion per year, compared to the \$6 billion then being spent (James et al. 1999). Due to a lack of funding, effective enforcement and accountable institutions, deterioration of ecosystems and natural resources continues in centrally managed schemes (see Ostrom 1990; Ascher 1999), even within protected areas (Brandon et al. 1998; Liu et al. 2001; Sanderson and Redford 2003). Ascher (1999: 9) argues that state policies in developing countries often lead to overexploitation of resources because of the mis-pricing of inputs and prices in natural resource exploitation, vague property rights, monopoly arrangements, direct control of natural resources and their use by governments, corruption and poor investment decisions.

The second reason for the emergence of alternative approaches is related to the social, justice and equity concerns for rural communities affected by centrally and externally driven conservation programmes. Centrally planned and executed conservation projects may not only result in biodiversity loss (Brandon et al. 1998; Liu et al. 2001), but also social costs, which is particularly evident in the human impacts of protected areas. Evictions of local people from protected areas have long been documented, particularly in countries in South and Southeast Asia, North America and Africa (Brockington and Igoe 2006; West et al. 2006).

Eviction is often regarded as one of the necessary means to make conservation work, although historical information and good data on conservation-related evictions are scarce and there are ongoing debates regarding the nature and scale of such evictions (Brockington et al. 2006; Brockington et al. 2008, 72-79). People-park conflicts can also be shown in other forms, including denial of access to natural resources, livelihoods deprivation and social inequity (Ghimire and Pimbert 1997; Brockington 2004; Blaustein 2007). There has been growing recognition that conservation of biodiversity cannot be achieved without the support of local people, and without addressing their needs and concerns (Kellert 1985; McNeely 1993). This growing awareness of the human impacts of top-down conservation initiatives took place in a context that human rights, civil society participation, democracy, economic liberalisation and other 'good governance' principles (see Chapter 2) became central themes in mainstream development thinking and policy (Borrini-Feyerabend et al. 2004, Hutton et al. 2005; Naughton-Treves et al. 2005).

Thirdly, international conservation in the early twentieth century was driven by the western, romantic vision of 'wildness', in which nature is free from human domination (Adams 2004; Brockington and Schmidt-Soltau 2004). New conceptual and policy developments under the framework of sustainable development offer a different and revised perspective on human-nature relationships, which sees humans as an integral component of nature, having the historical entitlements to continue living in and shaping nature. The ideas of sustainability and sustainable development emerged in the 1960s (Adams 2006, 2008). Sustainable development became a key theme in the 1972 United Nations Conference on the Human Environment in Stockholm (*ibid*). The idea of sustainable development was progressively developed through the World Conservation Strategy (1980), the Brundtland Report (1987), the United Nations Conference on Environment and Development in Rio (1992) and the World Summit on Sustainable Development in Johannesburg (2002) (*ibid*). The

Brundtland Report defines sustainable development as development that *'meets the needs of the present without compromising the ability of future generations to meet their own needs'* (Brundtland 1987: 43). The concept addresses the linkages between the three pillars of sustainability: social development, economic growth and environmental protection (Adams 2008).

Building on the idea of sustainable development, biodiversity conservation has increasingly been seen as supporting sustainable development (Adams 2004). Human concerns for protected areas started to be addressed in the UNESCO Man and Biosphere Programme in the 1970s. Approaches to reconcile conservation with local development needs were called for at the third and fourth World Parks Congress in 1982 and 1992 (Hutton et al. 2005; Naughton-Treves et al. 2005). The Convention on Biological Diversity, ratified in 1992, includes three objectives: conservation of biological diversity, sustainable use of the components of biological diversity, and fair and equitable sharing of benefits from the utilization of genetic resources (Naughton-Treves et al. 2005). The Fifth World Park Congress in 2003 established a global mandate for protected areas that goes far beyond biodiversity conservation to include diverse benefits such as sustainable resource use, poverty alleviation and protection of indigenous cultures. Influenced by these high level policy developments, a plethora of 'people and park' projects were launched in the late 1980s worldwide through initiatives such as integrated conservation and development projects (ICDPs), conservation-with-development projects, and community-based natural resource management (Hannah 1992; Hutton et al. 2005).

In order to document and assess the progress in protected area establishments across the globe, the IUCN developed a categorization system for protected areas managed for different purposes and in different ways, from conventional, strictly protected areas to areas managed for sustainable resource exploitation (Table 2.1). There has been a rapid increase in the number of category V and VI protected

areas, at least in some parts of the world (Phillips 2003).

Table 2.1 Management categories of protected areas (IUCN 1994).

CATEGORY Ia:	Strict Nature Reserve: protected area managed mainly for science
CATEGORY Ib	Wilderness Area: protected area managed mainly for wilderness protection
CATEGORY II	National Park: protected area managed mainly for ecosystem protection and recreation
CATEGORY III	Natural Monument: protected area managed mainly for conservation of specific natural features
CATEGORY IV	Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
CATEGORY V	Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
CATEGORY VI	Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

To summarise, there have been substantial changes in the way protected areas can be managed and governed since the 1970s. The classical model of protected areas ('Yellowstone's children'), often favouring a top-down governance approach with the exclusion of local people (but not tourists), is in retreat to a new model (Phillips 2003). This new model differs from the classical model in many aspects (Table 2.2), but most fundamentally, in the objectives and governance of protected areas, and their relationships with local people. The new model recognises the importance of local people, and sees the enhancement of the well-being of local communities and their involvement as central elements of protected area management (*ibid*). Collaborative management arrangements are becoming more and more common in protected area governance, and in addition to centrally owned and managed ones, protected areas can also be managed in partnership

with, or by communities, NGOs and private enterprises. Along with changes in other areas, these changes are referred to as the ‘paradigm shift’ for protected areas (Table 2.2).

Table 2.2 Paradigm changes in protected area management (Phillips 2003).

	As it was...	As it is becoming...
Objectives	<ul style="list-style-type: none"> ➤ Set aside for conservation ➤ Established mainly for spectacular wildlife & scenic protection ➤ Managed mainly for visitors & tourists ➤ Valued as wilderness ➤ About protection 	<ul style="list-style-type: none"> ➤ Run also with social and economic objectives ➤ Often set up for scientific, economic and cultural reasons ➤ Managed with local people more in mind ➤ Valued for cultural importance of so-called ‘wilderness’ ➤ Also about restoration and rehabilitation
Governance	<ul style="list-style-type: none"> ➤ Run by central government 	<ul style="list-style-type: none"> ➤ Run by many partners
Local people	<ul style="list-style-type: none"> ➤ Planned and managed against local people ➤ Managed without regard to local opinions 	<ul style="list-style-type: none"> ➤ Run with, for and in some cases by local people ➤ Managed to meet the needs of local people
Wider context	<ul style="list-style-type: none"> ➤ Developed independently ➤ Managed as ‘islands’ 	<ul style="list-style-type: none"> ➤ Planned as part of national, regional and international systems ➤ Developed as ‘networks’
Perceptions	<ul style="list-style-type: none"> ➤ Viewed primarily as a national asset ➤ Viewed only as a national concern 	<ul style="list-style-type: none"> ➤ Viewed also as a community asset ➤ Viewed also as an international concern
Management techniques	<ul style="list-style-type: none"> ➤ Managed reactively within a short timescale ➤ Managed in a technocratic way 	<ul style="list-style-type: none"> ➤ Managed adaptively in long-term perspective ➤ Managed with political considerations
Finance	<ul style="list-style-type: none"> ➤ Paid by tax-payer 	<ul style="list-style-type: none"> ➤ Paid for by many sources
Management skills	<ul style="list-style-type: none"> ➤ Managed by scientists and natural resource experts ➤ Expert-led 	<ul style="list-style-type: none"> ➤ Managed by multi-skilled individuals ➤ Drawing on local knowledge

2.4.3 Conservation through community-based approaches

Community-based approaches to conservation are expressed in various terms such as community-based natural resource management (CBNRM, Hutton et al. 2005), collaborative management of natural resources and protected areas (Borrini-Feyerabend et al. 2007), community-based conservation (Little 1994), and decentralisation of natural resources (Ribot 2002). Such initiatives generally share the following characteristics (Kellert et al. 2000):

- Active promotion of local community participation in natural resource management and biodiversity conservation
- Reliance on local institutions and collective actions in achieving conservation goals
- Devolution of at least some degree of power and authority to local communities
- Commitment to reconcile socioeconomic development of local communities and conservation of biodiversity
- Tendency to defend and legitimize access to, and property rights of local and indigenous communities
- Belief in traditional culture and values, as well as local knowledge in solving modern conservation and resource management issues.

Bottom-up approaches are often considered more efficient, equitable and legitimate than top-down approaches (Brechin et al. 2003; Brockington et al. 2008). Community-based approaches create social and economic incentives amongst local communities for biodiversity conservation, as well as opportunities for local development and empowerment. Hence, community-based approaches have gained great popularity amongst many governments and donors who are eager to reduce both the financial burdens and social costs of conventional conservation. As Agrawal (2002) points out, almost all national governments in

the developing world are turning to local common property institutions as a new policy thrust. It has also been estimated that governments in more than 50 countries are claiming to take initiatives to devolve some control over resources to local users (FAO 1999).

The strongest evidence supporting bottom-up approaches comes from the common-pool resource (CPR) literature. CPRs are natural or human-made resources for which 1) exclusion through physical or institutional means from the resource is costly and 2) one person's use subtracts from what is available to others (Dietz et al. 2002). Costs of exclusion and subtractability are key characteristics of CPRs. In a CPR, if it is not practical to exclude a user nor possible to force that user to contribute to the costs of developing and maintaining the resource, the contributing user is called a 'free rider' (Dietz et al. 2002). The free-rider problem is at the heart of Hardin's 'tragedy of the commons' model. Whenever individuals cannot be excluded from the benefits that others provide, each person is motivated not to contribute to the joint effort, but to free-ride on others' efforts. If all users free ride, there would be no collective benefits (Ostrom 1990). The ability of individuals in any group to act collectively to overcome the free-rider problem is also questioned by Oslen (1965). Research on CPR governance shows that the allocation and enforcement of private property rights to natural resources, often through coercion and state control as proposed by Hardin (1968), may not be the only solution. Under certain conditions, the free-rider problem can be solved through collective action amongst a community of natural resource users (Ostrom 1990; Ostrom et al. 2002).

Starting from the 1980s, numerous case studies have demonstrated that local communities in different parts of the world are capable of devising and enforcing rules to regulate use of resources sustainably over long periods of time without major outside intervention (Ostrom 1990; Wade 1994; Baland and Platteau 1996). Such rules, or institutions, are important elements of CPR governance, and they

define who has access to a resource, what and how much can be taken from, or released into the resource system, and who can participate in decision-making (Dietz et al. 2002). The efficiency of the rules in solving a free rider problem depends on how well the rules address the biophysical structure of the natural resource concerned, whether they are perceived by users as legitimate and are enforced, and whether they are understood by participants in a similar manner (Dietz et al. 2002). Agrawal (2002) outlined 33 critical enabling conditions for sustainability of the commons. The 33 conditions fall into four broad categories, the resource system characteristics, group characteristics, institutional arrangements, and the external environment. Key lessons learned in CPR research include fairness in the allocation of benefits from the commons, local autonomy to develop and enforce the rules considered by users to be important and legitimate in managing the commons, the provisions of low-cost adjudication of disputes and accountability of officials in charge of managing resources (Agrawal 2002).

CPR scholars also provide the strongest evidence that the belief in centrally managed protected areas may well be a myth in conservation (Hayes 2004; Hayes and Ostrom 2005; Ostrom and Nagendra 2006). Hayes and Ostrom (2005) compared forest vegetation density in 76 legally designated protected areas to 87 forests that are not legally designated as protected areas, and the results show that forest vegetation density is not significantly higher in parks than non-parks. In some 'strict' protected areas, illegal logging by local communities has led to reduced forest cover over time. The conclusion from these evaluations is that what matters most to forest conservation is not gaining legal protection status or a particular type of ownership, but the legitimacy of rules as perceived by forest users, and their degree of involvement in making such rules. If rules are made by forest users, they will contribute to the monitoring and enforcement of such rules. Such evaluations, however, are subject to various methodological problems. Brockington et al. (2008) point out that few of the parks included in these

evaluations are listed in the World Database of Protected Areas (WDPA), a database frequently used by others to assess global protected area coverage and effectiveness (Chape et al. 2005). Hayes and Ostrom's evaluation included none of the nearly 1,700 forest protected areas in the same countries listed in the WDPA (Brockington et al. 2008). In addition, forest vegetation density alone is not a comprehensive indicator for the health of forest ecosystems, or the effectiveness of forest protected areas.

Community-based conservation approaches face important challenges. The first set of challenges is to find the right 'community'. This is a common issue in the study of communitarian governance, as discussed previously (see section 2.2.4). However, there is growing empirical evidence in the social science literature that politics, rivalries, conflicts and inequity are common struggles within many communities (Leach et al. 1999; Barrett et al. 2001). Community-based conservation initiatives, particularly initiated by outsiders, can reinforce the existing conflicts and power-struggles within a community (Robbins 2000). In Nepal, residents in heterogeneous (culturally and economically) communities were in favour of more government control in managing a protected area buffer zone, in order to reduce conflicts and ensure better equality (Heinen and Mehta 2000). Furthermore, the relationships between people and nature in traditional communities have been undergoing rapid changes with the influx of markets, modern technology, and urbanization (Brockington et al. 2008). These changes have led to breakdowns of traditional taboos that helped prevent resource over-exploitation (Izidine et al. 2008; Negi 2010). It is unrealistic to assume that communities maintain the same drive to conserve natural resources as they used to (Kellert et al. 2000). In some cases, devolving decision-making power to local actors may undermine conservation efforts. For example, an empowered local community in Swan Hills in Canada voted to house a hazardous waste treatment facility in exchange for more job opportunities and tax revenue, which resulted in increased PCB (polychlorinated biphenyl) levels in local wildlife and

vegetation (Bradshaw 2003). Community-based mangrove conservation projects in the Philippines have resulted in the replacement of natural mangrove forest by mangrove plantations (Walters 2004; Saunders et al. 2008). Mangrove plantations are found to be species poor compared to natural mangrove forests, being almost completely dominated by one commonly planted species (Walters 2004). Building the right community institutions that can work towards achieving conservation and sustainable resource management objectives in a fair and equitable way can be more challenging than often assumed. For instance, it may take a decade for local communities to develop effective rules for fisheries management without any outside assistance (Klooster 1999).

Community-based conservation also faces another set of challenges: mismatches in both the scale and objectives between community-based conservation and what is required to safeguard biodiversity in the face of rapidly increasing driving forces. Local patterns of resource use are often shaped by a complex array of pressures originating from local, regional, national and international levels, such as changes in global export market for agricultural products, government agricultural subsidies and development policies, population growth, migration and poverty, which are all root causes of biodiversity decline (Wells et al. 1999; Wood et al. 2000). One of the key problems for common-pool resource institutions is that they are vulnerable to such large-scale external driving forces (Naughton-Treves and Sanderson 1995). This echoes Terborgh's (1999) view that community-based conservation and ICDPs '*shoot the wrong target*' by focusing on local people, who often do not have any control over the external forces that lead to biodiversity loss.

Finally, most common-pool institutions are adapted to managing small-scale and economically important commons (Ostrom 1990: 26). As acknowledged by Ostrom et al. (1999), there are major challenges in dealing with large-scale and complex environmental problems, such as biodiversity loss, ecosystem service

provision and climate change, through local institutions. It has been widely accepted that conservation efforts need to shift from managing a single species or resource to maintaining ecosystem functions and services (Grumbine 1994), which may require management interventions that are typically not favoured by local users. For example, Kiss (2004) concludes that there is a poor match between community-based ecotourism and the objectives of modern conservation such as preserving representative samples of ecosystem types, maintaining habitat integrity and community structures, as well as ecosystem processes. In particular, large protected areas set aside for biodiversity conservation are generally not favoured among local communities, but are essential requirements for conserving large predator populations (Rutten 2002, cited in Kiss 2004). These examples show that there are often important divergences between the objectives of community conservation projects, and those of strategic conservation initiatives. The former often focuses on small-scale and economically important CPRs to maintain their productivity and sustainability (Ostrom 1990), while the latter may not necessarily prioritize local socio-economic interests over other conservation goals. Conserving large-scale and complicated CPR systems to provide long-term biodiversity and ecosystem benefits often requires interventions at multiple levels of governance, from local to global, with horizontal linkages across geographical space (Berkes 2002; Dietz et al. 2002).

2.4.4 Market-based approaches to conservation

Market-based approaches to conservation are founded on the premise that by adding an economic value to ecosystems and biodiversity and turning them into tradable products in the market, communities and natural resource users have better economic incentives to conserve biodiversity and pressures on ecosystems and species can be reduced (McCauley 2006). There are many different ways and schemes in using the market to serve biodiversity conservation, but two main types can be distinguished. The first type of market approaches works through

subsidizing eco-friendly activities, for example by investing in tourism infrastructure, ecologically sound agricultural production methods and product marketing. In doing so, local resource users may appreciate the greater economic benefits derived from keeping natural ecosystems intact rather than continuing destructive activities, and thereby *indirectly* contributing to conservation (Ferraro and Simpson 2002). This type of market approaches became most popular in the 1980s and 1990s, through the implementation of integrated conservation and development projects (ICDPs, Brown 2002), community-based ecotourism (Kiss 2004), forest certification (Ebeling and Yasue 2009) and similar projects. Such indirect payments schemes often stress the importance of connecting local people to external markets (Berkes and Seixas 2008), and granting property rights to local resource users, so that they have the authority to manage ecosystems and can fully capture the financial benefits from eco-friendly practices (Ostrom 2003).

The second type of market approach has been gaining increasing attention in the past few years. They operate through *direct* payments for ecosystem services, and resource users are contracted, or compensated directly for maintaining ecosystem services by external beneficiaries (Ferraro and Simpson 2002). Such direct payments are usually characterised by: (1) a voluntary transaction in which (2) a well defined environmental service (or a land use likely to secure that service) (3) is 'bought' by a (minimum of one) buyer (4) from a (minimum of one) provider (5) if and only if the provider continuously secures the provision of the service (conditionality) (Wunder 2007: 50). These approaches draw on various evaluations on the value of ecosystem services to human welfare, for example, the Millennium Ecosystem Assessment (MEA 2005) and the work by Costanza et al. (1997). The ecosystem services generated through such approaches may be captured and paid for by the private sector (*e.g.*, ecotourism operators), public sector (*e.g.*, wildlife conservation agencies) or international buyers (*e.g.* buyers of carbon credits from reduced deforestation) (Wunder 2007). Direct payments for conservation and ecosystem services have becoming increasingly common in

developed countries, such as the agri-environmental schemes in the United States and European countries (Baylis et al. 2004; Dobbs and Pretty 2008). In developing countries such approaches are less common, with most projects being initiated in Latin America (Wunder 2007). A financial mechanism involving both developed and developing countries is being considered by the United National Framework Convention on Climate Change (UNFCCC) to reduce emissions from deforestation and forest degradation (REDD), in which developing countries would be awarded for reduced deforestation in tropical forests (Miles and Kapos 2008). This mechanism could potentially create a global carbon market worth US\$ 10 billion per year (Dutschke and Wolf 2007), which would far exceed any previous investment in forest conservation (Miles and Kapos 2008). Recently, at the Fifteenth Conference of the Parties to the UNFCCC (COP 15) in Copenhagen, six developed nations (the US, UK, France, Japan, Australia and Norway) pledged a total of US\$3.5 billion to fund a global scheme named REDD-plus (Carbonpositive 2009). Compared to the REDD scheme, REDD-plus gives extra consideration to sustainable forest management and afforestation/reforestation in developing countries (*ibid*).

A major difference exists between indirect and direct payments regarding the role of communities in conservation. Indirect payments focus on building ***local incentives and capacity for conservation***, which recognise local communities as stewards of natural resources and their empowerment and well-being essential for the long-term sustainability of ecosystems. Hence, indirect payment approaches bear more similarities to the community-based approaches discussed above. The claimed advantages of direct payments over indirect payments are that it is perhaps more cost effective and allows the payer to better control conservation results (*i.e.* conditionality) (Ferraro and Simpson 2002). Direct payments approaches build on ***economic rationales*** of cost-benefit analysis and may bypass communities except for treating them like passive recipients of financial compensation. Furthermore, such schemes may exclude resource users who lack

de jure property rights to natural resources from becoming service providers and beneficiaries (Corbera et al. 2007; Borner et al. 2009). It is therefore no surprise that Hutton et al. (2005) argue that direct payments schemes are eroding community-based conservation, as this represents a top-down, ‘back-to-the-barriers’ approach to conservation.

Applying market-based mechanisms to conservation is not a new idea. Brockington et al. (2008) offer an excellent account of how mainstream conservation engaged with global neo-liberalism in the past few decades through the corporatisation of international conservation NGOs, development of ecotourism, carbon offset schemes, forest certification and privatization of parks. Market-based approaches are increasingly being applied to protected area management. For example, drawing on the failures of both top-down and community-based protected area management, Inamdar et al. (1999: 1857) proposes that *‘they [meeting the financial needs of conservation] require biodiversity agencies to become more like accountable service providers, generating public benefits through effective regulations and market forces’*. They also suggest ‘rationalise’ protected area management through promoting multiple-use, devolved property rights, privatisation and ‘innovative pricing’ of ecosystem services generated from protected areas (*ibid*). Private parks have been established all over the world, particularly in southern Africa (Brockington et al. 2008).

The adoption of market-based mechanisms in conservation is based upon two economic theories - the Meade-Pigou approach to externalities through regulation (standard setting, command and control) and through taxes and subsidies, and the Coase theorem, which stipulates that the problems of external effects can, under certain conditions, be overcome through private negotiation between affected parties (Pearce et al. 1992). Market-based conservation interventions are incentive-based mechanisms that aim to address externalities by altering the

economic incentives private actors face to induce desirable environmental outcomes (Jack et al. 2008). The advantages of market-based approaches are efficiency and effectiveness, as well as their contribution to rural poverty reduction and development by providing communities with financial benefits from the sale of ecosystem services (Jenkins et al. 2004; Engel et al. 2008). Compared to command-and-control approaches, market-based mechanisms are more flexible, and less hampered by weak government institutions and capacity to enforce conservation laws (Engel et al. 2008).

The first limitation of market-based approaches is that not all ecosystems and ecosystem processes are able to benefit equally from the implementation of such approaches. Not all ecosystem services are beneficial to human societies, as there are many examples of 'ecosystem disservices' (McCauley 2006), for instance animals that cause human casualties and property losses, waves that erode coastlines, and rivers that cause flooding. Such 'ecosystem disservices' are unlikely to be conserved through market-based mechanisms. In addition, market-based mechanisms favour particular ecosystem types but can potentially leave others behind. For example, markets for carbon credits would favour the protection of forests, particularly tropical forests with high carbon content (Miles and Kapos 2008). Such market preferences may potentially cause the displacement of user pressures to ecosystems that have low carbon values, such as savannas, wetlands or forests in countries not participating in REDD, in order to meet the continuing demand for fuel, food and timber (Miles and Kapos 2008). Furthermore, if the primary emphasis is to increase the flow of ecosystem services, it would be logical to expect that natural ecosystems will be increasingly engineered to maximize single services, which will involve replacing native species with artificial ones, or natural ecosystems with introduced alternatives (Redford and Adams 2009).

The second limitation of market-based approaches lies in their lack of

permanence. Permanence refers to ‘the ability of PES (payments for ecosystem services) to achieve long-run improvements in environmental service provision, including beyond the period of the payments proper when payment horizons are finite’ (Engel et al. 2008: 671). Impermanence may arise from changes in external markets (*e.g.* increased market prices of agricultural crops competing with forest conservation), lack of funding, and loss or reduced value of an ecosystem service (McCauley 2006). McCauley (2006) gave the example of a coffee plantation in Costa Rica, where it was estimated that native bees yield US \$60,000 per year in pollination services to the coffee plants. However, after the coffee plants were cleared and replaced with pineapple, pollinators had no use for the new plants and therefore the value of their services would decrease from \$60,000 per year to zero. Engel et al. (2008) argue that if the external conditions change so much that a deal could no longer be agreed between a ecosystem buyer and seller, then it is better to end the programme to avoid being ‘socially inefficient’. However, what is perceived to be ‘socially efficient’ may have devastating impacts on ecosystems. The problem of impermanence is not unique to market-based approaches, it occurs in state-led and community-based conservation too. However, as Brockington et al. (2008) point out, commodification of nature alienates people from nature and masks the connections between them. Redford and Adams (2009: 785) also share the view that economic rationales for maintaining or restoring ecosystem services useful to human society will ‘*overwrite and outweigh noneconomic justifications for conservation*’. These arguments echo strongly with Sandel’s remarks on the danger of markets in eroding or crowding out non-market norms (see section 2.2.2). The ‘non-economic justifications for conservation’ would include legal obligations to conserve nature, spiritual and cultural appreciation of nature, and moral and ethical concerns for other species on the planet. Such norms and values are typically more permanent underpinnings of conservation than economic drives. Some scientists argue that nature should be protected for its own sake, not because it has present utilitarian value, and that biodiversity conservation should be a moral and spiritual cause (Terborgh 1999;

McCauley 2006).

Problems also arise from the valuation of nature and ecosystem services, and shortfalls in the buyers' and consumers' willingness to pay in comparison to what is needed to conserve nature and offset the costs for opportunities forgone. Tropical forests are one of the most readily marketed ecosystem types, and the market value of carbon services is estimated at US \$ 10 billion per year (Dutschke and Wolf 2007). However, this is still no comparison to the market value of traditional forest products. The market value of tropical timber exports (including only logs, sawnwood, veneer, and plywood) is over US \$ 11 billion per year (ITTO 2007), and this is a tiny fraction of the total export and market value of domestic consumption (Jenkins et al. 2004). This supports the view of Terborgh (1999) that if left to the market, tropical forests are 'worth more dead than alive'. Another example is the development of ecotourism within protected areas in the hope that wildlife would 'pay its way'. While in some cases charismatic animals and outstanding landscapes may attract significant tourism interests and contribute to the finance of protected areas, the incomes from tourism are often much lower than alternative resource uses such as farming and harvesting wild species (Adams and Hulme 2001; Kiss 2004). It also raises concerns that should private parks stop making profit, the private sector may not be willing to continue investing in conservation (Brockington et al. 2008). In Australia a series of wildlife sanctuaries established by a private company, the Earth Sanctuaries Limited, were closed down after they were proven to be financially unviable (Sydee and Beder 2006). It was stated in the company's annual report that '*if the Australian public is not prepared to visit our properties in sufficient numbers to make the sanctuaries commercially viable, the whole future of the company as a listed sanctuary developer, in its present form, will need to be reviewed and changed*' (Sydee and Beder 2006). It appears that if conservation is only pursued when there is a strong potential for achieving 'win-win' situation between protecting nature and economic development, often it is not sufficient.

Finally, equity and fairness in the distribution of benefits and costs from market-based conservation initiatives has always been a major concern. Brockington et al. (2008) point out that local communities are often not well absorbed in the development of market economies, and market-based conservation initiatives can further increase existing levels of social equity. In such cases, benefits from conservation initiatives can be captured by the state or private developers, without being shared with local users and communities in a fair manner.

2.4.5 Collaborative management (co-management)

Finally, collaborative management describes networks of groups and actors, often representing different interests, in managing a conservation initiative. It is akin to the 'network' mode of governance. In the context of conservation, collaborative management describes '*a partnership by which two or more relevant social actors collectively negotiate, agree upon, guarantee and implement a fair share of management functions, benefits and responsibilities for a particular territory, area or set of natural resources*' (Borrini-Feyerabend et al. 2004: 69). The concept encompasses a broad range of types and ways through which management partnerships are formed between two or more actors, and at different levels of involvement (Borrini-Feyerabend et al. 2004). Collaborative management often entails a combination of state intervention, community- and market-based strategies. Yandle (2003:180) argues that '*co-management can be thought of as a spectrum of institutional arrangements in which management responsibilities are shared between the users (who may or may not be community-based) and government ...*'

Potential benefits of adopting co-management arrangements include enhanced efficiency and equity of decision-making, legitimization of decisions and actions

taken, and improved capacity particularly at local levels (Plummer and Fitzgibbon 2004). When government agencies lack resources, knowledge and capacity to effectively conserve natural resources, involving local communities who have a strong interest in the sustainability of resources through co-management can strengthen conservation efforts (Plummer and Fitzgibbon 2004; Borrini-Feyerabend et al. 2004). Borrini-Feyerabend et al. (2004: 55) recognise that there is often a plurality of actors involved in co-management, with ‘bundles of entitlements and claims’. In such a context, co-management processes can strive for equity through helping the under-privileged, recognising the entitlements rooted in valid and legitimate grounds, and promoting fair negotiations between different actors (*ibid*). Legitimization of rules and decisions can enhance compliance (Plummer and Fitzgibbon 2004). Co-management also provides opportunities for collaborative learning and the integration of local knowledge, skills and practices into formal resource management regimes (Castro and Nielsen 2001; Berkes 2009).

Whether co-management can be feasible or successful depends on a range of institutional, socio-economic, political and cultural factors at various levels of governance. Such factors range from supportive national or even supra-national policies and legislations, the design and implementation of co-management agreements to community support and incentives of households or individuals involved (Pomeroy et al. 2001; Clifton 2003; Borrini-Feyerabend et al. 2004). Borrini-Feyerabend et al. (2004) argue that the decision to embark on co-management of natural resources is both technical and political. In situations of entrenched power in natural resource management and allocation, or when rapid decisions and responses are needed (*e.g.* to prevent a disastrous impact), it may not be appropriate or feasible to start a co-management process. In protected areas traditionally managed through a centralised approach, the potential for developing co-management can be enhanced by political developments that facilitate the devolution of power to lower levels of government, as well as strong

support for resource conservation amongst local communities (Clifton 2003). An important feature of successful co-management arrangements is the formation of cross-scale linkages or networks between different groups and organisations, often brought together by ‘bridging organisations’ (Wilson et al. 2006; Berkes 2009). For example, in multi-country fisheries co-management initiatives, success is often underpinned by strong partnerships between government agencies and NGOs at various levels, from local to global (Wilson et al. 2006). Building horizontal and vertical linkages between different actors is a key requirement for successful co-management (Berkes 2002).

Building vertical linkages between government organisations and local users is arguably one of the most important and challenging aspects of co-management arrangements, as it has been suggested that *‘the hallmark of co-management is to have at least one strong vertical linkage involving the government and a user group, and some formalized arrangement for sharing power and responsibility’* (Berkes 2009: 1693). Developing such vertical linkages can be challenging because of the differences in objectives at different levels of governance (Stern et al. 2002). A critical issue in developing co-management arrangements is the allocation of power, particularly decision-making power between governmental authorities and local users (Jones and Burgess 2005). Co-management arrangements may become too top-down and reinforce the state’s control of natural resource policy, management and allocation (Castro and Nielsen 2001), raising the risks of ‘imposition’ (Jones and Burgess 2005). This concern is particularly relevant for the co-management of protected areas, as many of them are established by government authorities to fulfil high-level, strategic objectives of biodiversity conservation. The imposition of co-management rules may generate local resistance and potentially lead to ineffective protected area management (Edwards and Steins 1999). On the other hand, co-management may be too bottom-up and dominated by local interests, raising the risk of ‘parochialism’ (Jones and Burgess 2005). Local interests and priorities may differ

from, or even conflict with strategic biodiversity conservation objectives, undermining the potential for collaboration (Goodwin 1999). When co-management becomes too bottom-up, it has the some limitations as in community-based conservation (see section 2.4.3). Therefore if such collaborative management arrangements are dominated by a particular interest, be it the state, community, or the market, it becomes no different from any of the three approaches applied in isolation. How different interests can be integrated and balanced through mutually supportive local and higher-level institutions is the key to successful collaborative management.

2.5 Reconciling different approaches

In the shift from top-down and preservationist conservation approaches, the previous failures of the state (or other top-down, external forces that push for the conservation agenda through coercive means) are made amply clear. However, the limitations and risks raised by the alternative, community- and market-based approaches are not always fully addressed and considered in practice. This led Redford and Adams (2009: 785) to argue that *'conservation has a history of placing great faith in new ideas and approaches that appear to offer dramatic solutions to humanity's chronic disregard for nature (e.g., sustainable development, community conservation, sustainable use, wilderness), only to become disillusioned with them a few years later'*. Evaluations of ICDPs and community-based conservation have shown that few of such initiatives actually contribute to biodiversity conservation (Kremen et al. 1994), community economic development (Emerton 1998), or support the hypothesized link between biodiversity conservation and development (Hughes and Flintan 2001). This has led to calls to strengthen the role of the state and law enforcement, referred to as the 'back to the barriers' movement (Hutton et al. 2005). For example, Terborgh (1999: 170) argues that *'the focus of conservation must therefore return to make it an issue of actively protecting parks, a matter that hinges above all on the quality*

of enforcement... There is no substitute for law enforcement. Without it, all is lost'.

Notwithstanding the differences and contrasts between the different approaches, some form of integration and combination between them is often needed in reality to solve complex problems. In the study of common-pool resource governance, it has been recognized that *'the balance of evidence from the commons literature of the past few decades is that neither purely local-level management nor purely higher-level management works well by itself'* (Berkes 2002: 293). For example, how property rights to natural resources are allocated between different users is of paramount importance in both community- and market-based conservation initiatives (Agrawal and Ostrom 2001; Corbera 2007; Börner 2010). A supportive legal and policy framework is often needed to lay down the foundation for successful community-based, co-management and market-based conservation programmes, under which the rights and authority of resource users (including property rights and rights to participate in and influence decision-making) are established (Pomeroy and Berkes 1997; Agrawal 2002; Borrini-Feyerabend et al. 2004; Jack et al. 2008). In decentralizing natural resource and protected area governance, it is also important that governments establish and enforce environmental standards to ensure the sustainability of resource use. Establishing such minimum environmental standards facilitates independent and ecologically sound local decision-making (Ribot 2002). In addition, fair sharing of benefits from community-based conservation often needs to engage political players (Adams and Hulme 2001). Supportive government institutions are equally important in successful market-based conservation schemes. For example, successful forest certification in South America does not only arise from favourable market conditions, but also under conditions where governments establish and enforce forestry regulations, provide financial incentives for certification, and establish legally protected land tenure (Ebeling and Yasue 2009). It seems that different sets of institutions - the state, market and communities, are

not substitutes for each other, but are all essential elements of successful conservation governance.

There are different schools of thought on how different conservation approaches can be reconciled. In the common-pool resource governance literature, it has been increasingly recognised that in addressing large-scale and complex commons problems such as the conservation of global biodiversity, multi-layered, nested governance structures (Figure 2.1) are more likely to address the problems and driving forces than relying solely on local institutions (Berkes 2002; Stern et al. 2002; Dietz et al. 2003). Cross-scale institutional linkages and a mixture of different types of institutions are the key features of such nested governance structures (Berkes 2002; Dietz et al. 2003). As outlined in section 2.4.5, cross-scale linkages are reflected in a number of co-management arrangements, such as multi-stakeholder bodies, citizen science and social movement networks (Berkes 2002). Berkes (2002) argues that cross-scale linkages can be strengthened through adaptive management and building up resilience in the system, with particular emphasis on feedbacks and a 'learning by doing' process, the maintenance of heterogeneity, and the availability of a diversity of options for selection to act on as conditions change. Institutional diversity is also another important element of such nested governance structures, and Dietz et al. (2003) recognise the importance of encompassing different types of institutions (hierarchies, markets and community-self-governance), which give rise to a diversity of rules. Mixtures of institutions and rules allow for adaptive management, and make it more difficult for individuals to evade the rules (*ibid*).

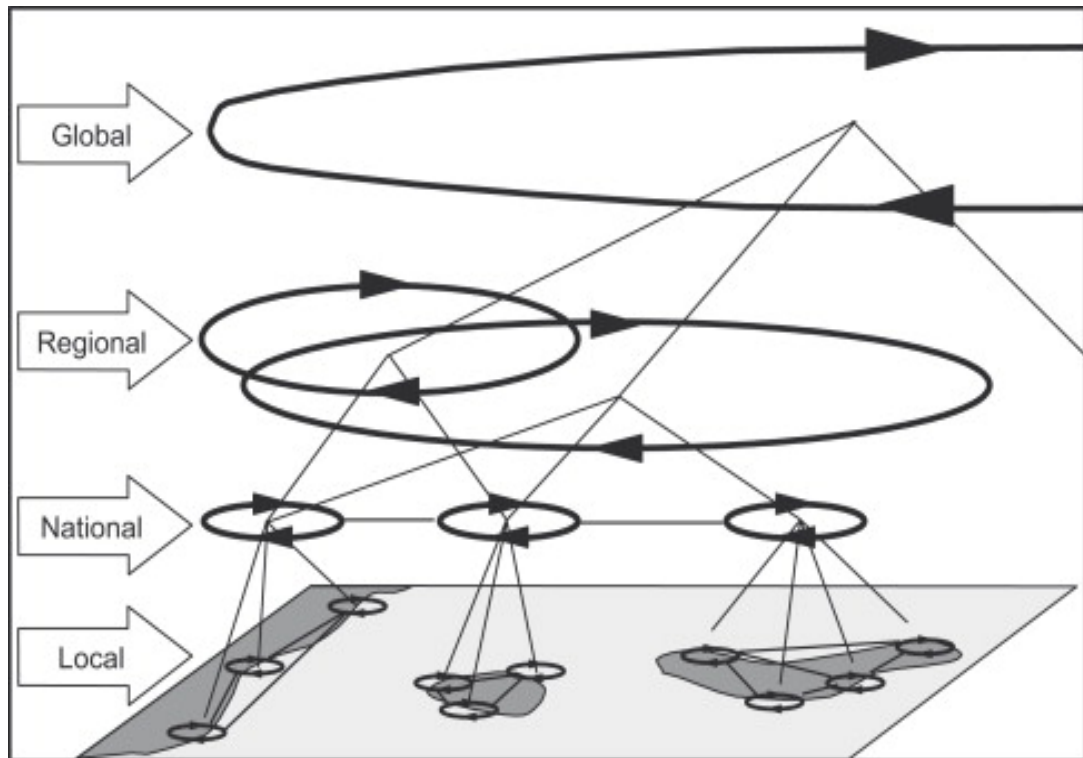


Figure 2.2 Illustration of a nested governance framework with vertical and horizontal linkages among the different policy cycles at multiple hierarchical levels (Fanning et al. 2007).

However, Jones (2008) argues that the common-pool resource governance theories are grounded on purposefully selected case studies that rely on local institutions developed by self-governing local actors, in order for the ‘agency’ dynamics among such actors to be analysed. An area that has received little attention in common-pool resource studies is the supra-individual ‘structures’ (e.g. states and market functions) in which local actors are embedded in (McCay 2002; Jones 2008). This is similar to Agrawal’s view that common-pool resource studies tend to focus more on the characteristics and functioning of local institutions than on the wider-scale contexts within which these institutions work (Agrawal 2002). Although the commons literature has documented many cases in which the development of local institutions are affected by higher-level institutions, either negatively or positively, little is known of the impacts of such central-local interactions and relationships on the actual outcomes of commons management

(Agrawal 2002). Jones (2008) argues that higher-level, top-down interventions and institutions are a particularly important element of the governance or co-management of protected areas, as often these areas are created by governments to fulfil certain statutory obligations. Therefore in studying co-management or cross-scale networks of common-pool resources, particularly protected areas, it is more important to focus on the complex dynamics of the network structure and process in questions rather than attempting to categorise particular sets of rules or regimes (*ibid*). In particular, the linkages at the interface between local actors and higher-level government institutions are critical for understanding how structures and agencies influence each other and co-evolve over time (*ibid*). This is key to the development of mutually supportive local and higher-level institutions, which is an important condition for successful co-management or decentralised management of natural resources (Ribot 2002).

In addition to the interface between local communities and higher-level institutions, another important interface to explore in reconciling different conservation approaches is the interface between human communities and the environment, and between social and environmental justice. Such issues have been explored through the theories of political ecology, which emerged in the 1970s and developed in the 1980s. Political ecologists explore the critical relationships between patterns of economic change, politics in environmental actions and ecological outcomes – a set of relationships that are fundamental in biodiversity conservation (Peet and Watts 2004; Adams and Hutton 2007). Political ecology is a reaction to the previous neglect of ‘*the political dimensions of human/environment interactions*’ (Moore 1996: 125), and has its roots in geography, anthropology, sociology and environmental history (Zimmerer and Young 1998). Political ecologists are typically interested in asking questions relating to the power of knowledge, *i.e.* how environmental knowledge is produced, constructed and used by different people, who gains and loses in the allocation of resources, the place of the state in determining and legitimizing

power and control, and social justice and community struggles over environmental entitlements (Peet and Watts 2004; Forsyth 2003; Adams and Hutton 2007). Political ecology thus provides a useful framework for examining how state, market and community institutions interact with each other in shaping the governance of a conservation initiative, the power relationships between them, and the linkages between social and environmental justice. Political ecologists recognise that natural resource management is often influenced by many of the structural problems within states or markets, which may undermine both social and environmental justice. For example, Peluso's (1992, 1993) work on timber and forestry in Indonesia, often seen as a ground-breaking study in political ecology (Peet and Watts 2004), documents the resistance of local communities to state control over forest resources, and the attempts made by the state to 'criminalize' local customary rights over forest products. However, like common-pool resource theorists, political ecologists tend to focus on communities and local customary rights (Vayda and Walters 1999), and confrontational relationships between the state and local communities (*e.g.* Hecht and Cockbur 1989; Ribot 1998; Neuman 2004 a&b). Concerns have been raised by Vayda and Walters (1999) that local self-governance and customary rights may not necessarily lead to better environmental outcomes. While the political ecology is an excellent framework for analysing the structural problems, maintaining a typical view that state interventions often have negative impacts on local communities and sustainability of natural resources may become an obstacle in finding pragmatic solutions. Jones (2008) argues that the potential positive contributions from higher-level institutions should be recognised and integrated into governance analysis. Barrett et al. (2001) similarly call for combining the strengths of both local and state institutions in developing countries where both state and community capacities are low.

Overall, the analysis above shows that it is perhaps more important to explore the dynamic interactions, interdependence and potential linkages between different

actors and institutions within a network, rather than attempting to establish, on a conceptual basis, particular actors or types of institutions that should be supported or promoted to achieve good governance. The determination of what constitutes good governance for biodiversity conservation can focus on governance structures and steering mechanisms that can lead to a balance between different objectives (Figure 2.3), and/or a balance of power between the key actors with different but legitimate interests. However, in reality, where the balance lies and how it can be achieved is often very complicated. In co-management, for example, there are challenges in developing vertical linkages between government actors and local users, and inappropriate allocation of power can lead to risks of ‘imposition’ or ‘parochialism’ (see section 2.4.5). The decision as to what represents a balanced approach and how it can be achieved needs to be grounded on the specific context in question.

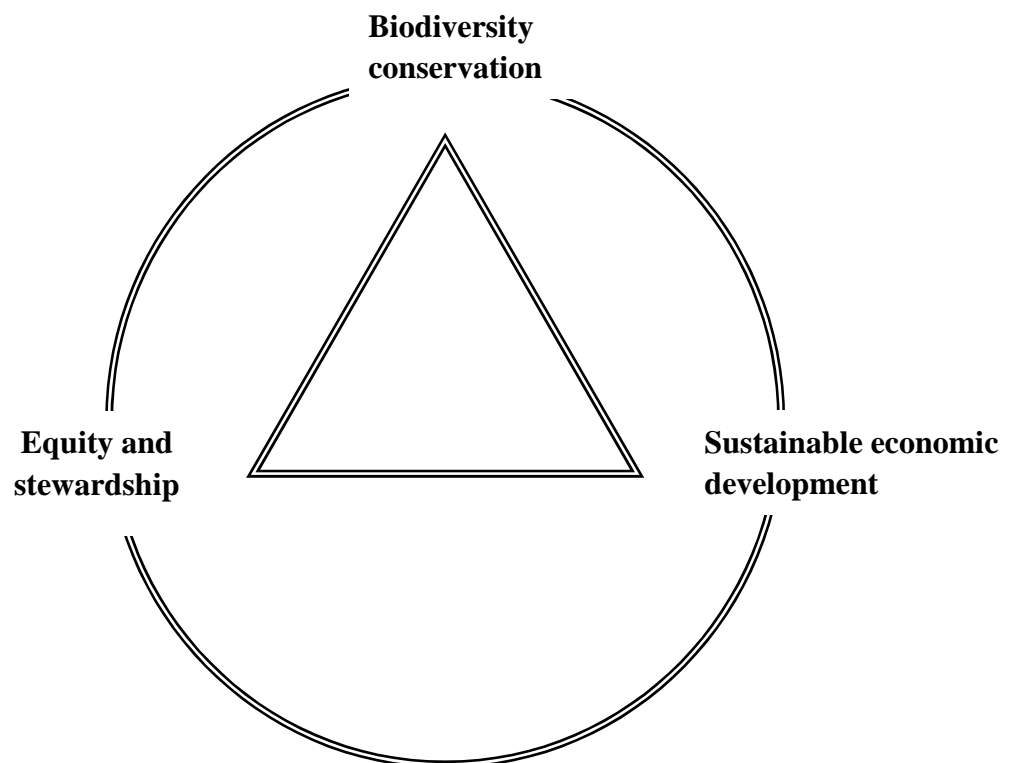


Figure 2.3 Illustration of how different objectives can be reconciled. The

circle stands for the potential linkages and interdependence between different objectives, and the triangle stands for appropriate balance between different objectives.

2.6 The challenges posed by the marine environment

So far, differences between terrestrial and marine conservation have not been distinguished. MPAs share many of the challenges encountered in terrestrial protected areas. However, there are important differences between the marine and terrestrial environments, in terms of their biophysical features, scientific understanding and management practices (Jones 2001). Below are some of the factors that may potentially lead to differences in the governance of MPAs and their terrestrial counterparts.

1) Connectivity

There are various physical and biological connections between areas due to the fluid nature of sea water, movement of currents and life histories of many marine organisms involving a pelagic larval stage (Lourie and Vincet 2004). Connectivity remains one of the greatest challenges to MPA science (Roberts et al. 2003), and a critical factor undermining the general effectiveness of MPAs (Ray and McCormick-Ray 1994). It means that activities outside the boundaries of MPAs may have a direct impact on ecosystems protected within MPAs, and localised protection of species and habitats without taking into consideration the larger-scale ecosystem processes that sustain them (*e.g.* spawning and larvae recruitment) are likely to be ineffective.

2) Scale

Marine ecosystems tend to exhibit wider spatial scales and their boundaries are usually characterized by subtle changes in seawater temperature, salinity, current dynamics and other bio-physical factors, which are much more difficult to

recognise compared to terrestrial ecosystems (Jones 2001). Clearly recognisable boundaries are important for protected area management and enforcement, but are more difficult to achieve in the marine environment.

Due to a high level of connectivity across wide geographical areas, the effectiveness of MPAs in conserving migratory marine species and sustaining large-scale ecosystem processes may be limited if managed in isolation. It has increasingly been recognised that networks of MPAs, designed with considerations for ecological connectivity, are needed to scale up conservation efforts in large marine ecosystems (Roberts 1997, Roberts et al. 2003). Designating networks of MPAs is a means of implementing the ecosystem-based approach to the management of large marine ecosystems, which often requires multi-scale, nested governance frameworks with horizontal and vertical linkages among policy cycles at different hierarchical levels (Figure 2.2). Due to the multi-level, nested nature of the governance framework, establishing mutually supportive local and higher-level institutions is of particular importance to the effective management of MPA networks.

3) Unpredictability and scientific uncertainty

Marine ecosystems are highly complex and subject to both natural variations and anthropogenic impacts and it's often difficult to establish cause-effect relationships between ecosystem degradation and anthropogenic activities (Jones 2001). The observed changes in marine ecosystems or ecosystem components such as fish populations often result from a combination of oceanographic, biological and human-induced factors, further complicated by connectivity between marine ecosystems, and it is difficult and often impossible to determine the relative importance of any one of these factors (Jones 2001). In addition, there is always a long time lag between the onset of human interventions and the observed response in marine ecosystems (Jackson et al. 2001), making it difficult to predict the consequences of management interventions.

Our understanding of marine ecosystems and their responses to human interventions are far from being complete, which is a key issue in marine conservation (Browman and Stergiou 2004; Jones 2001). Unpredictability and scientific uncertainty make it extremely difficult to predict the safe limits of sustainable resource exploitation in the marine environment, therefore greatly increasing the difficulty of decision-making. Scientific uncertainty, combined with an overwhelming interest to maximize economic gains and resultant political pressures, has led to the collapse of some of the largest fisheries in the world (Ludwig et al. 1993; Jackson et al. 2001; Wilson 2002), and also undermines the efforts to use MPAs as a policy and management tool (Mascia 2001).

4) Property rights

Marine resources have been exploited as open-access resource systems for centuries, a situation that still characterises most marine resources today (Kenchington 2010). Notable exceptions include the recognition of individual countries' jurisdiction over territorial seas and Exclusive Economic Zones (EEZs) extending 200 miles from the shore, as established under the UN Convention on the Law of the Sea (1982), and the rights of fishers in rights-based fisheries management such as individual transferable quota systems (Chu 2009). However, in most cases, individual users' rights to marine resources are poorly defined or non-existent. Clearly defined property rights are one of the conditions for implementing successful community- and market-based conservation initiatives, as they strongly influence individual users' incentives to manage their resource use sustainably (Ostrom 2003; Van Dyke 2003). This also raises difficulties in situations where local users need to be compensated as a result of MPA establishment or management, a matter that relates to whether MPAs can be pursued in an equitable and just way (Jones 2009).

Concluding remarks

The meanings of the term governance are interpreted differently now than in the past, with modern definitions recognising the increasing roles of the markets, communities and policy networks, along with state hierarchies, in steering socio-economic development. A key debate in governance studies is the relative importance of state, market and community institutions in governing societies. The shift from ‘fortress conservation’ to more participatory and market-based governance approaches since the 1970s parallels the overall changes in the thinking of governance. Although not often mentioned, these new governance approaches, like the traditional top-down approach, have their strengths as well as constraints, and attempts to reconcile these different approaches face the challenge of finding the appropriate balance of power between the state, the market and communities. This is particularly important for meeting the challenges of scale and connectivity in managing large MPA networks, which requires mutually supportive institutions at multiple hierarchical levels. Questions on what constitutes the right balance of power in a conservation initiative and how it can be achieved are often context-specific and need to be considered in relation to the historical patterns of governance and institutional settings of the society in question.

3

Governance and marine protected areas in China

Overview

As in other transitional societies undergoing rapid social changes and institutional reforms, current patterns of governance in China bear important characteristics of the past, as well as new evolving features. In the past century China has seen a continuous succession of different regimes, some of which can be seen as conducting the largest-scale social experimentation in the history of human kind (Roberts 2006). In particular, a series of economic and administrative reforms have been initiated in the past two decades, designed to address institutional failures encountered in the past and to meet new challenges. Governing MPAs takes place in this era of rapid social and economic change in China, and the overarching institutional reforms have fundamental implications for the management and governance of MPAs.

The first section of this chapter provides an overview of the traditional institutions in the imperial period, the key principles of Confucian philosophy and its influence on the traditional Chinese society. In the second section, the efforts and failures in building a modern state in the Republican period are examined. In the third section, the social and economic policies adopted in Chairman Mao's era and their impacts are reviewed. In the fourth section, reforms undertaken in the post-1978 period, and the key conflicts that emerged from the implementation of such reforms are explored. In the fifth section, historical changes in natural resource governance in China are briefly outlined. The sixth section provides an introduction to the history of protected areas in China, the existing administrative system and regulatory framework for the management of protected areas and the

marine environment, and the challenges of conserving the marine environment.

3.1 Traditional institutions in imperial China

The long history of China before 1911 is marked by successive dynasties, which started with the Xia Dynasty at around 1900 BC (Roberts 2006). The early dynasties started as small aristocratic societies in northern China and there were often several kingdoms or states co-existing with each other with frequent conflicts and wars between them. It was not until around 220 BC that all the other kingdoms and states were defeated by the First Emperor of Qin, who subsequently unified China and expanded the territory close to its current form. During the Qin Dynasty, the Emperor and his advisors established an effective legislative code, divided the country into 36 prefectures and developed a state administration system with the division of military and civil authority, which survived throughout the imperial period. They also standardized the currency, written characters and measurements, and initiated the construction of the Great Wall and the canal transportation system, which facilitated economic growth in the later imperial period. Despite these major achievements, the Qin Dynasty also practiced extreme control and cruelty on citizens, exerted a central control of scholarship through burning books and killing Confucian scholars who attacked the Emperor and his regime, and levied heavy taxes on poor farmers to support the Emperor's massive bureaucracy and extravagant life style. The Qin Dynasty was eventually overthrown by rebellions led by poor peasants, a model that was to be repeated many times in the later imperial period and helped to bring the fall of many other dynasties (Roberts 2006).

The state and government institutions established by the Emperor of Qin were adopted and effectively reformed in later dynasties. During the Han Dynasty (206BC-AD 220), the central administration evolved into a more sophisticated form with the emperors and their royal family members overseeing the prefectures and assisted by senior officials and nine ministers with specific responsibilities. During the Han Dynasty, Confucian values started to dominate

political thinking and to serve as the ideological basis for the imperial government. Confucian scholars advocate good and ethical government under which '*good order and harmony can prevail among men*' (Dawson 1981), and that a good ruler should practice benevolence on his people and ensure their economic welfare and equal share of land. Confucianism also stresses the importance of virtue and reciprocity, education and self-cultivation, and the recruitment of learned people to work for the government administration. Starting from the Han Dynasty, open examinations were set up to recruit Confucian scholars to serve the government, which lasted for more than 2000 years (Roberts 2006).

The Tang Dynasty (618 to 907 AD) is often regarded as the golden age in Chinese history (Roberts 2006). During this period, there were long periods of peace, a well-developed agriculture-based economy and trade systems through various domestic markets and foreign trade along the Silk Road, and the empire enjoyed good relationships with neighbouring states like Tibet, Japan and Mongolia. Emperor Taizong (629-649 AD) has been regarded by Confucian scholars as the model ruler. Under his supervision, the central government evolved into a Secretariat, which drafted and reviewed edicts (policy documents), and the Department of State Affairs, which implemented the edicts. It also included the Censorate, which investigated power abuses, and the Supreme Court, which reviewed sentences for crimes (Roberts 2006).

The imperial economy continued to thrive, and by the eleventh century China had reached a level of economic development that surpassed any European state at that time (Hucker 1975, cited in Roberts 2006). Major technological advancements in agriculture, transportation and industry facilitated rapid economic development and the emergence of a national market system and large-scale industry (Roberts 2006). All these developments provided the grounds for industrial revolution and the potential to develop capitalism as observed in Europe. However, this path was never followed by imperial China (Roberts 2006).

Scholars have suggested various reasons for China's delayed response to capitalism, which included limitation of individual freedom, lack of property laws, the overwhelming prestige of the state bureaucracy and the potential of sophisticated social, political and economic institutions in meeting popular demands throughout the imperial period (Balazs 1964; Feuerwerker 1990).

During the last dynasty, Qing, China was under the rule of the Manchu, which originated from northern minority tribes. When the Manchu first took power in China, it was regarded as a foreign invasion to the Han Chinese majority. But the Manchu emperors adopted a policy of systematically absorbing Confucian values and recruiting Han Chinese elites to rule China, and the Manchu-Chinese antagonism gradually diminished. From the early nineteenth century, foreign influence particularly from the European countries started, following the establishment of Christian missionaries. In the later Qing dynasty, signs of the dynastic decline, not only for Qing but the entire imperial system, appeared. Rebellions against both the imperial regime and foreign invasions became common, and bureaucratic corruption further undermined the Qing government's ability to handle the challenges it faced in ruling a massive, complicated and divided country. The Qing government's failure to stop the opium trade, promote economic development and defend the country from foreign invasions further increased popular dissents on the regime. There were some attempts within the central government to reform the bureaucracy, aided by a group of neo-Confucianists, but these attempts were quickly put down by the conservative majority. In 1911, a revolution led by the republicans brought the Qing dynasty to an end, and the entire imperial system was abolished (Roberts 2006).

Throughout the imperial period, there was perhaps never an independent and autonomous civil society in China, despite the existence of various trade unions, secret societies and associations to organize social welfare, and the public sphere for political debates in the late imperial period. Similar contextual conditions have

facilitated the rise of civil society as in observed early modern Europe (Rowe 1993). Some scholars have argued that the emphasis of Confucianism on good government and citizens' moral obligations to authority suppressed the development of civil society and democratic institutions in China and other Asian countries influenced by Confucian traditions. For example Samuel P. Huntington describes the incompatibility between Confucianism and democracy:

Classic Chinese Confucianism and its derivatives in Korea, Vietnam, Singapore, Taiwan and (in diluted fashion) Japan emphasized the group over the individual, authority over liberty, and responsibilities over rights. Confucian societies lacked a tradition of rights against the state; to the extent that individual rights did exist, they were created by the state. Harmony and cooperation were preferred over disagreement and competition. The maintenance of order and respect for hierarchy were central values. The conflict of ideas, groups, and parties was viewed as dangerous and illegitimate. Most importantly, Confucianism merged society and the state and provided no legitimacy for autonomous social institutions at the national level (Huntington 1991, cited in Fukuyama 1995a).

Other scholars argue that the obstacles posed by Confucian culture on the development of democracy are no greater than Christian or other cultures. In fact there are elements in Confucian culture that are conducive to the development of modern democracy, such as the emphasis on universal access to education and opportunities (Fukuyama 1995a). Tu (1984, cited in Fukuyama 1995a) distinguishes between the 'political Confucianism', which justifies the hierarchical imperial political system and the emperor's absolute power, and the 'Confucian personal ethic' that regulates personal attitudes to work, family and other aspects of daily life. Fukuyama (1995a) builds on Tu's thesis and suggests that traditional Chinese Confucianism is in fact a bottom-up approach to build a society by putting individuals' loyalty to family over their obligations to wider social groups and the nation, which results in a low trust Chinese society with low

levels of social capital, as well as weak Chinese deference to authority. He uses ‘a loose tray of sand’ to describe the loose social ties between groups in the Chinese society, as compared to ‘a block of granite’ in the Japanese society characterized by strong social bonding among individuals and groups outside families and kinship lineages (Fukuyama 1995b). He also argues that the weak Chinese deference to authority further strengthens the authoritarian political system, because the need to organize individuals and to maintain social order in a society with low social capital is greater than a society with stronger social ties and higher levels of social capital (Fukuyama 1995 a & b).

The influence of Confucian traditions on formal institutions may be declining, but their impacts on cultural norms are still evident today. For example, a recent study comparing Asian and American values showed that Asians stress personal values such as respect for learning, honesty and self-discipline, while Americans emphasize personal achievement and helping others, and that vastly more Asians than Americans favour an ordered society, and far more Americans than Asians favour personal freedom and individual rights (Hitchcock 1994).

3.2 Republican China 1911-1949

Between 1911 to 1949, China experienced long periods of war, including the Sino-Japanese war that lasted for eight years, followed by the civil war between the nationalists and communists. In 1911, the revolutionary Sun Zhongshan, assisted by both his nationalist party colleagues and former Qing military generals, forced the last emperor to abdicate and declared China a republic. The leaders of the Nationalist Party established a constitution for the new republic, aiming to introduce a parliamentary political system to China, and a mandate under which the president is required to share power with the prime minister and the provisional parliament. The idea was that after a period of one-party government, China would gradually transit to a democracy. However, the presidency and the

fruits of the 1911 revolution quickly fell into the hands of the warlords, who attempted to restore the empire. Later the fights between the warlords themselves led China into a period of anarchy between 1916 and 1928 (Roberts 2006).

Under the leadership of the Nationalist Party, and subsequently the warlords, foreign export and modern industries expanded quickly. The number of modern universities also increased sharply, and some top universities became a centre for introducing new ideas and promoting intellectual revolutions in China. Key western political and philosophical thoughts, including Anarchism and Marxism, had been introduced to China by the late nineteenth century, and flourished in the intellectual movements during the 1910s. The study of Marxism led to the founding of the Chinese Community Party in 1921 (Roberts 2006).

During the late 1920s the Nationalist Party regained political leadership. The party leaders assumed that China was not ready for a democracy and established a system of government with both traditional and western features. The central government was comprised of the executive, legislative, judicial, examination and control bureau. In the late 1910s and 1920s, even the most influential Chinese scholars and advocates of democracy had lost faith in western democracy, because of the feeling of being betrayed by western countries, who had forced the Chinese government into a series of humiliating treaties. The Nationalist Party's strength and popularity declined over the years because of long periods of economic stagnation and deflations, corruption and inefficiency of the administration, and defeats in the war against Japanese invasion. The incidents of protests led by university students and strikes organized by workers were increasing, as was the Nationalist Party's dictatorship. In contrast, the Communist Party was gaining increasing support from the 'mass' through land reforms, a process that confiscated farming land from landlords and redistributed it to poor farmers (Roberts 2006).

After the surrender of Japan following the bombing of Hiroshima and Nagasaki, a civil war between the Nationalists and Communists was inevitable. Although they started with a clear advantage, with controls of major cities and industries and support from the United States, the Nationalists' political and military weaknesses led to its final defeat by the Communists, who had proven themselves as the disciplined, moderate, efficient and patriotic alternative to the Nationalists and had won overwhelming support from rural populations as well as the Soviet Union. In 1949, after the withdrawal of the Nationalists to Taiwan, Chairman Mao Zedong declared the establishment of the People's Republic of China (Roberts 2006).

Although the Nationalist Party was frequently blamed for its corruption and weakness, under its leadership China had gone through a series of reforms and experiments towards the building of a modern state. The Nationalist Party's contributions include the establishment of an industrial and military system, the recreation of national institutions and the improvement of China's international stature through their continued pledge for international support in the Anti-Japanese war (Bedeski 1992).

During the Republic era, under western influence and intellectual movements led by scholars and university students, various new civil society organizations were established in China. They can be classified into four categories. The first was guilds for artisans in traditional crafts using customary methods, who were either self-employed or loosely bonded into groups. The second was academic associations, mainly formed by western-educated intellectuals, scientists and technicians. Student associations, trade unions, the women's federations and youth leagues, with their strong political motivation, fell into the third category. Finally, religious and philanthropic organizations constituted the fourth category (SIDA 2004).

3.3 Chairman Mao's China 1949-1977

The newly founded People's Republic of China in 1949 was an economically deprived country, suffering from long periods of wars, inflation and poverty. It is estimated that over 22 million Chinese people were killed between 1900 and 1949 by war, famine, mass killings and other disastrous events (Rummel 1991). The economic system was predominately agriculture-based, and the country was short of qualified administrative and managerial professionals (Roberts 2006). The ruling Communist Party faced huge challenges to develop the economy and to improve the living standards of people.

In the first five or six years, the policies focused on economic recovery, reducing the inequities of the old system and raising popular support for the ruling party. Economically, the Soviet model of economic development was adopted, which was based on centralized economic planning and target setting, with a strong focus on heavy industries. In rural areas, the new Marriage Law and Land Law were implemented in 1950. The Marriage Law granted women equality and freedom in their choices of marriage partner, and out-lawed human traffic of women and children (Saich 2001). Through the implementation of the Land Law, 43% of cultivated land was confiscated and redistributed to poor farmers by 1952, with about 60% of the rural population benefiting (Roberts 2006). However, the land reform was not peaceful. It was estimated that between 200,000 and two million landlords and rural power-holders were killed during the process (Roberts 2006). The economic achievements during the first few years were impressive, and the centralized economic planning offered a way to distribute scarce resources rationally and effectively (Saich 2001). By 1958, China's industrial output had been doubled (Roberts 2006), and there were significant improvements in the provision of social services. There was a three-fold and six-fold increase in primary and secondary school enrolments, respectively (Roberts 2006).

Major political and economic problems started to emerge when the leadership pushed for radical socialism in the country. The radical socialism movement that started in 1958 is best known as the ‘Great Leap Forward’, and its aim was to speed up the development process to overtake Britain’s industrial output within 15 years (Saich 2001). Economically, there was a break with the Soviet centralized planning system, and local initiatives based on traditional, small-scale production methods were encouraged. In rural areas the privatization of land was strictly prohibited, and large-scale collectivization was promoted, with the establishment of 24,000 people’s communes to organize agriculture and industrial work, trade, social services and other aspects of the everyday life of peasants (*ibid*). Such communes are grass-root village self-governing organisations similar to today’s village committees (see section 3.4.3), but with far more functions and responsibilities.

The Great Leap Forward brought some devastating consequences to both the human society and the natural environment. Thousands of small-scale, low-technology and low-efficiency workshops or ‘backyard factories’ were set up, and produced large volumes of useless steel and other industrial products. Directed by Mao’s belief in ‘man must conquer nature’, the movement resulted in large-scale deforestation and environmental degradation (Shapiro 2001). Collectivization in the rural areas deprived farmers of the incentives to increase agriculture productivity. Two other factors also contributed to the extreme economic hardship in the late 1950s and early 1960s: the worsening relationship with the Soviet Union and the complete withdrawal of Soviet aid, as well as severe floods and droughts in 1960. As a result of poorly formulated development policies, hostile international relationships and natural disasters, China’s gross national productivity fell by 35% between 1958 and 1962 (Saich 2001). Jasper Becker’s book *Hungry Ghost* (1996) estimates that 30 million or more people died of famine between 1958 and 1961.

However, the tragedy of the 'Great Leap Forward' did not end; it was further worsened in the following movement, the Cultural Revolution, which lasted from 1966 until Mao's death in 1976 and is often regarded as the 'ten years of chaos' whose memories still haunt many Chinese people today. The Cultural Revolution originated from Mao Zedong's determination to continue the class struggle and revolution by manipulating and mobilizing students and the mass. During the time students spent most of their time organizing radical political campaigns and attacking their teachers, friends and other people. Industrial and agricultural production was interrupted and workers and farmers were organized to take an active part in political movements. State control and political repression were played to the very extreme, with tens of millions of revisionists within the Communist Party, academics and intellectuals, and innocent people being criticized, silenced, imprisoned, tortured and killed (Saich 2001). For China, the Cultural Revolution remains as an unprecedented catastrophe in which human rights, rule of law and civilization were severely affected (Yan and Gao 1996, cited in Saich 2001).

It is generally considered that from 1949 to 1977, there was very limited space for the existence of a civil society in China. Traditional rural civil organizations, such as temple fairs, clansmen's associations, ancestral halls, and civil corps were abolished (Yu 2000). During the Cultural Revolution, even the academic associations stopped functioning (SIDA 2004). Only a few special associations, for example, the China Democratic League and Jiu San Society, which helped to strengthen the state leadership, existed as non-governmental organisations. Organizations that played an important role in organizing societal affairs such as trade unions, the Youth League and the women's federations were directly controlled by the state and developed into 'mass organizations' (SIDA 2004). The number of such civil society organizations was limited; there were only 44 national social associations in the early 1950s, less than 100 national associations and about 6,000 local ones in 1965 (Wang and Sun 1999). Almost all social

organizations were under state supervision and control (Yu 2000), and therefore had no real influence on governance.

However, through the implementation of a series of policies and the provision of employment, cheap and accessible health care, education and other social services, the Mao era saw remarkable improvements in the social welfare of millions of workers, farmers, women and other groups who were previously disadvantaged, and created a sense of social equity particularly in rural areas and in the grassroots (Wen 2005). From 1949 to 1980, average life expectancy increased from 35 years to 67 years, and the adult literacy rate increased from less than 20% to 66% (Wen 2005). In addition, Mao's leadership also promoted local productions and the establishment of grass-root organizations such as the thousands of people's Communes. Although controlled by the state, such strategies laid down the foundation for subsequent decentralization programmes (Wen 2005). On this basis, David Dollar, the World Bank's country director for China, commented on the social progress in Mao's era in a 2005 seminar, '[before the reform], China was a Third World country with First World human capital development'. Amartya Sen, a Nobel Prize laureate for economics, said '*China's relative advantage over India is a product of its pre-reform (pre-1979) groundwork rather than its post-reform redirection*' (both quoted in Wen 2005: 40). With economic and administrative reforms in the later period and the withdrawal of the state in the provision of key social services particularly in rural areas, the level of social inequity within the Chinese society increased significantly.

The death of Mao in 1976 marked the passing of an era, and it was then clear that China needed a new direction.

3.4 Reform and development after 1978

At the centre of the reform that started in 1978 was the re-focusing of the state

and the society from the political revolutions and class struggles that dominated in Mao's era towards economic development. New economic policies evolved around the promotion of market mechanisms to increase the efficiency of allocation and distribution from the old central planning system. After centuries of limited contact with the outside world, China was to be opened to the world in search of foreign investments, technology, export markets and other resources. In rural areas, the old collective system was replaced by a new 'household responsibility system', through which agriculture land was contracted out to households, and they were allowed to sell a proportion of their products in the market. In the industrial sector, light industries and private enterprises were encouraged, and thousands of state owned enterprises (SOEs) were sold to private owners to make them more efficient and profitable (Saich 2001).

Such reform strategies were adopted to provide individuals and corporations with strong incentives to pursue economic growth, which are characteristic of neo-liberalism policies (Harvey 2005). This neo-liberal reform was initiated in China at around the same time as Thatcher and Reagan promoted similar reforms in the United Kingdom and United States, respectively (Harvey 2005). However, China's post-1978 reforms have shown significant deviation from the standard neo-liberal model, in which free markets are pursued as the ultimate goal, with minimum state intervention and democratic civil society institutions as means to help the market flourish. China's starting point in introducing the market was not to promote free market as an end in itself. It was very much focused on using the market to correct errors in the state's central economic planning system, and the Chinese state never intended to give away its power and control (Liew 2005). In the aftermath of radical political movements and extreme poverty in the 1960s and 1970s, the market was introduced as a means of strengthening, rather than weakening, the legitimacy of the state's leadership (Breslin 2004). According to Harvey (2005), a few measures were taken to make sure that the introduction of the market did not undermine state authority, including placing the initial

economic reforms at southern provinces that are geographically and politically remote from the centre of state power, relying on state-owned banks in providing loans and other financial services, and a heavy reliance on foreign investments, which prohibited the rise of an independent capitalist class domestically. Even after a few decades of economic reforms and development, China's engagement with neo-liberalism still differs significantly from most other countries in a number of important areas, including public ownership, government-market relationship and civil society development.

3.4.1 Socialist market economy

The market development in China is often referred to as a 'socialist market economy', characterized by active government intervention and sponsorship, as well as public ownership. A commonly cited quote from Deng Xiaoping (1984: 36), the architect of China's post-1978 reform, explains the need for sticking to socialism in the process of economic reform:

If we take the capitalist road, we can enable less than 1 per cent of the people of China to become prosperous, but we definitely cannot resolve the problems of how to make 90 odd per cent of the Chinese people prosperous. Therefore, we have to persist with socialism. According to the socialist principle of distribution of labour, there will not be a large gap between the rich and the poor. After another 20, 30 years, after developing our forces of production, there will not be a two-class differentiation.

Indeed, China deviates from most other countries pursuing typical neo-liberal reforms in that the country has a large amount of surplus labour (Harvey 2005). It is estimated that there are around 710 million people in the Chinese labour force, which is equivalent to a quarter of the global total (Breslin 2004). Before 1978, many of the state- and collectively-owned enterprises employed a significant

proportion of the labour force, and privatizing many of the publicly owned enterprises to make them more efficient and profitable had been an extremely painful process. From 1995 to 2001, it was estimated that 46 million workers in the state -owned enterprises (SOEs), 18.6 million workers in collectively owned urban enterprises and a further 34 million state sector workers had been laid off (Giles et al. 2005).

It is of paramount importance for the Chinese state to protect vulnerable groups, including workers employed by publicly owned enterprises and displaced rural populations, from the adverse impacts of market competition in order to maintain political stability (Breslin 2004; Harvey 2005). Despite the efforts to privatise publicly owned enterprises, many of the state-owned enterprises (SOEs) continue to operate. In 2001, SOEs still contributed 27.3% of the total number of industrial enterprises and produced 44.4% of industrial output (NBS 2002, cited in Liew 2005). State and local governments also invested heavily in labour-intensive infrastructure projects, in order to provide more employment opportunities (Harvey 2005). However, despite the various efforts, the ability of public institutions to provide employment and to reduce income and other forms of social inequity is increasingly being challenged as further economic liberalisation strategies were adopted since the early 1990s. In the 'socialist market economy', there seems to be constant and unavoidable conflicts between the 'socialist' vision of equity and the market's pursuit of efficiency and profit maximization. Market liberalisation has made China one of the fastest growing economies in the world, with a 9.1% GDP growth rate in 2009 (NBS 2010), but at the same time it has also widened social inequity in the Chinese society. There are significant social disparities in the level of human development between different regions, sectors and between rural and urban areas. For example, the World Bank estimates that the Gini co-efficient (a measurement of inequality) for income distribution increased from 0.3 in 1982 to 0.45 in 2002, a 50% increase in twenty years during the reform period (UNDP 2005). Waves of economic reforms have transformed

China from one of the poorest but most equal countries to one in the middle of the equality ranking in the world (The World Bank 1997).

3.4.2 Decentralisation and government-enterprise relationship

China's market reforms differ significantly from the neo-liberal model prescribed by organizations like the World Bank and the International Monetary Fund, in that the market seldom runs in a completely free way: state intervention and mediation are constantly behind the functioning of the market in China. There are strong ties between political actors and private enterprises, and strong initiatives from both sides to penetrate into each other, particularly at the level of local governments (Breslin 2004). The role of local governments in supervising local economic development and the formation of mutually beneficial alliances between local governments and private enterprises are strengthened through a series of decentralisation reforms (Liew 2004). China's vast geographical area and population size also make it impossible for the central state to directly control local political and economic activities at every individual locale (*ibid*).

Perhaps one of the major changes in governance after 1978 is the increasing power and autonomy of local governments. This resulted from a series of fiscal decentralisation programmes introduced by the central government in order to give local governments more incentives to promote economic growth within their jurisdictions (Zhao and Zhang 1999). Whether decentralisation has significantly weakened the capacity of the Chinese central government in controlling their local agents has been an issue of debate amongst scholars. In some areas, *e.g.* fiscal management and the implementation of public policies, there are clear signs of decline in state control. For example, the tax-sharing system introduced in 1993 has significantly increased local governments' share of tax income, and their autonomy on how to invest the tax revenue (Zhao and Zhang 1999). The central government's share of national income has been declining continuously and

accounted for only 7.2% of GDP in 2001, compared to 13% in India and 26.8% in Russia (World Bank 2002). This fiscal distribution pattern intensified the historical central-local struggle. Any policies that hamper local short term interests are expected to trigger resistance and attacks from local elites, and after two decades of decentralisation, local governments have already mastered the skills and resources to effectively block central policies through a full range of tricks (Chen 1995; Zhao and Zhang 1999). As Breslin (2004: 20) articulates:

Any analysis that ignores the role and power of local authorities at different levels will simply fail to understand the real dynamics of economic, social and political change in China. If China is becoming a regulatory state, it is a voluntary regulatory state, with local authorities still able to decide whether to adhere to central regulation or not.

However, in other areas, the central government retains its power and control, particularly in the appointment of key local officials. Key positions in provincial governments, such as governors and party secretaries, are still appointed directly by the central government. Most other local officials are appointed by the higher-level cadre (Huang 1996). These appointments are increasingly being made through consultation with a broader range of local agents, such as peer officials from the local administration, members of the local People's Congress and Political Consultative Party (a multi-party consortium led by the Communist Party), and in some pilot areas, the public through opinions polls and televised open debates between candidates (Dai et al. 2007). However, higher level governments still retain veto power over the nomination of candidates for appointment and the reappointment of key officials (Huang et al. 2006). Evaluations of the performance of local officials are becoming a complicated process, with more than ten protocols and guidelines being issued by the central government over the past 5-8 years, in order to select the most competent candidates, including those without well-established personal connections in the

existing administration. Officials failing to achieve targets in key policy areas, such as family planning and emission reduction of greenhouse gases, are not given opportunities for reappointment (*ibid*). The power and control of the central government over the appointment of local officials led some scholars to believe that the Chinese state still retains the capacity to effectively direct developments at the local level (Montinola et al. 1996; Edin 2003).

As in other countries, decentralisation has both positive and negative sides. On one hand, it enables the policies to be more effective and responsive to local needs, therefore promoting development. The rapid and sustained GDP growth over the past decades in China and the rising living standards are testimonies to the benefits of decentralisation. However, fiscal decentralisation has also increased the surplus in coastal provinces and the deficits in poor inner and western provinces, and resulted in the increasing divide between different regions in China (Zhao and Zhang 1999). With local authorities becoming increasingly independent and powerful, they may not endorse and comply with national policies and regulations. For example, lack of incentives and cooperation from local governments is the key to understanding the classical paradox between good environment laws and poor environmental performance in China (Lieberthal 1997). In addition, China differs from most developed countries in that the major responsibility to finance the social service sector relies on lower level governments (counties and township), and reduced government budgets for education, health care and other basic social services have led to the deterioration of social welfare, particularly in rural areas (World Bank 2002; UNDP 2005).

It is a golden rule that to run a successful business in China requires establishing good relationships with local authorities, which is often more important than searching for market opportunities (Wank 1998). The social connections, or interpersonal ties between local authorities and private enterprises in China are often framed under the concept of social capital, and have both positive and

negative impacts on the development of China's market economy (Gu et al. 2008). Connections with local governments help firms to better understand the rules of the game, and to gain better access to land, licenses and distribution channels (Child and Tse 2001). According to Gu et al. (2008), interpersonal ties have a direct influence on firms' market performance in China. However, there is also a dark side to such social connections. Local governments are often left to regulate both themselves and local economies. In order to maintain production of and continue to collect revenue from local factories and enterprises, local governments in China often set up trade barriers against products from other areas in the country and effectively block the formation of larger-scale economies. Regional and local protectionism are seen as the main cause for the low international competitiveness of Chinese enterprises (Hou 2004). Imposing fees and controlling loans in local banks are the common practices of many local governments in China, who still act in similar manners to the old feudal economies (Shen and Tai 1990). These phenomena echo the analysis on the 'dark side' of social capital as excessive social bonding within a group or alliance encourages inequity, corruption and illegitimate control (see section 2.2.3).

During the economic reform, many officials, particularly local officials, have successfully transformed themselves to become the so-called 'red capitalists' (Dickson 2003), utilizing their political power to influence business decisions, holding shares in private enterprises, and placing their close relatives or friends in charge of private corporations. The privatisation of SOEs and other publicly owned enterprises provides new opportunities for officials, particularly local officials, to take control of the private sector. Walder (2002) describes this process as 'insider privatisation' in which close relatives and contacts of government officials gain control of public enterprises and assets. On the other hand, there are also efforts from entrepreneurs to become members of the Communist Party or local people's congress, thereby reinforcing their connections and ties with state or local governments, in order to protect and promote corporate interests. For

example, Dickson (2003: 108) estimates that about 20 percent of private entrepreneurs are Party members.

3.4.3 The emergency of a civil society

The emergence of civil society after 1979 can be attributed to changes in the socio-economic, political and international environment. There had been significant reductions in poverty and dramatic increases in the living standards of citizens, which provided an economic basis for the establishment and development of civil society organizations (Yu 2000). The introduction of the rule of law and markets reduced the penetration of state power in managing societal affairs, and increased the recognition of individual rights and the autonomy of producers, enterprises, local government units and other social actors (Yu 2000). With China's integration into the global political and economic system and its entry into the World Trade Organization (WTO), the political leaders were under international pressure to take issues such as human rights, civil society, and democracy more seriously (SIDA 2004). Various international organizations, such as the European Union, have established programmes to help strengthen civil society in China (SIDA 2004).

Because of these changes, the number of civil society organizations has increased rapidly. In 1989, the number of national civil society organizations reached 1,600 and local ones numbered over 200,000 (Yu 2000). After the June Fourth student demonstration in the Tianmen Square in Beijing and the subsequent crack down of the movement, the number of civil society organizations decreased in the early 1990s (Yu 2000). The number rose again in the late 1990s, and by 2002, official statistics showed that a total of 136,000 'social organisations' and 82,000 private non-profit corporations had been registered with the Ministry of Civil Affairs (SIDA 2004).

There are various types of civil society organizations in China, including trade unions, professional interest associations, academic associations and citizens' self-help organizations (Yu 2000). There is a predominance of environmental and green organizations and organizations focusing on women's rights and welfare (SIDA 2004). The influence of civil society organizations on China's policies is increasing, particularly from organizations who have specialized professional experiences in economics, environmental protection, health care and other important policy areas. During the SARS outbreak in 2004, there was a joint response from the civil society with 51 organizations involved in public educational and advocacy work, which helped to change the government's attitude to work with the public and to make the information on the development of the epidemic available to the public (SIDA 2004). There are around 2000 environmental organizations in China (Wen 2005), which play a key role in advancing the environmental protection agenda in the country. Campaigns and protests from environmental groups and local villagers forced the government to shut down the construction of hydro-electric dams in south west China in 2003 (*ibid*). Many green NGOs have formed alliances with the State Environmental Protection Administration (SEPA, now the Ministry of Environmental Protection), and joined forces in the call for a green Olympics. Increasingly, they are also working together on sensitive issues such as pollution control and the termination of massive energy and construction projects, which often trigger fierce resistance from local governments (*ibid*).

Despite these progresses there are still important political and legal obstacles to the development of civil society in China. The primary focus of China's political system remains to maintain the authority and leadership of the Communist Party, and civil society organizations are required to work under the supervision of the party-state (Yu 2000). Two pieces of administrative regulations, the Regulations on the Administration and Registration of Social Associations and the Regulations on Management of Civilian-run Non-enterprise Units, form the official legal

framework for the administration of civil society organizations in China. These regulations impose three obstacles to the function of civil society organizations in China: 1) they specify a dual regulation system and civil society organizations need to have a supervising government body before they can register with the Ministry of Civil Affairs, and the supervising government body can decide on the appointment of the president and senior staff members of the organization, examine and approve key activities and audit finances (Yu 2000); 2) the organization needs a minimum starting fund of 30,000 yuan (about USD\$ 2500) and a minimum membership of 50 members; 3) only one organization in each field can be registered at any administrative level, which increased the difficulties for networking between different organizations (SIDA 2004).

Due to these restrictions, many organizations in China chose to register as business enterprises, or are un-registered, in order to carry out their activities more independently. However, such organizations cannot receive funding from the government or enjoy tax reductions (SIDA 2004). Many NGOs that are formally registered as civil society organisations are established by people with strong connections to the government (Ho 2001). In addition, many government institutions have established their own 'government-sponsored NGOs', in order to perform some government functions and attract funding from both the Chinese government and foreign donors (*ibid*). Therefore the largest and most influential civil society organizations in China are government funded, but are also least independent from the government (Yu 2000). Because of these obstacles, one of the key characteristics of the civil society in China is that it is a government-led one and it has civil-governmental durability, which is very different from its counterparts in other parts of the world (Yu 2000).

In addition, from the early 1980s village committees started to be established in the rural areas, which are self-governed, grass-root organizations charged with a range of responsibilities, such as the management of collectively owned farm land,

providing welfare services and settling disputes. The 1987 Organic Law on Village Committees allows nomination and direct election of committee members by villagers, and empowers elected village committees to establish village codes and charters in managing community affairs (Taylor 2004). The village committees are thus seen as the vehicles for the so-called ‘bottom-up democracy’ in China (O’Brien and Li 2000). According to the Ministry of Civil Affairs, a total of 601,000 village committees were established in China by 2008, with 2.41 million members serving in these committees (Yue and Lai 2008). The establishment of such village committees has created a new basis for political power – through popular election (Taylor 2004).

There are, however, some setbacks in the development of grass-root democracy. Manipulations of village committee elections have been increasingly common throughout China, and many members of village committees get their seats through bribing voters and high level officials (who deal with public complaints), threats, violence, cheating or other illegal means, rather than through open and transparent elections (Guan 2007). Petitions and protests against elected village committee members are not uncommon (*ibid*). In order to improve the functions of village committees, the State Council recently issued the Ordinance on Strengthening and Improving Village Committee Elections (2009), aiming to restore the legitimacy of village elections. However, some commentators believe that manipulations of village committee elections cannot be effectively addressed through the ordinance, as the key problem is that village committees now have a concentration of economic resources at their discretion. For example, they are in charge of the allocation of land in rural areas and the profits derived from the commercial use of these lands (Guan 2007). This concentration of resources and power in the hands of village committees creates a strong incentive for individuals to seize seats. In addition, there are also elements in the traditions and norms that are not conducive to the development of this grass-root democracy in the Chinese society, *e.g.* low levels of trust and social capital (see section 3.1).

Therefore, although it is clear that a semi-autonomous civil society is emerging in China, the progress has been mixed. Non-governmental and community organizations still face a range of institutional challenges to become fully autonomous and functional organizations that serve the interests of the people.

3.5 History of natural resource management and environmental governance in China

3.5.1 Nature-society relationship in Imperial China

Nature has influenced the culture and everyday lives of people in China throughout the country's long history. In the book *Historical Records*, written during the first century BC, the King Shang Tang's awareness of wildlife preservation was considered as a virtue by his followers (Edmonds 1994). Various philosophers and scholars (*e.g.* Meng Ke and Xun Kuang) in ancient China wrote about the importance of avoiding killing of animals and over-exploiting forest and fishery resources (*ibid*). Beautiful landscapes and charismatic animals have long been the most favourable subjects in ancient poems and art works in China (Elvin 1993). China has also developed many techniques of sustainable natural resource management in the past, for example, the integration of tree planting and freshwater fish farming with crop cultivation (Edmonds 1994). Such ancient agriculture systems made efficient use of resources, increased productivity and reduced the negative impacts on the environment (*ibid*). Despite these examples of environmental awareness and appreciation of nature in ancient times, China also has a long history of unsustainable growth over the past three thousand years (Elvin 1993, 1996; Edmonds 1994). China's impressive pre-modern economic growth, achieved mainly through intensive farming and advanced hydro-agricultural technologies, resulted in high demands for natural resources (*ibid*). By the late imperial period, there were already signs of shortage of some

natural resources, particularly farm land, timber, mineral resources and water (Elvin 1996). By the Qing Dynasty (1644-1911), most natural forests had been turned into farm land and massive timbers, often seen in old Chinese temples and buildings, were unobtainable in native forests in China (Edmonds 1994). Elvin (1996: 739) concludes that as many other parts of world, in Imperial China, *‘the central driving force of environmental degradation has been the intensified exploitation of nature linked to the drive to acquire the means of political, economic and military power, at state and societal levels’*.

3.5.2 Natural resource and environmental management from 1949 to 1978

Contemporary environmental policies were initiated in the Republican period (Elvin and Liu 1998). Thereafter, two critical junctures brought substantial changes in environmental policy: the creation of the People’s Republic of China in 1949 and the start of economic and other reforms in 1978 (Muldavin 2000). From 1949 to 1978, China went through a period of centralised planning and collective agriculture production. In the 1950s, farm land was taken from private landlords and redistributed amongst poor farmers. Thousands of ‘people’s communes’ were established in the country to manage agriculture production and administer farmers’ collective entitlements to farm land, health and other social services (see section 3.3). Property rights to land and other natural resources were pooled together, under the administration of communes (Putterman 1990). Labour is the only source of income for farmers engaged in collective agriculture production (*ibid*). Such collective agriculture systems had many similarities to traditional common property regimes, in that land control was divorced from both individuals and markets (Muldavin 2000). During the ‘Great Leap Forward’ in the late 1950s, people’s communes and thousands of small-scale workshops and factories were set up to produce steel, leading to large-scale deforestation and widespread water and soil pollution (Shapiro 2001). In response to such problems, the state issued Regulations of the Protection of Mineral Resources (1956) and

State Provisional Program on Water and Soil Protection (1957) to help address pressing environmental issues such as water pollution and soil erosion (Muldavin 2000). However, in the following years, agriculture and industrial development policies continued pushing for growth at all costs, with devastating environmental and social consequences (see section 3.3).

An important turning point in relation to environmental protection in China came in 1972. In this year, three events together provided the impetus for the Chinese government to tackle environmental problems (Muldavin 2000). The first event was a red tide in the Bay of Dalian, which led to significant economic losses in fisheries and mariculture. The second was the detection of high levels of toxic chemicals in fish sold in the Beijing fish market, which was traced back to industrial pollution in reservoirs near Beijing, where the fish was caught. The third and most significant event was the UN Conference on Health and Environment, held in Sweden in June 1972. The Chinese delegation returned with a series of concrete recommendations, and the State Council responded by issuing a number of decrees (Qu 1994). Widespread natural disasters in the 1960s and the health effects of pollution eventually convinced the Chinese government of the necessity to protect the environment, regardless of the fear that some western nations might use the environment as an excuse to restrict China's economic development (Muldavin 2000). After the UN Conference on Health and Environment, the State Council started developing a national environmental administration system and established the Environmental Protection Leadership Group in 1973 to coordinate the efforts. This Group was upgraded to a ministry-level agency and became the State Environmental Protection Administration (SEPA, now the Ministry of Environmental Protection) in 1998, after a year of disastrous flooding – another turning point in the history of environmental protection in China (PATF 2004).

3.5.3 Natural resource management and environmental governance from 1949 to 1978

Due to the problems in the collective agriculture, from 1978, agriculture policies in China shifted to the ‘de-collectivisation’ of the commune system and decentralisation of rights and responsibilities to individual households (Muldavin 2000). Under the new ‘household responsibility system’, individual households were allocated farm land and became the basic unit of agriculture production. Village committees, under the supervision of the local government, administer the allocation of farm land, forests and other natural resources on land (the management of fisheries and other marine resources is reviewed in the next section). There is, therefore, a degree of uncertainty in the households’ rights to land and other resources, with local authorities maintaining a level of control in the allocation of such resources (Muldavin 2000). Decisions on the allocation and management of land and other resources were increasingly driven by market forces (*ibid*). In some cases, such as the forest areas in the Yunan Province in western China, over-exploitation of natural resources by poor farmers have been driven by the increasing social inequity and polarisation in the reform period (Zhao 1993), leading to the so-called ‘ecocide’ (Blaikie 1985). Pressures on the environment and natural resources also come from unprecedented economic growth, industrialisation and urbanisation in the reform period, particularly in the coastal areas, as reviewed in the next section.

The reform period saw progressive developments in the formation of policy and legal frameworks for environmental protection. The provisional Environmental Protection Law was issued in 1979 and became permanent in 1989, which forms the basis of environmental regulation in China (OECD 2002). Environmental protection was made a key priority for the State Council in 1983 (*ibid*). From 1991, environmental protection has become an integral part of the national five-year development plans (*ibid*). Compared to other developing countries,

China has a relatively well-developed regulatory system comprising of more than 2,000 environmental laws and regulations (*ibid*). China has also ratified various international environmental conventions, including the United Nations Convention on the Law of the Sea (UNCLOS 1982), the Convention on Biological Diversity (CBD 1992), the Ramsar Convention on Wetlands (1971) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1975). After the 1992 United Nations Conference on Environment and Development, China issued a national action plan, 'China Agenda 21', to implement the recommendations made by the Rio Declaration (NPC and NSTC 1994). These international conventions provided an important impetus for the Chinese government to improve its domestic environmental policies and regulations (McBeath and Leng 2006).

Another impetus to environmental protection during the reform period comes from a growing civil society. A key difference between Chinese green NGOs and their counterparts in other countries has been their relatively close relationships with the Chinese government (Ho 2001, also see section 3.4.3). The establishment of the first domestic NGO dedicated to environmental protection in 1991 coincided with the 'greening' of the central state in China (*ibid*). In 1996, the State Council passed the Decision Concerning Certain Environmental Issues, which encourages both the media and citizens to expose illegal actions that caused environmental damage (OECD 2002). By the late 1990s, environmental NGOs and the media have played an important role in environmental education and raising public awareness (*ibid*). Many international organisations, such as the Nature Conservancy, Conservation International, World Wildlife Fund, and Greenpeace have established offices in China. There are different types of environmental NGOs in China, ranging from hierarchical lobbying groups from within the bureaucratic system, to grass-root organisations adopting a bottom-up approach. The existence of 'government-sponsored' environmental NGOs and the close relationship between environmental NGOs (both domestic and international)

and the Chinese government (particularly the Ministry of Environmental Protection) have been long debated. Most environmental activists in China avoid confronting the government, and mass protests raising environmental concerns of citizens are extremely rare (Ho 2001). While a lack of autonomy and interdependence from the Chinese government is, in most cases, recognised as a key obstacle for the further development of the 'green civil society', there are cases where international and domestic environmental NGOs have used their government connections to advance environmental agendas (Ho 2001; Lu 2005). For example, Greenpeace China's campaign against a commercial logging company operating in southern China was supported by crucial evidence provided by local officials (Lu 2005). Due to their recent emergence, many environmental NGOs have limited financial, technical and human resources, and are often dependent on charismatic leadership (*e.g.* well-established scientists, experts and former officials) to have their voices heard (Ho 2001; Lu 2005). Therefore, enhancing environmental NGOs' roles and capacity in influencing policy-making and mobilising public participation in environmental initiatives remains a key priority for improving environmental governance in China (OECD 2002; Lu 2005).

To conclude, as Elvin (1996) points out, natural resources in China have always been exploited to meet the economic and political needs of the society and the state, as in other countries. Traditionally, the impetuses to protect the environment in China came from the needs to rationalise resource use and to reduce the risks from pollution and natural disasters. After 1972, international policies and conventions have helped raise the political will for improving environmental management in China. From the 1990s, the emergence of environmental NGOs and civil society has become another source of impetus to environmental protection in China. Environmental governance in China in the reform period has increasingly been shaped by a combination of socio-economic, legal and political factors at local, national and international levels (Lu 2005).

3.6 Marine Protected Areas (MPAs) in China

3.6.1 *History of protected areas in China*

China is one of the ‘mega-biodiversity’ countries (McNeely et al. 1990), hosting more than 30,000 species of vascular plants and over 6,300 species of vertebrates, with high levels of endemism (SEPA 1998). The country has a long history of intensive agricultural production and human dominance, and over-exploitation of natural resources and ecosystem degradation have been an ‘old problem’ (Edmonds 1994, Elvin 1996). According to historical records and ancient writings, the need for natural resource conservation and maintenance of essential ecosystem services had been recognised by rulers during the early imperial period (more than 3000 years ago) (Edmonds 1994). While areas set aside for pure conservation purposes were rare, Chinese imperial rulers established hunting reserves, gardens and temple grounds that indirectly conserved nature (Edmonds 1994). Stones were placed by traditional communities in protected mountain and forest areas to prohibit deforestation, and recent archaeological discovery of such relics show that they carried ancient by-laws established by traditional communities for forest protection, with clearly defined boundaries of protection zones, very similar to modern protected areas (Zheng et al. 2006).

In 1956, five scientists submitted a proposal to the National People’s Congress, calling for the establishment of non-logging areas in natural forests in order to preserve vegetation for scientific research. According to their proposal, the first modern-style protected area, the Dinghushan Nature Reserve, was established in the southern Guangdong Province in China. This was quickly followed by the designation of another 20 protected areas, mostly in mountain and forest areas (PATF 2004). However, the process of protected area developments was disrupted by two decades of radical political movements starting from the Great Leap Forward in 1958 to the end of the Cultural Revolution. This period saw massive

ecosystem destruction, even within designated protected areas (PATF 2004), through ill designed agricultural and industrial projects. In addition, the suppression of scientists and intellectuals, as well as indigenous and traditional institutions, took a heavy toll on the environment (Shapiro 2001). Very few protected areas were designated in this period, and by 1978 only 34 official protected areas existed in China, all of them having been designated and managed by the central government (Jim and Xu 2004).

The post-1978 reform period saw Chinese government's increasing recognition of, and commitment to, biodiversity conservation and protected area development. In line with the reforms in the economic sector and public administration system in China, the authority to designate and manage protected areas was gradually devolved to local governments. By 1991, more than 660 protected areas were designated in China, of which over 90% were established by local governments. However, there was little policy and regulations before 1992 to guide the designation and management of protected areas, therefore many of them existed only as 'paper parks' (Jim and Xu 2004). In the early 1990s, China ratified several international conventions such as the the Convention on Biological Diversity (CBD) and the Ramsar Convention on Wetlands, and the central government started to issue various domestic policies and regulations that provide for the management of protected areas. The process of establishing protected areas was accelerated, particularly after severe flooding and drought in 1997 and 1998, respectively, which reminded political leaders of the urgent need for ecosystem protection in order to prevent such disastrous events (PATF 2004). By 2007, a total of 2531 nature reserves have been designated, covering 15.2 % of the territory of China (MOEP 2008, Figure 3.1). The percentage of protected area coverage in China is slightly higher than the global average of 12.2% (UNEP-WCMC 2008).

China hosts a rich marine biodiversity. China's coastline stretches across

18,000km from temperate and subtropical into tropical zones (Huang 1994). Four large marine ecosystems (LMEs) are found in China: the Yellow Sea, the East China Sea, the Kuroshio Current, and the South China Sea. With three million square kilometre of marine area and 6500 islands under its jurisdiction, the country hosts an exceptional marine biodiversity, comprising about 20,300 recorded species, including 12,000 species of marine fauna (Huang 1994). However, the development of MPAs lagged behind their terrestrial counterparts, as in the most other parts of the world (Wood et al. 2008). Since the 1980s, a total of 158 MPAs have been designated, covering 3.77 million hectares of coastal and marine areas, or 1.26% of the total marine area under China's jurisdiction (Figure 3.2). This percentage is lower than the global coverage of MPAs, which cover 1.6% of the total marine area within Exclusive Economic Zones (Wood et al. 2008).

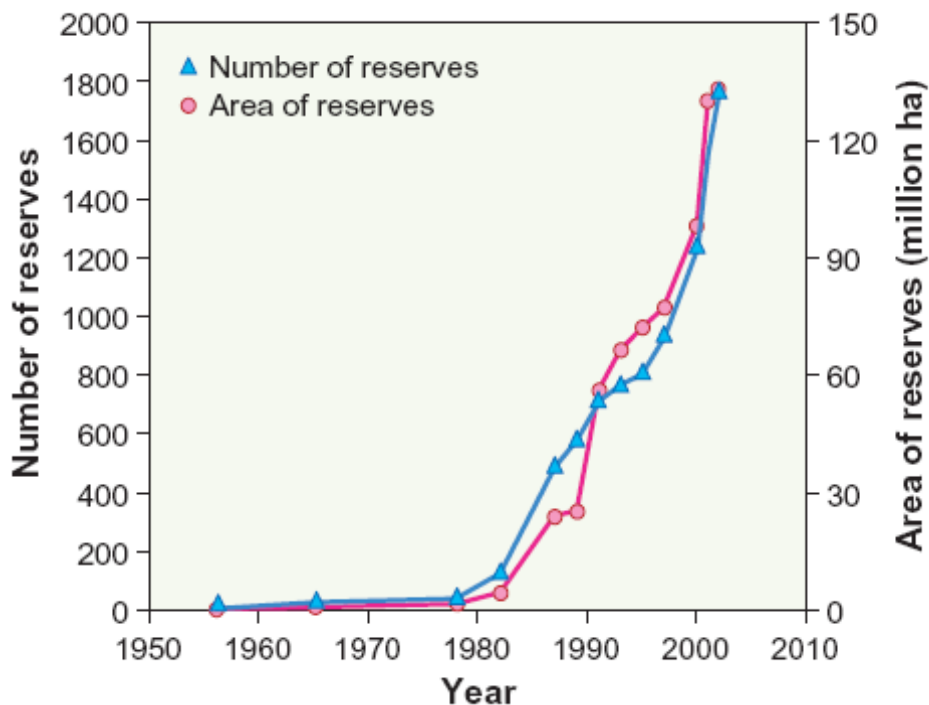


Figure 3.1 Growth of nature reserves in China (Liu et al. 2003).

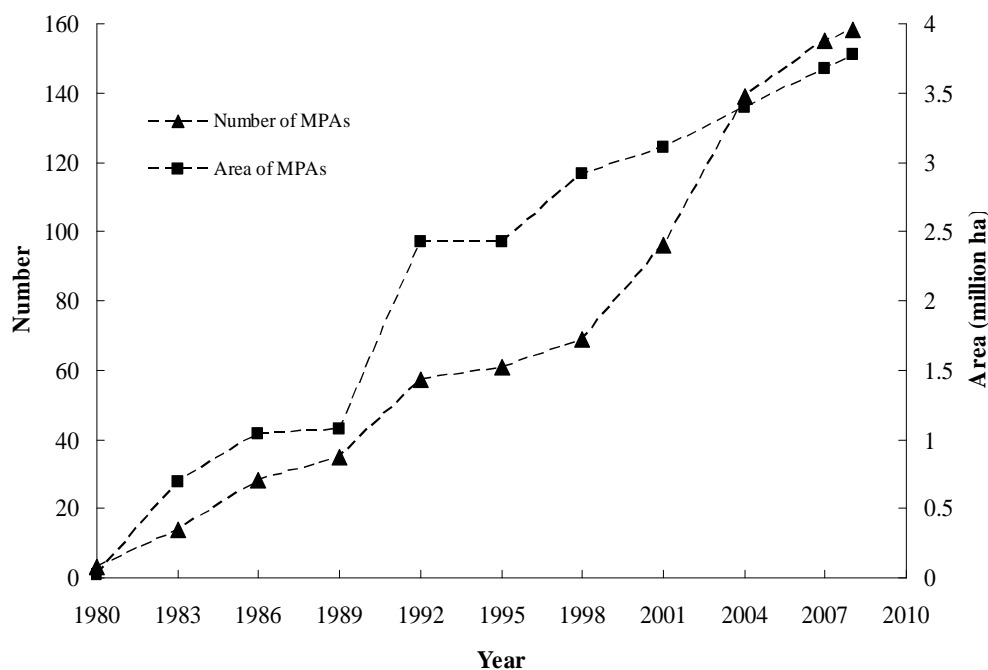


Figure 3.2 Growth in the number and area of MPAs in China (Qiu et al. 2009).

3.6.2 Protected area categories and administration system in China

The protected area system in China consists of nature reserves (2138 sites), scenic areas (690 sites), and forest parks (1476 sites) (PATF 2004). The majority are nature reserves, accounting for 87% of the total area protected in China (*ibid*). The Regulation on Nature Reserves of China (1994) defines a nature reserve as *‘An area delineated for special protection and management by law on the land, terrestrial water body or sea, where representative ecosystems, natural habitats with rich distribution of rare and endangered flora and fauna, and natural heritage of special significance are found’*. Nature reserves can be designated and administrated at national, provincial, municipal and county levels. National nature reserves conserve biodiversity of national and international importance (PATF 2004). Starting from 1991, local governments have been responsible for the selection, designation and management of nature reserves within their jurisdictions. Only nature reserves that have been designated as provincial nature

reserves for more than three years can be qualified for consideration as a national rank. In the designation of national nature reserves, candidate sites and their boundaries are proposed by local governments, evaluated by a special protected-area committee consisting of scientists and representatives from relevant national government agencies, and submitted to the State Council for final approval and declaration (PATF 2004). Therefore, although the central government is responsible for establishing various technical guidelines and standards, the selection and designation of nature reserves in China is largely a bottom-up process led by local governments (Qiu et al. 2009).

Protected areas in China are administrated by various government agencies under the State Council. The Regulation on Nature Reserves of China stipulates that the Ministry of Environmental Protection oversees and coordinates the overall development of the nature reserve system in China, while other government administrations are directly responsible for the protected areas that are in line with their specific expertise. For example, the State Forestry Administration is responsible for the nature reserves that protect forest and wetland ecosystems and terrestrial species, and the Bureau of Fisheries under the Ministry of Agriculture is responsible for nature reserves that conserve aquatic species. Currently, over 10 government ministries and administrations manage nature reserves in China, and the majority (76% of the total number) of nature reserves are managed by the State Forestry Administration.

MPAs are managed by several government ministries and administrations in China (Figure 3.3). Among them, the State Oceanic Administration oversees the majority of the MPAs and is also responsible for the drafting of various regulations and polices related to the management of the marine environment in China, as discussed in the next section.

There are two broad categories of MPAs in China: no-take marine nature reserves

(MNRs) and multiple-use marine special protected areas (MSPAs) (Table 3.1). Compared to MNRs, the establishment of MSPAs has been a recent development, with the first MSPA declared in 2002. No-take MNRs currently account for 94.4% of the total area of China's MPA system, which differs strongly from the global situation, where no-take zones constitute only a tiny fraction of the global MPA system (Wood et al. 2008). The designation of national MNRs follows the same procedure (discussed above) as other types of national nature reserves, and national MSPAs are approved and declared by the State Oceanic Administrative instead of the State Council. Local (provincial, municipal and county level) MPAs (including MNRs and MSPAs) are selected, evaluated and designated by local governments.

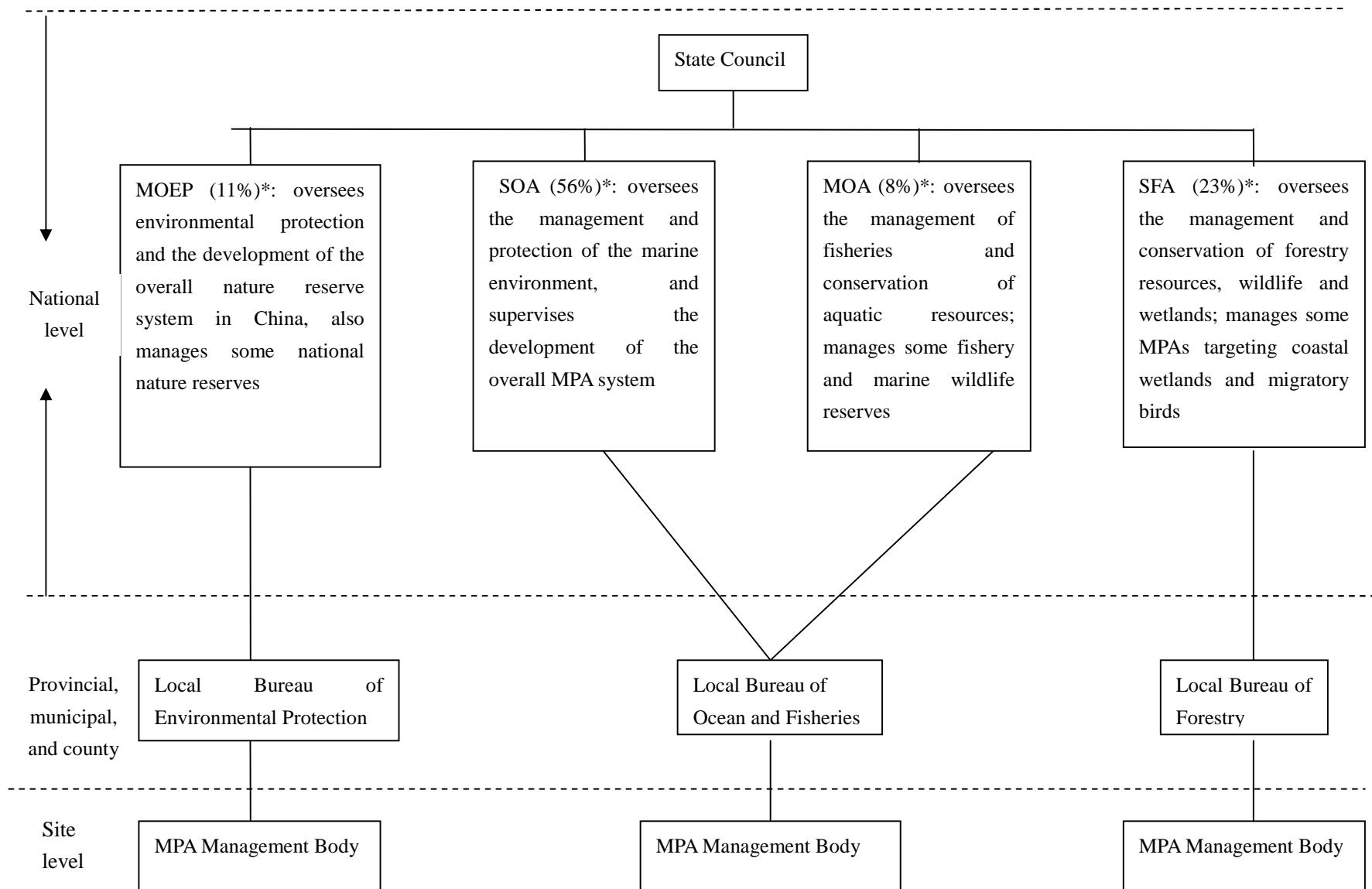


Figure 3.3 Administrative structure of MPAs in China. MOEP, Ministry of Environmental Protection; SOA, State Oceanic Administration; MOA, Ministry of Agriculture; SFA, State Forestry Administration; BOF, Bureau of Fisheries. * The percentage (in terms of number) of the MPAs managed by each agency.

Table 3.1 Total number and area of marine nature reserves (MNR) and marine special protected areas (MSPA) in China by August 2008 (Qiu et al. 2009).

	MNR (no take)	MSPA (multiple use)	MPA (MNR + MSPA)
Total number of sites	146	12	158
Number of sites designated at the national level	32	7	39
Number of sites designated at the local level	114	5	119
Total area (million ha)	3.56	0.21	3.77
Area of sites designated at the national level	2.29	0.13	2.42
Area of sites designated at the local level	1.27	0.08	1.35
Average size of individual sites (million ha)	0.024	0.018	0.024
Average area of sites designated at the national level	0.072	0.018	0.063
Average area of sites designated at the local level	0.011	0.016	0.011
Percentage of China's total marine area (%)	1.19	0.07	1.26

3.6.3. Policies and regulations governing protected areas in China

As a signatory to international environmental conventions, such as the Convention on Biological Diversity (CBD 1992), China has international

obligations to conserve biodiversity within its jurisdiction. After the 1992 United Nations Conference on Environment and Development, China issued a national action plan, 'China Agenda 21', to implement the recommendations made by the Rio Declaration (NPC and NSTC 1994). In 1996, the State Oceanic Administration led the efforts for the formulation of the 'China Ocean Agenda 21' to put forward a national sustainable development strategy in the marine environment (SOA 1996). The Ocean Agenda 21 envisions a national MPA network for both biodiversity conservation and the sustainable use of marine resources, as well as a comprehensive management and evaluation system for MPAs. It also provides for other aspects of marine biodiversity conservation, including the promotion of scientific research, the establishment of a biodiversity information system and monitoring network, and the protection of species and ecosystems outside MPAs (SOA 1996). The vision for a national MPA network was reaffirmed in the National Marine Economic Development Plan 2000-2010 (State Council 2003).

The legal framework for MPAs consists of various laws and regulations at the national as well as lower levels. The Marine Environment Protection Law of China was revised in 1999 to add a new chapter on marine ecological protection. The Regulation on Nature Reserves (1994), Rule of Marine Nature Reserves (1996) and Interim Marine Special Protected Area Regulations (2005) are central to MPA management in China. Most nature reserves in China, including marine nature reserves, are managed in accordance with the Regulation on Nature Reserves (1994), important provisions of the regulation include the following:

Nature reserve-local community relationship: in the establishment and management of nature reserves, local economic development needs and livelihoods must be addressed properly (Article 5). However, the Regulation does not further specify how to 'properly' address local needs in nature reserve

management. Article Fourteen stipulates that delineation of nature reserve boundaries needs to consider both conservation and local economic and livelihood needs.

Nature reserve zoning scheme: nature reserves are divided into core, buffer and experiment zones. Core zones are no-entry areas except for authorized access. Outside core zones are buffer zones, where only authorised monitoring and scientific research are allowed. Further to buffers zones are experiment zones, where activities compatible with nature conservation may be conducted, including scientific research, education, tourism and breeding of rare and endangered species (Article 18). The zoning of nature reserves hence bears similarity to the biosphere reserve zoning scheme (Kenchington and Agardy 1990).

Responsibilities and obligations of central and local governments: national nature reserves are managed by provincial-level governments or central government agencies, and locally designated (provincial, municipal and county-level) nature reserves are managed by local government agencies above the county level. Local governments above the county level are responsible for financing nature reserves within their jurisdictions. The central government provides appropriate financial assistance for national nature reserves (Article 21 and 23).

It is clear that through the provisions of article 21 and 23, the central government officially delegates most of its previous responsibilities and obligations in the management of nature reserves to local governments. Even for national nature reserves, the central government may not be directly responsible for their management and finance.

Local livelihoods: logging, hunting, farming, fishing, livestock grazing,

collection of medicinal plants and other extractive uses are prohibited within nature reserves except for those specified by other laws. Core zones within nature reserves are no-entry areas, and if it is necessary to relocate local residents living inside core zones, local governments should make appropriate arrangements (Article 26 and 27).

Regulations on compatible economic activities: approval from the Ministry of Environmental Protection is needed for conducting tourism and visiting activities within experimental zones of national nature reserves. In such cases, proposals of tourism activities must be submitted to the management authority of the nature reserve, then evaluated by the provincial government, and submitted to the Ministry of Environmental Protection for final evaluation and approval. Tourism activities within locally designated nature reserves are evaluated and authorised by provincial governments. All activities must follow strictly the approved proposals and must not conflict with the conservation objectives of nature reserves (Article 29).

Marine special protected areas (MSPAs) are managed in accordance with the Interim Marine Special Protected Area Regulations (2005). Sustainable development activities are encouraged, including small scale and recreational fishing, mariculture and ecotourism.

In view of the problems encountered in the implementation of this legal framework, the National People's Congress is in the process of drafting a new Protected Area Law, aiming to provide an overarching legal framework for all types of protected areas in China, including marine and terrestrial nature reserves, special protected areas and forestry, scenic and geological parks (Sun and Chen 2004).

3.6.4. Policy, laws and regulations related to other aspects of marine natural resource management in China

Fishing is an important traditional activity in the coastal areas of China, but also forms a key threat to marine biodiversity (Wang 1999). Official statistics show that China is one of the biggest fishing nations in the world; however, the real catch may be significant lower than the reported figures, due to the problem of over-reporting (Watson and Pauly 2001). Before the 1980s, the main responsibility of fisheries authorities in China, like their counterparts in other countries, was to increase production (Pang and Pauly 2001). Serious efforts from the central government to control fisheries started in the late 1980s, with the release of the Fishery Law of China in 1986. In 1998, the central government adopted a 'zero growth' policy goal and urged all levels of governments to take measures to guarantee a zero growth in marine catch (Pang and Pauly 2001). The Fishery Law has been revised in 2000 to strengthen the provisions for the conservation of fishery resources and illegal fishing (Pang and Pauly 2001). An annual summer moratorium has been implemented in the Yellow Sea and the East China Sea since 1995 and the South China Sea since 1998 (Pang and Pauly 2001). In addition, a licensing system started to operate in 2002, with the issue of the Regulation of Capture Fisheries Permit Management, and the overall fishing capacity is brought into control through target limits for vessels and gears, as well as through fishing permits (FAO China Country Profile).

To protect the rights of marine resources users and to avoid potential conflicts between different user communities, the Marine Area Use Management Law of China was enacted in 2001. Users claiming an exclusive use of the sea for periods longer than three months must first apply for user rights from the marine authorities. The user rights obtained are then protected and regulated under the new law. By the end of 2006, user rights had been established in 1.1 million

hectares of marine areas, with over 80% being issued for fisheries (SOA 2007b). The Marine Area Use Management Law also provides for a marine functional zoning scheme to guide the issuing of user rights for different activities.

China is one of the few countries that have formulated an ocean zoning scheme (Crowder et al. 2006). Ocean zoning is a practical strategy to implement an ecosystem approach and to establish a clear regulatory and management structure (Rosenberg and McLeod 2005). The National Marine Functional Zoning Plan was released in 2002, dividing China's seas into the following 10 functional zones: maritime zone, fishery zone, mineral resources exploitation zone, tourism zone, sea water extraction zone, energy development zone, engineering and construction zone, marine protected areas, special areas and reserved zone. The Plan provides the legal and conceptual basis for detailed ocean zoning at local levels, and aims to 1) strengthen the scientific basis for regulating different uses of the ocean, 2) to gradually reduce unsustainable and conflicting uses of marine resources, and 3) to stop the deterioration of China's marine environment by 2010 (SOA 2002). It also provides an important guideline for the spatial planning of MPAs, and outlines priority geographic areas for the future designation of MPAs.

3.6.5 The conflict between biodiversity conservation and economic development

China's biodiversity is under increasing threats (Liu et al. 2003). With a population of 1.3 billion (~20% of world total), and an annual GDP growth rate over 10% (NBS 2006), the pressures on China's ecosystems and natural resources are unprecedented. The coastal regions are the main arena for China's economic rise, attracting large volumes of labour and capital investments. With a land area around 14% of the national total, the coastal provinces support over 40% of China's population and contribute to 62% of the national's total GDP

(Table 3.2). All coastal provinces have an annual GDP growth rate of over 11% (NBS 2006). As a consequence of uneven regional development, the coastal regions are under more pressure than other regions in China. The main threats to inshore marine ecosystems are land-based pollution, habitat destruction resulting from reclamation and resource overexploitation (SOA 2007a).

Table 3.2 Comparison of major demographic and economic indicators of the eastern/coastal and the western region in China in 2005. The figures are either extracted or computed from data provided in the China Statistical Yearbook 2006 (NBS 2006). The eastern/coastal region includes nine coastal provinces and two municipalities under the direct jurisdiction of the State Council: Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi and Hainan provinces and Tianjin and Shanghai municipalities. The western region includes ten provinces and one municipality under the direct jurisdiction of the State Council: Neimenggu (Inner Mongolia), Sichuan, Guizhou, Yunnan, Xizang (Tibet), Shanxi, Gansu, Qinghai, Ningxia and Xinjiang provinces and Chengqing municipality.

	Eastern/coastal region	Western region	Nation-wide
Land area (10000 km ²)	130	663	960
Population density (persons/km ²)	412	47	136
Percentage of population living in urban area	51%	35%	43%
Total GDP (billion US dollar)	1520	388	2429
Per capita GDP (US dollar)	2829	1240	1854

The development of China's MPA system takes place in a context that is very different from terrestrial protected areas in China. While 84% of terrestrial

protected areas are situated in the underdeveloped western region with a predominantly rural economy (SEPA 2005), coastal areas, where MPAs are situated, are experiencing rapid economic transition characterised by rapid industrial development, urbanization and reduced reliance on traditional livelihoods, along with some large-scale social and environmental changes. Rapid development along the coast has already led to the disappearance of 50% of the area of coastal wetlands, 70% of mangroves and 80% of coral reefs since the 1950s (SOA 2002).

Along with increasing economic activities in the coastal area, the demand for and exploitation of marine resources is also growing rapidly. In 2008, marine-related sectors contributed to 9.87% of the total national GDP, and employed over 32 million people (SOA 2009a). The most important marine economic sectors are maritime shipping, tourism, fishing, mariculture and oil and gas exploration (Figure 3.4).

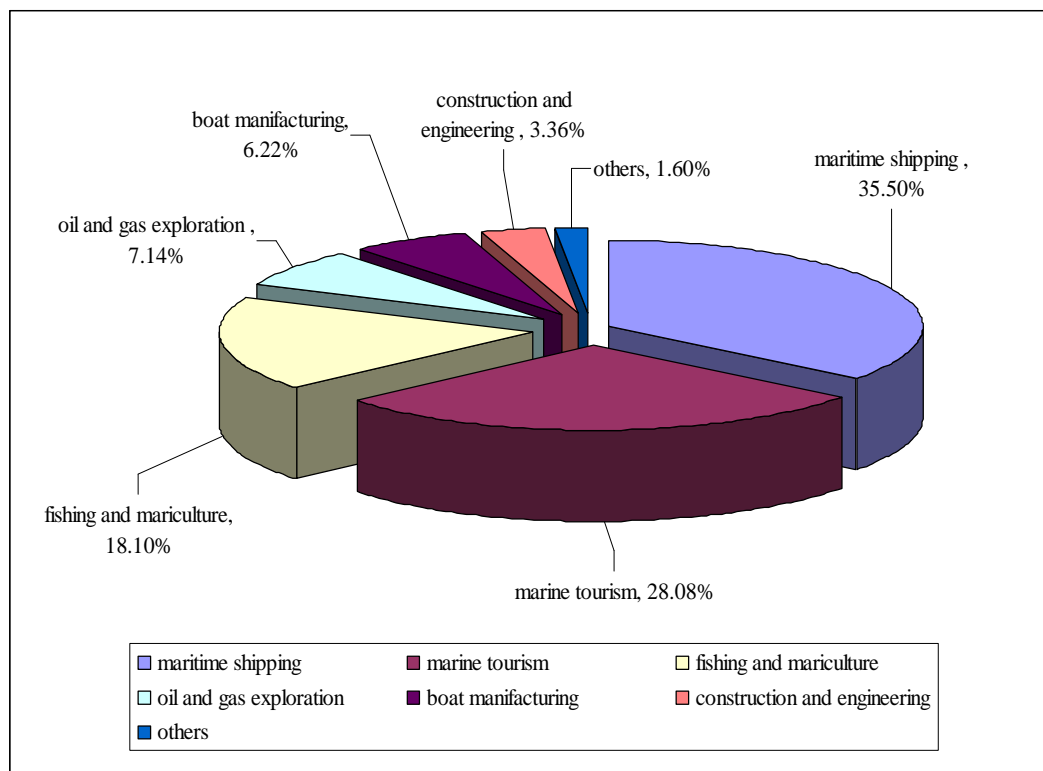


Figure 3.4 Economic contributions of different sectors to the total marine

GDP in China. Data from SOA (2009a).

China is one of the world's biggest fishing nations, and the official government statistics reported an annual landing of around 14.5 million tons from marine capture fisheries in China (MOA 2006). However, as mentioned earlier, the accuracy of Chinese fishery statistics has long been challenged. Coastal fisheries in China typically target multiple species, and more than 100 marine species are consumed. The most important species include hairtail, anchovy, small yellow croaker, squid and various species of shrimps (FAO country profile). There are over 4000 fishing villages in coastal areas in China, which are home to some six million fishermen engaged in marine capture fisheries and mariculture, including three million 'traditional' fishermen (COYBEC 2006).

In addition, the degradation of habitats and overexploitation of natural resources due to the expanding industries, urbanization and growing market demand have become the main drivers behind the constantly rising pressure on marine protected areas in China (Li et al. 2006). Activities such as reclamation, pollution, sand mining and oil extraction within and adjacent to MPAs have resulted in large-scale and often irreversible changes to coastal and marine ecosystems (SOA 2008). For example, in 2007 alone coastal areas in China received 35.9 billion tons of sewage and 12.2 million tons of solid waste (SOA 2008). The multiplicity and scale of the threats render it an extremely difficult task to conserve marine biodiversity in China (Qiu et al. 2009).

3.6.6 People-park conflicts and local participation in protected area management in China

Given the huge and ever increasing demand for natural resources to meet both subsistence and economic development needs, the relationships between local communities and protected areas is often a contested issue in China. On one

hand, the biggest immediate threat to biodiversity conservation in protected areas, particularly forest protected areas, is considered to be illegal farming, hunting and collection of wood and other non-timber forest products (NTFP) (Ervin 2003; Xu & Wilkes 2004). Many believe that the zoning scheme established under the Regulation on Nature Reserves is too strict and unrealistic, and conservation agencies in China lack the resources and capacity to enforce the regulations (Jim and Xu 2003; PATF 2004; Xu and Melick 2007). Ineffective enforcement of conservation regulations makes protected areas prone to unsustainable resource use. For example, intensive farming and extraction of natural resources by communities in densely populated areas has led to rapid ecological degradation in some protected areas in China (Liu et al. 2001).

On the other hand, a daunting 60 million people living within and adjacent to nature reserves in China, and most of them rely heavily on natural resources for securing their livelihoods (Jim and Xu 2003). Although most nature reserves are government territories by law, local residents can hold *de jure* or *de facto* access rights to certain natural resources, such as land and forest, within protected areas (Jim and Xu 2003; Xu and Melick 2007). In most rural areas in China, there has been a long tradition of resource use and local communities are an inherent component of the ecosystems in which they live (Elvin 1998). Therefore exploiting natural resources for community well-being is a legitimate claim from local communities. Furthermore, if protected area management restricts communities' traditional rights to natural resources without offering alternative livelihoods or other benefits in return, protected area managers may face 'a sea of popular hostility' (Jim and Xu 2003).

As in other countries, encouraging local participation and co-management has been promoted as a means to address people-park conflicts and to enhance biodiversity conservation in China. National policies (*e.g.* NPC and NSTC 1994; SOA 1996) encourage public participation in conservation and protected area

management. Collaborative management boards have been established in some nature reserves to promote broader community involvement (Miao et al. 2006). Despite these policy developments and the overall trend of decentralisation in the Chinese society, the progress on the ground has been very limited (PATF 2004; Miao et al. 2006). In most cases, co-management is only limited to holding meetings with community representatives and simple public consultation (*ibid*). Collaborative management boards are often not given specific responsibilities; in fact most of them function as fire wardens rather than coordinating community affairs (Miao et al. 2006). Miao et al. (2006) identify the following obstacles in promoting genuine community participation in co-management of nature reserves in China:

- Conflicting objectives between biodiversity conservation and local development needs
- Lack of clear definition on the roles, rights and responsibilities of communities in co-management
- Insufficient sharing of benefits from protected area management with local communities
- Lack of funding, experiences and well-trained personnel in protected area management agencies for facilitating community participation
- Limited efforts in community outreach and environmental education.

Concluding remarks

To summarize, waves of reform and market liberalisation since 1978 have produced hybrid government-market systems in China. The state, market and local authorities interact in complex and dynamic ways to exert influence on and take control of economic development. Given the strong government-enterprise ties, it is often difficult to tell what is ‘public’ and what is ‘private’ in China, and the market remains very close to the state that spawned it (Breslin 2004). What is also significant to governance is that decentralisation and market liberalisation

have produced strong alliances between local governments and the private sector, as well as new elites and networks with both political and economic power, which may undermine the power and control of the central government and encourage corruption. This resonates with previous discussions on the challenges faced by the state in the rise of networks (see section 2.2).

Rapid privatisation and decentralisation have also increased the conflict between economic growth and social equity. The advancement of the market economy widens the social cleavage between different regions, between the rural and urban areas, and between the rich and the poor. The withdrawal of the state in the provision of social welfare also contributes to increased social inequity. Furthermore, following a long history of top-down regimes and political repressions, civil society and grass-root organisations in China face major institutional and cultural obstacles to establish themselves as fully functional and autonomous bodies capable of representing and defending public interests. The emergence of non-governmental and community organisations has a lot to offer for the continued evolution of governance in China. However, currently they are not equal matches to other more powerful actors, such as the central and local governments, and economic agents.

Finally, the country also sees a growing conflict between economic development and environmental protection. Protected areas are part of the strategies to address this conflict, and their number and coverage have been increasing rapidly over the past three decades. From the 1990s, the legal, administrative and policy frameworks for the management of protected areas and the marine environment came into existence. Despite these progresses, MPAs are also facing huge challenges in the face of a growing coastal population and increasing demand for coastal and marine resources.

As will be revealed in the following chapters, governing MPAs in China takes

place in an era of rapid and drastic social change, and the governance of MPAs is being shaped by the same driving forces that are directing large-scale socio-economic development and transformation in China. The governance of MPAs, therefore, mirrors the governance issues and trends in the wider Chinese society.

4

Research Methodology

Overview

This chapter focuses on the research methods employed to collect and analyze information and data for this study. It starts with an introduction to some of the work that led to the start of this research inquiry, and important ethical considerations during the course of field research. This is then followed by a brief introduction to the case studies, and the rationales behind the selection of the three case studies. The third part of this chapter focuses on the research methods used to collect information and data, which include archival research, semi-structured interviews and participant observation. The fourth part of the chapter describes how the information and data were compiled and analyzed.

4.1 Origins

Although my PhD research on MPA governance in China started in September 2006, when I became enrolled as a PhD student at the University College London, my work on MPAs had already started a year before I came to UCL. From September 2005 to September 2006, I worked as a Chevening Scholar at the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC). My main responsibility at the UNEP-WCMC was to coordinate a survey to collect social and regulatory information for MPAs in the Asia-Pacific region, mainly through web-based questionnaires and researching into existing MPA databases and information portals. I eventually ended up with some basic information for 498 MPAs in 16 Asia-Pacific countries, and 178 returned questionnaires from MPA managers or others directly involved in managing MPAs. My work at the UNEP-WCMC offered me a unique opportunity, for the first time, to develop some basic understanding of MPAs in China. With the help of officials from the State Oceanic Administration and marine authorities in a few coastal provinces, I received a list of MPAs that have been designated in China by then, as well as 40 questionnaires from MPA managers in two provinces (Guangdong and Hainan, where I conducted one case study in each of the two provinces later). Such information about MPAs in China was non-existent anywhere before, as both domestic and international websites and publications only contained outdated information. The officials from the Chinese government offered help in collecting the information partly because they also needed an up-dated list for their own uses.

My work at the UNEP-WCMC was the most important stimulus for me to pursue a PhD at UCL. In addition, it also placed me in a good position for conducting this PhD research. The questionnaires I received from MPA managers from the two provinces, Guangdong and Hainan, enabled me to develop a basic understanding of the socio-economic contexts and the key issues

arising from MPA management, and were very helpful in deciding the initial research questions and focus, such as the enforceability of national regulations, and problems associated with decentralisation in MPA management. The contacts I made during my time at the UNEP-WCMC, including officials at the central and provincial marine authorities and MPA managers in China, were also very helpful for my PhD research. Interviews with these individuals allowed me to gain an insight into the politics of MPAs in China, and some of them also offered valuable assistance in contacting high-ranking local officials for interviews, as well as opportunities to attend some meetings and events (e.g. meetings between national and local officials during the resizing process in one of the case study MPAs, see Chapter 6) that would otherwise be impossible to attend for a research student. Three officials (one national and two provincial) who offered valuable assistance in completing the survey for Chinese MPAs at UNEP-WCMC became the gatekeepers (see section 4.3.2 for the definition) in the case study research, referring me to key local officials and MPA managers for interviews. These individuals were chosen to be gatekeepers for the field research because they showed a genuine interest and openness in discussing issues related to MPA policy and governance in China, including some key problems at government level, and were willing to offer their time and assistance during my PhD research.

4.2 Selecting case studies

The research questions raised in Chapter One are explored through in-depth analysis of three case studies. Conducting case studies is a common research practice in human geography, social sciences and anthropology (Skate 1995). Conducting case studies is not a methodological choice, but involves the selection of an objective to be studied, and different research methods to be applied in the study (Skate 1995). According to Yin (1994: 13), the purpose of a case study is to *‘investigate a contemporary phenomenon within its real-life*

context, especially when the boundaries between the phenomenon and context are not closely evident’.

4.2.1 Rationales behind the selection of case studies

A case study is of interest to a researcher because of its uniqueness and commonality (Skate 1995). A collection of different case studies may be designed with more concerns for variety and representativity (Skate 1995). In this research, a total of three case studies were selected: the Sanya Coral Reef National Marine Nature Reserve (SCRN-MNR), the Binzhou Shelly Sand Ridge and Wetland National Nature Reserve (BSSRW-NNR), and the Leizhou Rare Marine Life National Nature Reserve (LRML-NNR). The criteria and rationales for the selection of the three case studies are:

- They should be national marine nature reserves, *i.e.* marine reserves designated by the central government. Initial contacts with MPA managers and other officials reveal that the tension between the central and local governments is a key issue in MPA governance, and selecting national marine nature reserves can therefore provide more opportunities to examine the interactions and relationships between the central and local government authorities. This first screening narrowed down the scope of selection to the 31 national marine nature reserves.
- The three case studies were deliberately chosen to represent different contexts, particularly with regard to the level of economic development and the main threats to biodiversity conservation. The three case studies are located in coastal areas experiencing economic pressures that differ both in structure and intensity, as reflected in the differences in economic structure, GDP growth rates and per capita GDP in Table 4.1. This results in differences in the main conflicts that MPAs are managed to address, *e.g.* the conflicts between conservation and tourism, between industrial

expansion and MPAs, and between conservation and fishing.

- Finally, the three case studies were chosen because of the good contacts and links established during the preliminary studies. These contacts within the government and local communities provided links to both the policy and stakeholder communities, as well as opportunities to gain a better understanding of the dynamics within these communities. The management authorities in all three case studies have an open and welcoming attitude to a researcher with a strong interest in socio-political and governance issues in relation to their MPAs, and provided logistic support and more importantly, the legitimacy to conduct such a research within their jurisdictions. Having official consent from the MPA management authorities is particularly important in a country like China, as it quickly became clear that the research may touch upon some of the sensitive political issues, such as the relationship between local officials and developers. Without the openness of the MPA management authorities, or at least their consent to interview any informants, including those who may raise such issues during the interviews, the study can potentially result in undesirable consequences to both the researcher and the informants.

Table 4.1 Economic indicators of the county/municipalities where the case study MPAs are located, and the main threats to biodiversity in the MPAs. ¹

1: Sanya Municipal Government 2009. <http://www.sanya.gov.cn/news/syggk/sqgm/zrdl/> 2: Wu et al. 2008a; 3: Jiang 2006.

	GDP composition in the municipality or county where the MPA is located	Per Capita GDP (US \$)	GDP annual growth rate	Local population size	Main threats to biodiversity in the MPA
Sanya Coral Reef National Marine Nature Reserve (SCR-NMNR)¹	Agriculture: 27% Industry: 19.3% Service: 53.7%	3,744	16.8%	7,000 – 8,000 (author's own estimation)	Mass tourism, urbanisation and small-scale fishing
Binzhou Shelly Sand Ridge and Wetland National Nature Reserve (BSSRW-NNR)²	Agriculture: 16.75% Industry: 65.63% Service: 17.61%	4,017	28.5%	12,009 before the re-sizing of the MPA (total population in the villages located within the MPA) and 994 after the re-sizing of the MPA	Industrial development, mariculture and small-scale fishing
Leizhou Rare Marine Life National Nature Reserve (LRML-NNR)³	Agriculture: 50.8%	936	7.5%	86,505 (total population in three towns located within and adjacent to the MPA)	Industrial and small-scale fishing and mariculture

¹ Population sizes in the three MPAs come from different sources, and are based on different survey methods. In the SCR-NMNR, no official records regarding total population size were found; therefore it was estimated based on information derived from the interviews with two village committees (one village inside the MPA, another partly included within the boundary of the MPA). In the BSSRW-NNR, it is based on population census data of the villages inside the MPA, as indicated by Wu et al. (2008a). In the LRML-NNR, it is based on total population in the three towns both within and partly included within the MPA, as indicated by Jiang (2006).

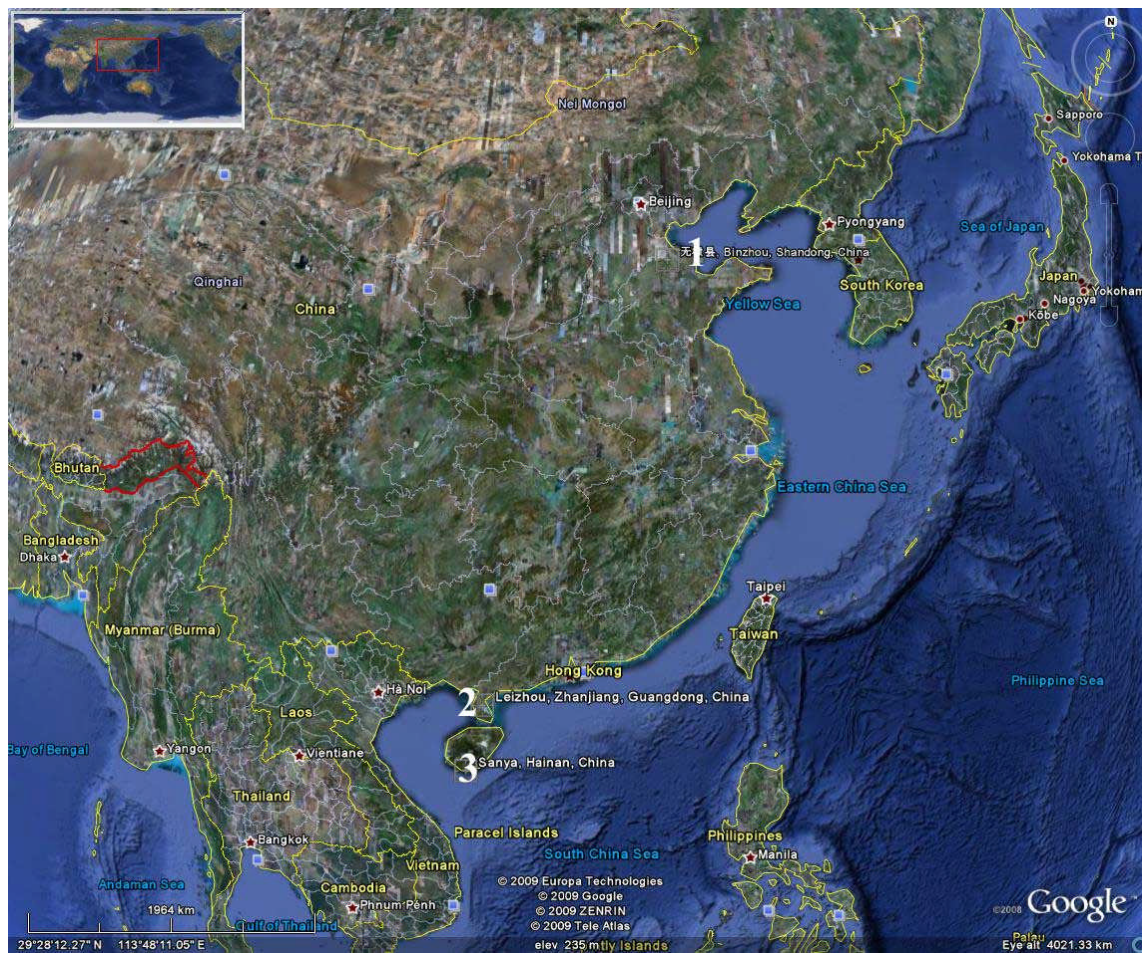


Figure 4.1 Location of the three case study sites.

1: BSSRW-NNR 2: LRML-NNR 3: SCR-NMNR. Background map: China, Google Earth Maps. Google 2008.

4.2.2 *Site visits and pilot study*

Preliminary visits and pilot studies were conducted in December 2006 and from October to December 2007. A total of 5 MPAs in three provinces were visited, and brief interviews were conducted with community representatives from village committees, MPA managers and enforcers, and officials from two provincial marine authorities. The main purposes of the preliminary visits were to

- Reflect on the proposed research questions
- Assess the suitability of the MPA for this research, according to the considerations listed above
- Identify key actors and stakeholder groups involved in governing the MPA
- Establish contacts with potential gate keepers

The field research (interviews and participant observation) was conducted between November 2007 and July 2008. The amount of time spent in the field in each case study MPA varied from two and a half months in the SCR-NMNR to around a month in the BSSRW-NNR (see Table 4.3). Accommodation was arranged in a location close to where most of the interviews were conducted. In both the SCR-NMNR and LRML-NNR, I stayed with the family of a gatekeeper for most of the time, who are community members hired by MPA management authorities to assist in patrol and law enforcement (see section 4.3.2 for the definition and selection of gatekeepers). In the SCR-NMNR, I stayed with the family of a gatekeeper in the Ximao Village (a village within the MPA, where most of the interviews were conducted in the SCR-NMNR) for around two months and then left for the Sanya city to interview local officials and tourism developers, as well as a few key individuals from another village (Luhuitou) close to the city. In the LRML-NNR, I also spent 17 days staying with MPA enforcers in a building close to their patrol station, in order to observe how they

carry out enforcement work. In the BSSRW-NNR, I stayed in a hotel in the Wudi city centre, as the main research method in this case study was participant observation during various meetings and events, which took place in the city centre. Semi-structured interviews with key officials, developers and community representatives were also conducted, but very few community members were interviewed. This was because most local fishermen in the BSSRW-NNR fish in distant waters in other provinces in China, and very few of them were staying at home during the time of the fieldwork.

4.2.3 *Research ethics*

In carrying out the fieldwork, a number of measures were taken to ensure that the research undertaken is legitimate and ethical. First of all, prior consent from the MPA management authorities was sought. Different MPA management authorities have different ways of authorising research. For example, the SCR-NMNR Management Authority has an official protocol for evaluating and authorising scientific research to be conducted in an MPA. A written research proposal was submitted and a refundable deposit was paid to obtain permission for the research to be carried out, and the deposit was retrieved upon the submission of a study report after the research was concluded. In other MPAs, there is no such protocol for scientific research, therefore oral consent from the directors of the management authorities were obtained.

Jorgensen (1971) believes that the most important issue of ethical concern in conducting research in anthropology is the relationships between anthropologists and the people they study. In conducting and recording the interviews, the principles of confidentiality and privacy were followed. In all transcripts and research diaries, the names of interviewees were not recorded; instead a name code was developed for each interviewee, enabling the identification of the date when the interview took place, the MPA name and the

main actor/stakeholder group the interviewee represented. The issue of confidentiality is of particular importance in the SCR-NMNR, as a result of past government-community conflicts arising from changes in land use rights (see Chapter Five), and the arrest of a few villagers who were involved in organising the protests. Some local villagers still have fear of openly discussing issues that may raise criticism on the local government and village committees. Following the advice from the gate keepers and some interviewees, all interviews in the SCR-NMNR were not taped; instead notes were taken during the interviews and nowhere in the notes contains any name or other personal information that allows the identity of the interviewee to be traced. In addition, the time, venue and the presence or absence of other persons during the interviews were all decided by the interviewee. In both the SCR-NMNR and the LRML-NNR, most interviewees from local communities barely finished primary education and do not have any experiences in talking to a researcher, therefore they often wanted the interviews to be as informal as possible, and with the company of their friends, so that the atmosphere was more sociable and relaxing. For example, most interviews with fishermen were conducted in small fishing ports, as when the fishermen returned from the sea they were usually relaxed and happy to talk while they could clean fishing nets and sort out their catch in the meantime.

4.2.4 Positionality and self-reflection

It has increasingly been recognised that there is no ‘value-free’ social research, and issues of positionality are of critical importance to a qualitative researcher (Valentine 2005). Factors such as age, nationality, life experiences and social status all affect the way we experience the world. It is therefore important to consider positionality when making claims on the wider applicability of the research (Mattingly and Falconer-Al-Hindi 1995). Reflexivity has been suggested as a strategy to avoid false neutrality of academic knowledge (Rose 1997). As Phillips (1973: xii) points out:

Unless we turn our gaze upon ourselves we cannot realize the reconstruction of the societies in which we live.

I am a Chinese national and I grew up in a city in the east coast of China, where socio-economic conditions differ significantly from those of the case study areas. My hometown Shengzhou is located in the coastal province of Zhejiang. Zhejiang is one of the few provinces in China with an annual per capita GDP over US\$ 6,000 (NBS 2010), and has achieved very rapid economic growth since the late 1970s. I therefore witnessed the huge and rapid social and environmental changes taking place in China. However, I must admit that I initially underestimated the huge differences in social conditions between where I come from (*i.e.* urban and relatively affluent) and where I conducted my fieldwork (*i.e.* rural and relatively underdeveloped). In particular, access rights to vital natural resource, such as coastal land and mudflats, are of little concern to most people living in urban areas in China, but are of critical importance to the lives of people in rural areas. From what I have learned from this study, poverty and social inequity was much more prevalent in underdeveloped rural areas, and people living in these areas bear more costs from the inequitable and unsustainable ways of economic development in China.

I was initially educated to become a marine biologist, and completed my first and master's degrees in biology in Hong Kong. I was therefore primarily interested in examining how effective MPAs are in conserving biodiversity when I started this research. I was also under the impression that natural resources were so heavily exploited in China that a balance between environment and development could only be achieved through a greater focus on the environment. However, during the course of this study, I became more and more interested in the social issues related to MPAs, and realised that there are common endeavours between conserving biodiversity and improving the

livelihoods of people in rural areas.

My background and life and educational experiences differ significantly from most of the local people I interacted with during the field research. My identity as an ‘outsider’ has both advantages and disadvantages. Being an ‘outsider’ and a researcher, I was considered having very few, if any, conflicts of interests with local people. This is an important advantage in doing field work in communities with heterogenic interests and complicated inter-personal politics, for example between fishermen using different fishing gears and between village committees and other community members. After they were assured that all interview materials will be kept anonymous and confidential, many interviewees discussed their concerns about the misconduct of village committees and other community members (*e.g.* local fishermen using fine-mesh nets to catch fish larvae in the LRML-NNR). The main disadvantage of being an ‘outsider’ is that it could potentially undermine the trust and confidence local people have, particularly regarding sensitive issues such as community-local government relationships in the SCR-NMNR. For example, I was asked not to take any notes during two of the three interviews with fishermen in the SCR-NMNR. Four fishermen in the SCR-NMNR refused to be interviewed, because of the fear that there might be a leakage of information from the interviews, either by me or other people (*e.g.* neighbours, as happened in the past) who might overhear their complaints against the Ximao village committee.

Another potential issue is my close association with the two community gatekeepers, who work for the SCR-NMNR and LRML-NNR management authorities. The identity of these wardens may have undermined the trust that some local people had on me, or prevented some people from raising concerns about the MPA management authorities. However, my feeling is that relying on such individuals for contacting the first round of interviewees in the two MPAs had a positive, rather than negative impact on building trust with local people.

This is because:

- 1) Both individuals are respected by local people, which was the main reason they were hired by the MPA management authorities to help coordinate MPA – community affairs.
- 2) They were carefully selected based on their perspectives and the responses from initial interviews (see section 4.3.2).
- 3) Most people, including MPA administrators and local community members, even some wardens themselves, do not see the locally-hired wardens as part of the bureaucratic system. Within the hierarchical structure of the MPA management authorities, the wardens receive a much lower salary than administrators and other management staff, do not have access to most welfare benefits enjoyed by civil servants, and have a fixed-term contract. In the Chinese context, these are all well-recognisable features that distinguish the wardens from bureaucrats.
- 4) From my own observation, MPA enforcement activities mainly target non-local resource users and seldom restrict the activities of local communities, which will be discussed in Chapters 5-7. The relationships between the MPA management authorities and local communities in most cases have been relatively peaceful. Therefore the daily work of the locally-hired wardens does not, in most cases, place them in a confrontational relationship with other community members.

4.3 Research methods

Combining multiple sources of data and research methods through ‘triangulation’ in the search for both accuracy and alternative explanations is a common practice in social science and anthropology (Stake 1995; Hay 2005; Bernard 2006). The primary reason for introducing triangulation in social science research is to overcome the potential bias raised by employing only one method. As Blaikie (1991: 115) observed, *‘the common theme in discussions of*

triangulation has been the desire to overcome problems of bias and validity. It has been argued that the deficiencies of any one method can be overcome by combining methods and thus capitalizing on their individual strengths'. Different forms of triangulation have been recognised, including (Stake 1995; Oppermann 2000):

- Data triangulation – the use of different sets of data derived through the same approach
- Methodological triangulation – the use of different methods in answering the same research question
- Investigator triangulation – having two or more researchers look at the same phenomenon
- Theory triangulation – using different theoretical angles in interpreting information

The following section discusses the triangulation between three different methods employed in conducting case studies.

4.3.1 Archival research and policy analysis

A variety of documentary sources were used in archival research and policy analysis. Accessibility to such information sources varies. The main types of information sources are:

- National and provincial laws, regulations, policy documents and plans related to MPA management in the three case studies, which are available on the internet;
- Media reports and newspaper coverage relevant to the case studies, most of which can also be found on the internet or in libraries;
- Management plans, various reports (annual, financial and monitoring),

and unpublished scientific research for each of the three case studies. Management plans and some monitoring reports are available upon request from the MPA management authorities. Unpublished scientific research information was partially included in the monitoring reports and also obtained through interviewing scientists involved in the research. Access to other information on MPA management is more difficult, such as sources of funding and how it has been spent, agreements signed between MPA management authorities and developers, and enforcement data, which were mainly obtained during the interviews with MPA managers and enforcers. Inaccessibility to such information can be attributed to both a lack of systematic reporting and documenting, and reluctance from the management authorities to release such information.

- Local (village, county and municipal) socio-economic information, which includes demographic information, information on overall economic structure and main sectors (*e.g.* fisheries and tourism). Some of such information can also be found in MPA management plans. A key information gap is the lack of local-level fisheries data; only anecdote information was collected from interviewing fisheries officers, fishermen and representatives from village committees.

4.3.2 Semi-structured interviews

Conducting interviews with informants is a commonly used research method in human geography and anthropology (Hay 2005; Bernard 2006). There are three types of interviews: structured, semi-structured, and unstructured (Hay 2005). Structured interviewing is question focused, and the interview is conducted in accordance with a list of carefully worded or ordered questions. Semi-structured interviews employ an interview guide, but the questions raised by the interviewer are not restricted to a set of predetermined questions. In conducting semi-structured interviews, the interviewer adopts a more interventionist

position than in unstructured interviews, and can redirect the conversation if it moves too far from the research themes. Unstructured interviews are similar to a normal conversation, and the questions arise from the 'stories' told by the interviewee (*ibid*).

In this study, semi-structured interviews were the most frequently used type of interviews. Unstructured interviews also took place during the course of fieldwork, often unintended, during meetings, chats, and other activities accompanied by informants. The information derived from unstructured interviews was recorded in a research diary and later analysed, together with information from semi-structured interviews. Semi-structured interviews are based on the use of an interview guide, which comprises of a list of questions and topics to be discussed during the interviews (Bernard 2006).

The interview guide (Table 4.2) was based on research questions, developed after reviewing both published and 'grey' literature, as well as the pilot study. It should be noted that not every topic in the guide was covered during each interview. In most cases, only a subset of the topics was explored during each interview in relation to the interviewee's personal and professional experiences, as well as their responses to particular topics during the interviews. The semi-structured nature of the interviews allowed the interviewees to elaborate on the topics that are most relevant to their experiences and/or to which they showed strong interests. The sequence of the questions was also arranged differently in each interview, often starting with the questions that are most relevant to the interviewee's experiences, as a 'warm-up' strategy.

Table 4.2 Guide for topics raised in semi-structured interviews.

Theme	Topic
Stakeholders' views and perspectives on MPA management	➤ Recognition of potential ecological problems and decline in natural resources
	➤ Support for the achievement of MPA conservation objectives
	➤ Awareness and acceptance of MPA rules
	➤ Resource use patterns (where and how the interviewee uses natural resources in and around the MPA)
	➤ Availability of alternative livelihoods
	➤ Preference of traditional (<i>e.g.</i> fishing) versus new (<i>e.g.</i> employments in tourism industry, mariculture) livelihoods
	➤ Changes in natural resource access/user rights
	➤ Benefits and costs from MPA management
	➤ Past interactions, collaborations and conflicts with other actors
	➤ Experiences and willingness in participating in MPA management
Perspectives of local governments and central-local coordination	➤ Influences of other government policies (<i>e.g.</i> rural development and agriculture) on local livelihoods
	➤ Views on national MPA-related policies and regulations (<i>e.g.</i> whether it is feasible to be implemented locally)
	➤ Existence of supportive local policies and by-laws
	➤ Cooperation between MPA management authorities and local authorities in MPA management and enforcement
Perspectives of MPA management authority	➤ Interaction with national authorities in MPA designation
	➤ Influence on MPA decision-making
	➤ Relationship between MPA management authority and local governments (cooperation and potential tensions)
	➤ Support (funding, technical, political etc) from national governments
	➤ Sources of funding for MPA management and enforcement
	➤ <i>De facto</i> rules being enforced and the main targets of enforcement activities
	➤ Effectiveness of management and enforcement efforts in achieving MPA objectives
	➤ Key obstacles for MPA enforcement
	➤ Engagement with other stakeholders (<i>e.g.</i> communities, private enterprises, scientists and NGOs)
	➤ Past conflicts with resource user communities and conflict-resolution mechanisms
Others	➤ Cross-sectoral cooperation with other national and local authorities (particularly fishery)
	➤ Education and outreach
	➤ Role of science (the use of scientific information to inform MPA management and decision-making during the designation, management and monitoring processes)

-
- Equality in MPA management and enforcement (*e.g.* whether key concerns from different user communities have been considered by decision-makers; whether particularly groups/sectors gain more benefits, or suffer more losses from MPA-related activities)
 - Ideas on how MPA management and governance may be improved in the future
-

Most interviewees were selected to represent the key user or stakeholder groups in MPA management. Selecting and contacting the interviewees was initially assisted by gate keepers. Gate keepers '*are the people who, metaphorically, have the ability to open or close the gate to the researcher seeking access to the setting*' (Lewis-Beck 2004: 2). Identifying gate keepers is often the first step in getting access to a community or group (*ibid*). For potential interviewees from the policy community, these gate keepers are usually contacts within national and provincial governments (see section 4.1), who helped to introduce and set up interviews with local officials. For potential interviewees from the local communities, the gate keepers were usually contract MPA wardens who are hired from local communities. These wardens are usually hired by the MPA management authorities because they are knowledgeable about local situations and can effectively liaise between the MPA and local communities. Because of the double identity (as both community members and MPA enforcers) of the wardens, they were among the first people interviewed in the case studies and the interviews informed the selection of gatekeepers. The selection of the gatekeepers was based on several factors. The first factor is the perspectives the wardens took when discussing MPA-community relationships, and only those who spoke from the perspectives of local communities and/or intended to defend the interests of local communities were considered. The second factor is their willingness to offer their time and assistance during the field research. The third factor is the trust they have amongst the communities they come from. For example, two wardens in the SCR-NMNR have close associations with the local village committee, and it was decided not to have them as gatekeepers after a

few interviews, as interviewees referred to by other gatekeepers indicated a lack of trust for such individuals. Because of the nature of their daily work, these wardens can help identify individuals in the local communities who are most affected by MPA management and/or are most likely to have opinions on MPA management. Their advice and assistance was very useful in initiating contacts with key informants within a particular group (*e.g.* small-scale fishermen, village committees, dive masters etc). As the interview process proceeded and also more time was spent living within communities, more and more interviewees were found through 'snow balling', *i.e.* they were referred to by previous interviewees and contacts (Valentine 2005).

Length of interviews varied from 20 minutes to 2 hours. Group interviews were also conducted; some were pre-arranged upon requests from interviewees, some were formed spontaneously, when interviews were conducted in public space and more and more people joined the discussion. In the first case, answers to each question were sought from each interviewee, but in the second case, as people joined and left at different stages of the interview, not every informant responded to all the questions. A total of 107 informants were interviewed in 76 single-person or group interviews (see table 4.3). All interviews were conducted face-to-face. Most interviews were informal, particularly with local communities, and held in a location suggested by the interviewee(s). Preferred locations as suggested by the interviewees included the interviewees' homes, offices (for officials, developers and private sector representatives), tea houses, fishing ports (for most fishermen) and small restaurants.

In all three case study MPAs, efforts were made to interview informants from all major stakeholder groups. This is essential for understanding the relatively roles of the main actors in governing the MPA, as well as the relationships between them. It also allows 'triangulation' of information provided by interviewees from different groups and perspectives, which helps reduce potential bias

introduced by particular individuals or groups. However, the relatively small number of interviewees from any particular group (see Table 4.3) indicates that the information from the interviews needs to be interpreted and extrapolated with caution. With few exceptions (*e.g.* 6 out of the remaining 12 full-time fishermen in the Ximao Island in the SCR-NMNR were interviewed), the individuals interviewed in a stakeholder group are only a small fraction of the total population in that group. Therefore their views may not be representative of the group they come from. In some groups, such as provincial and local governments, tourism and industrial developers, MPA management authorities, and village committees, efforts were made to interview the key individuals, *i.e.* decision-makers and/or those in charge of operations related to MPA management.

As agreed by some interviewees, 36 interviews were taped. For the remaining interviews, notes were taken (in Chinese) during the interview process. A transcript was prepared for each tapped and untapped interview. A name coding system was also developed to allow the identification of each interviewee without their names appearing on the transcript. The first four digits of the name code reveal the name of the MPA and the sector that the interviewee represents.

Table 4.3 Number of informants interviewed from different sectors in the three case studies.

MPA name	Interview time period	Sector	First four digits of the interviewees' name code	Number of informants	Number of interviews (number of group interviews)	Number of interviews taped
SCRN-	3	Provincial government	SYPO	1	1	0
MNR	November 2007 – 18 January 2008	Local government	SYLG	2	1	0
		NGO	SYNG	1	1	0
		Village committee	SYCL	2	1(1)	0
		MPA management authority (managers)	SYMB	1	1	0
		MPA management authority (wardens)	SYEO	8	5(2)	0
		Tourism operator	SYTO	8	8	0
		Dive instructor (local)	SYDI	7	3(1)	0
		Fishermen	SYFM	6	3(2)	0
		Jobless	SYJL	30	3(2)	0
		Other community member	SYCM	2	2	0
BSSR	01 April 2008-30	MPA management authority (managers)	BZMB	1	1	0
W-NNR	April 2008	Local government	BZLG	2	2	2
		Village committee	BZCL	7	5 (1)	2
		Fish farmer	BZFF	5	3(1)	3
		Industrial developer	BZID	4	4	3
		Scientists	BZST	2	2	2
LRML-	14 May- 29 June 2008	Provincial government	LZPO	3	2(1)	0
NNR		Local fishery authority	LZFO	2	2	0
		MPA management authority (wardens)	LZEO	2	1(1)	2
		MPA management authority (managers)	LZMB	1	1	1
		Village committee	LZCL	2	2	2
		Fishermen	LZFM	29	15(4)	13
		Fish farmer	BZFF	5	4(1)	3
		Seafood trader	BZST	1	1	1
MPA experts	10-15 July 2008		MPAE	2	2	2
Total				107	76(17)	36

4.3.3 Participant observation

Bernard (2006 : 344) categorises participant observation as one of the ‘strategic methods’, which ‘*involves immersing yourself in a culture and learning to remove yourself every day from that immersion so that you can intellectualize what you’ve seen and heard, put in into perspectives and write about it convincingly*’. Cook (2005) describes that participant observation requires researchers to shift between *participating* in the everyday lives of people and *observing* activities of people as they unfold.

In this study, participant observation was conducted through participating in various meetings, enforcement, monitoring and outreach activities, visiting tourism and industrial development areas and observing activities taking place in these areas, and spending substantial amounts of time living within communities (time period spent living within local communities see table 4.3, except for the BSSRW-NNR, where accommodation was arranged in the city centre). Conversations, observations and reflections were recorded in a research diary. Useful information from conversations was analyzed together with the semi-structured interviews (see next section), and a name code was also developed for each informant using the same coding method described above.

The importance of participant observation as a research method varies between different case studies. In the BSSRW-NNR, as a key focus of this case study is the issues revealed in the resizing process (see Chapter 6), participant observation during a series of meetings between different government agencies, scientists and key resource users (mainly industrial developers) during the resizing process was the primary source of information. In the SCR-NMNR and LRML-NNR, more information was collected from semi-structured interviews. However, information collected through participant observation is very useful for verifying or supplementing information collected through semi-structured

interviews, particularly in the following areas:

- Patterns of resource use (through observing tourism, industrial, mariculture, fishing and other economic activities, in terms of where these activities take place, the gears used, catch from fishing, means of sewage discharge etc). Such information helps verify the potential ecological impacts as indicated by the resource users.
- Infringements and effectiveness of law enforcement (through observing law enforcement activities in the SCR-NMNR and LRML-NNR)
- Role of scientists (through participating in coral reef monitoring in the SCR-NMNR)
- MPA-community relationships (*e.g.* observing joint law enforcement against illegal industrial fishing between the MPA management authorities and village committees in the SCR-NMNR and LRML-NNR, and a small-scale protest staged by some local fishermen during a visit from provincial officials in the LRML-NNR)

4.4 Analyzing information and data

All analysis was conducted manually, which may be more time consuming than using software programmes, but allowed me to develop a better understanding of the interview material by going through the transcripts over and over again during the analysis process. The first step during the analysis process involves grouping information and quotes in each transcript under the headings in Text box 4.1. The headings are based on the interview guide (Table 4.2), but are more concise than the list of topics. The headings are also divided into three categories, in accordance with the three research questions to be discussed in each of the case study chapter (*e.g.* sections 5.6, 5.7 and 5.8 in Chapter 5). The research questions were expanded to include the new focus on equity and stewardship in MPA management, as the importance of such issues was underestimated before the field research (see section 4.2.4). Inequity and loss of

stewardship in marine resource management were found to be a key challenge for MPA governance based on information emerged from the interviews and participation observation. This process produced an interview report for each interview, which is a more consolidated version of the transcript and contains only information and quotes that are used in subsequent analysis and thesis writing.

Next, all interview reports for each case study were compiled to produce a document for that case study, and under each heading all relevant quotes from different interviews was listed. This document can be easily searched using the 'document map' function of word, which lists all headings in the left panel, and by clicking a particular heading, all text under that heading will be displayed in the right panel.

Finally, a document was produced with all interview reports from three case studies compiled, repeating the same compiling method as described above. Information and quotes under a particular heading can also be searched in the same way as above. The texts from different case studies are given a different colour to facilitate identification and comparison.

Text box 4.1 Headings used to categorising information and quotes under each research question.

Research question 1: what are the roles of different actors and interactions between them?

- 1.1. Key stakeholders' views on MPAs
 - 1.1.1. Should the conservation targets be protected?
 - 1.1.2. Recognition of ecological problems and solutions
 - 1.1.3. Availability of alternative livelihoods
 - 1.1.4. Awareness and acceptance of MPA rules by key stakeholders
 - 1.1.5. Traditional vs. new life styles
 - 1.1.6. Resource users' participation in MPA management
- 1.2. Input and influence from local governments
 - 1.2.1. Local governments' perspectives on the MPA and biodiversity conservation
 - 1.2.2. Devising supportive local policies and regulations
 - 1.2.3. Local funding for MPAs
 - 1.2.4. Influence on MPA decision-making
 - 1.2.5. Central-local conflicts and compromises
- 1.3. MPA enforcement and role of the state
 - 1.3.1. MPA finance
 - 1.3.2. The relationship between the MPA management authority and local government
 - 1.3.3. The implementability of MPA rules
 - 1.3.4. Capacity for MPA enforcement
 - 1.3.5. Inter-agency cooperation
 - 1.3.6. Effectiveness of law enforcement
 - 1.3.7. Rule of law and fairness in law enforcement
 - 1.3.8. Policy support for alternative livelihoods and the use of other incentives
- 1.4. Role of NGOs and scientists

Research question 2: What are the main concerns in terms of equity and stewardship?

- 2.1. Accountability and trust between the government and communities
- 2.2. Community-enterprise conflicts
- 2.3. Social capital and leadership in the community
- 2.4. Benefits and costs of MPA management (social impacts of the MPA)
- 2.5. Natural resource access rights

Research question 3: How are different mechanisms being used to steer MPA governance and resolve related conflicts?

- 3.1. Alternative livelihoods
- 3.2. Sea/land use rights
- 3.3. Government grants and subsidies for fishing
- 3.4. Power and politics in decentralisation
- 3.5. Evaluation and minimum environmental standards
- 3.6. Control of incoming exploitation pressure

The research methods introduced in this chapter were applied to investigate MPA governance in the three case studies, the SCRN-MNR, BSSRW-NNR and LRML-NNR. Each of the following chapters (Chapters 5-7) will provide detailed information on and analysis of the contexts, governance structures, social impacts (*i.e.* equity concerns) of MPA establishments and the strengths and weaknesses of MPA governance in a case study. In this way, the three key research questions listed in the above text box are addressed in each of the three case study chapters.

5

Governance of the Sanya Coral Reef National Marine Nature Reserve

Overview

The Sanya Coral Reef National Marine Nature Reserve (SCR-NMNR) was one of the first MPAs officially designated in China, and one of the few MPAs in China that was created to protect tropical coral reef habitats. The SCR-NMNR is located in an area that has been experiencing very rapid economic growth in the past decade, mainly driven by the development of tourism. This chapter explores the challenges and conflicts arising from rapid economic development in Sanya, and the use and experimentation of governance instruments aiming at addressing these conflicts and enhancing biodiversity conservation in such a context.

The first four sections of this chapter give a brief introduction to the biogeographical and socio-economic background of the SCR-NMNR, the history, and rules and regulations that govern the management of the MPA. It is followed by an examination on the existing conflicts between biodiversity conservation and economic development in the SCR-NMNR, the various economic activities and their potential impacts on natural habitats. In section six, the roles and influences of key actors on MPA governance are discussed, as well as the interactions and relationships between them in governing the MPA. In section seven, the changes in community access to and stewardship of natural resources are examined. Finally, in the summary section, the characteristics, strengths and weaknesses of MPA governance in the SCR-NMNR are analysed, focusing on the power relationships between different actors and how this affects the use and effectiveness of different governance instruments in the MPA.

5.1 Biogeographical background

The SCR-NMNR is located in the Sanya Municipality on Hainan Island (Figure 5.1). Hainan Province is located at the southern border of China's territory, and its jurisdiction covers the main Hainan Island and the Zhongsha, Xisha and Nansha Archipelagos in the South China Sea. With a total land area of around 354,000 square kilometres and a sea area around 2 million square kilometres, Hainan Province is the biggest province in China (PGHP 2009).

Hainan has a tropical monsoonal climate, with annual average temperatures ranging between 22 °C and 26 °C. Annual rainfall is around 164 cm, and over 70% of the rainfall occurs in the wet season between May to October (PGHP 2009). This tropical climate supports a rich biodiversity. The islands in the Hainan province have been identified as one of the global biodiversity hotspots (Myers et al. 2000). Compared to other more developed coastal provinces in China, the environment in Hainan is in a relatively good status. By 2004, forest cover reached 54% and protected areas 8.1% of the total land area in Hainan (Government of Hainan Province 2005). The percentage of total area protected in Hainan is much lower than the national average of 12.6% in the same year (PATF 2004), probably due to extensive marine areas in Hainan, which makes Hainan the biggest province in China.

Coral reefs in Sanya lie close to the northern border of the global coral reef distribution, and most of the reefs in Sanya are fringing reefs. A total of 87 species of corals have been recorded in the SCR-NMNR, with hard corals constituting the majority. Most of the soft corals are distributed in the Yalongwan area. In the waters near the Ximao Island and the islands in the Yalongwan area, coral cover reaches over 70%. Other main habitat types in the SCR-NMNR include rocky reefs and kelp forests, and the latter are particularly well developed in the winter (HIODP 2005).



Figure 5.1 The location of SCR-NMNR. Background map: Sanya, Google Earth Maps. Google 2008.

5.2 Socio-economic background

Sanya is the second largest city in the Hainan Province, with a total land area of 1,920 square kilometres and total sea area over 5,000 square kilometres. Sanya's coastline extends 209 kilometres and there are more than 40 small islands near Sanya. Sanya has a resident population size of 565,000, with around 66,200 people engaged in various forms of agricultural production (Sanya Municipal Government 2009).

Until the early 1980s, Sanya remained a traditional fishing town. The tropical

climate and beaches provide the natural assets for the development of tourism, which has been a main driver of economic growth in Sanya since the late 1980s. From 1987 to 2007, the number of tourists coming to Sanya increased by around 44 times, and total tourism income by around 120 times. The increase in tourism volume is mainly driven by the increase in living standards in China and a rapidly growing domestic market for tourism services, as foreign tourists only account for 8.5% of the total tourist volume in 2008 (Figure 5.2). Tourism earnings reached 9.1 billion Yuan (US \$1.33 billion) in 2008, and the industry employs over 25% of the labour force in Sanya (Sanya Municipal Government 2009). Another main driver of economic development in Sanya since 2006 is the development of a real estate industry, which has replaced the tourism industry to become the main tax contributor (PGHP 2009). In 2008, the total GDP of Sanya reached 14.43 billion Yuan (US \$2.1 billion), and is growing at a rate of 16.8%. Per capita GDP in 2008 reached 25,542 Yuan (US \$3,744). The percentage contributions of agricultural, industrial and service sectors in 2008 were 27.0%, 19.3%, and 53.7%, respectively (Sanya Municipal Government 2009).

A key focus of this case study is the Ximao Village, located on the island of Ximao within the MPA. Ximao Village has a resident population of around 3,000 and remained a fishing village until the year 1999, when a Taiwanese company invested in tourism development on the island. In the next 2-3 years, the tourism industry expanded rapidly and Ximao became a top tourism attraction in Sanya. Tourism replaced fishing to become the main source of employment and income for the local community in Ximao. At the peak of tourism development, nearly 90% of the labour force in the Ximao Village was employed in the tourism sector (XIVC 2006). The development of tourism brought both benefits and costs to the MPA and local community, which will be explored in the following sections of this chapter.

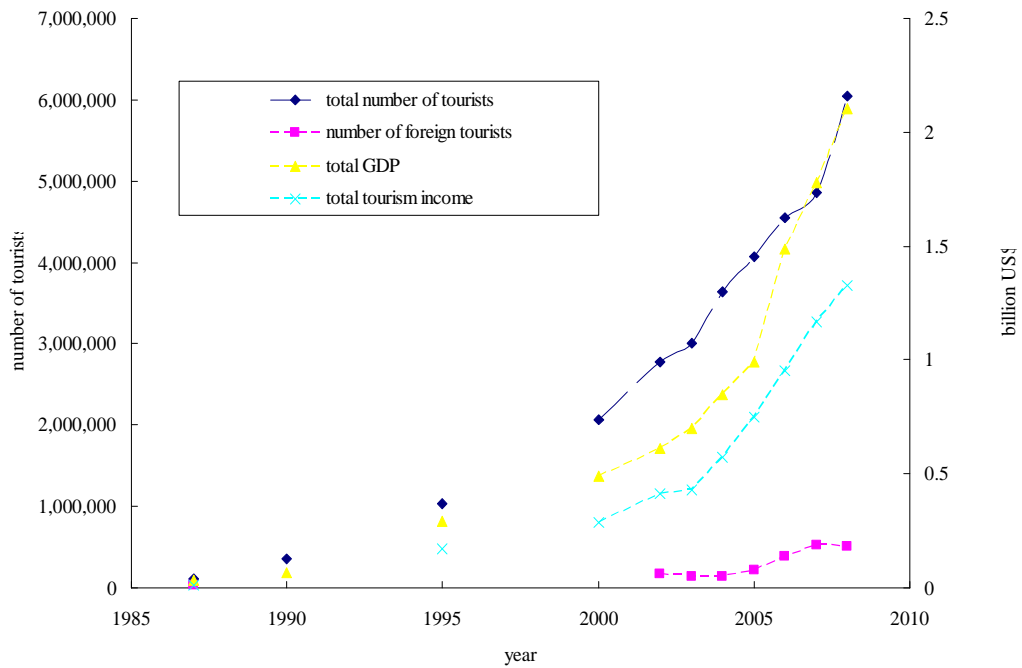


Figure 5.2 Trends in economic and tourism development in Sanya. Data from Sanya City Statistical Information Net (http://www.systats.gov.cn/new_tong_jsj_tjgb.php)

5.3 History of the SCR-NMNR

Since the 1970s, large areas of coral reefs in Sanya have been destroyed by coral mining and destructive fishing practices (particularly blast and cyanide fishing). Large blocks of corals were used as construction material to build family houses in local villages. In January 1989, in an effort to stop the mass destruction of coral reefs in Sanya, the Sanya municipal government established two locally designated coral reef protected areas: the Dadonghai Coral Reef Protected Area with an area of 13 hectares and the Luhuitou Bay Coral Reef Protected Area with an area of 140 hectares. In June 1989, the State Oceanic Administration proposed to the State Council to establish five national marine nature reserves, including the Sanya Coral Reef National Marine Nature Reserve (SCRN-MNR), with a total area of 5,568 ha (Figure 5.3). In September 1990, the State Council

approved SOA's proposal and the SCR-NMNR was officially designated. In 1992, the SCR-NMNR Management Authority was established and has been responsible for the daily management of the MPA (HIODP 2005).

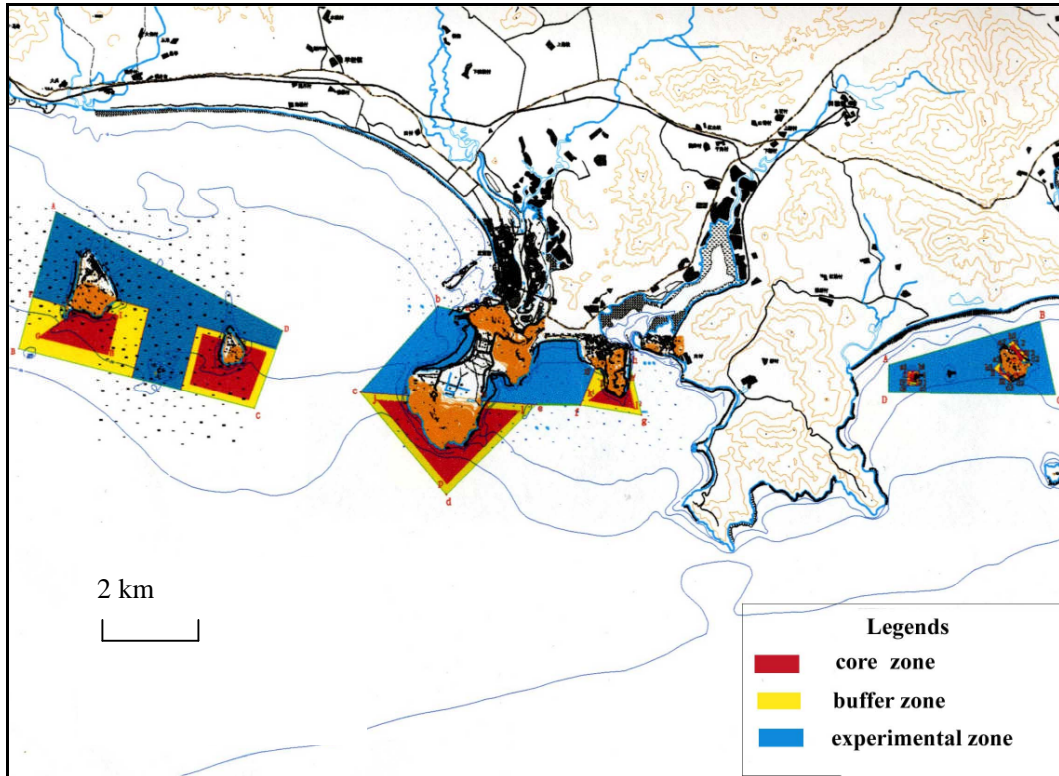


Figure 5.3 Zoning map of the SCR-NMNR (HPODPI 2005).

5.4 Regulations and rules relevant to the management of the SCR-NMNR

As one of the first officially designated MPAs, in the early days there were no clear regulations and rules for the enforcement of the SCR-NMNR. In 1992, the Sanya municipal government issued an Ordinance on the Sanya Coral Reef National Marine Nature Reserve, prohibiting the collection of corals within the boundary of the SCR-NMNR. National regulations for nature reserves (both terrestrial and marine) came into existence in 1994 (see Chapter 3), providing a stronger legal basis for the enforcement of the SCR-NMNR.

The Hainan provincial government has also issued regulations for the conservation of coral reefs and other marine resources, which are only effective within the jurisdiction of the Hainan Province. These include the Regulation on Coral Reef Conservation of Hainan Province (1998), which prohibits destructive fishing practices (blast and cyanide fishing) in coral reefs, coral mining and the collection and sale of corals, and articulates that to develop tourism in coral reef MPAs in Hainan Province must seek prior permission from the Hainan Province Ocean and Fisheries Department. The recently enacted Regulation on Marine Environmental Conservation of Hainan Province (2008) supplements the national legislation Law on Marine Environmental Protection, and stipulates that development activities within MPAs need to be conducted within the carrying capacity of the natural environment.

The main rules governing the management of the SCR-NMNR are established by the spatial zoning plan, in accordance with the Regulation on Nature Reserves of China. The SCR-NMNR is divided into three management zones: core, buffer and experiment zone (Table 5.1). The delineation of different management zones was primarily based on biological criteria, and areas with a higher coral cover are included in the core zones.

The management objectives of the SCR-NMNR are:

- 1) To preserve natural habits within the SCR-NMNR, to enhance the stability and/or recovery of coral reefs and other habitats within the SCR-NMNR, and to maintain natural ecological balance;
- 2) To carry out controlled ecotourism activities within the SCR-NMNR, under the condition that the natural growth and reproduction of coral reefs is maintained, and to promote the socio-economic development and environmental protection of Sanya city;
- 3) To develop the SCR-NMNR into a base for marine research and environmental education, and to manage the SCR-NMNR to become a first

class MPA in China with a beautiful natural environment, good infrastructure and high scientific and management standards (SCRN-MNR Management Authority 2004).

Table 5.1 Official restrictions in different zones in the SCR-NMNR.

	Core zone	Buffer zone	Experimental zone
Size (km²)	10	13	32.68
Percentage of the total area of the MPA	17.9%	23.3%	58.7%
Official regulation	No-entry zone except for patrolling	No other uses except for scientific research and monitoring	No fishing and extractive uses, but compatible activities, such as tourism, education, scientific research, monitoring and artificial breeding of rare and endangered species can be carried out
IUCN management category	I	I	IV

5.5 Existing conflicts between conservation and economic development in the SCR-NMNR

It has been a huge challenge to enforce conservation regulations in a MPA located near a densely populated city experiencing rapid economic growth. Although the regulations governing the SCR-NMNR prohibit fishing, coral collection and other types of natural resource extraction, as well as other economic activities that are not compatible with nature conservation, due to

various constraints (as examined later in this chapter) and the intention to balance conservation with local development needs, in practice a range of activities are allowed to continue within the SCR-NMNR. Enforcement of restrictions on destructive fishing practices, coral mining, seaweed farming (densely farmed seaweeds can block sun light and lead to high coral mortality), and new incoming tourism operators have been actively supported by existing tourism developers, local government agencies and communities, and therefore have been relatively effective. However, for activities that may undermine the interests of existing local users (*e.g.* tourism and small-scale fishing) and the local government (*e.g.* coastal development), enforcement has largely been ineffective.

5.5.1 Tourism development in the SCR-NMNR and the ecological impacts of tourism activities

In an effort to reduce the traditional reliance of local communities on natural resource extraction and the conflict between conservation and local development, the first tourism company was introduced in the Yalongwan area within the SCR-NMNR in 1997, after the State Oceanic Administration approved The Conservation and Development Plan in the Yalongwan Integrated Coral Reef Management and Demonstration Area. According to the Plan, ‘ecotourism’ activities were permitted within the demonstration area and in return, tourism developers funded the management station in the Yalongwan area to strengthen enforcement capacity in the SCR-NMNR (SCRN-MNR Management Authority 2004). A decade has passed since the first introduction of tourism to the SCR-NMNR, and tourism has thrived on the tropical seascape and underwater world harboured within the SCR-NMNR. There are now twelve tourism operators that conduct tourism activities in the SCR-NMNR (CPPCCHC 2006), and the SCR-NMNR has become a top attraction to tourists visiting Sanya.

There is little doubt that uncontrolled tourism developments have become a major threat to coral reefs and the overall marine environment, and managing tourism activities in a sustainable way has been a major challenge to the SCR-NMNR. The ecological impacts of tourism activities are evident in the following areas:

- 1) Over-crowding and uncontrolled tourist numbers and behaviour, particularly in the Ximao Island and Luhuitou area. Ximao Island has a total area of 2.68 km². When tourism in the Ximao Island was running at full capacity between 2002-2004, the island was visited by an average of 4,000-5,000 people every day, and the number can reach over 10,000 in long public holidays (e.g. the first week of May and October).² As a field warden points out:

Apart from the areas that are not suitable for tourism development, all coastal areas surrounding the SCR-NMNR has been used for various [tourism] activities. By 'areas that are not suitable for development' I mean rocky shores and cliff areas, and coastal areas that are too wavy and rough.

³

The intensification of tourism activities in the MPA has been encouraged by allowing too many tourism developers to operate within the MPA. As a report points out (HCCPPCC 2006):

Lured by [economic] interests, a total of 12 tourism companies now run business in a 55.68 km² MPA. When there is a potential benefit, everyone rushes towards it; but when there is a problem, everyone blames each other. The malicious competition [between the tourism companies] and the

² Interview with a senior manager of a local tourism company (SYTOH), Nov. 2007.

³ Interview with a field warden (SYEOX), Nov.2007.

resultant conflict between tourism development and ecological conservation has become a major obstacle for the effective management of the SCR-NMNR.... The SCR-NMNR has been used intensively for tourism development, it is like a mass tourism area.

‘When there is a potential benefit, everyone rushes towards it; but when there is a problem, everyone blames each other’ describes a typical ‘tragedy of the commons’ situation, as the state is proving to be ineffective in controlling access to natural resources. The issuing of exclusive user rights for tourism and other compatible activities may have given individual tourism developers the incentive to manage resources in a more sustainable way. Such sea user rights, once obtained, are exclusive and allow companies or individuals to preclude other users from entering and using resources within a defined marine area for a certain period of time. However, how such user rights can be issued in a fair and sustainable way is another major challenge in the SCR-NMNR, as discussed later in this chapter.

In addition, it is often difficult to control the behaviour of individual tourists, although they are usually given educational information on the rules and restrictions they need to follow before they venture into the ‘underwater world’. Collection of shells in the intertidal area, living or dead, is a common practice of many tourists. Most tourists coming to the MPA do not have any prior training in diving, and they engage in the so-called ‘experiencing diving’ after a very brief introduction to their diving equipments. Panicking, kicking and bumping on coral reefs is to be expected.

- 2) Tourism infrastructure developments within the SCR-NMNR, including the building of hotels, marina and other artificial structures, have resulted in some irreversible damage to coastal habitats. The building of a small marina

(about 42 meters long) in the Ximao Island involved the removal of large blocks of corals⁴, and to save transportation costs, the construction wastes were dumped in nearby waters rather than being shipped to special dumping sites, causing further pollution and habitat destruction.⁵ The construction of an outdoor swimming pool near the five-star Shanhaitian Hotel too has removed corals and rocky reefs to make the area more comfortable and safer to swimmers.⁶ It is also worth noting that both projects (the marina and swimming pool) had followed proper Environmental Impact Assessment procedures and had gained the permission from the provincial Ocean and Fisheries Department.⁷

Nevertheless, the most controversial project in this respect is the development of a top luxury hotel, the Sanya Guobinguan (meaning state guest house, a hotel traditionally used to accommodate top Chinese officials and foreign diplomats visiting China). The hotel was first built in 1958, and was visited by China's most prominent leaders including the former Vice Premier Zhou Enlai. Rebuilding of the hotel started in 2005; it attracted huge investments and was ranked as one of the top development projects in the Hainan Province in that year (Wang 2009). The project successfully passed evaluations from multiple agencies, including the Department of Land and Resources, and the MPA management agencies— the Ocean and Fisheries Department of Hainan Province, and the State Oceanic Administration (Wang 2009). However, as the construction went on, questions on the sustainability of the project arose. As in the Shanhaitian Hotel, natural coral and rocky reefs were removed during the construction of an outdoor

⁴ Interviews with an employee of a tourism company (SYTOX), Nov. 2007; and a local community member (SYCML), Nov. 2007.

⁵ Interview with a group of three local fishermen (SYFMX1-3), Nov. 2007; verified by a MPA field warden (SYEOY), Nov. 2007.

⁶ Informal chats with a MPA field warden (SYEOF), Dec. 2007.

⁷ Informal chat with staff from the MPA Management Authority (SYMBXX), Dec. 2007.

swimming pool.⁸ In addition, the project also removed a ‘polluted’ muddy flat from the shore and replaced it with an artificial sandy beach, and constructed a 450-meter wooden bridge connecting a small island to the shore.⁹

5.5.2 *Ecological impacts of small-scale fishing*

Definitions of small-scale fisheries vary widely (Berkes et al. 2001:1). For the purpose of this study, small-scale fisheries are characterised as *‘a dynamic and evolving sector employing labour intensive harvesting, processing and distribution technologies to exploit marine and inland water fishery resources. The activities of this sub-sector, conducted fulltime or part-time, or just seasonally, are often targeted on supplying fish and fishery products to local and domestic markets, and for subsistence consumption. Export-oriented production, however, has increased in many small-scale fisheries during the last one to two decades because of greater market integration and globalization’* (FAO 2004). In all three case study sites in this study, individual households seem to be the most common production units in small-scale fisheries.

Small-scale fishing practiced by local communities is allowed to continue within the SCR-NMNR, despite the fact that it is prohibited by the MPA regulations. However, as more and more villagers find jobs in tourism companies and the Sanya city, the number of full-time fishers has declined sharply. In the Luhuitou village, a traditional fishing village where all of its over 2,000 residents were once dependent on fishing, 75% of the residents now make a living without fishing.¹⁰ In another traditional fishing village, the Ximao village, most of the villagers have sold their fishing boats and there are only around 10 fishing boats

⁸ Interview with a field warden (SYEOX), Nov.2007; and Wang 2008.

⁹ Interview with a field warden (SYEOX), Nov.2007; and Wang 2008.

¹⁰ Interview with representatives from the Luhuitou village (SYCOL), Dec. 2007.

left.¹¹ The common fishing gears used by local villagers include gill nets, hook-and-line, and fish traps. Most local fishing boats are small, ranging from 5 to 10 meters in length, and can only fish in shallow waters close to the shore. Most of the catch is sold to residents in the same village, but high value species (sizable shrimps, crabs and other crustacean species, and live reef fish) are sold to restaurants in Sanya city.

Detailed information on the amount and composition of local catch is not available. Every year local village committees are required to report fish catch in their villages, but such information at the village level has not been made available to the public. However, an informant pointed out that village committees' reports on annual fish catch did not reflect that true status of local fisheries, as most (over 70%) of the figures were made up to meet the expectation that fishers' and their families' annual incomes were increasing rapidly.¹² Over-reporting and distortion of fishery statistics in China has been a national or even global problem, as mentioned previously. Interviews from all local fishermen have indicated sharp declines in catch during the past 5-10 years.¹³ Local fishers believe that trawling and light-attraction fishing devices used by non-local fishers from the Sanya City and other domestic fishing fleets, habitat destruction resulting from tourism developments and a lack of advanced fishing equipments are responsible for the declines in local catch. However, due to a lack of data on fish catch from local and non-local boats, it is impossible to scientifically evaluate the impacts of small-scale fishing and to verify the claim from local fishers that the sharp declines in fish stocks resulted mainly from the activities of non-local fishers. Although the number of full-time local fishers has declined sharply, the decline has been relatively recent, with most people leaving the fishing sector after the year 2000 when the tourism industry

¹¹ Interview with a member of the Ximao village committee (SYCLZ), Nov. 2007.

¹² Interview with a member of the local village committee (SYCLZ), Nov. 2007.

¹³ Group interviews with local fishermen and community members SYFMXX, Nov. 2007; SYCOL, Dec. 2007; SYFMX1, Nov. 2007.

expanded. Therefore, the observed declines in fish stocks may be closely associated with historical over-fishing by local fishers. In addition, although officially prohibited, a few local fishers from the Ximao Village were found to engage in blast fishing within the MPA during the time of field research, although the incidents of such destructive fishing have been greatly reduced due to MPA enforcement.¹⁴

The decline in near-shore fish stocks also has ecological implications. A coral reef survey in 2006 within the SCR-NMNR showed that the average density of reef fish was 1 fish per m², and both the density and size of species of high commercial value was extremely low, indicating heavy fishing pressure (Kimura et al. 2008). The disappearance of high value species, particularly triton shells and large reef fish, may be responsible for the frequent outbreaks of their prey, the crown-of-thorns starfish, in recent years in the SCR-NMNR (Kimura et al. 2008). The crown-of-thorns starfish is known to predate on corals by secreting an enzyme that breaks down the coral tissue (AIMS 2009), and its outbreaks have resulted in large-scale coral mortality in the SCR-NMNR. Although the exact mechanism leading to starfish outbreaks is not clear, high levels of organic nutrients and low predator density are among the most hypothesized factors (AIMS 2009). In the Great Barrier Reef Marine Park, a marked reduction in outbreaks of crown-of-thorns starfish has been observed in the no-take zones compared to surrounding waters (Sweatman 2010), which supports the view that such outbreaks may result, at least partly, from over-fishing.

Compared to tourism activities, the impacts of small-scale fishing are chronic, less obvious and more difficult to monitor. While overfishing has been rated as one of the most important threats to coral reefs in other countries (Bryant et al. 1998), it is considered by MPA managers as not having significant impacts on

¹⁴ Interviews with MPA managers and enforcers (SYMBXX, Dec. 2006; SYEOC, Nov. 2007).

the coral reef ecosystem in the SCR-NMNR,¹⁵ although there is no evidence to support this view. Rapid development and urbanisation in recent years in Sanya holds the promise that fishing pressure in the inshore areas maybe further reduced in the near future as more villagers take employment in non-fishing sectors, however whether or not this promise can be turned into reality will depend on market conditions and the capacity of tourism and other industries to absorb a growing labour force, as well as the capacity of mariculture and distant water fisheries to supply an increasing demand for seafood. Under unfavourable economic conditions unemployed villagers resuming fishing may lead to a sudden increase in fishing pressure. For example, the temporary shutdown of a tourism company in the Ximao village in 2007 resulted in a 60% increase in the local unemployment rate and many of the unemployed villagers started fishing and illegal coral collection.¹⁶

5.5.3 The impacts of coastal development and water pollution

In a city experiencing fast economic growth, coastal areas in Sanya have been used extensively for real estate and infrastructure developments. Large areas of mangroves and other coastal vegetation have been cleared for development, and the rates of coastal erosion in Sanya and other coastal cities in the Hainan Province have been significantly accelerated in the past five years (Jiang 2009). Uncontrolled coastal development also happens in areas adjacent to the SCR-NMNR, for example, sandy beaches and coastal forests in the Dadonghai area have been cleared to build parking grounds and holiday homes. This may lead to a change in coastal geology and an increase in the level of sedimentation within the SCR-NMNR. In other places in the world, sedimentation from dredging associated with coastal and infrastructural development and accelerated runoff of eroded soils have been recognised as key threats to coral

¹⁵ Interviews and informal chats with MPA managers and field wardens (SYMBXX, Dec. 2006; SYPOC, Nov. 2007; SYEOX, Dec. 2007).

¹⁶ Group interview with villagers laid off by a tourism company (SYJLX1-7), Dec. 2007.

reefs (Rogers 1990). The tolerance of corals to sedimentation varies among different species and high levels of sedimentation smother reef organisms and reduce the light available for photosynthesis (Rogers 1990).

Along with the increasing impacts from coastal development, the impacts of seawater pollution have been increasing too. According to the ecological monitoring data collected by the State Oceanic Administration, the overall seawater quality in the SCR-NMNR and its surrounding areas has maintained Category I standards (SOA 2009), meaning that it is the least polluted sea area in China. However, within this large ecological monitoring zone, there are locations in which water quality has been decreasing due to rapid coastal and tourism development, urbanisation and poor sewage treatment facilities in Sanya. There are currently no sewage treatment facilities in the Ximao Island and Luhuitou area, and the quality of seawater in some places in the Luhuitou area has exceeded Category III standard (moderately polluted). The 'rainwater' pipes installed near hotels and golf courses in the Luhuitou area have been under close scrutiny recently. Such pipes are claimed by tourism developers to only carry rainwater runoff, as distinguished from sewage discharge points, which are illegal within MPAs. Increased levels of sedimentation have been recorded in locations within the SCR-NMNR that are close to the Sanya city centre.¹⁷

Water pollution and sedimentation within and near the SCR-NMNR are likely to increase in the future, as economic development and urbanisation accelerate in Sanya. However, progress has been made to improve sewage treatment facilities in Sanya, with the construction of six new sewage treatment plants being initiated in 2009.

¹⁷ Talk by a coral reef biologist IA, who has been working in the SCR-NMNR, from participant observation Dec. 2007.

5.5.4 The impacts of mariculture

Shrimp, fish and abalone mariculture are still widely practiced in intertidal and sea areas adjacent to the SCR-NMNR. The main impacts from mariculture are coastal habitat destruction resulting from the clearing of mangrove forests to build shrimp farms and water pollution (particularly organic nutrients) from shrimp and abalone farms. Accounts from local fishermen also indicate that there may be a potential impact from introduced fish species escaping from fish farms, which are sometimes caught by local fishermen.¹⁸ However, the species composition and biology of the introduced species, as well as their ecological impacts are poorly understood.

5.5.5 The impacts of military activities

Several islands within the SCR-NMNR have been used by the navy for military training. In the Yalongwan area, large-scale mortality of hard corals (*Acropora spp.*) was observed in 2005-2006. The reason(s) remains unclear, but the construction work conducted by the navy to connect two islets adjacent to the area where high coral mortality was observed is believed to be a main contributing factor, as the onset of coral death coincided with the construction work. There were already signs of coral recovery in the area in 2007.

5.6 Governance of the SCR-NMNR

In governing the SCR-NMNR, the key actors are the central government, the Hainan Provincial Government, the Sanya Municipal Government, tourism developers, and local communities. The roles and responsibilities of different actors and the interactions and interdependence between them in governing the SCR-NMNR are explored in this section.

¹⁸ Interview with a local fisherman in the Ximao Island (SYFMQ), Dec. 2007.

5.6.1 The enforcement of conservation regulations in the SCR-NMNR and the roles of the state

As discussed in section 5.4, the official regulations and rules governing MPA management in the SCR-NMNR are relatively strict and prohibit economic activities other than tourism, which is only allowed in the experimental zone and under the condition that tourism activities do not undermine conservation objectives. However, as examined in section 5.5, there is currently a huge gap between what is provided by various policies and regulations related to MPA management and what has been enforced in the SCR-NMNR. The main obstacles to the effective enforcement of conservation regulations in the SCR-NMNR are:

- 1) The current regulatory framework remains vague on how the conflicts between biodiversity conservation and local development needs may be addressed. The Regulation on Nature Reserves (1994) stipulates that in the establishment and management of nature reserves, local development needs must be addressed properly. There are, however, no guidelines on how this can be achieved, considering that most economic activities are officially prohibited in nature reserves. As discussed above, the Regulation on Marine Environmental Conservation of Hainan Province (2008) also stipulates that tourism and other development activities within MPAs need to be conducted within the carrying capacity of natural environment. The SCR-NMNR is located adjacent to a city experiencing 17% GDP growth annually, with an ever-increasing demand for coastal and marine resources. Without detailed criteria and protocols that clarify how and to what degree local economic activities can be accommodated in marine nature reserves and the means of arbitrations should any confusion and conflicts arise, the regulations remain as empty words. The gaps and fundamental weaknesses in the MPA regulatory framework provide opportunities for over-development in the

SCR-NMNR, which partly explains why some tourism developments, such as those listed in section 5.5.1, were able to pass environmental impact assessments and allowed to continue even after they resulted in substantial ecological impacts. When being questioned by a reporter whether the removal of coral reefs and the construction of tourism infrastructures in the Shanhaitian hotel (see 5.5.1) are illegal according to the provisions of the Regulation on Nature Reserves, senior officials from the Hainan Province Ocean and Fisheries Department and the Sanya Municipal Government defended the project and added that [according to their interpretation], the development activities were controlled in accordance with the Regulation and were necessary for meeting local development needs (Wang 2009). The MPA enforcers also find it difficult to argue for better control of small-scale fishing in the SCR-NMNR as the Nature Reserve Regulation stipulates that local livelihoods must be ‘considered’ in the management of nature reserves.¹⁹ The situation in the SCR-NMNR confirms Ma and Ortolano’s (2000: 15) observation that environmental laws in China ‘*are general and often intentionally ambiguous, [and] they allow the State Council, national agencies, and local governments to add details that influence implementation*’.

- 2) A lack of funding and institutional resources for MPA enforcement and management. The SCR-NMNR receives about 500,000 Yuan (US \$74,600) annually from the central and provincial governments, which barely covers the salaries of six permanent staff members (CPPCCHC 2006), and some ad-hoc project and infrastructure funding from various government agencies. The government funding alone is insufficient for even basic management work, such as carrying out routine patrols, and most costs of surveillance and enforcement work within the SCR-NMNR are covered by tourism developers, who built three management stations, hired 16 field wardens to

¹⁹ Interview with a MPA warden (SYEOX), Dec. 2007.

patrol the MPA and provided speed boats, fuel and additional human power whenever necessary to assist law enforcement in the SCR-NMNR. The partnership between the SCR-NMNR Management Authority and tourism developers has been recognised as an innovative governance approach in the SCR-NMNR. However, it also has some inherent problems. In practice, the relationship between field wardens and tourism developers is more like an employee-employer relationship rather than one between monitors and those being monitored. A representative from the tourism company Yalongwan Underwater World Corporation said in an interview that his company *'always treats the wardens in the MPA management station as our own employees'*.²⁰ This employee-employer relationship between the field wardens and tourism companies makes it difficult for the former to oversee the activities of the latter. In general, the wardens only intervene in the tourism companies' operations when they receive direct and explicit instructions from senior administrators in the SCR-NMNR Management Authority, but a lot of problems go unreported or are not dealt with promptly. As a field warden said in an interview:

In name we should be monitoring and overseeing the activities of tourism companies. But how can we do this in practice? If you are being fed by someone, it would be wise to keep your mouth shut [about their wrong-doings].

The income generated from tourism activities in the SCR-NMNR has great potential in meeting the financial needs of MPA management and enforcement. However, in the Chinese context, how to channel a proportion of tourism revenue to MPA management without resulting in corruption and protection of illegal tourism activities through bribing is a major institutional

²⁰ Interview with a representative from the tourism company Yalongwan Underwater World Corporation (SYTOC), Jan. 2008.

challenge. The former director of the SCR-NMNR Management Authority was removed from the post because there were complaints about him receiving payments and shares of tourism profits from tourism companies. According to a local official from the Sanya municipal government, MPA management then became '*a game in which a particular player also acts as the judge*'.²¹ In order to combat corruption, the SCR-NMNR Management Authority was ordered by higher level authorities not to accept any cash transactions from tourism companies; they can only receive non-monetary contributions such as the provision of patrol stations, speed boats, fuel and human resources. However, this greatly reduced the flow of tourism benefits to the SCR-NMNR. A senior official in the Hainan Ocean and Fisheries Department believed that the problem can be solved by establishing a formal fiscal transfer mechanism, which requires tourism companies to pay a fixed 'resource conservation fee' to an account that belongs to the central government, which can then appropriate the funds to the MPA management authority. However, he also pointed out that to implement such a fiscal transfer mechanism requires a clear legal basis, which is currently nonexistent. Alternatively, tourism companies are now required to pay a marine area user fee to operate in the MPA, and the central government can also appropriate a proportion of the marine area user fees to the SCR-NMNR Management Authority.²² The importance of establishing a fiscal transfer mechanism and the legal basis for it lays in the fact that it breaks down direct cash transfers between the SCR-NMNR Management Authority and tourism developers, and enables a higher authority, the central government, to oversee the process and to reduce rent-seeking behaviour.

Another source of funding for MPA enforcement and management in China is local governments. According to the Regulation on Nature Reserves, local

²¹ Interview with a representative from the Sanya municipal government (SYLOZ), Jan. 2008.

²² Interview with a senior official in the Hainan Ocean and Fisheries Department (SYPOC), Dec. 2006.

governments above the county level are responsible for the finance of nature reserves, and the central government provides financial assistance for national nature reserves. However, this is not well perceived by MPA managers in the SCR-NMNR. As an administrator in the SCR-NMNR Management Authority pointed out:

Most municipalities and counties in the Hainan Province are relatively underdeveloped compared to other coastal areas in China; therefore it is difficult for local governments in Hainan to fund MPAs. In addition, if the majority of funding for MPA enforcement and management comes from local governments, it can provide opportunities for local authorities to promote over-development. Last year I was invited to a conference organised by the National People's Congress, who was drafting the new protected area legislation and wanted to hear opinions from nature reserve managers. Among more than 100 managers of national nature reserves attending the conference, nobody believed that funding for nature reserves should come from local governments. ²³

- 3) Fragmented enforcement and governance approach. The Regulation on Nature Reserves gives the nature reserve management authorities the overarching legal power to regulate various economic activities within nature reserves, as well as activities outside the boundary of nature reserves that may have negative impacts on the environmental quality within the affected nature reserve. However, in reality, the SCR-NMNR Management Authority has neither the political power nor the resources to fully exercise its authority. Coordination between the SCR-NMNR Management Authority and local government authorities becomes a key issue. A senior official in the Hainan Province Ocean and Fisheries Department pointed out that maintaining effective coordination between different government agencies is

²³ Interview with a staff at the SCR-NMNR Management Authority (SYMBXX), Dec. 2006.

one of the most difficult task in managing MPAs in the Hainan Province, and *'when establishing and managing a MPA involve multiple agencies, e.g., forestry, environment, military, the interactions with other agencies may slow down the management progress and increase costs'*.²⁴ Furthermore, a range of activities, particularly tourism infrastructure development, coastal land use and water quality control adjacent to the SCR-NMNR are managed mainly by local government authorities with very limited influence from the SCR-NMNR Management Authority, even though how these activities are planned and managed is crucial to the success of the SCR-NMNR. For example, a representative from the tourism company Sanya Dadonghai Management Ltd. commented:

*We do have an issue with increasing terrestrial runoff, carrying pollutants and sediments into the SCR-NMNR through our drainage system. But we cannot fill in these drainage pipes, because if we do, it will cause flooding in lowland areas. It is not our problem; it is a problem in the design of Sanya's drainage system. It is also a problem of the coordination between different government departments, because the SCR-NMNR Management Authority does not deal with the drainage system, and pollution control and sewage treatment is administrated by the local environmental authority.*²⁵

- 4) Minimum sanctions against illegal activities and weak rule of law in the enforcement of the SCR-NMNR. Rule of law *'refers to a system in which law is able to impose meaningful restraints on the state and individual members of the ruling elite... the supremacy of the law, and the equality of all before the law'* (Peerenboom 2002: 2). Establishing and effectively enforcing a system of laws has always been a struggle in China

²⁴ Interview with a senior official in the Hainan Province Ocean and Fisheries Department (SYPOC), Dec. 2006.

²⁵ Interview with a representative (SYTOS) from the tourism company Dadonghai Management Ltd., Dec. 2007.

(Peerenboom 2002), and the rule of law was almost nonexistent in turbulent times such as during the Cultural Revolution (see Chapter 3). There has been considerable progress in strengthening the rule of law in the country, which is at the centre of China's economic and administrative reforms (Peerenboom 2002). However, the weak rule of law is still a major obstacle to the effective enforcement of the SCR-NMNR. Violations of conservation regulations by the Sanya local government, tourism developers, fishers, tourists and local community members are so common and widespread in the SCR-NMNR that effective enforcement is seen as an impossible task by MPA enforcers.²⁶ A field warden concluded that *'what made our work so difficult is that people have a poor understanding of and little respect for the law'*.²⁷

One of the reasons that citizens often have a low respect for conservation regulations in the SCR-NMNR is that law breakers can often walk away with minimum or no punishments. It is always a problem in China when the law meets authority, with the latter often taking precedence over the former (Gorni 2003). The Sanya municipal government has violated several national and provincial regulations, such as the Regulation on Nature Reserves and Law on Sea user rights, by issuing permits to allow tourism companies to operate within the SCR-NMNR, which is not under their jurisdiction and they have clearly exceeded their authority (HCCPPCC 2006; see Section 5.4). Local officials also violated the Law on Land Use by allocating extensive coastal land for tourism development against the will of local residents (discussed later in section 5.7.2). Such violations of laws by the local government were denounced openly in policy reports and the press (*e.g.* Ma 2004; HCCPPCC 2006); however, local officials never seem to suffer from the legal and political consequences of their actions. The failure

²⁶ Interviews with field wardens, SYEOX, Dec 2007; SYEOC, Jan. 2008.

²⁷ Interview with a field warden (SYEOC), Jan. 2008.

in the enforcement of conservation regulations against local authorities in the SCR-NMNR is not a unique case, as Breslin (2005: 20) observed: *if China is becoming a regulatory state, it is a voluntary regulatory state, with local authorities still able to decide whether to adhere to central regulations or not*'. The ineffectiveness in the use of legal instruments is one of the key reasons that the central government is no longer able to 'steer' in policy areas such as environmental conservation.

However, local authorities are not the only ones that are able to escape from the punishments of the law. Among the 12 tourism operators that are operating within the SCR-NMNR, very few have obtained permission from the State Oceanic Administration and only three companies have obtained sea use rights that enables them to conduct diving and other under-water activities in the experimental zone of the SCR-NMNR (Table 5.2). By law all other companies remain illegal at the time of this field study. However, their illegal activities have been tolerated for several years, as pointed out in an article in the China Environmental News (Chen and Wang 2006):

Since 2000, the Sanya Dadonghai Management Limited, the Sanya Xidao Tourism Development Limited and other companies have been undertaking development activities, such as building ports, small bridges and other tourism infrastructures, without obtaining permissions from relevant central and provincial government agencies.... These seemingly illegal activities have been carrying on for six years, is the SCR-NMNR protecting coral reefs, or these companies?

There are two important reasons why such companies are not sanctioned: they are important contributors to the local economy, and many of the companies have good connections with the local and higher level governments, which is not a rare phenomena in China (see Section 3.4.2).

For example, the CEO of the Sanya Dadonghai Management Limited is a member of the Hainan Province People's Congress, and the Sanya municipal government is a share-holder of the Sanya Xidao Tourism Development Limited. Managing a MPA in such context often becomes a game of politics between the conservation agencies and other political parties actively supporting development projects. There have been some attempts to empower the SCNRMNR Management Authority in this political game to make it a more equal player to other political parties; the most significant one being the separation of the Authority from the Sanya municipal government and its handing-over to the Hainan Ocean and Fisheries Department in 2002.²⁸ However, conservation agencies, even those at the national level, are often politically inferior to other local or higher-level institutions with more economic and political power (PATF 2004), and conservation agencies often fail to take firm legal actions against the more powerful in order to avoid or reduce political tensions and conflicts between them and more powerful actors in the economic and political system. Delisle (cited in Peerenboom undated: 5) suggested that the biggest challenge for China's legal reform will be *'moving from a narrowly instrumentalist conception of law and legal institutions to one that accepts, in principle and practice, their autonomy and authority even where they bring unwanted consequences for the economy, politics or the powerful'*. If the SCR-NMNR were to be effectively enforced, the further empowerment of conservation agencies and a stronger political will to defend the authority of the law will be essential.

²⁸ Interview from a representative from the Hainan Ocean and Fisheries Department (SYPOC), Dec. 2007.

Table 5.2 The permits held by the tourism developers, which allowed them to operate in the SCR-NMNR.

Tourism company name	Tourism permit issuing agency	Issuing year
Yalongwan Underwater World Corporation	State Oceanic Administration	1996
Sanya Bahaili Tourism Limited	Sanya Ocean and Fisheries Bureau	1996
Hainan Furuida Limited	Sanya Municipal Government and the SCR-NMNR Management Authority	1999
Sanya Zhongtian Ocean Leisure and Tourism Limited	Sanya Ocean and Fisheries Bureau and The SCR-NMNR Management Authority	2001
Sanya Xidao Tourism Development Limited	None	
Sanya Dadonghai Management Limited	Sanya municipal government, who sign the Agreement on Development and Management of the Dadonghai Beach and Coastal Area in Sanya with the company in 2001	
Hainan Hanglu Submarine Tourism Limited	Hainan Province Ocean and Fisheries Department, and the SCR-NMNR Management Authority	1998
Sanya Red Coral Diving Company	Sanya Ocean and Fisheries Bureau	1998
Dadonghai Diving Club	Internal agreement with the Sanya Dadonghai Management Limited	
Hainan San'an Ocean Tourism Development Limited	Internal agreement with the Sanya Dadonghai Management Limited	
Sanya Huanqiu Limited	Hainan Province Ocean and Fisheries Department	2001
Sanya Luhuitou Xinxing Sports and Leisure Limited	State Oceanic Administration	2001

5.6.2 The roles and influences of local governments and central-local governmental interactions in governing the SCR-NMNR

The attitude of the Sanya municipal government towards the SCR-NMNR has undergone major changes, mainly driven by the rapid development of the

tourism market and the resultant user-pressure on coastal and marine resources. As introduced in section 5.3, the MPA was initially an effort from the local government to protect coral reefs from coral mining and destructive fishing practices. In order to enhance MPA management, in the early 1990s the local government also issued a local ordinance to designate coastal land 30 meters above the high water mark to be included in the SCR-NMNR,²⁹ which increased the area of the SCR-NMNR from 40 km² to 85 km². Starting from 2000, Sanya started to experience expansions in the tourism market with rapid increases in tourism volume and profits (Shan 2009). The SCNRMNR became one of the top tourism destinations in Sanya and there have been growing investment interests in building hotels, resorts and other tourism facilities in the coastal area surrounding the SCR-NMNR. These investments included a 750 million Yuan (US \$110 million) joint investment from the Beijing Capital Tourism Development Group and the Banyan Tree Holdings Limited, a company based in Singapore, to re-develop the Sanya Guobinguan Resort in 2005, and a 1 billion Yuan (US \$146 million) investment from the Shanghai Shengming Group to build a luxury golf course in 2006 (Wu 2007). Although both development projects have resulted in negative environmental and social impacts, the economic rational for the local government to support these large-scale development projects is strong. The decision of the local government to designate coastal land 30 meters above the high water mark as part of the MPA in the 1990s was denied by the current administration in Sanya. A representative from the Sanya Ocean and Fisheries Bureau commented in an interview:

The SCR-NMNR used to be too big and included too much coastal land within it, which greatly restricted development opportunities in this area. It is necessary to protect coral reefs, but local development needs have to be considered as well.

²⁹ Interviews with a representative (SYLGK) from the Sanya Ocean and Fisheries Bureau, Jan. 2008; and MPA enforcers SYEOX, Dec. 2007; SYEOX, Nov. 2007.

We negotiated with the State Oceanic Administration to determine an appropriate size for the SCR-NMNR, and we agreed on 55.6 km², rather than 85 km² as previously claimed.

The SCR-NMNR demonstrates that if the incentives for pursuing and sustaining biodiversity conservation are purely economic, when the economic value of and user pressure on natural resources increase too fast, triggered by a rapid expansion of the tourism market and increase in investment interests in Sanya, MPAs risk losing the support they used to have. Conserving coral reefs has the potential to promote tourism in Sanya, but this potential is greatly reduced by a form of mass tourism which is characteristic of tourism development in Sanya, and by the desire to maximize short-term tourism revenues in such a context. Local government's motivations in advancing tourism development, however, are not limited to promoting economic growth for the welfare of local people; there is also a more personal motivation for local officials to actively support some tourism companies, often causing tensions between the local and higher level governments and leading to unfair competition in the tourism industry.

The chaos and conflicts in issuing tourism permits to allow companies to operate within the SCR-NMNR illustrates the tensions between the local and higher level governments in regulating economic activities within the MPA. Before 2008, most of the 12 tourism developers operating within the SCR-NMNR held permits issued by Sanya municipal government agencies (Table 5.1), who, according to the national and provincial regulations (see sections 3.6.3 and 5.4), do not have the authority to decide whether a developer can operate within a national marine nature reserve. In 2006, the State Oceanic Administration issued a circular on 'Further Strengthening the Administration of Sea Use Management within Marine Protected Areas', establishing clear statutory procedures for the issuing of sea user rights for economic activities within experimental zones of marine nature reserves. The circular sets out that

for a national marine nature reserve, proposals for tourism activities need to be evaluated by the MPA management authority (which in the case of the SCR-NMNR, is the SCR-NMNR Management Authority under the supervision of the Hainan Province Ocean and Fisheries Department) and then submitted to the State Oceanic Administration for approval. But in practice, this turns out to be a more devolved process, in which the State Oceanic Administration rarely conducts independent investigations and usually follows the recommendations from the Hainan Provincial Ocean and Fisheries Department, who again makes decisions in consultation with the Sanya municipal government.

The root cause for the tensions in the issuing of sea user rights for tourism within the SCR-NMNR is that the Sanya municipal government has been insisting on issuing sea user rights to companies that have good connections with them, therefore creating a market monopoly that has resulted in sharp conflicts between the tourism companies, as well as between the local government and tourism companies. The conflict started in 2001, when the Sanya municipal government and the Sanya Dadonghai Management Limited (SDML) signed the Agreement on the Development and Management of the Dadonghai Beach and Coastal Area in Sanya. By signing the Agreement, the Sanya municipal government granted the SDML the exclusive use of a 2.8km-long beach in the Dadonghai area for 20 years, creating a monopoly in the development of tourism in the area. An official from the Hainan Department of Ocean and Fisheries described the deal as being ‘unfair and outlawed’, but after careful consideration, the provincial government accepted the deal and the SDML’s right to conduct tourism operations within the SCR-NMNR on the basis that if they did not give permission to the SDML to operate within the MPA, the Sanya municipal government would need to pay a huge sum of compensation to the company to cancel the deal.³⁰ In the following years, the

³⁰ Informal discussions with an official from the Hainan Province Ocean and Fisheries Department (SYPOC), Dec. 2007.

SDML established its own presence and authority in the Dadonghai area, including the authority to sign sub-contracts with other developers to allow them to operate within the SCR-NMNR (as in the case of the Dadonghai Diving Club and the Hainan San'an Ocean Tourism Development Limited, see Table 5.2). Furthermore, the SDML, through its influence on the Sanya municipal government (and possibly higher-level bureaucrats), managed to block other tourism companies from gaining sea area user rights in other areas of the SCR-NMNR, claiming that the territory of the SDML also includes other areas. As a result, the decision on who can receive sea user rights for tourism development in the SCR-NMNR has been pending for years, in the meanwhile all tourism operators holding permits from the local government are allowed to continue their operations within the SCR-NMNR. A manager from another company commented:

We have applied for sea user rights, but because of historical issues, it will take some time to get it..... There seems to be a major coordination problem between the Hainan Province Ocean and Fisheries Department and the Sanya municipal government. The applications (for sea user rights) approved by the Sanya municipal government cannot gain approval from the Hainan Province Ocean and Fisheries Department, but the applications approved by the latter are often rejected by the former.³¹

5.6.3 Intervention of the local government and the malfunction of tourism market: the case of tourism development in the Ximao Island

Compared to what happened in the Dadonghai area, tourism development in the Ximao Island within the SCR-NMNR had received more direct and stronger influence from the Sanya municipal government. In 1999, a private investor from Taiwan signed an agreement with the Ximao Island village committee and

³¹ Interview with a senior manager (SYTOW) from a tourism company, Dec. 2007.

jointly established the Ximao Island Yuyang Tourism Development Limited (referred to as Yuyang hereafter). In this joint venture, the village committee provided 8.67 hectares of land for tourism development, and the private investor invested 150 million Yuan (US \$22 million) over the next three years to develop tourism infrastructure in the Ximao Island. In 2001, Yuyang started to operate, and the Ximao Island quickly became a top attraction to tourists visiting Sanya (Ma 2004).

The development of tourism in the Ximao Island had gained support from the Sanya municipal government at the beginning. However, as the profit grew, so was the government's tendency to control the tourism business. In late 2001, the Sanya municipal government advised that Yuyang need to apply for a land user certificate from the municipal government. The advice was followed and Yuyang paid 180 million Yuan (US \$26.3 million) to the Sanya Bureau of Land and Resources, which included the land use fee and compensation fee (to compensate community members who had plantations in the land to be used for tourism development). The distribution of the compensation fee led to a major conflict between the government and the community on Ximao Island, which will be discussed in the next section. However, despite repeated pledges from the Sanya municipal government, Yuyang never got the land use certificate that they paid for, and the fact that they do not hold a valid land certificate was used against them repeatedly in the following years (Ma 2004).

In early 2003, the Sanya municipal government and a private investor jointly funded the Sanya Xidao Tourism Development Limited (SXTDL), in which the Sanya municipal government held 50% shares (Ma 2004, Gao et al. 2006). In July 2003, the Sanya municipal government held a conference to discuss how to further develop the tourism industry on Ximao Island, and it was announced in the conference that the newly funded SXTDL was to be the only executor of the four 'consolidates'—consolidated planning, consolidated use of tourism

resources and infrastructure, consolidated tourism management and administration on Ximao Island. The SXTDL was instructed to ‘maintain good relationships’ with the first tourism developer Yuyang, who was not even invited to participate in the conference. It was also suggested that there were two ways for the SXTDL to ‘maintain good relationships’ with Yuyang, either by selling part of the SXTDL’s shares to Yuyang or for the SXTDL to buy Yuyang’s assets. However, neither was accepted by Yuyang, who had already established its presence on Ximao Island and successfully turned the island from a poor fishing village into a top tourist destination in Sanya (Ma 2004). From 2004, the two companies--the SXTDL and Yuyang—fought many battles against each other to gain control of ports, land, beaches and other tourism resources, and to attract tourist groups. This vicious competition quickly brought a sharp fall in the tourist volume and tourism profits on Ximao Island. After Yuyang was forced to withdraw from the tourism market in 2008, the ‘four consolidates’ allow a company partly owned by the local government to gain full control of the tourism market, as well as the profits from it, without any foreseeable competition. The company and the local government behind it became the ultimate winners in this unfair and unjust competition.

There are, however, a few losers in this game. One obvious loser is the Yuyang and its investors. Despite their various efforts (including sending complaints to central government agencies, sending the Sanya Planning Authority to the court and selling 60% of its shares to another company with good connections to the government), Yuyang had to withdraw from the Ximao Island in late 2008, selling all its assets in the Ximao Island to SXTDL, at a price of 120 million Yuan (US \$17.6 million) (Wu 2009), which is much lower than the summed total of Yuyang’s initial investment and land use fee (US \$48.3 million). As the first tourism developer, Yuyang introduced the tourism market into the Ximao Island, however, how this market functions is still heavily controlled by the government. A manager in Yuyang concluded:

*The prospect of tourism development depends on the support from the local government, and how much support they can offer is linked to the [economic] benefits they receive.*³²

The market-government relationship in the development of tourism in the Ximao Island, therefore, is no different from that in the wider Chinese society, as introduced earlier in section 3.4.2. The government retains the power to direct and control the market, in order to maximise their own gains. This holds particularly true for local governments, who play central roles in attracting investments and promoting economic growth throughout China (Oi 1995). The personal rewards local officials receive from joint government-corporate business ventures such as those on Ximao Island give them strong incentives to launch economic development programmes that may undermine the rule of law and the achievement of other national and community objectives.

Another loser in this competition is the local community in the Ximao Island. Since 2004, both Yuyang and the SXTDL were not able to make enough profit and had to lay off a significant number of their employees. Local employment in the Ximao Village dropped from over 90% to 30% (XIVC 2006). In addition, Yuyang stopped to invest in local schools and other village infrastructure (see next section). A representative from the Ximao Island Village Committee correctly pointed out:

*If this [the vicious competition between the two tourism companies on Ximao Island] continues we- the local people-will be the biggest loser. We are the owners of the resources in the SCR-NMNR, but we have not yet fully benefited from it.*³³

³² Interview with a senior manager in the Ximao Island Yuyang Tourism Development Limited (SYTOH), Dec. 2007.

³³ Interview with a representative from the Ximao Village Committee (SYCLZ), Dec. 2007.

The coral reefs near the Ximao Island also suffered in this process. There was a resurgence of blast fishing and coral mining in the Ximao Island when Yuyang started to lay off their employees in the end of 2004, as people who lost their jobs had few other means of supporting themselves and their families.³⁴ It also led to a sudden increase in fishing pressure, as discussed in the next section. A former employee of Yuyang acknowledged:

*When I had a job in the tourism company, I did not dare to touch corals, because I was paid by the company and was instructed not to destroy the coral reef. But now I have no job, and everyday I dive to steal corals at night. I sell the corals I collected at a price of 100 Yuan [US \$14.63] per 50kg. Corals are beautiful, but I don't have any other choices. If I have a job, also because I know it is a state policy [to conserve coral reef], I wouldn't steal any coral.*³⁵

It is also worth mentioning that the SCR-NMNR Management Authority had little influence on the final decision regarding which tourism developer can run business in the Ximao Island. The former director of the SCR-NMNR Management Authority complained:

*We did not know how this [the competition and conflicts between the two tourism developers in the Ximao Island] would end, so we tried our best to maintain good working relationships with both of them.*³⁶

5.6.4 The roles and influences of the private sector

Involving private tourism developers in management processes has been

³⁴ Group interview with former employees of Yuyang who were laid off by the company (SYJLX1-7), Dec, 2007; in-official report of Ximao Village Committee, Sep. 2006.

³⁵ Interview with a former employees of Yuyang (SYJLX5), Dec. 2007.

³⁶ Informal chat with the former director of the SCR-NMNR Management Authority (SYPOH), Dec. 2007.

regarded as one of the governance innovations in the SCR-NMNR (CPPCCHC 2006). The increasing participation of tourism developers has both positive and negative impacts on MPA management. One of the greatest contributions from the tourism industry is the provision of alternative livelihoods to local communities and investments on improving overall community welfare, although there is still room for improvements (see section 5.7.1). In addition, the participation of tourism developers greatly enhanced the capacity for enforcement in the SCR-NMNR (see Section 5.6.1). Tourism developers also took initiatives to protect coral reef habitats that are vital resources for tourism against fishing and coral collection, for instance by placing guards in floating wooden houses in the sea to patrol coral reef areas. Diving areas are guarded day and night against poachers and fishers by tourism companies, and are much better enforced than other areas in the MPA under the surveillance of the SCR-NMNR Management Authority. They have also participated in coral reef monitoring within the SCR-NMNR and have been playing a role in educating their own employees, tourists and the public about the importance of conserving coral reefs. The implementation of the Law on Sea Use Management (section 3.6.4) has further enhanced the incentives of tourism companies to conserve resources, by granting them exclusive user rights over a certain area of sea. For example, one of the tourism companies, the Huandao Ltd, has successfully gained user rights for 7.6 hectares of sea.

However, the partnership between the SCR-NMNR Management Authority has not always been as effective as expected. The pressure from tourism developers has already been felt by field wardens, who are hired to enforce the MPA but also receive salaries from the tourism developers. It has been a growing concern even among administrators in the SCR-NMNR Management Authority that with increasing power and influence from the private sector, it has been increasingly difficult to ask for their cooperation and compliance, as one of the administrators acknowledged:

*We invited them [the tourism companies] to participate [in the management processes], but now they are playing hosts...They need to be made aware that contributing to coral reef conservation is their legal obligation, rather than a voluntary action.*³⁷

As examined in sections 5.6.1 and 5.6.2, the difficulties in asking for further cooperation and compliance from the tourism companies mainly result from 1) the over-reliance on resources from the tourism sector to support law enforcement in the MPA and 2) the connections and alliance between some tourism companies and the local authorities in promoting development activities.

5.6.5 Participation from local communities and the civil society

Local communities and the general public participate in the management of the SCR-NMNR in various ways, however their participation has not been institutionalized, *i.e.* there is no statutory requirement for involving communities and other stakeholders in the management of MPAs in China.³⁸ The SCR-NMNR Management Authority has organised various education and outreach programmes targeting local communities and the general public in Sanya, such as ocean day events and distributing booklets contain information on the ecological importance of coral reefs. In addition, there have been good collaborations between the SCR-NMNR Management Authority and the Ximao Village Committee in reducing incoming fishing pressure in the MPA. Illegal fishing boats using electronic fishing devices and light attraction devices often come at night, and after receiving reports from local village fishermen, the SCR-NMNR Management Authority can summon the security team under the

³⁷ Interview with an administrator from the SCR-NMNR Management Authority (SYMBL), Jan. 2008.

³⁸ Interview with a senior government official (SYPOC), Dec. 2006.

Ximao Village Committee to help with law enforcement. Another positive development in raising public awareness and support has been the establishment of a domestic NGO dedicated to marine conservation in 2007, the Blue Ocean Protection Association (BOPA). The BOPA was founded by several tourism companies operating in Sanya for the purpose of promoting public awareness for marine environmental conservation in Sanya, and has started to collaborate with the SCR-NMNR Management Authority on public education.

The conservation of coral reefs in the SCR-NMNR, which is the primary management objectives of the MPA, has received a relatively high level of support from local communities and resource users, generated through the promotion of alternative livelihoods, ecosystem services (*e.g.* natural defence against coastal erosion), and opportunities for more sustainable, wiser uses of natural resources (see Table 5.3). As Table 5.3 reveals, the provision of alternative livelihoods through the development of tourism is a key factor in determining local users' support and participation in MPA management. It seems that to most local residents interviewed, the most important aspect of MPA management is tourism development and the economic opportunities that brought by it. The results may be biased as the most of the interviewees are or used to be (the 'unemployed') tourism company employees. For example, for people who wish to continue fishing or claim user rights of sea and land areas, they may found their interests being undermined by the tourism sector (see section 5.7.2). Even for those who work for the tourism companies, most of them do not seem to think that they benefited from the development of tourism (see Table 5.4 in the next section). Because of the limited number of interviewees from each user group, the results here are not intended to represent the views of a particular group or the whole community. Nevertheless, it seems that the following observations can be made from the results:

- 1) To many community members, the secondary objective of the MPA (to promote local socio-economic development through 'eco-tourism') is of a

much greater importance than its primary objective (habitat preservation, see section 5.4). This view may have originated from or been reinforced by the fact that MPA management has achieved little with regard to the primary objective, and in fact departed significantly from the secondary objective (from the original emphasis on ‘eco-tourism’).

- 2) Local communities may face a dilemma with regard to tourism development in the MPA. On one hand, tourism development opened up new economic opportunities and provided alternative livelihoods. On the other hand, many locals are not satisfied with their share of benefits, particularly considering some of the costs they bear, which will be discussed in the next section.

Table 5.3 The perspectives of resource users on coral reef conservation in the SCR-NMNR.

Do you think coral reefs in the MPA should be protected?	Number of respondents (percentage of all respondents)	Group composition	Main reasons for taking this proposition (number of respondents)
Yes	18(58.1%)	3 fishermen, 7 tourism managers, 4 tourism company employees, 4 other community members	Healthy coral reefs are essential for tourism development (12), coral reefs help to reduce coastal erosion (2); Coral conservation helps to reduce destructive fishing (1); Coral reefs are beautiful (1); Coral reefs are a form of invisible capital (1); Conserving natural resources allows for better use of them in the future (1)
No	4(12.9%)	4 unemployed	In order to make a living, people should be allowed to make use of coral resources (4)
Depends	8(25.8%)	5 unemployed, 2 tourism company employee, 1 seafood trader	Whether coral reefs can be protected depends on whether alternative livelihoods are provided (6); or depends on whether other livelihoods can provide more income than fishing and coral collection (2)
Difficult to tell	1(3.2%)	1 tourism company employee	Protecting coral reefs can help the fish stocks to recover; however, it also restricts fishing efforts (1)

However, other than outreach activities and law enforcement against non-local

fishing boats, community participation in other areas has been very limited, nor have their concerns been adequately addressed in MPA management and decision-making processes. Community participation in protected area management in China has been hindered by a lack of historical experiences and legal and institutional basis for organised participation (PATF 2004; Qiu et al. 2009). In Sanya, it is also being hindered by past conflicts between local communities and the local government/tourism developers (discussed in the next section), which has greatly undermined the level of social capital between local communities and other key actors. For example, in the Ximao village, annual meetings were held between the SCR-NMNR Management Authority and the Ximao Village Committee, in order to discuss community issues and concerns.³⁹ However, such meetings are not well received by community members, who described them as ‘formalities’, through which few people share their true feelings and concerns.⁴⁰ Others described that the participants of these meetings were deliberately selected and would not represent community interests:

*We never attended the meetings. The meetings were organised by the local village committee or the tourism company, who have dark hearts. They will only tell the MPA Management Authority what they want to hear.*⁴¹

In coordinating community affairs, local village committees play a very important role. Village committees’ willingness to participate in conservation initiatives and the support and trust they have from community members are therefore key to successful collaborations between the SCR-NMNR Management Authority and communities. An administrator from the SCR-NMNR Management Authority pointed out:

I think we are practicing collaborative management in our daily work. But it is

³⁹ Interview with the Ximao Village Council (SYCLC), Nov. 2007.

⁴⁰ Interview with a community member (SYCML), Nov. 2007.

⁴¹ Interview with a community member (SYJLX1), Dec. 2007.

*sometimes very difficult because it depends on whether the communities want to participate or not. In some villages the village committees are quite cooperative so it is easy. In other cases the village committees are not willing to participate.*⁴²

However, the accountability of such village committees, and the degree to which they represent the interests of the majority of local community members are questionable, as will be discussed in the next section. This resonates with the critics on the conventional understanding of a community as shared norms (see section 2.2.3). If the village committees fail to serve as a good link between the government and local communities, in the Chinese context, there are very few other channels and processes through which local communities can communicate with government institutions and have their voices heard. The lack of accountable community leadership is therefore a key obstacle to fostering genuine community participation in MPA management, as well as in other policy processes, which will be discussed in the next section.

5.6.6 The role of science

There have been some efforts to monitor the status of coral reefs within the SCR-NMNR, using rapid ecological survey methods developed by the Reef Check (a global network of organisations involved in coral reef monitoring, using standardised survey methods). The coral reef surveys were carried out in 2002, 2005 and 2006, and the survey team was comprised of students from the South China Sea Institute of Oceanography, staff members and field wardens from the SCR-NMNR Management Authority, dive instructors from tourism companies and local high school students, all coordinated by a coral reef biologist from the Hainan Province Ocean and Fisheries Department. The conclusion from the 2006 monitoring report is that in general, coral reefs within

⁴² Interview with a staff member of the SCR-NMNR Management Authority (SYMBXX), Dec. 2006.

the SCR-NMNR are in good condition and recovering from past damages; however, the densities of indicator species (reef fish and invertebrates) are low, indicating the impacts of historical and continued fishing in the area (Chen et al. unpublished report). In general, scientific research and monitoring efforts have largely been conducted in a sporadic and *ad-hoc* manner, and have yet to inform policy and decision-making. For example, the monitoring stations used in the 2005 and 2006 coral reef survey took place in a different island compared to the survey in 2002. In addition, the data from the surveys and other scientific research in the SCR-NMNR have not been systematically analysed and made available to the public, which has been regarded as one of the key areas that needs to be improved in the future in the ten-year review of the management of SCR-NMNR (HPODPI 2005). The main reason, according to a senior official from the Hainan Province Ocean and Fisheries Department, is that the administrators at the SCR-NMNR Management Authority seldom see it a high priority to promote scientific research and their applications in MPA management and decision-making.⁴³

To summarise, the power relationships between the main actors involved in governing the SCR-NMNR can be characterised by limited intervention from the central government, significant influences from the Sanya municipal government and some tourism companies, and very limited participation from local communities (Figure 5.4). The dominant role played by the local government-tourism sector alliance poses major challenges to MPA governance, which may have undermined the power of the SCR-NMNR Management Authority in enforcing conservation regulations. In addition, it also raises equity concerns, as the government-sponsored expansion of corporate tourism in the SCR-NMNR may have significantly undermined the interests of local communities, which will be discussed in the next section.

⁴³ Informal chat with a senior official from the Hainan Province Ocean and Fisheries Department (SYPOC), Nov. 2007.

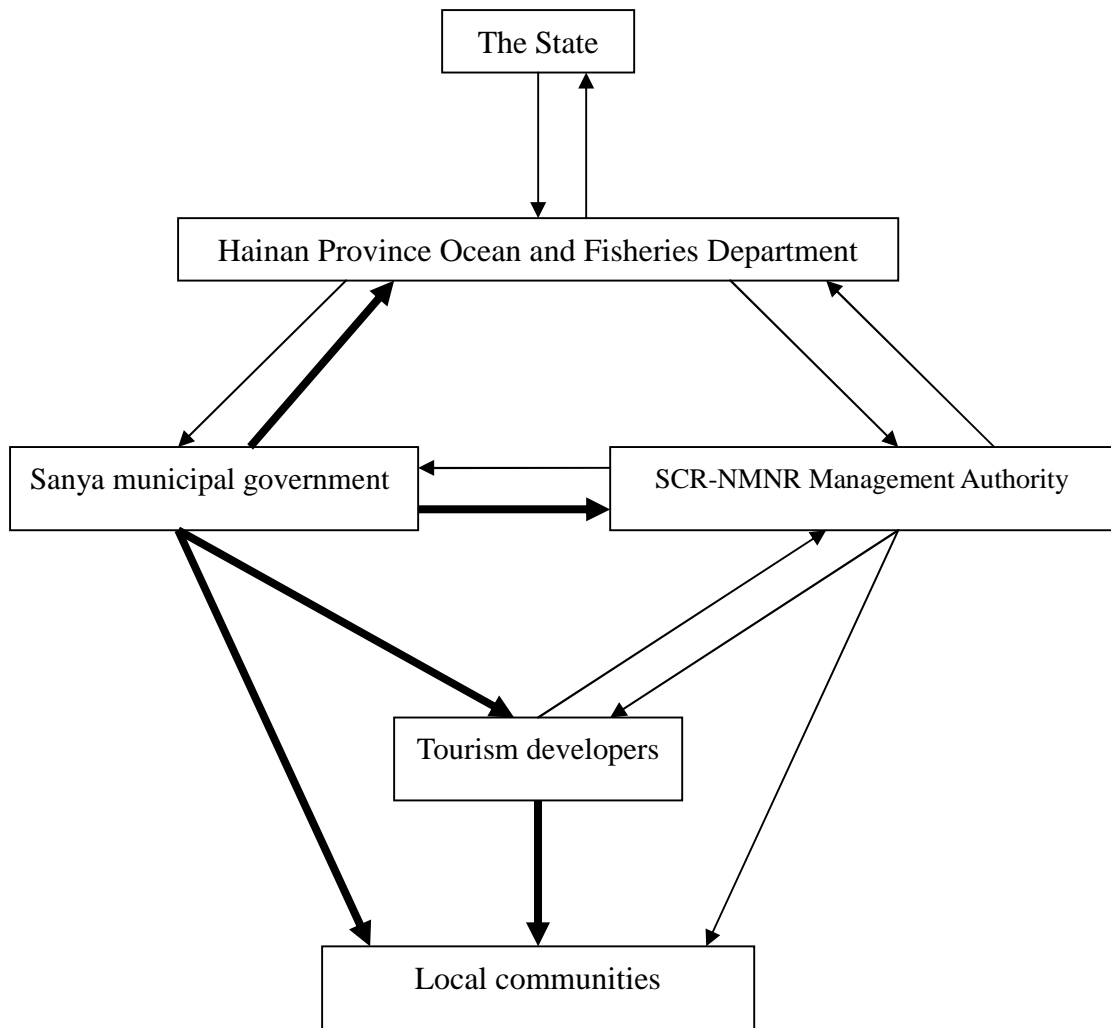


Figure 5.4 Governance structure of the SCR-NMNR. The arrows indicate interactions between different actors in governing the MPA. Such interactions include top-down controls, coordination between different actors and bottom-up influences on higher-level decisions. The bold arrows indicate strong interactions (controls or influences) that may lead to power imbalance in the overall MPA governance.

5.7 Equity and community stewardship in the management of the SCR-NMNR

5.7.1 The provision of alternative livelihoods and other community welfare in the development of tourism

Tourism development has both positive and negative social impacts on the communities living within and adjacent to the SCR-NMNR. The most frequently mentioned benefits from tourism development include employment and stable income. A report from the Ximao Island Village Committee (2006) showed that between 2002 to 2004, around 1,400 local villagers were employed in the tourism industry, and the employment rate reached over 90%. Annual per capita income of local residents reached 3,300 Yuan (US \$483). However, at the downturn of tourism development, the employment rate dropped to 30% and annual per capita income to 2,000 Yuan (US \$293). In addition to the benefits mentioned by the interviewees, between 2002 to 2004, the tourism company Yuyang also invested in local education and 98% of the children in the Ximao Island were able to attend the local primary school (Ximao Island Village Committee 2006). In an interview, a senior manager from Yuyang said *'we were very happy to invest in improving the education of children in this island, because a lot of them will become our employees in the future'*.⁴⁴ However, all investments stopped after 2004, when Yuyang encountered difficulties as discussed in the section above. Furthermore, tourism development brought electricity and piped water into the Ximao Island, and greatly improved local hygiene standards.

However, for most local residents, the short-term costs seem to outweigh the benefits. Among 26 community members who responded to the question on

⁴⁴ Interview with a senior manager in Yuyang (SYTOH), Dec. 2006.

whether they think they have benefited from tourism development on Ximao Island, 20 (77%) indicated that they have not yet benefited from tourism development in the SCR-NMNR (Table 5.4). Most community members feel that the tourism developers have not invested enough in improving their living standards and social welfare. Being employed by tourism companies may bring more stable incomes. However, a total of 11 interviewees pointed out that income generated through coral mining and fishing during the period 1990-1999 was 3-4 times higher than the salaries they received from tourism companies during the period 1999-2007. The company Yuyang hires about 50 dive instructors at the time of this field study, most of whom were once fishermen from the Ximao Village before they started working for the tourism company and now receive a monthly salary of 700-1,900 Yuan (US \$ 103-272), depending on the total number of divers they take. Such salaries are higher than most local villagers employed in tourism companies, who are in general confined to work on low-pay jobs such as receptionists, guards, equipment keepers and cleaners, due to their poor education background and training.⁴⁵ Local villagers, however, are not content with what they have been offered, as one villager complained: *'If you are paid 1,000 Yuan [US \$146] per month, what kind of life can you make out of it? Employment is not the only issue that needs to be resolved....The residents here want to make 3,000, 5,000, or more. If we are offered jobs with very low salary, the only result is that people become lazier [because they do not have to work harder to earn more]'*.⁴⁶

There are also frequent complaints from local villagers that tourism companies often prefer hiring non-locals from the Sanya city, and offer them higher salaries compared to local villagers. Local villagers can hardly be as competitive as well trained workers from the Sanya City in the tourism job market, and very few locals managed to get manager-level positions within tourism companies. The

⁴⁵ Interview with a dive instructor from the company Yuyang (SYDIS), Nov. 2007.

⁴⁶ Interview with a member of local community in Ximao Island (SYTOX), Nov. 2007.

problem is that the development of tourism turned traditional fishing villages like the Ximao Village into a top tourism destination within only a few years, leaving very little time for local villagers to improve their skills and to prepare themselves for their new roles in the tourism industry. As Brockington et al. (2008) point out, local communities are often not well absorbed by the market economy. To secure more employment opportunities and further improve local welfare will require changes in both tourism companies and local communities. The SCR-NMNR Management Authority and tourism companies have the responsibility to provide alternative livelihoods to local fishermen to the best of their abilities, which is one of the conditions that all tourism companies agreed to before they can be permitted to operate within the SCR-NMNR. However, the degree to which this obligation is fulfilled varies - the percentage of employees from local villagers varies from over 50% in Yuyang to 5% in the Sanya Huanqiu Limited.⁴⁷ Therefore there is still potential for tourism companies to provide more job opportunities and other benefits to local communities. On the other hand, the empowerment of local communities will also be essential if they are to secure a greater share of tourism benefits for themselves. According to a representative from the Ximao Village Committee, most local villagers held the view that a better future for local people lies in the hands of tourism companies, but they fail to understand that they are '*a tourism company not a charity organisation*'. Therefore improving their own education, skills and capacity, particularly for the younger generation, remains a top priority for local communities.⁴⁸

⁴⁷ Interviews with managers from the tourism companies Yuyang (SYTOH, Nov. 2007) and Huanqiu (SYTOA, Dec. 2007).

⁴⁸ Interview with a member of the Ximao Island Village Committee (SYCLZ), Nov. 2007.

Table 5.4 The perspectives of local community members on the benefits and costs associated with tourism development.

Do you benefit from tourism development or not?	Number of respondents (percentage of all respondents)	Group composition	Main reasons for taking this proposition (number of respondents)
Difficult to tell	5 (19.2%)	2 community village committee member, 2 tourism company employees, 1 fishermen	Although there are some costs associated with tourism development, the benefits include: jobs and stable income (4); and opportunities for future development (1)
Yes	1(3.8%)	1 tourism company employee	Tourism is more sustainable than fishing or coral collection (1)
No	20(77%)	7 tourism company employees, 4 fishermen, 1 village committee member, 5 unemployed, 4 other community members	Loss of fishing ports and areas (6); Loss of farming land (1); Tourism does not improve income and living standard (11); Low self esteem (4)

5.7.2 Changes in ownership and rights of access to natural resources

One of the biggest losses to communities since the start of tourism development has been the loss of access to resources, both in the sea and on the land. In the sea, local fishermen felt increasing hardship because of reduced catch and loss of productive fishing grounds to tourism development.

The development of tourism has been so unfair to the residents on the Ximao Island. We have been using the fishing pier for several decades, which was built by our fathers and grandfathers with their bare hands. When the Ximao Island Tourism Development Ltd. proposed to turn the fishing port into a small marina, they promised to us that when the construction is completed, local fishermen would have larger and better anchoring areas for their fishing boats. However, when the construction was completed, none of their promises were delivered...When their business was doing well and the marina was very busy, they threatened to burn our fishing boats if we anchor there. Also when they were building the marina, they dumped all construction wastes in one of our fishing grounds, because the fishing area was close to the construction sites and they could reduce the cost of transportation. It had a huge impact on our fishing operations, because most of us use gill nets and the nets got entangled and destroyed by the underwater construction wastes. We can no longer fish there any more.⁴⁹

In addition, since 2002, many well-developed coral reef areas, once productive fishing grounds for local villagers, are becoming increasingly inaccessible to local fishermen. These areas are often used for diving and other tourism activities and are guarded by tourism developers against fishing and coral collection, with assistance from the SCR-NMNR Management Authority when

⁴⁹ Interview with a local fishermen in Ximao Island (SYFMX1), Nov. 2007.

necessary.⁵⁰ The application of sea user rights in the SCR-NMNR further marginalises local fishermen, as it legitimises the exclusion of local fishermen from their traditional fishing grounds by granting exclusive user rights to tourism developers. Such exclusive sea user rights allow tourism developers to preclude local fishermen and other users from entering the sea area where their rights apply to, representing a form of ‘fortress tourism development’. Officially, only three tourism companies have been granted with such sea user rights, over a total sea area of around 35 hectares.⁵¹ As already discussed in section 5.6.2, the allocation and geographical boundaries of such sea user rights in the SCR-NMNR have been at the centre of conflicts between tourism companies, and between the provincial and municipal governments. Decisions regarding who should be granted with such exclusive user rights have been pending for several years. Some tourism companies that have not be able to gain *de jure* sea area user rights, but have previous agreements with the Sanya municipal government (see Table 5.2) were found to enforce their *de facto* user rights, in the same way as entitled by the *de jure* rights. According to the Law on Sea Use Management, local fishermen, like any other marine resource users, can also apply for sea user rights to fish or conduct other activities in the sea. However, local villagers are not familiar with their legal entitlements and the procedures they need to undertake to apply for such user rights. Furthermore, given the vested tourism interests from the local governments and tourism companies in the area (see section 5.6.2), the opportunities for local fishermen to gain sea user rights would be slim.

However, compared to the loss of fishing grounds in the sea, the loss of land and subsequent compensation issues have led to even sharper conflicts in both the Ximao and the Luhitou Villages. According to the national Law on Land Use Management (2004), land in rural areas has a collective ownership, and village

⁵⁰ Interview with a member of the Ximao Island Village Committee (SYCLQ), Nov. 2007.

⁵¹ Interview with a senior official from the Hainan Province Ocean and Fisheries Department (SYPOC), Jan. 2007.

committees are responsible for the management of the land collectively owned in their villages. After being agreed by more than two thirds of local residents in a village, the village committee can rent collectively-owned land to parties from outside the village. In such cases, the affected local residents who have plantations or other properties in the land to be leased out should be compensated, and the public must be informed of the land compensation plan before it is finalised. Village committees are required to provide public access to information on the use and distribution of compensation funds in a transparent manner. According to the official definition, the land in both the Ximao and Luhuitou village is collectively owned by the residents of the two villages, and therefore any use of land by tourism developers needs to follow the above regulation.

Villagers in the Ximao Island held a protest in 2001, after the Taiwanese company, Yuyang, paid a one-off compensation fee to the Sanya Bureau of Land and Resources, which included a compensation fee for the villagers' loss of land and plantations (see section 5.6.3). It seemed that none of the villagers received the money (although one interviewee pointed out that the villagers who had plantations in the land bought by the tourism company did receive some compensation), and the village committee refused to release any information on how the compensation funds were spent.⁵² The angry villagers held some tourists in the Ximao Island and did not allow them to return to the Sanya city, in order to confront the village committee and the Sanya municipal government. It was later turned to a bloody crackdown.

We held some tourists and tried to tell them [about what happened in the village]; the government treated us as rioters, and sent a special police force to attack us. Some islanders involved in organizing the protest were sent to prison for three years. Those who were brave enough to stand up and fight for our

⁵² Interviews with local residents of the Ximao Island (SYDIS), Nov. 2007.

*interests were punished. The mounts are high, and the king is far way. The system on the island is so dark. Until now we don't know where the money went and how it was spent, but none of us received any money, or was given any explanation. Those who tried to send complaints to the central government were followed by the police, and they were not allowed to leave the island, particularly when there is an important meeting or event taking place in the Sanya city.*⁵³

One of the villagers acknowledged in an interview that the decision to hold tourists in the island was wrong, but all the tourists were kept safe and away from any harm. But the local government over-reacted. The conflict could have been avoided, should the local government seek better channels of communication.⁵⁴

A similar story was repeated in the Luhuitou Village. In 2006, the Sanya municipal government wanted to expropriate 200 hectares of farming land collectively owned by the Luhuitou Village and to lease it out to build a luxury golf course. The proposal was denied by villagers, and like those in the Ximao Village, they protested against the local government. A few villagers were arrested and sentenced to jail. The conflict was finally settled and the villagers were paid a one-off compensation fee, with every adult receiving 13,000 Yuan [US \$1,902] and 3,200 [US \$439] for every child. It is regarded as an unfair deal by most villagers, but they were forced to accept in the end.

There is no justice here... We used the compensation to build family houses and after the construction was completed, the money was pretty much gone. Now there is very little farming land left in the village, and most people have to go to the city to find a job, or they make a living by fishing because it is hard to get a

⁵³ Interview with a resident of the Ximao Island (SYDIS), Nov. 2007.

⁵⁴ Interview with a resident of the Ximao Island (SYCMC), Nov. 2007.

*job. What kind of benefits do we receive from the economic development in this area? We have no land now, and those who do not have a high school diploma still do not get a job!*⁵⁵

In addition to the criticism of the Sanya municipal government, there are also widespread criticisms of village committees for their failures in representing community interests. As a type of grass-root organisation, village committees are the most important channels through which communities interact with other organisations, including the government and developers. Village committees should, supposedly, serve the interests of communities and act as good links between communities and other social actors. A villager said in an interview:

*The village committee is our parents. If they starve, we starve. If they don't defend our interests, then the battle is lost for us.*⁵⁶

Unfortunately, many members of village committees get their seats through bribing voters, violence, or other illegal means, rather than through open and fair elections (see section 3.4.3). In 2008, a total of around 5,000 village committee members were involved in cases of occupational crime in China, which accounted for 42% of occupational crime cases in rural areas (Luo 2010). Most of such cases involve mismanagement of village committee finance and improper auditing (*ibid*). Corruption is often a norm in local village committees in Sanya, promoted by developers and the local government seeking allies to assist them in expropriating land and other resources from local villagers. Disrespect for and resentment against village committees is common amongst local villagers, as the following quotes reveal. When responding to the question on what they think have prevented them from claiming a fairer share of benefits from tourism development, 14 out of 20 interviewees pointed at a lack of

⁵⁵ Interview with a resident in the Luhuitou Village (SYCMX), Dec. 2007.

⁵⁶ Interview with a resident in the Ximao Island (SYCMC), Dec. 2007.

accountable and capable leadership from the village committee. Others referred to other factors, such as a lack of money, skills and capacity to defence community interests.

*People who serve in the village committee got their seats by bribing...They paid a lot to get their seats, therefore they must find out ways to earn the money back. They always act to satisfy their own interests.*⁵⁷

*The village committee never showed us the details of their budget and expenditure. Even if they do, they have various means to cheat, for example, if they build one road in the island, they can claim that they built 10, and they list any unclear expenses as 'travel and money spent on treating officials'.*⁵⁸

*What we need is a good leader, who can represent our interests and treat everyone in a fair and just manner.... He must be able to unite us and teach us how to defend our interests using legal means. Our leader in the village committee does not care about us, so he is not popular among us.*⁵⁹

The marginalisation of local users in the rapid development of the tourism industry in the SCR-NMNR and the inequitable distribution of tourism benefits mainly result from the inappropriate power balance between local communities and the powerful alliance between the local government and developers, as well as the lack of accountable government and community institutions. When communities are too weak to take some control over the tourism industry or defend their own interests, the development of tourism can create or reinforce natural resource management conflicts that are rooted in the historical context of local power relations (Southgate 2006; Brockington et al. 2008). In this case, the establishment of the SCR-NMNR is not the direct cause of the social inequity

⁵⁷ Interview with a resident in the Ximao Island (SYJLX5), Dec. 2007.

⁵⁸ Interview with a resident in the Ximao Island (SYCMC), Dec. 2007.

⁵⁹ Interview with a resident in the Ximao Island (SYJLX3), Dec. 2007.

experienced by local communities; however, it may indirectly exacerbate the existing level of inequity through prioritizing tourism over other types of natural resources use. For example, official regulations allow tourism activities in the experimental zone of a MPA, but not traditional activities such as fishing, which give MPA officers and tourism developers the legal basis to exclude local small-scale fishers from some of their traditional fishing grounds. Furthermore, the loss of ownership or user rights to vital natural resources greatly undermines the sense of stewardship local communities might feel for the MPA, the social capital between local communities and government authorities, and communities' willingness to participate in MPA management processes (see section 5.6.5). As a local villager pointed out:

*What is the objective of coral reef conservation? At the present conservation and the management of the SCR-NMNR are not yet linked to the interests of the community.*⁶⁰

5.8 Summary and discussion: characteristics, strengths and weaknesses of the governance of the SCR-NMNR

To summarise, the governance of the SCR-NMNR is characterised by a lack of effective intervention and control from the central government, and significant devolution of power and responsibility to the local government and the private sector, who have been playing a key role in directing MPA management and the development of tourism industry in the SCR-NMNR (Figure 5.4). However, this devolution is not a complete one: local communities have not yet participated meaningfully in conservation and tourism development. On the contrary, this incomplete decentralisation might have even encouraged corruption, reinforced local power struggles to the detriment of local communities and led to a more fractured community-government relationship. In addition, the growing alliance

⁶⁰ Interview with a villager of the Ximao Island (SYCML), Nov. 2007.

between the local government and some tourism companies is of particular concern to MPA governance. In this alliance, private developers provided the capital for local development and payments for officials, and in exchange the local government helped secure and advance corporate interests through eliminating potential competitors, protecting environmentally destructive operations and suppressing resistance from local people. This powerful alliance between the local government and the private sector has resulted in a degree of institutional capture that is undermining the authority of conservation agencies and the empowerment of local people. As such the governance approach adopted in managing the SCR-NMNR has shown some major disadvantages of decentralisation, *i.e.* enforcement left to local governments prone to economic pressures and reinforcing existing power imbalances, without showing the main advantages of bottom-up approaches, *i.e.* promotion of equity, innovation and democratic participation (Qiu et al. 2009). This power relationship between the key actors in governing the SCR-NMNR has major implications for the use and effectiveness of various governance instruments discussed below.

In governing the SCR-NMNR, a combination of different mechanisms is used to steer the process, including state steering, economic instruments and community participation (Table 5.5). The most important source of steer appears to come from the use of market-based incentives, *e.g.* the provision of alternative livelihoods to fishing communities through the development of tourism and the issuing of exclusive user rights to tourism developers to enhance their incentives in better managing resource use. Such market-based incentives seem to be the main mechanism through which the conflict between biodiversity conservation and economic development is being addressed, as well as the basis for developers and local communities to participate in and contribute to MPA management. In comparison, the use of other steering mechanisms appears to be less effective, particularly in decentralization, the use of legal instruments and community participation.

Table 5.5 The strengths and weaknesses in the use of different steering mechanisms (state steering, economic instruments and community participation) in governing the SCR-NMNR.

Potential sources of steer		Strength	Weakness
State steering	National policy and legal instruments	<ul style="list-style-type: none"> ➤ Legal basis for MPA management ➤ The implementation of the Law on Sea Use Management enhanced the incentives of tourism companies to conserve resources, by granting them exclusive user rights over a certain area of sea 	<ul style="list-style-type: none"> ➤ The current regulatory framework remains incredibly vague on how the conflicts between biodiversity conservation and local development needs may be addressed and a lack of detailed criteria and protocols that clarify how and to what degree local economic activities can be accommodated in marine nature reserves ➤ A lack of funding and institutional resources for MPA enforcement and management ➤ Fragmented enforcement and governance approach and a lack of cross-jurisdictional and cross-sectoral cooperation in MPA management ➤ Minimum sanctions against illegal activities and weak rule of law in the enforcement of the SCR-NMNR ➤ Lack of legal and institutional basis for organised community participation
	Decentralisation and coordination between central and local governments	<ul style="list-style-type: none"> ➤ The separation of the MPA Management Authority from the local government 	<ul style="list-style-type: none"> ➤ Strong alliances between the local government and private/corporate resource users undermining the authority of the MPA management authority and lead to resource over-exploitation and marginalisation of small-scale users ➤ Manipulation and control of tourism industry by the local governments, which led to monopoly and malfunction of tourism market, with negatives impacts on community welfare and conservation ➤ Turning natural resources from collective user rights into private

Economic instruments	<ul style="list-style-type: none"> ➤ The issuing of exclusive user rights to tourism developers to enhance their incentives in better managing resource use ➤ Provision of alternative livelihoods to local communities through the development of tourism ➤ Improvements in community welfare through the development of tourism ➤ Tourism developers provided funding, equipments and human resources for law enforcement and public environmental education 	<p>user rights undermining social equity in MPA management</p> <ul style="list-style-type: none"> ➤ Over-reliance on resources from the tourism sector in MPA management and the formation of alliances between the local government and some tourism companies make it increasingly difficult to ask for their cooperation and compliance ➤ Inadequate flow of tourism benefits to local communities ➤ Loss of community access and user rights to vital natural resources, such as coastal land and productive fishing grounds, due to the rapid expansion of tourism companies and government-sponsored privatisation of natural resource use
Community participation	<ul style="list-style-type: none"> ➤ Raising public awareness and support through outreach and public education ➤ Collaborations between the MPA management authority and village committees in reducing incoming fishing pressure within the MPA 	<ul style="list-style-type: none"> ➤ Limited opportunities for community participation in MPA decision-making processes ➤ Conflicts in the allocation of access rights to natural resources undermining the social capital between communities and other actors ➤ Lack of accountable community leadership
Others		<ul style="list-style-type: none"> ➤ Lack of systematic monitoring and scientific inputs to MPA decision-making

The premise of market-based approaches to conservation lies in adequate flows of economic benefits to user communities, as rewards for their contributions to biodiversity conservation and the maintenance of ecosystem services (see Figure 5.5). In the SCR-NMNR, the flow of tourism benefits to tourism companies and local communities have been greatly reduced due to the capture of such benefits by few powerful actors such as the local government and the companies that they support, which largely results from power imbalances between the key actors, as discussed above. If community participation in China is still being hindered by a historical and continued lack of legal and other institutional basis, such institutional basis for a stronger state leadership and steer, although not perfect, has already existed. As discussed in previous sections, the effective enforcement of national regulations, such as the Regulation on Nature Reserves, Law on Sea Use Management, and Land Use Law, would allow better protection for both the environment and local communities. A strengthened political will for the use of such legal instruments in an era of decentralization and an overwhelming pursuit for rapid economic growth is essential for improving MPA governance in the SCR-NMNR.

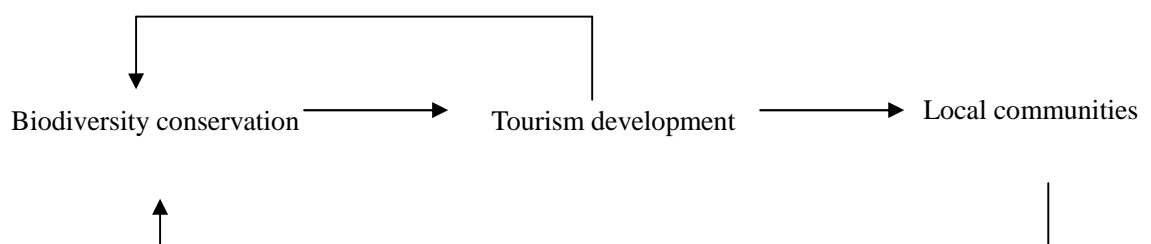


Figure 5.5 The proposed flow of benefits in the context of the SCR-NMNR, if a win-win situation were to be achieved between conservation and development.

The development of tourism in protected areas represents one of the key mechanisms through which mainstream conservation engages with neo-liberal capitalism, and the downside of such developments is that protected areas can

further reinforce capitalist and state control of natural resources and the exclusion of local people (Brockington et al. 2008). Tourism development in the SCR-NMRN, despite some positive contributions to local economic growth and conservation, witnessed how joint forces between corporate developers and the local government can undermine both strategic conservation efforts and community empowerment. However, it is important to note that neo-liberal capitalism not only appeals to local governments and developers, but is also capable of changing the values and aspirations of local communities. If given a choice between further developing the tourism industry and returning to a lifestyle that depends on traditional fishing, most local people, particularly the young generation, would favour the former now.⁶¹ Several interviewees indicated that *'we need more, not less development'* and that *'we want to see more and richer investors open business on the island, so that there will be more and better jobs'*.⁶² Therefore tourism development, with all the negative social impacts it has resulted in, can offer long-term economic opportunities and prospects that the communities have longed for. Any denial of tourism in such a context is a denial of local communities' rights to development opportunities. The emphasis should then be on a more sustainable and equitable forms of tourism, such as small-scale and community-based tourism. However, the potential of community-based tourism in successfully fulfilling the dual objectives of conservation and local development has increasingly been questioned as such initiatives are often limited in scope, heavily reliant on external funding and often have a low level of community engagement (Joppe 1996; Kiss 2004). In addition, community-based tourism development can hardly be a reality in the current context of Sanya, given the limited capacity of local communities, local government's preference for corporate investments and a lack of policy support to develop community-based tourism, which often require large amount of government and/or donor funding to be operational and

⁶¹ Interviews with community representatives from the Ximao Village (SYCLZ, SYJLJ, SYJLX, SYDIX2), Nov and Dec. 2007.

⁶² Interviews with a community representative from the Ximao Village (SYDIX2), Dec. 2007.

sustainable (Kiss 2004).

Concluding remarks

From the analysis it is clear that there are obstacles to improving MPA governance in the SCR-NMNR at all levels, from the state to local communities. There is also a degree of inter-connectivity between key issues and factors, with successes and failures in one area affecting the effectiveness of other steering mechanisms (*e.g.* economic benefits provided through the use of economic instruments providing the incentives for community participation, and a lack of law enforcement leading to inequitable distribution of benefits and costs in tourism development). So far a neo-liberal approach has been adopted in governing the SCR-NMNR, which mainly relies on decentralisation and market forces to address the growing conflict between biodiversity conservation and local economic development needs. However, it seems that this approach alone cannot address the full spectrum of institutional problems encountered in governing the SCR-NMNR. Changes in the broader institutional environment will be needed to empower both the state and communities, if the neo-liberal conservation programmes are to become more ecologically sustainable and socially equitable.

6

Governance of the Binzhou Shelly Sand Ridge and Wetland National Nature Reserve

Overview

The Binzhou Shelly Sand Ridge and Wetland National Nature Reserve (BSSRW-NNR) was first designated in 2006 with a total size of 80,480 hectares. As its name reveals, the MPA was designated to protect shelly sand ridges and associated coastal geomorphological features, as well as coastal marshes and wetland habitats. Shortly after its designation, the Wudi County, where the MPA is located, launched an ambitious programme of industrial development, which made it a necessity to change the boundary and to reduce the size of the MPA, in order to free more space to accommodate the rapid expansion of various industries in and around the BSSRW-NNR. This chapter focuses on the roles of and influences from key actors during the process of resizing the BSSRW-NNR, through which the power relations between key actors is explored.

This chapter follows the same structure as Chapter Five. It starts with a brief overview on the biogeographical and socio-economic contexts of the BSSRW-NNR and the history of the BSSRW-NNR. In section 4, the laws, regulations and rules governing the management of the BSSRW-NNR are examined. In section 5, existing activities that may conflict with the objectives of the BSSRW-NNR are reviewed. In section 6, the attitudes and roles of key actors during the process of resizing the BSSRW-NNR are discussed, as well as the interactions between these actors. In section 7, the conflicts in determining

access rights to important coastal resources are examined, as well as the influence of the MPA designation on existing levels of inequity in the distribution of coastal resources. Finally, the power relations between key actors in governing the BSSRW-NNR and the effectiveness of various steering mechanisms in the BSSRW-NNR are discussed.

6.1 Bio-geographical background

The BSSRW-NNR is located in the Wudi County, Shandong Province (Figure 6.1). Wudi has a warm temperate climate, with average monthly temperature ranging from -2.4 to 26.7°C. The area is part of the Yellow River Delta, one of the largest river deltas in China. For thousands of years, the Yellow River has been supplying the coast of Wudi with fine-grained sediments, which provided the perfect hydrological condition for the formation of unique geomorphological features known as the Cheniers (Wu et al. 2008a). Cheniers are stabilised wave-built ridges, usually of sand, but sometimes shelly, that have been deposited on an alluvial plain on river deltas or coastal plains (Schwartz 2005, p233). The shelly sandy ridges within the BSSRW-NNR were formed between 1300 and 2600 years ago, and have a high content of shelly sand (Wu et al. 2008a).

The main habitat types within the BSSRW-NNR are shelly sandy ridges, coastal wetlands and mudflats, and subtidal habitats (maximum water depth 4.5 meters). Most of the shelly sandy ridges within the BSSRW-NNR have been destroyed by coastal erosion and/or human activities by the late 1990s, and only six ridges remain within the BSSRW-NNR, with a total area of 257 hectares. Five of the six remaining shelly sand ridges are distributed within the core zone of the BSSRW-NNR. The total area of coastal wetlands within the BSSRW-NNR is 57,898 hectares; however, the majority of natural coastal wetlands have been modified for shrimp and shellfish mariculture and salt-production fields. The total area of coastal mudflats within the BSSRW-NNR is 7,000 hectares (Wu et al. 2008a).

The intertidal and subtidal areas within the BSSRW-NNR are high in species diversity. Coastal wetlands are important habitats for water birds and a total of 45 species have been recorded within the BSSRW-NNR, including 36 species of

migratory birds. Eighty-five species of demersal fauna, 85 species of fish and 18 species of crustacean have been recorded in the BSSRW-NNR, including more than 50 commercially exploited species such as *Meretrix meretrix* (clam), *Liza haematocheila* (lizard fish), *Penaeus orietalis* (shrimp) and *Portunus trituberculatus* (crab) (Wu et al. 2008a).

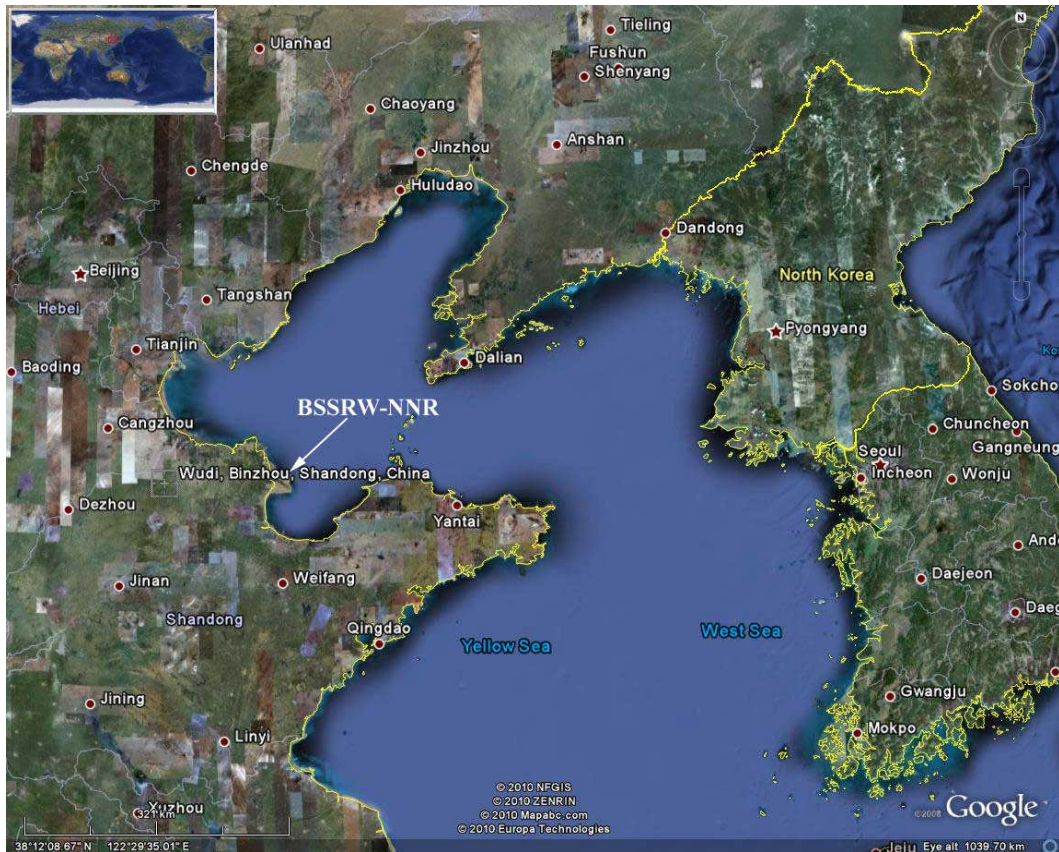


Figure 6.1 Location of the BSSRW-NNR. Background map: Wudi, Binzhou, China. Google Earth Maps (Google 2008).



Figure 6.2 View of a well-developed shelly sandy ridge within the BSSRW-NNR.

6.2 Socio-economic background

Wudi County has a total area of 1998 km², and a coastal line length of 102 km. The total population size in the Wudi County in 2007 was 443,800, and around 86.6% (384,200) of the population in Wudi County are dependent on agriculture. Total GDP in Wudi in 2007 was 12.18 billion Yuan (US \$1.78 billion), and per capita GDP 27,438 Yuan (US \$4,017). The annual GDP growth rate in 2007 was as high as 28.5%, driven mainly by rapid industrialisation in Wudi. In 2007, the percentage contributions of agriculture, industry and service sectors to the total GDP were 16.75%, 65.63%, and 17.61%, respectively (Wu et al. 2008b). Marine-related economic sectors, including fishing, oil-and-gas exploration, shipping and salt production, contribute 58.5% of the total GDP in Wudi (Li 2009).

When the BSSRW-NNR was first designated in 2006, sixteen villages with a resident population of around 12,000 and eleven companies were included within the original boundary of the BSSRW-NNR (Wu et al. 2008a). However, the resident population has been greatly reduced after the re-sizing process in 2008, through which the size of the MPA was reduced (see below). Within the current boundary of the BSSRW-NNR, there is only one village (the Shatou Village) with a resident population size of 994; in addition, there are also nine companies, three located in the buffer zone and six located in the experimental zone. The main sources of income for the residents of the Shatou Village are fishing, mariculture and employment in other sectors. The nine companies employ a total of 1,963 workers, and the total value of outputs in 2007 reached 396 million Yuan (US \$57.98 million). The companies located within the BSSRW-NNR mainly operate in mariculture, salt production, chemical extraction of bromine from sea water and sea food processing (Wu et al. 2008a).

6.3 History of the BSSRW-NNR

In the 1980s, shelly sand ridges were heavily exploited and substantial areas of shelly sand ridges in Wudi were destroyed. Shelly sand is rich in calcium, and was used as an animal feed additive in local animal husbandry. In order to control the use of shelly sand resources and to conserve the unique coastal geomorphological features, in October 1999, the Wudi Ancient Shelly Sand Ridge Nature Reserve was designated by the Wudi county government. In 2002, it was upgraded to a provincial-level nature reserve, and a special management unit was established by the Wudi county government to oversee the management of the reserve. In 2004, the nature reserve was renamed as the Binzhou Shelly Sand Ridge and Wetland Provincial Nature Reserve (Wudi County is part of the Binzhou Municipality). In 2006, it was again upgraded to a national-level nature reserve. In June 2006, the BSSRW-NNR Management Authority was established, which was part of the Wudi County Ocean and Fisheries Bureau. The size of the

BSSRW-NNR, when it was first designated as a national nature reserve, was 80,480 hectares, much larger than its current size. The area of the BSSRW-NNR was surprisingly large, covering almost all coastal and intertidal areas in the Wudi county and included within its boundary a resident population of 12,000. In addition, the MPA was located in an area already subject to major environmental destruction when it was designated, with acute problems of water pollution and over-fishing (see section 6.5). To explain how this designation could be possible, the political and socio-economic context in Wudi at the time of the designation should be considered. When the BSSRW-NNR was first designated as a national nature reserve, Wudi remained a relatively underdeveloped area with an agriculture-based economy. Most economic activities, such as mariculture and the chemical industry, were far less intensive than they are now. This designation was perceived by the local government as a means to attract infrastructure funding from the central government and to promote tourism development. This is a common reason behind which many nature reserves are established or promoted by local governments in China, particularly in underdeveloped areas (PATF 2004). As there are no strict requirements for monitoring and effectiveness evaluation, such nature reserves can be managed as paper parks, which would not incur significant costs to local governments, but can be a good means to attract funds from the central government and investments from the tourism sector (*ibid*).

Shortly after its upgrade into a national nature reserve, rapid industrialisation started in Wudi and the Wudi county officials realized that the existence of a national nature reserve restricted the growth and expansion of the companies operating in the BSSRW-NNR. Due to the nature of economic development in Wudi (*i.e.* dominated by industrial development rather than more ‘compatible’ activities such as tourism), and the fact that it has been upgraded to a national nature reserve, it was found difficult to meet the expectation that the MPA could be managed as a paper park (see discussions in section 6.6). Therefore in 2008,

the process of adjusting the reserve boundary and reducing the total area of the BSSRW-NNR was started. In 2009, after being evaluated by relevant provincial and central government agencies, the proposal to adjust the boundary and size of the BSSRW-NNR was approved by the Ministry of Environmental Protection, and the total area of the BSSRW-NNR was reduced from 80,480 hectares to its current size of 43,542 hectares (Wu et al. 2008a, Figure 6.3).

6.4 Regulations and rules relevant to the management of the BSSRW-NNR

In accordance with the Regulation on Nature Reserves (1994), the BSSRW-NNR is divided into the core, buffer and experimental zones (Fig 6.2). In the core and buffer zones, activities are restricted to authorised education and research activities. In the experimental zone, under the condition that the conservation objectives are met, planned ecotourism, recreational fishery, and shipping can be carried out. During the adjustment of the BSSRW-NNR boundary in 2009, a wetland recovery zone has been planned in the core zone, which will be fenced and unauthorised entry will be prohibited, in order to enhance the recovery of natural wetlands.

In accordance with the Fishery Law, minimum mesh sizes have been set for different fishing gears, in order to conserve shellfish resources. A fishing moratorium has been implemented in summer months, during which all types of fishing, except hook-and-line and single-layered gill nets, are prohibited.

In addition, some bird species that occur in the BSSRW-NNR are protected under CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) and the Wildlife Protection Law of China. There is one species of bird (*Gurs monacha*) listed under CITES Appendix I (for which international trade is permitted only in exceptional circumstances), and 5 species

of bird listed under CITES Appendix II (for which international trade is controlled). Two species, the hooded crane (*Grus monacha*) and the Great Bustard (*Otis tarda dybowskii*) are listed as Category I Protected Species under the Wildlife Protection Law of China (for which no hunting, killing or selling are allowed without permissions from relevant central government agencies), and 6 species are listed as Category II Protected Species (for which no hunting, killing or selling are allowed without permissions from relevant provincial government agencies) (Wu et al. 2008a).

6.5 Existing conflicts between conservation and economic development in the BSSRW-NNR

When the BSSRW-NNR was first designated as a national nature reserve in 2006, the area had already been used extensively for different economic activities including fishing, mariculture, salt production, chemical plants specialised in extracting chemical elements from the sea water and boat manufacturing. In managing the BSSRW-NNR, most existing activities were allowed to continue, but most new developments that can potentially affect the geomorphological and ecological features within the BSSRW-NNR were restricted. For example, proposals from two companies to develop wind energy farms within the BSSRW-NNR were turned down, as were proposals from local villagers to build new family houses in the core and buffer zones.

6.5.1 Ecological impacts of the salt industry

Most natural wetland habitats within the BSSRW-NNR had already been destroyed or modified before or shortly after the designation of the national nature reserve. Salt production is a traditional activity in Wudi; however, since 2004, the salt production industry in Wudi has experienced rapid expansion, and most natural wetland habitats within the BSSRW-NNR were turned into salt

fields in this process. Rapid expansions of the salt production industry started in October 2004, when the Wudi county government started an initiative aiming to consolidate existing resources and to develop the Wudi County into one of the biggest salt production centres in China. Undeveloped coastal areas and coastal fish and shrimp ponds owned by individual and small-scale users were bought off by the county government, and then re-distributed amongst big companies for salt production (the first step in salt production is the evaporation of seawater, so in some evaporation ponds where salinity is not too high, mariculture is still practiced). This initiative increased the total area of salt fields in Wudi from 233,333 hectares to 344,666 hectares. A representative from one of the salt producing companies described how natural habitats were modified into salt fields in the process:

We had fifty machines working on the building of salt fields, which involved enhancing bottom substrates in mudflats and enclosing each salt pond with high walls [to retain seawater during the low tide]. We worked on the mudflats for two years, fighting against nature...We changed massive areas of coastal mudflats into salt fields.....Our hard work paid, when we started in 2004, the annual production of salt was 170,000 tons, but now it has reached 600,000 tones. The size of the salt fields has increased too, from 10,666 hectares in 2004 to 15,333 hectares now [in 2008].⁶³

6.5.2 Ecological impacts of infrastructure developments

As part of its rapid industrialisation process, the Wudi county government has invested heavily in improving transportation links and infrastructures. The building of new roads and ports has also resulted in substantial impacts on the habitats and species within the BSSRW-NNR. For example, the construction of the Binzhou Harbour started in 2006, and by 2008, two 2] 3,000-tonnage docks,

⁶³ Interview with a representative of a company operating within the BSSRW-NNR (BZIDF), April 2008.

Figure 6.3 Zoning map for the BSSRW-NNR (Wu et al. 2008a). Zone 1: a MPA zone before the resizing of the MPA. Zone 2: a MPA zone after the resizing of the MPA.

The construction of the Huanghua Harbour in the nearby Hebei Province (Figure 6.3) also has a major impact on coastal habitats within the BSSRW-NNR, particularly the shelly sandy ridges. After the construction of the Huanghua Harbour in late 1990s, on average 1,600,000 m³ sediments are being removed every month from the navigation channels to make safe passages for ships, and the amount of sediments removed has been increased since the further expansion of the harbour in 2004. The artificial removal of huge amounts of sediments created a sediment sink, resulting in an increase in the vertical transportation of sediments towards the harbour. This has led to accelerated coastal erosion in the BSSRW-NNR, particularly in the western side of the reserve, where shelly sandy ridges are disappearing at a rate of 20-30 cm every year (Wu et al. 2008b). The combined impacts of the Huanghua and Binzhou Harbours are that the latter reduces the flow of shelly sands into the MPA, and the former increases the movement of sands out of the MPA, thereby significantly increasing the rate of coastal erosion in the MPA.

6.5.3 Ecological impacts of water pollution

Water pollution in rivers and coastal areas in Wudi results from activities both within and outside the BSSRW-NNR. Mariculture, salt production and chemical processing of seawater within and near the MPA all produce large quantities of sewage on a daily basis, and most of which is discharged into the sea without any treatment. In addition, the BSSRW-NNR is located in the estuaries of some of the most polluted rivers in China. For example, the Zhangweixin River flows through four provinces and discharges into the Bohai Sea in Wudi, and the COD (Chemical Oxygen Demand) level in the Wudi section of the river reached 159

mg/L, four times of the Category V standard (heavily polluted). The DO (Dissolved Oxygen) level has remained zero for many years, making it an uninhabitable place for most aquatic species (He 2006). In addition, the rapidly growing oil-and-gas and maritime shipping industries in Wudi and other nearby cities in the Shandong Province are also important contributors of pollutants. Due to river and land-based pollution, the coastal waters in the Wudi County have been heavily polluted, only reaching Category IV standard (not suitable for designation of MPAs, not safe for mariculture and close contact with human body, or even industrial uses) (Binzhou Municipal Ocean and Fisheries Bureau 2008). Pollution in estuaries and other coastal habitats that are important nursery grounds for commercially fished species is considered to be an important contributor to the sharp decline in fish stocks in the Bohai Sea (Chen and Din 2009). It may have a major impact on bird populations using the coastal wetland, however such impacts have not been investigated yet.

6.5.4 Ecological impacts of over-fishing

Pollution and heavy fishing pressure have led to a drastic decline in fish stocks and marine biodiversity in the Wudi County and other areas in the Bohai Sea. A documentary titled Saving the Bohai Sea was televised in June 2009, which described the collapse of major fisheries in the Bohai Sea. According to a scientist interviewed in the documentary, the current CPUE (Catch Per Unit Effort) in the Bohai Sea is only 4 kg/hour, only 2.3% of the CPUE in 1982. Given the high levels of pollutants in the coastal areas of the Bohai Sea, it is a concern that the health risks from the consumption of seafood caught in the Bohai Sea remain unknown. The export of prawns caught in the Bohai Sea was once an important source of foreign currency in the 1970s, with highest annual catch reaching over 40,000 tons, but the current annual catch barely reaches 1,000 tons. In the meantime, the number of fish species in the Bohai Sea has reduced from 63 in 1983 to 30 in 2004, and some traditionally important

commercial species such as hairtails and herrings have almost disappeared from the area. In the documentary, a scientist described how he felt for the situation in the Bohai Sea:

[When I saw] the CPUE declined from over 200 kg/hour to only 4 kg/hour in the Bohai Sea, how I felt is beyond any words... We often say that when the big fishes are gone, smaller fishes replace them. However, in the Bohai Sea, the big fishes have disappeared, and there are very few smaller fishes left to replace them. This is really bad.

The impacts from the collapse of major fishery stocks in the wider Bohai Sea have already affected local communities within the BSSRW-NNR. Fishermen in the villages within the BSSRW-NNR, such as Shuigou and Chajian, used to enjoy a better living standard compared to inland areas in the 1980s, due to a thriving fishing industry. However, they have suffered great economic losses since the late 1990s, with many households going bankrupt and those who remain in the fishing industry being forced to fish further and further away from the shore, or to migrate to other coastal areas to continue fishing (Yang 2007). Accounts from local fishermen indicate that they are the immediate victims of ecological destruction and over-fishing in the Bohai Sea:

Fishermen in our village go fishing near Dongying [another municipality in the Shandong Province] ... In the past decade, the catch in local waters has kept declining ... Now we only catch gobies and small shrimps. Pollution is a very important contributor [to the decline of fishery resource], another factor is overfishing. The mesh sizes of fishing nets are too small, and the nets all catch fish larvae'.⁶⁵

In another village, the Shatou Village, where 40% of the villagers are still

⁶⁵ Interview with a representative from a local village committee (BZCLH), April 2008.

dependent on fishing, a community representative said: *'most fishermen here do not fish in local waters any more. Those who remain fishing here mainly catch small fishes and shrimps. In the past we used to need a few dozens of trucks to take the landing to the market, but now we don't need so many trucks any more, the landing can barely fill one truck.'*⁶⁶

6.6 Governance of the BSSRW-NNR

Key actors in the governance of the BSSRW-NNR are the central government, the local Wudi county government, the private sector, local fishermen and other community members. This section explores the attitudes and roles of key actors during the process of resizing the BSSRW-NNR, as well as the interactions between these actors in shaping the decision-making process.

6.6.1 The enforcement of conservation regulations in the BSSRW-NNR and the roles of the state in the resizing process

The enforcement of conservation regulations in the BSSRW-NNR shares some of the problems with the SCR-NMNR, such as an ambiguous and unrealistic regulatory framework, a lack of financial and other resources for law enforcement, and a lack of sanctions against illegal activities (Table 6.1). However, law enforcement in the BSSRW-NNR is considered to be even more difficult than the SCR-NMNR for several reasons. First of all, compared to the SCR-NMNR, the availability of alternative livelihoods to local communities is much more limited in the BSSRW-NNR. When the BSSRW-NNR was first designated, it included within its boundary a resident population of 12,009, most of whom are small-scale fishermen and fish farmers. Enforcing a no-take marine reserve in the area has never been a reality.

⁶⁶ Interview with a representative from a local village committee (BZCLY), April 2008.

Secondly, the Wudi County is undergoing a rapid industrialisation process and its economic structure is significantly different from that of Sanya. Wudi's main economic drivers are the chemical industry, energy industry (mainly based on the burning of coal but wind-power and bio-energy have emerged over the past few years), boat manufacturing and marine oil-and-gas industry (Li 2009). Some of the most important tax-contributing companies in the Wudi County are located within the BSSRW-NNR, such as the Lubei Corporation and Chengkou Corporation. Compared to tourism activities in Sanya, such industrial activities have much higher environmental impacts on ecosystems and habitats, and conserving biodiversity does not have any obvious short-term contribution to the main drivers of economic growth in Wudi. Establishing a MPA in such a context has inevitably resulted in sharp conflicts between conservation and development, and conserving biodiversity would require extensive political, financial and technological investments in MPA management, which are nonexistent currently.

Thirdly, the management and enforcement of the BSSRW-NNR is entrusted to the BSSRW-NNR Management Authority, which is a unit within the Wudi County Ocean and Fisheries Department. Compared to the SCR-NMNR Management Authority, which is under the direct supervision of the Hainan Provincial Ocean and Fisheries Department, the BSSRW-NNR is managed by a lower-level government agency with more limited resources and capacity available for MPA management. By April 2008, the BSSRW-NNR Management Authority had no full-time staff, and the director of the Wudi County Ocean and Fisheries Department served as the director of the BSSRW-NNR Management Authority, who can assign his staff to undertake enforcement and other work in the BSSRW-NNR when required. Full-time staff members were employed only after the start of the resizing process. In addition, as part of the local government, the BSSRW-NNR Management Authority is often in a very difficult position to enforce national regulations when they conflict with local priorities, and as in

the case of the SCR-NMNR, most illegal economic activities that violate national regulations are tolerated, which will be discussed in detail in the next section.

As a result of the difficulties in enforcing MPA regulations and a lack of resources available for law enforcement, few MPA regulations have been effectively enforced in BSSRW-NNR. Most of the ‘traditional’ (e.g. small-scale fishing and mariculture) and industrial activities that existed before the designation of the BSSRW-NNR have not been affected by the designation. As in the SCR-NMNR, the state does not interfere directly in the enforcement of national conservation regulations in the BSSRW-NNR. The existence of a national nature reserve and other environmental regulations (e.g. Law on Environmental Impact Assessments), however, are quite effective in halting new industrial projects and the expansion of existing companies located within the BSSRW-NNR. A representative from the Chengkou Corporation indicated that it was very difficult to pass environment impact assessments (EIAs) for industrial projects located within a national nature reserve:

We have inquired of an official from the State Oceanic Administration about our plans [to build a wind farm in the experimental zone of the BSSRW-NNR], and the reply was that strictly speaking, the Regulation on Nature Reserves does not rule out such a possibility [because green energy development is another national environmental priority]. However, none of the certified environmental impact assessors is confident enough to sign the EIA report [to ratify that the proposed wind farm will not have significant environmental impacts on the BSSRW-NNR]. They said if they sign an EIA report for an industrial project within a national nature reserve, they risk having their professional EIA certificate cancelled.⁶⁷

⁶⁷ Interview with a representative from the Chengkou Corporation (BZIDF), April 2008.

Compared to tourism activities in the experimental zone of the SCR-NMNR, industrial activities in the experimental zone of the BSSRW-NNR seem to be subject to stricter EIAs under the Law on Environmental Impact Assessments. An important difference is that the Regulation on Nature Reserves stipulates explicitly that compatible economic activities, such as controlled tourism activities, are allowed within the experimental zone of a nature reserve, other activities, including green-energy developments, are not mentioned by the Regulation as being ‘compatible’ activities. This difference is important, as big investors and state-owned companies in the energy sector are increasingly operating in compliance with such national environmental regulations. For example, speaking on the necessity of reducing the size of the BSSRW-NNR, one of the important reasons stated by the vice governor of the Wudi County was ‘*big companies such as Sino-Petroleum are reluctant to invest in projects that may conflict with national environmental regulations*’.⁶⁸ As more and more industrial projects were called off due to the existence of the BSSRW-NNR, resizing the MPA became a top priority for local officials.

The existence of national regulations again played an essential role in the resizing process. As the pace of industrialisation accelerates in many places in China, the BSSRW-NNR is not the only national nature reserve that is being challenged. In 2002, the State Council issued a guideline on the statutory procedures that need to be followed in order to change the size, boundary and zoning plans of national nature reserves in China. Proposals to change the size, boundary and zoning of national nature reserves need to be evaluated by a committee of protected area scientists and experts, and then authorised by the Ministry of Environmental Protection and the State Council. Any changes should not undermine the key conservation objectives in nature reserves. In addition to the official guideline, the evaluation committee also has its own unofficial rules; for example, proposals to reduce the size of a national nature

⁶⁸ Speak by the vice governor of the Wudi County in a meeting with local officials, April 2008.

reserve by more than half of its original size are unlikely to be considered, and the core zone must account for at least one third of the total size of a national nature reserve.⁶⁹ The existence of such rules means that local authorities or other parties who want to reduce the size of a national nature reserve can only do so within a certain limit, which is determined by the central government. The resizing process of the BSSRW-NNR demonstrates that the existence of such rules is essential.

The following account from a scientist involved in the resizing of the BSSRW-NNR reveals how direct state intervention can influence decision-making at local levels:

The Wudi County Government held a meeting to discuss how to deal with the proposal from the Lubei Co. to remove the BSSRW-NNR.... However, the governor and other officials in the county government, acting from their own narrow interests, started to support Lubei Co's proposal. When we were debating about this, the State Oceanic Administration sent a fax to the Wudi county government, saying that among over 2,000 national nature reserves designated in China, there has been no single case that a national nature reserve is cancelled for any reason, and the central government would not consider such a proposal. This letter put an end to the debate, and the Wudi county government realised that adjusting the size and boundary of the BSSRW-NNR is the best that they can do.

Similarly, in a reply to the proposal Lubei Co. submitted to the National People's Congress, the State Oceanic Administration reiterated the national and international importance of the BSSRWNN and stated that *'the shelly sand ridges within the BSSRW-NNR are among the biggest of its type in the world, and they are important natural heritages in China. The wetlands within the*

⁶⁹ Interview with a senior official [BZSOB], March 2008.

BSSRW-NNR are important habitats for coastal species, particularly for migratory birds of regional and international importance... We suggest that the local government and the BSSRW-NNR Management Authority prepare a proposal on the new design of the BSSRW-NNR, in accordance with the national guidelines on the adjustment of size, boundary and zoning of national nature reserves, as well as the principle of balancing nature conservation with economic development.'

In March 2008, the China Ocean University was contracted by the Wudi County Government to draft a new proposal, and three plans for changing the size and boundary of the BSSRW-NNR were proposed, which would reduce the BSSRW-NNR to less than a third of its original size. All three plans were turned down by the State Oceanic Administration after a preliminary evaluation. In March 2008, a meeting was held by the Binzhou Municipal Government with delegates from the State Oceanic Administration and the Wudi County Government to discuss follow-up actions after the refusal of the original proposal. During the meeting, a delegate from the State Oceanic Administration made it clear that a proposal to reduce the size of a national nature reserve by two thirds would unlikely be accepted by the protected area evaluation committee. Furthermore, the delegate from the State Oceanic Administration also took the opportunity to urge local governments to provide sufficient human and financial resources for the BSSRW-NNR Management Authority, and to strengthen the coordination between local and higher level (provincial and central) governments, which were both essential if the proposal were to be considered favourably by the protected area evaluation committee and the central government.⁷⁰

In response to the central government's requests, a series of actions were taken by the local county government to strengthen conservation efforts in the

⁷⁰ From participant observation, April 2008.

BSSRW-NNR, as leverage to win central government's support for the resizing of the MPA. The original proposal was revised, with a plan to reduce the total area of the BSSRW-NNR from 80,480 hectares to 43,542 hectares and most of the original core and buffer zones with key conservation features was kept intact in the revised proposal. In addition, in the next few months, the local government appropriated major funding for the management of the MPA, which included coupling funds from the county and municipal governments for a fully enforced no-entry wetland protection and restoration area in the core zone of the MPA, funding for new infrastructures (*e.g.* signposts and patrol stations), and 12 full-time employees were recruited by the Wudi county government to work for the BSSRW-NNR Management Authority.

In early 2009, the State Council approved the revised proposal to reduce the total area of the BSSRW-NNR from 80,480 hectares to 43,542. For the Wudi county government, around 40,000 hectares of coastal land and mudflats was freed from the restrictions imposed by the MPA, which includes most of the 'hotspots' for development—areas close to chemical companies and the proposed Binzhou Harbour. For the BSSRW-NNR, after the resizing process, most intertidal areas, where the remaining shelly sand ridges and natural wetlands were found, are included within the new boundary (Wu et al. 2008b). Despite this, resizing does have a negative impact on the environmental integrity of the MPA by reducing the area under protection and increasing upstream impacts from existing and future activities. For example, after the resizing, the Binzhou Harbour is now located outside the MPA boundary, therefore its construction will become legal and continue, which may significantly change the hydrological conditions that created and sustained the sandy ridges (see section 6.5.2). However, the experience in the BSSRW-NNR has shown that a range of industrial activities (including the on-going construction of the Binzhou Harbour) and breaches of conservation regulations were tolerated in the MPA before the resizing process (see the following sections), and their impacts could

not be effectively managed given the limited capacity of the BSSRW-NNR Management Authority and the huge area of the MPA. A key positive result of the resizing process is that the capacity for MPA management has been strengthened, with a no-entry wetland protection and restoration zone being enforced and additional human and financial resources for MPA management secured. Given that such enhanced conservation efforts can be sustained, on a pragmatic ground, the result can be regarded as a reasonable compromise between national and local priorities, and between conservation and development interests. Two factors contributed to the success of this process: the willingness from both the central and local governments to reach compromises and the existence of national standards that determine to what degree such compromises can be made, which are the key strengths of MPA governance in the BSSRW-NNR (Table 6.1). This demonstrates the importance of having some form of minimum environmental standards that define the limits of local decision-making, which is a key factor that contributes to successful decentralisation of natural resource management (Ribot 2002).

6.6.2 The roles and influences of the local government in governing the BSSRW-NNR

In both the designation and management of the BSSRW-NNR, the Wudi County Government played an important role, as they are responsible for providing the majority of funds and human resources, and for coordinating inter-departmental cooperation for the management and enforcement of the BSSRW-NNR. The BSSRW-NNR Management Authority, as mentioned earlier, is part of the local county government, and all staff members of the Authority are appointed by the local government. As in the SCR-NMNR, the attitudes of the local county government towards the BSSRW-NNR have undergone major changes in just 2-3 years. During the designation of the BSSRW-NNR, the Wudi County Government was very supportive of the establishment of the BSSRW-NNR.

When the proposal to upgrade the MPA to a national nature reserve was submitted to the central government in 2004, the industrialisation process in the Wudi County had already started, and without the efforts and commitments from the Wudi county government, the 80,480-hectare MPA might not have been designated. In order to ensure the successful designation of the BSSRW-NNR, the Wudi county government did not consult the companies that were to be included in the proposed MPA, which became one of the triggers of conflicts between the BSSRW-NNR and some of the companies. In addition, as acknowledged in a document prepared by the Wudi county government during the resizing process, in order to make sure that the BSSRW-NNR can be successfully designated, the Wudi county officials deliberately hid the fact that large areas of wetland in the BSSRW-NNR had already been turned into salt fields, farming land and fish ponds before 2004. The result of such actions was that the designation was '*excessively large*', as acknowledged by officials from the Wudi County Ocean and Fisheries Bureau and that '*we did not study the MPA regulations well, and were not aware of the potential impacts that the BSSRW-NNR may have on local economic development if the designation were successful*'.⁷¹

Ironically, as the industrialisation process accelerated in Wudi after 2004, the local government began realising the negative impacts of the MPA designation. Rapid development in the area around Wudi means that the demands for electricity, oil, and marine transportation services are ever increasing, and Wudi is in a perfect place to supply such demands due to its close proximity to big industrial centres in northern China and good natural conditions for developing wind energy. Shortly after the BSSRW-NNR was officially declared by the State Council, ambitious development plans were drawn for the area where the MPA was located, which included the building of an industrial development zone, an

⁷¹ Interview with officials from the Wudi County Ocean and Fisheries Bureau (BZMBW and BZMBD), April 2008.

oil drilling platform and the Binzhou Harbour. Reducing the size of the newly designated BSSRW-NNR to accommodate these development activities became a top priority for the Wudi county government. In a meeting held by the Wudi County Government, the vice governor of the Wudi County said in the opening address:

*Adjusting the size and boundary of the BSSRW-NNR is an overwhelming task for all of us [senior officials in the Wudi County] now...Because of the existence of the MPA, some large industrial projects cannot be initiated, and the BSSRW-NNR has become a **bottle neck** for the development of the local economy. Only by reducing the size of the BSSRW-NNR can the planned projects take off.*⁷²

As in the SCR-NMNR, economic rationales strongly underline the change in the attitudes of local officials towards the BSSRW-NNR. When the political and economic costs associated with a MPA outweigh the benefits, the local government will stop supporting the MPA or even become resistant to MPA management, as noted by a local fish farmer:

*During the designation process, local officials thought that since no one was interested in investing in the area, if they can get a national nature reserve here, every year they can get some money from the central government [for the management of the MPA]. But now they are not happy to see the restrictions the BSSRW-NNR places on local economic development. I heard that an oil-and-gas company will be relocated to Wudi County, and that another company is planning to build a wind farm here. If the two projects can be initiated, the annual tax contributions from the two companies is equivalent to the total tax the local government can collect now. Therefore the MPA really hurts now.*⁷³

⁷² Speech by a senior official in the Wudi County Government (BZSGX), participant observation, April 2008.

⁷³ Interview with a local fish farmer (BZFFW), April 2008.

Due to sharp conflicts between the BSSRW-NNR and local development, between 2006 to May 2008 (when the State Oceanic Administration became involved in the resizing process), the Wudi county government allocated very little human and financial resources for the management and enforcement of the BSSRW-NNR. No full-time employees were hired to work for the BSSRW-NNR Management Authority after the establishment of the BSSRW-NNR. The BSSRW-NNR remained a paper park during this period. Most operations of existing companies within the BSSRW-NNR were left unchecked. Some government-sponsored infrastructure projects were initiated during this period, such as the construction of the Binzhou Harbour (see section 6.5.2), without conducting EIAs and obtaining prior authorisation from the BSSRW-NNR Management Authority and the State Oceanic Administration. It is a clear violation of the Regulation on Nature Reserves; however, no actions were taken to stop the construction of the harbour. An official from the BSSRW-NNR Management Authority indicated that it was almost impossible for the Authority to take actions against the will of the local government, because *'all of us [staff members of the Authority] were appointed by the county government, and receive salaries from the county government'*.⁷⁴

Similar to the SCR-NMNR, the experience in the BSSRW-NNR demonstrates again that if MPA management and enforcement are left to local resources and institutions without proper support and a degree of control from the central state, local development priorities often override nature conservation objectives. As in other parts of the world, the risk of parochialism associated with local participation is a key challenge to community-based and co-management conservation initiatives (see Jones and Burgess 2005). Earlier discussions explored the importance of having some form of minimum environmental

⁷⁴ Informal chat with a representative from the BSSRW-NNR Management Authority [BZLGD], March 2008.

standards that define the limits of local discretion, which can help reduce the risks of parochialism. However, such minimum environmental standards only exist for relatively simple indicators of protected area management effectiveness in China, such as the size of nature reserves and the percentage of core zones in the total area of a nature reserve as mentioned earlier. MPA managers and enforcers in the BSSRW-NNR and many other MPAs in China often encounter on a daily basis the problem of determining where such minimum environmental standards lie when the pressure from economic development increases rapidly. The related protected area legislative, governance and decision-making systems and processes are still far from being evolved into ones that can provide scientifically sound and comprehensive guidelines and arbitration mechanisms to meet such management needs. These gaps in the protected area legislative and governance systems are undermining the potential to reach a better balance between nature conservation and economic development in MPA initiatives in China.

6.6.3 The influences from the private sector

In addition to the Wudi County Government, the economic costs resulting from the establishment of the BSSRW-NNR are also being felt by the private sector operating within the MPA. Among 7 representatives from five companies (operating in mariculture and seafood processing, salt production and extraction of chemical elements from seawater) interviewed, 6 indicated that coastal and marine resources should be conserved, but the range of protection should be limited to the narrow intertidal areas where the remaining shelly sand ridges are distributed; and 1 indicated that it is not worth to protect anything at all, as almost all wild fish and shellfish stocks are gone, and protecting shelly sand ridges and coastal wetlands cannot generate any economic benefits.

Among the companies that are operating in the BSSRW-NNR, companies and

enterprises that are planning for further expansion or new development projects within the BSSRW-NNR are most impacted by the establishment and enforcement of the BSSRW-NNR. The strongest resistance to the BSSRW-NNR comes from two companies, the Chengkou Corporation and the Lubei Corporation, which are among the biggest companies in Wudi and are both planning new industrial projects (e.g. the extraction and synthesis of chemicals from sea water and the building of wind farms) in the BSSRW-NNR. Due to the existence of the MPA, new industrial facilities and infrastructures that are needed for the proposed developments can only be built outside the MPA, which would significantly increase costs and discourage investors. For example, a representative from the Chengkou Corporation complained (all the comments from private developers in this section were made before the proposal to reduce the size of the BSSRW-NNR was approved by the central government):

The BSSRW-NNR has huge impacts on our business operations..... We plan to build a small, 3KW wind farm in the experimental zone of the BSSRW-NNR. Because the size of the wind farm is small, it should be easier to get the permission from the government, and it won't affect the bird populations. Actually more than 10 investors are interested in investing in a 30KW wind farm here, but they were disappointed to know that we are located within a national nature reserve..... If we build the wind farm in off shore areas [outside the BSSRW-NNR], the cost will increase by a third, and it will be technically challenging as well.... We are strongly opposed to the idea of having a MPA here...Our advantage here [in terms of economic development] is that we have the land, the sea, the wind and the sun; it is the perfect time to make use of these natural resources to promote economic development.⁷⁵

The lack of transparency and consultation with the industrial sector during the initial designation process also fuelled oppositions to the MPA amongst some

⁷⁵ Interview with a representative of a company operating within the BSSRW-NNR (BZIDL), April 2008.

industrial developers. A representative from the Chengkou Corporation questioned: *'when the MPA was being planned, they [the county officials in charge of the designation] were extremely irresponsible. The BSSRW-NNR was designated in a rush, how could they include a fifty-year old factory inside the MPA?'*⁷⁶ Similarly, the managing director of the Lubei Corporation-one of the largest chemical companies in the Shandong Province, submitted a proposal to the National People's Congress in 2006, calling for a re-evaluation of the conservation values of the BSSRW-NNR, as well as *'a more open and fairer MPA designation process'*. It was also stated in his proposal that *'there has been a sharp conflict between the management of the MPA and the development needs of enterprises and local communities... We suggest that the State Oceanic Administration and the Ministry of Environmental Protection should arrange for experts to undertake detailed scientific evaluations on the BSSRW-NNR. If the BSSRW-NNR has no significant conservation value, it should be cancelled'*.

As a result of the resistance to and disrespect for the MPA, breaches of conservation regulations are common amongst industrial companies operating inside the BSSRW-NNR. For example, very few measures have been taken to control the discharge of waste water from the chemical companies both locally and upstream to the BSSRW-NNR. The Lubei Corporation even built an artificial river inside the BSSRW-NNR, which according to an official at the Wudi County Ocean and Fisheries Department, serves to carry waste water directly into the sea. Due to the economic and political powers of some big industrial developers, local authorities often remain silent about such breaches of conservation regulations. This is particularly true for the Lubei Corporation, which is one of the biggest chemical companies in the Shandong Province and whose managing director is also an elected member of the National People's Congress. Lubei Corporation thus has a huge influence on local decision-making. One of the vice governors of the Wudi County acknowledged in a conversation

⁷⁶ Interview with a representative of a company operating within the BSSRW-NNR (BZIDF), April 2008.

that any proposal from the Lubei Co. had to be considered carefully by county officials because *'the LuBei Co. contributes more than 100 million Yuan of tax income to the county, and provides a lot of job opportunities'*.⁷⁷ A scientist who has been involved in both the designation and resizing processes of the BSSRW-NNR said:

*I found out that even the Wudi County Government was afraid to say no against the managing director of the Lubei Corporation... Why? First of all, he is the top tax payer in the Wudi County. Second, he has connections with high ranking officials, who can ask the county governor to resign. As a member of the National People's Congress, he is a very powerful man, but sometimes he also behaves like a mafia...*⁷⁸

The increasing power and influence of private developers like Lubei Co. and their penetration into the political sphere is not uncommon (see section 3.4.2). An officer at the Wudi County Ocean and Fisheries Department pointed out that the resistance from powerful developers has been a major challenge to the authority of the BSSRW-NNR Management Authority. Law enforcement against some powerful industrial players can only become a possibility when there are interventions from higher authorities. However, such interventions often come too late and the sanctions are often too light.

After the Lubei Corporation built the artificial river inside the BSSRW-NNR, they paid a heavy fine for it, but we [the Wudi County Ocean and Fisheries Bureau] had little involvement in the handling of this case. Even in the initial survey and investigation phase, the Shandong Province Ocean and Fisheries Department was in charge. It was beyond our authority and capacity to

⁷⁷ Chat with a senior official from the Wudi County Government (BZSGX), participant observation, March 2008.

⁷⁸ Chat with a scientist working on shelly sand ridges in the BSSRW-NNR (BZSTZ), April 2008.

*intervene.*⁷⁹

Compared to the strong oppositions from big companies and corporations, small-scale developers are more aware of the need to protect coastal and marine environment, although they do not support strict nature conservation. This is because small-scale developers mainly operate in mariculture and salt production, which are more reliant on healthy ecosystems than chemical or energy industries.

*We don't need nature conservation, what we need is environmental protection....We are located in the downstream areas and all pollutants from the upstream areas are carried here....The result [of pollution] is that almost all wild fish, shrimp and shellfish stocks in the Bohai Sea have disappeared now...the productivity of shrimp and shellfish mariculture has not been very stable, and the taste of products is not so good.... Therefore it should be emphasized that **we do need protection, but it is pollution control that we need, not nature conservation in the form of nature reserves.** These are different concepts. If you confuse pollution control with nature conservation, you are not responsible for the local people. For the interests of people in Wudi, the sources of pollution must be controlled.*⁸⁰

In fact, the declines in fish stocks in the Bohai Sea resulted not only from pollution, but also a range of other contributing factors, such as over-fishing and the disappearance of coastal wetlands and other important habitats. It would be unfair to only blame big industrial developers; small-scale fish farmers and salt producers have also contributed to the ecological problems that they are experiencing.

⁷⁹ Interview with an officer from the Wudi County Ocean and Fisheries Bureau (BZMBW), April 2008.

⁸⁰ Interview with a representative of a company operating within the BSSRW-NNR (BZIDL), April 2008.

6.6.4 The role of science versus politics in the BSSRW-NNR

Scientists from the China Ocean University have been involved in both the designation and resizing processes in the BSSRW-NNR. Before the BSSRW-NNR was upgraded to a national nature reserve, a team of marine geologists from the China Ocean University were contracted to undertake a scientific investigation on the distribution of shelly sandy ridges and other key habitats, and to prepare a zonation plan for the future MPA. However, it was not the advice of the scientists to designate an 80,480-hectare MPA, which is almost half the size of the whole Wudi County, and included all intertidal areas and coastal mudflats under Wudi's jurisdiction. As one of the scientists commented:

My view was that as most remaining shelly sandy ridges and wetlands were distributed in the intertidal area, it was not necessary to include extensive landward area. Besides, if size of the MPA is too large, where is the capacity for enforcement? However, officials at the Wudi County Ocean and Fisheries Bureau insisted that the landward areas should be included For them, larger is better.⁸¹

Indeed, for officials at the Wudi County Ocean and Fisheries Bureau and the Wudi county government, having a larger MPA means more political achievement and infrastructure funding from the central government. Their decision to ignore scientific advice as well as stakeholder opinions during the designation process created huge difficulties for the management and enforcement of the BSSRW-NNR later.

However, the officials from the Wudi County Ocean and Fisheries Bureau are not the only ones responsible for the mistakes made during the designation process. For a site to be upgraded to a national nature reserves, the proposal

⁸¹ Chat with a scientist working on shelly sand ridges in the BSSRW-NNR (BZSTZ), April 2008.

needs to pass multiple evaluations from the national protected area committee comprised of scientists and representatives from several national agencies, including the State Oceanic Administration and the Ministry of Environmental Protection. The committee failed to, or was not willing to identify the social problems that may hinder effective management of the site if the designation became successful, including the existence of several chemical plants within the proposed MPA, a large resident population dependent on fishing and the potential impacts of the MPA designation on local development. A senior official involved in the evaluation pointed out that: *'I don't care whether all MPA regulations can be enforced in the BSSRW-NNR, if the designation is successful, at least no further industrial developments can be allowed and large-scale, irreversible damages to natural habitats can be stopped'*.⁸² This strategy was temporarily effective: it successfully halted the launching of new industrial expansions until the resizing of the BSSRW-NNR was officially approved by the State Council, after which most industrial developments currently being planned will be allowed as they are located outside the resized MPA. However, the initial designation process, conducted in a manner that deliberately ignored scientific advice and stakeholder opinion, resulted in deep conflicts between the BSSRW-NNR and the industrial sector as discussed in the last section. In addition, the resizing process was a huge waste of public resources; considering the amount of time and human resources the Wudi county government spent during the resizing process from 2006 to late 2008.

Although scientific advice on the size and delineation of the BSSRW-NNR was largely ignored, it did play a key role in demonstrating the national and international significance of conserving the shelly sandy ridges and other habitats in the BSSRW-NNR. Surveys and research over the past ten years in the area conducted by the China Ocean University have demonstrated that the shelly sand ridges in Wudi are among the largest in the world and the rich layers of

⁸² Interview with a senior official [BZSOB], March 2008.

sediments accumulated in the ridges contain records of the geological history of the coast and past environmental changes in the Yellow River Delta. In addition, wildlife surveys confirmed that salt marshes in the BSSRW-NNR are important habitats for several migratory bird species protected under national legislations and regional agreements (Wu et al. 2008a). It was mainly on this basis that the BSSRW-NNR was designated, and the scientific information also provided a solid basis for the State Oceanic Administration to reject the proposal from the Lubei Corporation, which claimed that the BSSRW-NNR has low ecological value for conservation (see section 6.6.1).

6.6.5 Participation of local communities

In the designation, management and resizing processes of the BSSRW-NNR, the participation of local communities has been very limited. Very few community members interviewed were aware of the existence of the MPA. Two representatives from local village committees were invited to participate in meetings during the resizing process, but their roles were limited to providing basic socio-economic information, such as the population size in their villages and the size of local fishing fleets.

One of the key weaknesses of MPA governance in the BSSRW-NNR is that decision-makers, scientists and managers always perceive MPA management and community well-being as completely separate or even opposite goals, and do not take efforts to promote compatible community development activities and community support for MPA management. For example, a scientist reflected in a conversation: *'whom do we protect the [shelly sand] ridges for? I think it is for the interest of all mankind in this planet. The Wudi County can make such a contribution to the world, I think it should be proud of. Of course the BSSRW-NNR does affect local economic development, but when I think back I realised that the BSSRW-NNR does not protect the resources for the people in*

*Wudi County, not even for China. It serves a global interest.*⁸³ Similarly a senior conservation administrator also commented in a meeting: *'people of the Wudi County have made a huge sacrifice to protect natural heritage of national and even global importance. It is a huge contribution to the country and the world'*.⁸⁴

Such perspectives ignored the fact that although industrial development has taken off in Wudi, the vast majority of local population is still dependent on fishing and mariculture. Given that most coastal and near-shore fish stocks and the quality of natural habitats are in severe decline due to decades of overfishing and industrial development (see section 6.5), protecting natural resources and maintaining important ecosystem services for the long-term benefits of local communities would serve as a strong rationale for effective MPA management. Such potential benefits from the MPA have already been recognised by community members. For example, local villagers in the Wangzi Village have taken measures to protect shelly sand ridges since the 1980s, which served as life-saving natural defence against coastal storms. A representative from the Wangzi Village Committee said in an interview that *'the establishment of the BSSRW-NNR gave us the official rights to stop activities that may lead to further destruction of the ridges'*.⁸⁵ A resident from another village located in the core zone of the BSSRW-NNR also commented that with rapid coastal erosion, it is important to conserve shelly sand ridges and other coastal habitats: *'If the state does not take measures to protect the coast, we may not see this village for long. Coastal land is disappearing at a rate of 20-30 cm every year [due to accelerated erosion]'*.⁸⁶ Considering the importance of natural resources and ecosystem services to coastal communities, local communities could be a potential ally of the MPA if they are invited to take part in MPA management.

⁸³ Chat with a scientist working on shelly sand ridges in the BSSRW-NNR (BZSTZ), April 2008.

⁸⁴ Participant observation, comments from a senior conservation administrator [BZSOB], March 2008.

⁸⁵ Interview from a representative from a local village committee (BZCLL), April 2008.

⁸⁶ Interview with an owner of a fish farmer (BZFFW), April 2008.

In addition to the lack of opportunities for community participation and the failure amongst decision-makers and MPA managers in recognizing that communities could serve as a positive force of change for the MPA, community respect and support for the BSSRW-NNR is also being undermined by ineffective MPA management and enforcement, as indicated by a representative from the Shuigou Village Committee:

*I don't know what a MPA is supposed to look like. What you saw here is a normal village, with hundreds of fish and shrimp ponds, a chemical company and an artificial river full of industrial sewage. Let me ask you, what do you protect here? ...When the communities see the benefits from the MPA, for example, a tree on the land, or a fish in the water, they will cherish it. If you do not show them the benefits from MPA management, then no one will believe you.*⁸⁷

To summarise, the resizing process shows how decision-making power was shared and negotiated between the central and local governments, in determining the size and zoning configuration of the MPA. In other aspects of MPA management, particularly in relation to law enforcement, much of the authority and responsibility has been devolved to the local government. A key difference between the governance structures in the SCR-NMNR and BSSRW-NNR is that the BSSRW-NNR Management Authority is part of the local county government, with an even more limited degree of interdependence from local vested interests compared to the SCR-NMNR Management Authority (part of the Hainan provincial government). The resizing process has also seen an increasing influence from the private developers, who were keen to reduce the negative impacts of the MPA on industrial development. Finally, similar to the situation in the SCR-NMNR, local communities have yet to have an

⁸⁷ Interview with a representative from the Shuigou Village Committee (BZCLW), April 2008.

influence on MPA governance, leading to power imbalance and inequity in the allocation of vital coastal resources, as will be revealed in the following section.

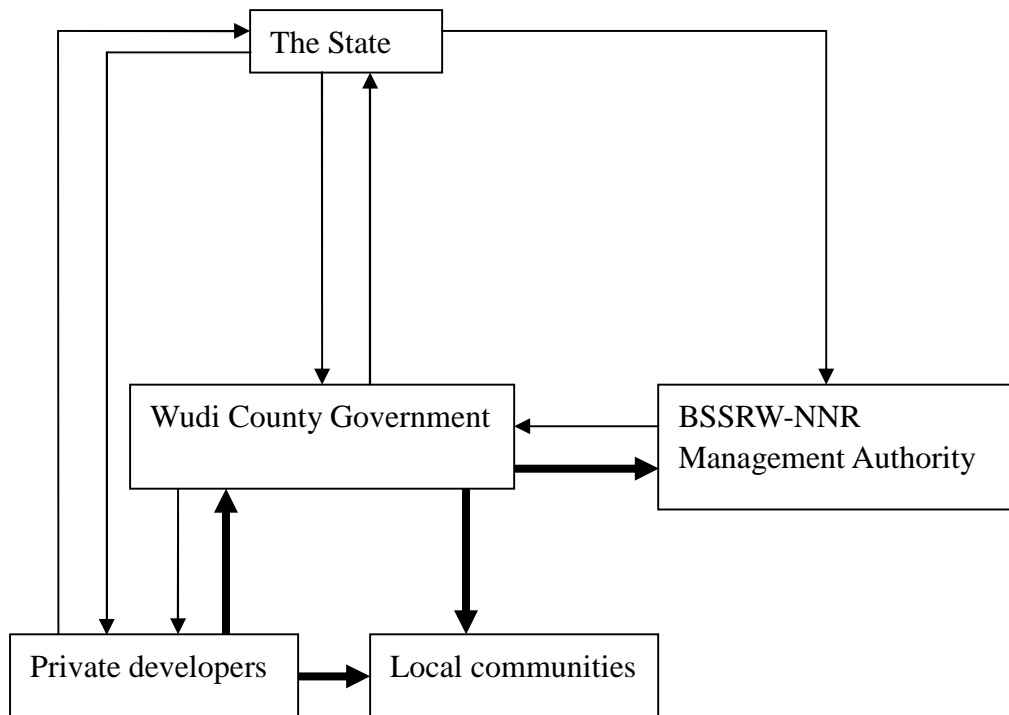


Figure 6.4 Governance structure of the BSSRW-NNR. The arrows indicate interactions between different actors in governing the MPA. Such interactions include top-down controls, coordination between different actors and bottom-up influences on higher-level decisions. The bold arrows indicate strong interactions (controls or influences) that may lead to power imbalance in the overall MPA governance.

6.7 Equity and community stewardship in the management of the BSSRW-NNR

In the calls from both local governments and private developers to cancel or reduce the size of the BSSRW-NNR, the negative impacts on livelihoods and economic development of local communities resulting from the establishment of the BSSRW-NNR have been put forward as a major social concern. For example, in a document prepared by the Wudi County Government, it was stated:

In reality, there are too many villages and enterprises located within the BSSRW-NNR, as a result there are sharp conflicts between conservation and development. The BSSRW-NNR [before its adjustment] affects more than 30, 000 residents in 19 villages under 3 townships. Most of these villages have been here since the Ming Dynasty [15th Century]. Most local villagers are dependent on fishing. All three villages located within the core zone of the BSSRW-NNR are traditional fishing communities, and the intertidal and near shore areas are their traditional fishing grounds....

A representative from a company operating within the BSSRW-NNR also argued that for the interests of local communities, further growth and expansion of his company should not be restricted by the existence of the MPA:

The development of our company is not the development of a single company, but the development of all people in the Wudi County. It [the growth of the company] does not serve our personal interests, but the interests of the society. If we make more money, we make more money for the whole society.⁸⁸

However, the reality is that very few activities conducted by local communities have been restricted because of the establishment of the BSSRW-NNR. There have been very few restrictions on existing ‘traditional’ activities such as fishing and mariculture. The most significant impacts are for local communities living within the core zone of the BSSRW-NNR, where the building of new family houses and the expansion of fish farms are not allowed any more. For example, a member of the Wangzi Village Committee (located within the core zone of the MPA) pointed that: *‘although the MPA protects the shell fish ridges to our benefits [as the ridges are important coastal defence against storms], there are also concerns amongst some villagers. Now building new houses are prohibited,*

⁸⁸ Interview with a representative of a company operating within the BSSRW-NNR (BZIDF), April 2008.

*but people do not want to continue living in old houses... I understand that it is necessary to control development within the BSSRW-NNR, but the needs of the villagers need to be considered as well. We do not demand too much, we suggest that a small area should be delineated for the use of villagers.*⁸⁹ A small-scale fish farmer from a village located in the core zone of the MPA also commented that although the MPA made it impossible for him to expand his fish farm, it also stopped the invasion of big companies and corporations into the core zone of the MPA, which would otherwise have a more significant impact on local communities:

*The BSSRW-NNR benefits us, who are villagers, fishermen and small-scale fish farmers. Why? Because if it is declared as a national nature reserve, then no large-scale industrial developments are allowed here and coastal resources can be reserved for our use.... If it is not declared as a national nature reserve, then the coastal mudflats and land will all be sold to big corporations, and we would not get much access to these resources.*⁹⁰

These quotes reveal that the negative social impacts on local communities resulting from the management of the BSSRW-NNR are arguably quite limited, particularly in comparison with the impacts from rapid privatisation of natural resources. In recent years, the rapid expansion of private companies located within the BSSRW-NNR was partly achieved through taking coastal land and other resources away from local communities, often at a very low price. Before the year 2004, most coastal mudflats in the Wudi County were owned by village committees through a collective ownership, and could be rented to local villagers for developing mariculture and other purposes. In 2004, a series of changes were introduced by the Wudi county government, which involved buying off collectively-owned coastal mudflats from local communities and

⁸⁹ Interview from a representative from a local village committee (BZCLL), April 2008.

⁹⁰ Interview with an owner of a fish farmer (BZFFW), April 2008.

turning them into government-owned property, often at a low price and through coercion. The government-owned coastal mudflats were then redistributed amongst interested companies, which were granted private user rights to these mudflats. These measures led to a sharp decline in the total size of collectively-owned coastal mudflats. For example, in the Shatou Village, the size of mudflats owned by local villagers reduced from 2,000 hectares to around 80 hectares after 2004.⁹¹ In another village, Chajian, a member of the local village committee, joked that after the change of ownership of coastal mudflats, *'it is said in our village that we only own the roof of our houses and what underneath it, all other land was taken by big corporations'*.⁹² Furthermore, when coastal mudflats were collectively owned by village committees, local villagers only needed to pay 50-60 Yuan per plot to rent mudflats for developing mariculture or other uses, but now they have to pay on average 140-160 Yuan per unit to rent mudflats from private companies.

When being questioned about the social impacts of this initiative during an interview, a representative from the local government department that led the redistribution of coastal land justified that: *'the initiative [re-distribution of coastal land] aimed at transferring small-scale and low-technology production to a model that is more productive, high-technology and efficient.... Under the management of private developers, the same resources can be used not only for mariculture, but also for salt production and extraction of chemicals from seawater, forming a comprehensive production chain...'* However, his remarks also showed the interests of local communities have not been considered properly by decision-makers: *'[after losing collective ownership of coastal mudflats] local communities can work in capture fisheries or in factories. If they want to do mariculture they can rent fish ponds from the developers. Some villagers complain that the price for renting coastal mudflats is too high, but it*

⁹¹ Interview from a representative from a local village committee (BZCLY), April 2008.

⁹² Interview from a representative from a local village committee (BZCLH), April 2008.

*is being determined by the market. If they cannot afford it, there are others who are willing to pay the price.*⁹³

Poor compensation offered to local communities during the privatisation processes also reveals that social equity and community stewardship of natural resources were largely ignored by local officials. For example, a local villager complained that: *'when the local government bought the shrimp ponds from us, they only paid, on average, 1/3 of what was worth of our ponds. No one was willing to give up his own land, but we were forced to do so. How can individual villagers fight against the government?'*⁹⁴ Others complained about limited job opportunities and low salaries for those who went to work for the private companies that had taken their resources, as a different forms of compensation: *'many villagers have no choices other than working for private companies and earning 1000 Yuan per month. They can hardly feed their family. We have plenty of coastal resources here, but the benefits [from these resources] are being captured by a few individuals'*.⁹⁵

From the above analysis it can be concluded that existing social inequity in the access to vital coastal resources mainly results from large-scale privatisation of natural resources sponsored by local governments and poor compensation to communities during the process, rather than from the impacts of the MPA. Local governments and private developers often claim that the establishment and management of MPAs have negative impacts on local communities, and have used it as an excuse against nature conservation (see the first two quotes in this section), however, they have not proven themselves as better alternatives in promoting fairness and protecting community interests in the case of the BSSRW-NNR. It is also worth noting that although the BSSRW-NNR is not the main cause for the loss of community stewardship of coastal resources (*i.e.*

⁹³ Interview with representative from a private company (BZLGL), April 2008.

⁹⁴ Interview with a local fish farmer (BZFFZ), April 2008.

⁹⁵ Interview with a local fish farmer (BZFFL), April 2008.

expansions of industrial developers are the main causes), it could play a more active role in protecting community rights. The process of turning collectively owned coastal mudflats under private user rights was launched in 2004, when the MPA management authority was preparing to upgrade the MPA from a provincial nature reserve into a national nature reserve. The MPA management authority could have implemented measures to reduce the social and environmental impacts from the privatisation process, for example by delineating additional wetland conservation areas outside the core zone of the MPA, or traditional-use zones to be used exclusively by local communities. The implementation of such measures would be inevitably difficult, given the strong economic interests of local officials and industrial developers, and would arguably require strong political support from high-level authorities, such as the provincial and state marine authorities.

6.8 Summary and discussion: characteristics, strengths and weaknesses of the governance of the BSSRW-NNR

Compared to the SCR-NMNR, the management authority of the BSSRW-NNR is devolved to an even lower-level government, the Wudi county government. Unlike the SCR-NMNR Management Authority, the BSSRW-NNR Management Authority is part of the Wudi County Government, rather than being independent of the local government (Figure 6.4), which means that it is in a more difficult position than the SCR-NMNR Management Authority in overseeing local activities. However, granting MPA management authority to a lower-level government has not resulted in a more complete devolution, instead there has not been any genuine community participation in MPA decision-making processes in the BSSRW-NNR. As in the SCR-NMNR, the central government often does not interfere directly in the management and enforcement of the BSSRW-NNR. In this case, however, its involvement in

MPA decision-making was triggered when the very existence of the MPA was challenged and decisions reached at the local level clearly conflicted with well-established national guidelines and rules. Finally, the private sector actors, who were initially excluded from MPA decision-making during the designation process, have become a strong force of resistance to the BSSRW-NNR due to the negative impacts of this designation, adding pressures on local and even national governments during the resizing process to adopt decisions in favour of development interests.

The resizing process, in particular, can be seen as the process of reaching a 'middle ground' between top-down, strategic conservation interests and bottom-up, economic development interests (Jones 2001), with significant benefits for both national and local governments. This process demonstrates the importance of having well-established national guidelines, protocols, and rules that define to what degree compromises can be made between national and local priorities in MPA decision-making, which is one of the key strengths of the MPA governance in the BSSRW-NNR (Table 6.1). Clearly defined goals and environmental standards that define the limits of local discretionary action, both linked to performance evaluations, are key factors in enabling successful decentralisation in environmental and natural resource management (Ribot 2002; Child 2005). So far, such well-established and enforceable guidelines, protocols, and rules only exist for determining the size and configuration of a MPA. In other areas of MPA decision-making (*e.g.* in determining how tourism and small-scale fishing can be managed within MPAs), national policies and regulations have yet to show their steering role.

It is also important to note that having a good legal framework is only the first step towards improving the effectiveness of law enforcement, as currently the political will for using existing legal instruments is weak at all levels in both the

SCR-NMNR and BSSRW-NNR, with local governments eager to launch development projects that inevitably conflict with national regulations and the central government adopting a non-interventionist strategy to avoid political tensions, as long as the MPAs exist on paper. The authority of law can be further weakened when the power to enforce a MPA is devolved to the local government, as the local government is often the *de facto* developer, sponsoring or investing in large-scale development projects such as the building of the Binzhou Harbour and an industrial development zone (see section 6.5.2 and 6.6.2). This is one of the key weaknesses of MPA governance in the BSSRW-NNR (Table 6.1). Therefore the independence of the BSSRW-NNR Management Authority from the local government remains a pressing issue for the BSSRW-NNR.

The second weakness in the governance of the BSSRW-NNR is the lack of stakeholder consultation and community participation in the designation and management processes. One of the important lessons from the BSSRW-NNR is that poor public consultation during the designation process can lead to inappropriate MPA designations, which may significantly increase the cost of management or in this case, the cost of correcting the wrong boundary and configuration of the MPA. As the analysis reveals, the designation of the BSSRW-NNR, in its original form, was mainly driven by local officials with the expectation that the political and economic benefits from this designation would outweigh its costs. However, this cost-benefit analysis is purely based on the narrow interests of local officials (see section 6.6.2). Similarly, the central government proved the initial designation without conducting a thorough assessment on the social impacts and sustainability of this designation (see section 6.6.4). If local users and communities were properly consulted and their concerns were taken into account by decision-makers, either in local or central governments, the BSSRW-NNR could never be designated in its original form.

MPA planning and zoning are increasingly evolving into a more open and participatory process, with stakeholders and scientists working alongside governments to produce scientifically sound and socially acceptable MPA designs (Davis 2005; Johns and Burgess 2005; Day 2006), and there is growing recognition that public consultation can be a time-consuming process but with long-term benefits, in terms of increased social acceptance, cooperation and compliance from stakeholders (Kelleher 2000; Mascia 2001). MPA designations in China often bypass this crucial stage of scientific and public debates, and important decisions such as the zoning and configuration of a MPA are regularly driven by local governments, who often perceive the development of protected areas as a symbol of administrative achievement and a potential source of infrastructure and tourism income (Qiu et al. 2009). Providing opportunities for public consultation and better assessments of the potential social costs and benefits of wider community during the early stages of MPA designation will be essential to improve MPA governance and management effectiveness in China.

Finally, this case study raises questions on key themes in the study of protected area governance. Protected areas have been seen as territories of extended state and capitalist control over natural resources, often through coercive means and with the marginalisation of local people (Peluso 1993; Neumann 2004 a&b; Brockington et al. 2008). At first glance the case study echoes these analysis, as revealed through the loss of community access to coastal mudflats in the BSSRW-NNR. As in the SCR-NMNR, the BSSRW-NNR also witness a mandatory change from collective access rights to private access rights over vital natural resources, with poor economic compensation to local communities, in a process that 'expropriate' local users (Geisler 2002). This is one of the key weaknesses of MPA governance in the BSSRW-NNR (Table 6.1). MPAs may indeed indirectly encourage such expropriation by prioritizing tourism and other commercial activities over local initiatives (see section 5.7), or failing to protect the interests of communities, as in the BSSRW-NNR (see section 6.7). However,

they are not the root cause for the emergence of such expropriation in both MPAs. The main problems are the domination of government-private sector alliances and the resultant power imbalance in natural resource governance, and the overwhelming emphasis on enhanced efficiency, productivity and economic growth rates over sustainability and social equity. With proper designs and effective enforcement, MPAs can potentially become a reserved territory for both biodiversity and local communities against the rapid expansion of industries (see section 6.7). The question of ‘who gains and who loses’ in political ecology (Neumann 2004b) needs to be reassessed in this context, as local small-scale users can clearly benefit from management regimes that are designed to protect the environment through fencing off incoming corporate forces, particularly in an emerging economy undergoing a rapid industrialisation process but still with a large population dependent on direct uses of natural resources. This is also an under-addressed area in MPA policy in China, and a different way of thinking on the function of MPAs amongst decision-makers and scientists will be required if the potential of MPAs in enhancing social equity is to be realised.

Table 6.1 The strengths and weaknesses in the use of different steering mechanisms (state steering, economic instruments and community participation) in governing the BSSRW-NNR.

Potential sources of steer		Strength	Weakness
State steering	National policy and legal instruments	<ul style="list-style-type: none"> ➤ Legal basis for MPA management ➤ Legal requirements for conducting rigours environmental impact assessments for new industrial projects ➤ Existence of clear statutory procedures and national guidelines and rules for determining to what degree compromises can be made between conservation and development needs during the resizing process 	<ul style="list-style-type: none"> ➤ An ambiguous and unrealistic regulatory framework for MPA management ➤ A lack of funding and institutional resources for MPA enforcement and management ➤ The MPA management authority is a part of the local government, rather than being independent of it, which undermines its authority in enforcing environmental regulations that conflict with local priorities ➤ Minimum sanctions against illegal activities and weak rule of law in the enforcement of the MPA ➤ Lack of legal and institutional basis for organised community participation
	Decentralisation and coordination between central	<ul style="list-style-type: none"> ➤ Willingness from both the central and local governments to reach compromises during the resizing 	<ul style="list-style-type: none"> ➤ Strong alliances between the local government and private/corporate resource users undermining the authority of the MPA management authority and lead to resource

<p>and local process</p> <p>governments</p>	<p>➤ Local government appropriated co-funding and human resources for the management of the MPA</p>	<p>over-exploitation and marginalisation of small-scale users</p> <p>➤ Violations of national laws by the local government undermining the authority of conservation agencies and the rule of law</p> <p>➤ Turning natural resources from collective user rights into private user rights undermining social equity in MPA management</p> <p>➤ The MPA Management Authority remains part of the local government, undermining its independency and authority</p> <p>➤ The economic and political power of private enterprises adding pressure on local governments to adopt decisions against nature conservation</p> <p>➤ Loss of community access and user rights to vital natural resources, such as coastal land and productive fishing grounds, due to the rapid expansion of tourism companies government-sponsored privatisation of natural resource use</p> <p>➤ Limited opportunities for community participation in MPA</p>
<p>Economic instruments</p>		
<p>Community</p>		

participation

decision-making processes

- Conflicts in the allocation of access rights to natural resources undermining the social capital between communities and other actors
- A low level of respect and support for the MPA amongst local communities, resulting from ineffective MPA management

Others

Scientific research confirm the scientific and ecological values of the MPA, providing a basis for decision-making during the resizing process

- Ignorance of scientific advice on the size and delineation of the MPA during the designation process
-

Concluding remarks

This case study demonstrates how the attitudes of a key actor, the Wudi county government, shifted radically and rapidly from being supportive to being resistant to the MPA, as the rapid industrial process significantly increases the demand for and market value of vital resources such as coastal land and mudflats. For the local government, MPA-related decisions seem to be driven mainly by short-term socio-economic and political interests, rather than concerns for the environment and resource sustainability. Even in such a context, the resizing process demonstrates that a compromise between central and local priorities, and between development and environmental interests, can potentially be made, through establishing guidelines that define ‘the bottom line’ in the negotiation process. Finally, this case study also shows that rapid and intensive industrial development has negative impacts on both the MPA and local communities, and there are potential synergies between conserving biodiversity and protecting community interests. Recognising and promoting such synergies can be an effective means of strengthening conservation efforts with a higher level of social equity.

7

Governance of the Leizhou Rare Marine

Life National Nature Reserve

Overview

The Leizhou Rare Marine Life National Nature Reserve (LRML-NNR) is a newly designated national marine nature reserve with the primary management objective being to protect endangered marine species. It is located in a relatively underdeveloped area experiencing little industrial and tourism development so far, but with heavy fishing pressure. The local economy is also being heavily affected by different national agricultural policies. This context of MPA management in the LRML-NNR therefore differs from the previous two case studies.

This chapter follows a similar structure to the previous two chapters. Sections 1-4 provide an introduction to the biogeographical and socio-economic background of the LRML-NNR, the history of the MPA, and rules and regulations that govern the management of the LRML-NNR. This is followed by an examination of the main economic activities taking place within the LRML-NNR, particularly fishing, and how they conflict with biodiversity conservation. In Section 6, the roles and influences of key actors on MPA governance are discussed. In Section 7, the impacts of MPA management on community access to and stewardship of natural resources are examined. Finally, the characteristics, strengths and weaknesses of MPA governance in the LRML-NNR are summarised, focusing on the power relationships between different actors and how this affect the use and effectiveness of different governance instruments in the MPA.

7.1 Biogeographical background

The LRML-NNR is located in the western side of the Leizhou Peninsular in the Guangdong Province (Figure 7.1). The area has a tropical monsoonal climate, with monthly average temperatures ranging from 16 to 29 °C and an annual rainfall of 171 cm (Jiang et al. 2006). Over 60% of the annual rainfall occurs in the wet season from June to September. Most tropical typhoons impact the area during July to September (Leizhou Municipal Government 2009). From 1995 to 2004, the LRML-NNR was affected by 12 typhoons (Jiang et al. 2006).

The total area of the LRML-NNR is 46,865 hectares, and the maximum water depth within the MPA is around 40 meters. In the near-shore and intertidal areas, tropical coral reefs, seagrass beds and mangroves are widely distributed. There are over 3,000 hectares of coral reefs within the LRML-NNR, and 40 species of corals have been recorded in the MPA, with hard corals constituting the majority. Seagrass beds are found in shallow subtidal and intertidal areas, and there are around 4,000 hectares of seagrass habitats within the LRML-NNR (Jiang et al. 2006).

Ecological baseline surveys in 2005 showed that the LRML-NNR hosts a rich marine biodiversity comprising of 558 species of marine fauna, including 247 species of fish and 206 species of molluscs (Jiang et al. 2006). In addition, 6 species of marine mammals and 3 species of sea turtles have been recorded in the LRML-NNR. Most of these species are under increasing threats from fishing and habitat destruction, and the status of their populations remains unknown. Among all these species, 6 (3 species of sea turtles and 3 species of marine mammals) have been listed under the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Appendix I, and 20 (18 species of corals and 2 species of marine mammals) have been listed under the CITES Appendix II (Jiang et al. 2006). Conserving the marine biodiversity in the

LRML-NNR is therefore of international importance.

In addition to its ecological values, the LRML-NNR also conserves important resources for fisheries. More than 8 species of pearl oysters (including the endangered giant pearl oyster *Pinctada maxima*) are found within the LRML-NNR, which are important resources for the local pearl industry. Other important commercial species include various shellfish species, groupers (*Epinephelus spp.*), black porgy (*Acanthopagrus schlegeli*), snappers (*Lutjanus malabaricus*) and echinoderms (sea cucumbers).



Figure 7.1 Location of the LRML-NNR. Background map: Leizhou, Zhanjiang, China. Google Earth Maps (Google 2008).

7.2 Socio-economic background

The Leizhou Municipality has a total area of 3,532 square kilometres, and a coastline of 409 kilometres. The total population of Leizhou is 1,410,000.

Compared to most other municipalities in the Guangdong or other coastal provinces, Leizhou is a relatively underdeveloped area. The total GDP in 2008 was 9.04 billion Yuan (US \$1.32 billion), and is growing at an annual rate of 7.5%. Per capita GDP in 2008 was 6411.3 Yuan (US \$936.2). Agriculture contributes to 50.8% of the total GDP. Leizhou has a long history of saltwater-pearl cultivation and production. In the 1990s the volume of saltwater pearls produced in Leizhou accounted for two thirds of the total production in China (Leizhou Municipal Government 2009).

There are 12 villages within or adjacent to the LRML-NNR, administrated under three townships: Qishui, Beihe and Wushi (Figure 7.2). The total population in the three towns is 86,505. Fishing and farming are the main sources of income for communities in these villages, and there has been little industrial and tourism development in the area so far (Jiang et al. 2006). Fishing has been an important economic activity for many generations. However, local fishing communities are facing increasing economic hardship due to the following factors (discussed in more detail in following sections):

- 1) Declines in most coastal fish stocks due to decades of overfishing;
- 2) The invasion of better-equipped and larger fishing vessels from other parts of China;
- 3) The enforcement of various regional, national and sub-national fishing regulations, particularly the bi-lateral fishing agreement between China and Vietnam in the Beibu Gulf, which restricts local fishermen's access to some traditional fishing grounds;
- 4) The increasing costs of fishing, particularly the costs of fuel and fishing equipments.

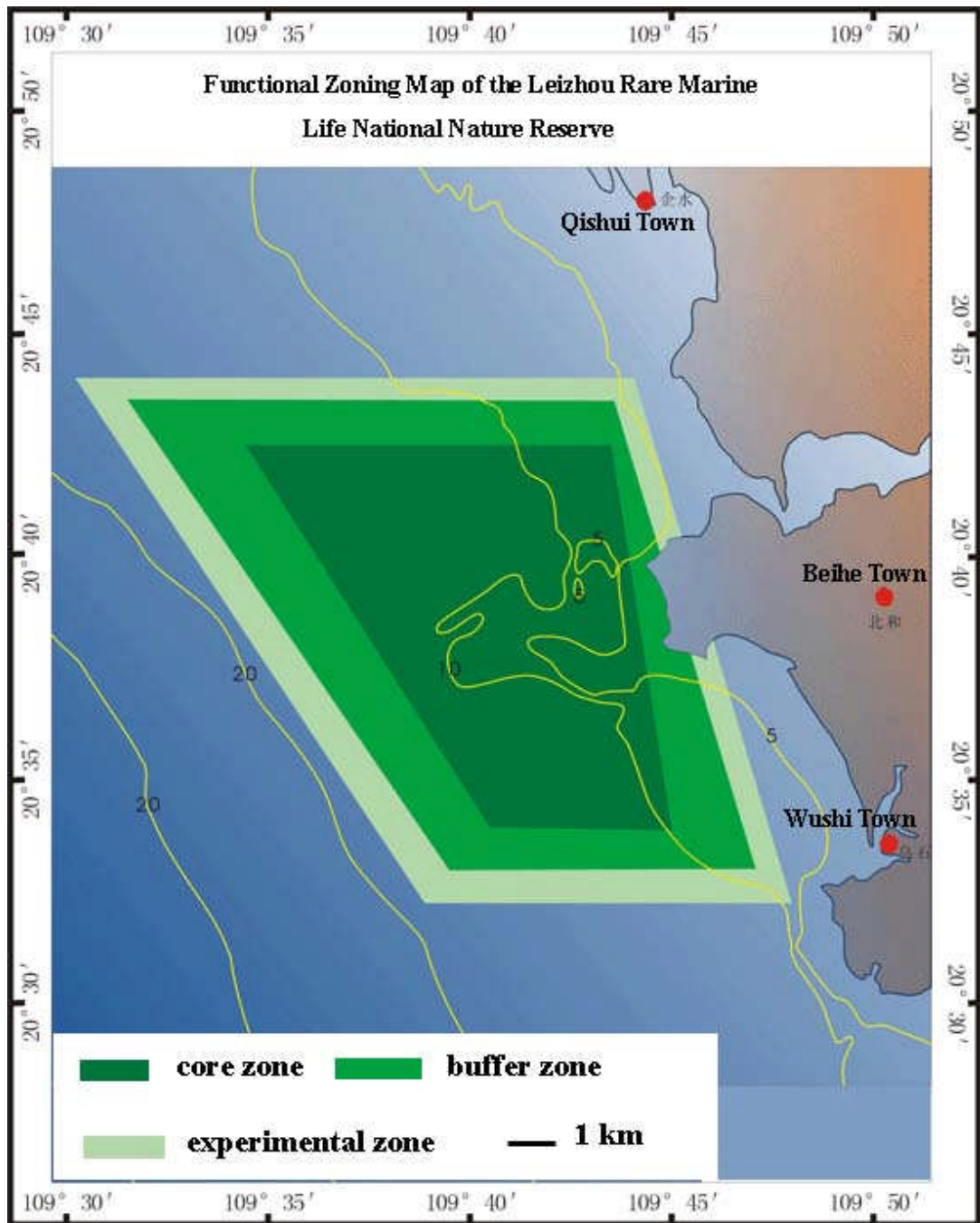


Figure 7.2 Functional zoning map of the LRML-NNR. Background map: LRML-NNR Management Authority 2007.

<http://www.homeocean.com/default3.asp?fid2=18>

As the result of a combination of the above factors, for thousands of fishermen and their families in southern China, fishing has become a financial burden rather than a source of profit. In the Guangdong province, surveys in the early 2000s showed that 60% of the fishing fleets were in deficit, and 148,000 fishermen and

their families were living in poverty (annual per capita income less than 785 Yuan, or US \$115 as of 2007). The continued worsening of fisheries and the livelihoods of fishermen in the Beibu Gulf urged the government and fishing communities to find solutions. These include various forms of financial assistance from the government to relieve the economic pressure faced by fishermen (see section 7.6.3), and the development of alternative livelihoods. The development of mariculture has been promoted as one of the alternative livelihoods for traditional fishing communities in Leizhou. By 2004, the area of coastal shrimp ponds in Leizhou reached 5,145 km² (Jiang et al. 2006). Other commonly cultivated species include pearl oysters, scallops and groupers. However, since 2004, the mariculture industry in Leizhou has suffered heavy losses due to frequent outbreaks of diseases and natural disasters, including flooding in 2007 and extremely cold weather in the winter of 2008. Extreme weather events in 2007 and 2008 resulted in a total economic loss of over 1.6 billion Yuan (US \$234 million) in the mariculture industry in Leizhou (Li 2007; Zhang 2008). In China and elsewhere, mariculture is believed to relieve pressure on resource-depleted capture fisheries (State Council of China 1997). However, apart from pollution and other environmental problems as discussed below, its sensitivity to the changes in oceanographic and climatic conditions would make it a difficult way out for troubled fisheries in Leizhou.

7.3 History of the LRML-NNR

In 1983, the Guangdong provincial government established the Leizhou Giant Pearl Oyster Nature Reserve, with a total area of 47,333 hectares. The main conservation objective was to protect the population of the giant pearl oyster *Pinctada maxima*, which is a high-value species for the pearl industry. In 2000, the MPA was upgraded to a provincial-level nature reserve, and the management authority of the MPA was established in 2003. In 2008, it was again upgraded into a national nature reserve.

7.4 Regulations and rules relevant to the management of the LRML-NNR

As in other MPAs in China, the LRML-NNR is managed in accordance with the Regulation on Nature Reserves (1994). The LRML-NNR is divided into three zones: core, buffer and experimental zones (Figure 7.2). According to the LRML-NNR Management Plan, the core zone is managed as a no-entry zone, and in the buffer zone, human activities are restricted to routine surveillance and law enforcement, as well as scientific research and monitoring. In the experimental zone, apart from the activities allowed in the buffer zone, artificial breeding of endangered species can be conducted, as well as sustainable resource use (Guangdong Province Ocean and Fisheries Department 2006).

Table 7.1 Size and official restrictions of the core, buffer and experimental zones of the LRML-NNR

(Guangdong Province Ocean and Fisheries Department 2006).

Zone type	Size (ha)	% of total MPA area	Official restrictions
Core zone	18,257	39.5	No-entry
Buffer zone	13,664	29.2	Only surveillance, law enforcement, scientific research and monitoring activities allowed
Experimental zone	14,673	31.3	Activities allowed in the buffer zone, artificial breeding of endangered species, and sustainable resource use allowed

The main management objectives of the LRML-NNR are to conserve:

- 1) rare and endangered marine species and their habitats,
- 2) marine biodiversity and the rich fishery resources within the LRML-NNR, and

3) representative tropical coastal ecosystems (Guangdong Province Ocean and Fisheries Department 2006).

Fishing in the area around the LRML-NNR is regulated under various regional, national and sub-national fishery regulations. As the widest part of the Beibu Gulf is 180 nautical miles, according to the UNCLOS (United Nations Convention on the Law of the Sea), the Chinese and Vietnamese EEZs (Exclusive Economic Zones) overlap (Figure 7.3). As fishing efforts in the Beibu Gulf intensified in the 1990s, disputes between Chinese and Vietnamese fishing fleets became more frequent. In 2000 and 2004, two agreements and one supplementary protocol were signed between China and Vietnam to resolve the long-standing disputes on access to fishery resources in the Beibu Gulf. These are the Agreement Between the People's Republic of China and the Socialist Republic of Vietnam on the Delimitation of Territorial Sea, the Exclusive Economic Zone and Continental Shelf in Beibu Gulf (the maritime boundary delimitation agreement), the Agreement between the Government of the People's Republic of China and the Government of the Socialist Republic of Vietnam on Fishery Cooperation in Beibu Gulf (the fisheries agreement); and the Protocol for China - Vietnam agreement on fishery cooperation in Beibu Gulf (the protocol). According to these agreements and protocol, a delimitation line that defines the boundary of each country's EEZ, a common fishery zone (with an area of 33,500 km²), and a transitional zone (with an area of 33,500 km²) were established (Figure 7.3). The total number and capacity of fishing vessels from each country that are allowed to fish in the common fishery zone are determined annually by a Joint Fishery Committee comprising of representatives from both countries, based on total allowable catches calculated from the results of joint resource surveys, and the need for sustainable development in both countries. In the transitional zone, each country is required to reduce fishing efforts in the other party's EEZ by 25% each year, and to withdraw completely from the other country's EEZ in four years (by 2004). The implementation of the agreements has reduced the area of fishing for

both countries, particularly for fishermen in the Guangdong province, who used to fish regularly in the northern part of the Beibu Gulf. Waters in the Beibu Gulf had been fished by fishermen from southern China (particularly Guangxi, Guangdong and Hainan provinces) for many generations before the Agreement came into effect (Yu and Mu 2005). For the Guangdong province, 50% (32,000 km²) of its traditional fishing grounds were lost when the Agreement came into effect, with more than 6,600 long-distance fishing fleets affected. In the Wushi Town near the MPA, over half of its 617 fishing vessels had to withdraw from their traditional fishing area (Bao 2002).

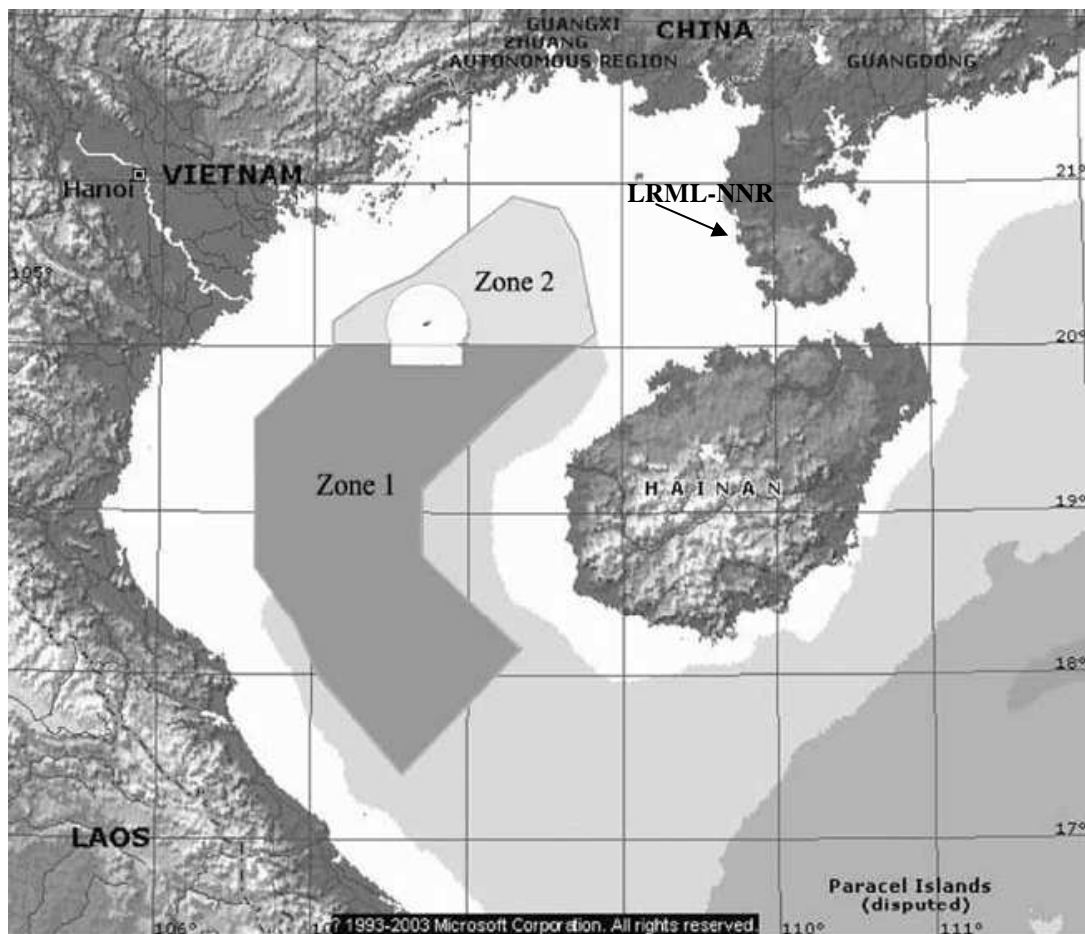


Figure 7.3 Map of the Beibu Gulf. Zone 1: common fishery zone; Zone 2: the transitional fishery zone. Map from Thao (2005).

In addition, in order to conserve coastal fishery resources, various spatial and temporal fishing restrictions have been implemented. Bottom trawling is

prohibited within coastal waters 20 nautical miles to the shore in the Guangdong Province. A summer moratorium (between 16 May to 1 August in 2009, the exact time period varies slightly from year to year but must last for at least two and a half months) has been implemented every year in the Beibu Gulf, during which all fishing gears except single-layered gill nets and recreational fishing rods are prohibited. These fishery regulations, if well implemented, can provide additional protection for marine resources and biodiversity within and surrounding the LRML-NNR.

7.5 Existing conflicts between conservation and economic development in the LRML-NNR

Fishing is one of the biggest threats to biodiversity conservation in the LRML-NNR, and both industrial and small-scale fishing still continue within the LRML-NNR. Most fishing vessels using powerful gears (*e.g.* bottom trawling, low-voltage electronic nets and light attraction devices) come from other cities and provinces in China. It is difficult to estimate the intensity of industrial fishing within the LRML-NNR. Although illegal industrial fishing has been greatly reduced in the past two to three years as a result of MPA enforcement, it still occurs within the LRML-NNR, and the number of industrial fishing fleets that fish within the LRML-NNR is not known. In 2007 alone, more than 100 illegal fishing vessels (mainly bottom trawlers) were sanctioned by the LRML-NNR Management Authority, but due to the limited enforcement capacity (see next section), illegal fishing boats that got away may far outnumber those that were sanctioned.

Most local fishing communities in Leizhou use more traditional fishing gears (gill nets, hook-and-line, baited fish and crab cages, and set nets) and fish in small boats ranging from 6 to 15m in length. It is difficult to estimate the number of local small-scale fishing boats. Official records show that there are around 3,000

registered fishermen in the three towns (Jiang et al. 2006); however, the real figure may be much higher, because most of the small fishing boats (under 20 HP) are not registered and there are a large number of un-registered part-time fishers. For example, in the Haikang village within the LRML-NNR, there are around 360 fishing boats, but a local fishery enforcement officer estimated that only 20% have valid fishing permits.⁹⁶ Local small-scale fisheries target a variety of pelagic and demersal species, and apart from meeting local consumption needs, most of the catch is sold to seafood restaurants in nearby cities through seafood traders (*i.e.* middlemen). A general trend in the LRML-NNR is that while the number of industrial fishing vessels is decreasing, the number of small-scale fishing boats has shown no signs of decline. In some villages, there are even more small-scale fishing boats now than a few years ago.⁹⁷ There are a number of reasons for the increase in the number of small-scale fishing boats; the first is that as more and more industrial fishing vessels are being decommissioned (see next section), fishermen who used to work in these vessels often turn to small-scale fishing.⁹⁸ The second reason is that a lot of fish and pearl oysters farms were destroyed by heavy flooding and extreme weather in 2007 and 2008, and many villagers who used to work in the mariculture industry started small-scale fishing.⁹⁹ Lack of alternative livelihoods and economic hardships promoted a form of Malthusian growth in small-scale fisheries.

Although there have been no assessments so far concerning the impacts of fishing on marine biodiversity in the LRML-NNR, the wider-scale impacts of fishing on marine ecosystems in the Beibu Gulf have long been recognised. The number of fishing vessels and fishing capacity in the Guangdong province had increased by 2-3 times from 1982 to 2002. The maximum sustainable yield (MSY) in the Beibu Gulf is estimated to be 700,000 tons per year, but the real catch is at least two

⁹⁶ Interview with a fishery enforcement officer (LZFOW), May 2008.

⁹⁷ Interview with a MPA enforcement officer (LZEOF), May 2008.

⁹⁸ Interview with a local fishermen (LZFMX1), May 2008.

⁹⁹

times of the estimated MSY (Liang and Jiang 2006). From the late 1990s, overfishing has led to continuous declines in landings from capture fisheries. Most, if not all, commercial fish stocks in the Beibu Gulf have been over-fished and depleted over the past few decades. The total stock density (measured in kg/km²) from trawl surveys in 2002 was only 46.6% of that in 1962 (Sun and Lin 2004). In addition to the sustainability of commercial fish stocks, by-catch of endangered marine species has also been a major concern. For example, in May 2005, a dugong (*Dugong dugong*) was caught and killed within the LRML-NNR in a gill net set by a local fisherman (Jiang et al. 2006).

Other activities that may have impacts on marine habitats and species in the LRML-NNR include mariculture, sewage discharge and waste disposal into the sea in local villages, and the use of fertiliser in farming. Among these activities, the impacts of mariculture are most significant. The overall water quality within the LRMLNN has maintained national category II standards (*i.e.* lightly polluted); however, the water quality in maricultural areas is significantly worse than in other areas, with much higher levels of organic nutrients (Jiang et al. 2006). In addition, the building of shrimp and fish ponds has been a common practice in coastal villages in the LRML-NNR, and often involves the removal or modification of coastal habits such as mangroves and seagrass beds. Loss of such coastal habitats may in turn affect local fisheries, as they are important nursery grounds for a variety of fish species (Jiang et al. 2006). In addition to mariculture, land-based domestic and farming activities are also sources of pollutants in the LRML-NNR. Since there are no sewage treatment facilities and regular garbage collection services in rural areas in Leizhou, most domestic and farming wastes and sewage end up directly in the sea, with may potentially lead to eutrophication in coastal waters.

7.6 Governance of the LRML-NNR

7.6.1 The enforcement of conservation regulations in the LRML-NNR and the roles of the state

The LRML-NNR Management Authority was established in 2003, and currently employs six permanent staff and three contract wardens. It is under the direct supervision of the Guangdong Province Ocean and Fisheries Department. The LRML-NNR Management Authority is responsible for the management and enforcement of the LRML-NNR, but due to its limited resources (*i.e.* less than ten staff and only one speed boat for enforcement), law enforcement has been assisted by the Leizhou Ocean and Fisheries Bureau, particularly its fishery superintendence unit.

In the past few years the LRML-NNR Management Authority focused its limited resources on reducing highly destructive fishing practices within the LRML-NNR, particularly bottom trawling, and the uses of low-voltage electronic nets (electro-fishing) and light attraction devices. As will be discussed in the following sections, there are sharp conflicts between industrial and local small-scale fishermen. Enforcement activities conducted by the LRML-NNR Management Authority mainly target industrial fishing fleets; small-scale fishing practiced by local fishermen has not been affected. In 2007, more than 100 illegal fishing vessels (mainly bottom trawling) were fined by the LRML-NNR Management Authority.¹⁰⁰ Other fishing regulations that are enforced in the LRML-NNR include the prohibition of commercial shellfishing (hand-picking of shell fishes in intertidal areas are permitted) except for the clam (*Solen strictus*) fishery in the experimental zone. The clam fishery is currently open to only one fishing operator, and entry to this fishery is controlled by the Guangdong Province Ocean and Fisheries Department. This limited-entry clam fishery serves as a pilot project for

¹⁰⁰ Interview with a MPA warden (LZE OF), May 2007.

the sustainable management of demersal shellfish resources in the LRML-NNR.

It appears that although the LRML-NNR is designated as a no-take nature reserve where all forms of fishing are prohibited, it remains so only on paper. As in the other two case study MPAs, the main obstacles to the effective enforcement of national regulations exist at multiple levels, from the central government to local communities (see Table 7.4). At a national level, unrealistic regulatory and policy goals and very limited financial and institutional investments from the central government have rendered effective law enforcement an impossible mission. For the 86,505 local residents living within and near the LRML-NNR, fishing is still one of the most important sources of income (Jiang et al. 2006). In such a context, designating a 46,865 hectare marine nature reserve in the communities' fishing grounds remains nothing more than an unachievable goal. Furthermore, the central government, which devises the regulatory framework, has few responsibilities for its enforcement. Apart from some ad-hoc infrastructure and project funding, most other costs of managing the LRML-NNR, including staff salaries and operational costs (around 800,000 Yuan, or US \$117,647 per year)¹⁰¹ are covered by the Guangdong provincial government. At a local level, the intensity of industrial and small-scale fishing forces, a lack of alternative livelihoods, and the resistance from local authorities and both incoming and local fishermen to fishery and conservation regulations are all factors that undermine the effectiveness of the LRML-NNR in achieving its management objectives (see section 7.4).

7.6.2 The roles and influences of local governments and central-local governmental interactions in governing the LRML-NNR

Given that the LRML-NNR is situated in an area with heavy industrial fishing, the role of the local fishery authority cannot be overstated. The Leizhou Fishery

¹⁰¹ Interview with a MPA manager (LZMBC), May 2007.

Superintendents patrol the marine area surrounding the LRML-NNR to enforce various fishery regulations (see section 7.4) and also assists the LRML-NNR Management Authority in carrying out law enforcement activities. Given the limited enforcement capacity of the LRML-NNR Management Authority as discussed above, the effectiveness of the LRML-NNR depends to a large degree on the effectiveness of fishery management in the waters of Leizhou, which has often been seen as a lost battle by both local fishery officers and fishermen.

It is very difficult to control illegal fishing, because it is far too common now. If the weather is good, there are normally a few thousand illegal fishing boats in the water near the Qishui Town [which lies on the border of the LRML-NNR]. The best that we can do is to catch and stop a few dozens of them –a quote from a local fishery officer¹⁰²

Existing fishery enforcement activities cannot control the fishing pressure. You can stop an illegal fishing boat from coming here for a week or two, but after that they will come again and catch more to get back what they have lost in the period –a quote from a local fisherman¹⁰³

Central to the problem of overfishing is the presence of large incoming industrial fishing fleets. Local coastal waters are often dominated by industrial fishing boats from the neighbouring Guangxi Province, and most of these incoming fishing boats employ illegal fishing gears, according to a local fishery officer.

Among 1,000 fishing boats from the Guangxi Province, at least 900 have electronic fishing nets... These fishermen will do whatever that makes money, including blast fishing, poisoning and electro-fishing. They only care about how much money they can make for the short term, and they never consider long-term

¹⁰² Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

¹⁰³ Interview with a local fish farm (LZFFX), May 2008.

*issues. And they have mastered the skills to escape from the authorities, for example, by coming during the night and turning down the engines.*¹⁰⁴

The second issue in fishery law enforcement is that the punishment for illegal fishing is often too light and does not result in significant improvements in fishing practices. This is a common problem in fishery law enforcement in China (Su and Yang 2000). The Fishery Law of China only sets out the maximum amount of fines for different type of violations, for example, the maximum fine for destructive fishing (blast fishing, poisoning and electro-fishing) or illegal fishing in closed seasons and areas is 50,000 Yuan (US \$7,318), and all illegal catch should be confiscated. Only in extreme cases when a fishing practice results in serious damage to resources can the boat and its fishing licence be confiscated. In Leizhou, the fine for destructive fishing and trawling within the no-trawling zone (within 20 nautical miles to the shore) ranges from a few hundred to a few thousand Yuan, and a fine is usually the only punishment for illegal fishing. According to a local fishery officer, the fine for illegal fishing is deliberately kept low for both ethical and practical reasons in order to make sure that most fishermen can afford it.¹⁰⁵ This practical reason lies in the fact that currently 20% of the total fine collected is returned to the local fishery surveillance and enforcement unit to cover their operational costs and part of the staff salary, and the rest 80% is collected by the central government.¹⁰⁶ For its own interest, the local fishery enforcement unit has to make sure that the amount of fine they charge is acceptable to most fishermen and can be collected relatively easily, without going through complicated judicial processes (Su and Yang 2000). Light punishments for illegal fishing are considered to be a major problem even by some fishermen:

¹⁰⁴ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

¹⁰⁵ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

¹⁰⁶ Interview with a fishery enforcement officer from Leizhou (LZFOX), and a MPA enforcement officer (LZEOF) June 2008.

I think the punishment should be much harsher. For boats that repeatedly engage in illegal fishing, the authority should confiscate all their catch, boats and their fishing licences. Only then will they stay away from illegal fishing... I know this because I used to get fined too. ...In this area I know the fishery officers well, because I have been caught and fined by them for so many times. I usually got a fine of four to five hundred Yuan, if I encounter a tough officer, then the fine would be around 800. Some days I even got fined two or three times in a single day. If the catch is good, I am happy to pay the price.¹⁰⁷

A third and deeper issue that has resulted in the failure in curbing illegal fishing in Leizhou is corruption amongst officials in the local fishery authority. Illegal fishing provides fertile grounds for corruption and in return, fishing operators are allowed to break rules and regulations with impunity. Accounts from some fishery officers, MPA managers and local fishermen indicated that corruption among fishery officers and officials in Leizhou comes in two forms, bribe payments and holding shares of profits from illegal fishing.¹⁰⁸ In particular, being able to share the profits from illegal fishing operations is a strong incentive for senior fishery officials to protect or even promote illegal fishing, resulting in ‘conflicts of interests’ that may prevent officials from carrying out their statutory duties and serving public interests (Standing 2008). In Africa, analysis has shown that various forms of corruption among politicians and senior officials are a major contributing factor that leads to ineffective marine inspections, over-capacity in fisheries and illegal fishing, and the ‘resource curse’, *i.e.* increasing poverty, inequity and social polarisation among indigenous and local communities in resource-abundant countries (Standing 2008). A similar story is being repeated in Leizhou except that the vested interests in illegal fishing come from domestic industrial fishing fleets from other parts of China, not from foreign fish fleets as in the case of African nations. For example, a fishery officer talked about the link

¹⁰⁷ Interview with a local trawl fisherman (LZFMX), May 2008.

¹⁰⁸ Interviews with MPA managers and enforcers, LZFOX (June 2008), LZMBC (May 2008), a local fishermen LZFMX (May 2008).

between corruption and ineffective fishery inspection: *'fishery law enforcement is a chaos here and sometimes we are confused about which boats we can sanction, and which we cannot. Sometimes we have senior officials telling us that some boats are allowed to trawl or conduct electro-fishing here, saying that they have licences to do so. With this [illegal fishermen seeking patronage from senior officials], we are in a difficult position to intervene.'*¹⁰⁹ In addition, uncontrolled illegal fishing has also resulted in sharp conflicts between incoming fishing fleets and local small-scale fishing communities, as well as profound mistrust amongst local communities on the local fishery authority. For example, a local fisherman indicated that illegal fishing in Leizhou is being protected by both the 'red gangs' and the 'black gangs':

*In this society there are red gangs and black gangs. The red gangs are the officials, and the black gangs are the mafia. Some businessmen have money therefore they can pay officials for protection when they break the law... People who suffer most are ordinal citizens. This holds true for many places in the country, Leizhou is not unique in this case.*¹¹⁰

Again, the alliance between the industrial fishing sector and local (possibly higher-level) officials, based on illegal exchanges, leads to resource over-exploitation and marginalisation of small-scale users. Some local users call for stronger interventions from the central government as a means to empower the LRML-NNR Management Authority and more importantly, to hold the local fishery authority accountable to their duties. Their trust in the central government, however, is arguably unfounded, as local fishermen have no first-hand experiences in communicating with the central government.

We believe that the central government is accountable and willing to help us. In

¹⁰⁹ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

¹¹⁰ Interview with a local fisherman (LZFMZ), June 2008.

2005, we planned to donate 100 Yuan from each family to pay for a representative to go and meet with officials in the central government, and to complain about the poor fishery law enforcement here and the continuance of illegal fishing during the fishing moratorium. However, we only received very limited education and didn't even know how to write a letter of complain and where to send it....There is no use complaining to the Leizhou or even provincial governments, because some of the officials there take money from the illegal fishing operators and would not do anything against them.¹¹¹

In the local and provincial governments, officials protect the law breakers and cover for each other. But in the central government, there is no such thing.¹¹²

[We believe in the central government] because they are highly concerned about the livelihoods of people. We saw from the TV that the central government did a lot to help those who suffered from the earthquake [happened in May in the Sichuan Province]. The central government is also highly concerned about people living in poverty. Therefore it is impossible that they would ignore the needs of fishermen.¹¹³

Corruption in the local fishery authority has not only affected fisheries management, but also the effectiveness of MPA law enforcement. When the LRML-NNR Management Authority was established to strengthen law enforcement against illegal fishing, resistance from the local fishery authority was a huge hurdle according to a MPA manager from the LRML-NNR Management Authority.

When we first started working in the LRML-NNR, the most difficult thing is that the Leizhou Fishery Superintendence refused to hand over the authority to enforce

¹¹¹ Interview with a local fishermen (LZFMQ2), June 2008.

¹¹² Interview with a local fishermen (LZFMQ1), June 2008.

¹¹³ Interview with a local fishermen (LZFMQ2), June 2008.

*fishery regulations within the MPA, and insisted that we have to work with them. How could they be willing to hand over their authority? They make a lot of money by allowing illegal fishing to continue. For non-local fishing boats, it is essential for them to seek protection from local authorities, so they make a deal with the local fisheries enforcement unit to share with them the profits from illegal fishing. For example, if the total profit from illegal fishing is 100 Yuan, then the officials would get 40 Yuan, and the illegal fishing operator would get 60. Therefore we [the LRML-NNR Management Authority] would not get anything done if we don't have the authority to enforce fishery regulations within the LRML-NNR.*¹¹⁴

Through the coordination of the Guangdong Province Ocean and Fisheries Department, a compromise was made. The LRML-NNR Management Authority was given the authority to stop and catch illegal boats fishing within the LRML-NNR, but the boats have to be handed over to the local fishery authority for follow-up legal actions. The LRML-NNR Management Authority therefore only has the authority to stop illegal fishing within the boundaries of the MPA, but it does not have the authority to punish illegal fishing boats. The amount of fine for illegal fishing within the LRML-NNR is jointly decided by the LRML-NNR Management Authority and the Leizhou Fishery Superintendence. There are fishing operators that managed to escape with little or no punishments in this joint enforcement system due to their powerful connections with local officials, but in general, the fines for conducting destructive fishing within the LRML-NNR are three to five times higher than similar violations in nearby waters.¹¹⁵ Furthermore, a perhaps more serious punishment for illegal fishing operators is that the LRML-NNR Management Authority can hold the illegal fishing boats for a certain period of time when they collect evidence and prepare for the case. According to an MPA enforcement officer, holding the fishing boats is a more effective strategy: *'if the weather is good, after we hold the [illegal fishing] boat*

¹¹⁴ Interview with a senior manager of the LRML-NNR Management Authority (LZMBC), May 2008.

¹¹⁵ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

*for two weeks, the owner of the boat would do whatever we ask, because they cannot fish during that time and keep losing money when their boats stay quietly in our port’.*¹¹⁶

Although illegal fishing still occurs within the LRML-NNR, due to a lack of resources available for MPA enforcement and the protection from the local fishery authority, harsher punishments for illegal fishing within the LRML-NNR have already resulted in reduced incidents of trawling and other forms of destructive industrial fishing in the MPA, compared to the situation in surrounding waters or before the establishment of the LRML-NNR Management Authority. This has been confirmed by the inspectors from the local fishery authority (see the quote below). The differences in the approaches towards fishery law enforcement between the LRML-NNR Management Authority and the local fishery authority were highlighted by a local fishery inspector during an interview:

*I used to assist the officers from the LRML-NNR Management Authority in carrying out law enforcement work. If they catch illegal fishing boats, the fine is much heavier than what we would issue. Therefore the illegal fishing operators are afraid of the LRML-NNR Management Authority, but not us. We [the Leizhou Fishery Superintendence] have a different strategy. We are much better equipped than the MPA officers, our boats can travel faster than theirs and we can also carry weapons with us. In a routine patrol journey we can catch eight to ten illegal boats; the MPA officers can only catch one or two, but they really hit hard and make the illegal fishing operators suffer.*¹¹⁷

The fines for illegal fishing within the MPA are negotiated between the LRML-NNR Management Authority and the local fishery authority. In most cases, the LRML-NNR Management Authority was able to negotiate a heavier fine,

¹¹⁶ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

¹¹⁷ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

compared to the normal rates in Leizhou, probably through good personal relationships between MPA managers and some local fishery officers. This helped overcome the problem of shared authority with the local fishery department. The heavier fines imposed by the LRML-NNR Management Authority also reflect a level of personal integrity, accountability and commitments to tackle the problem of illegal fishing that are not being matched by the local fishery authority. This can be seen from the repeated threats the staff at the LRML-NNR Management Authority received. In 2007, the director of the LRML-NNR Management Authority was attacked by gangsters hired by illegal fishing operators and had to be hospitalised. Later that year, 5 MPA officers from the LRML-NNR Management Authority were 'kidnapped' to a fishing port in another city, when an illegal fishing operator refused to cooperate and come to shore for further investigation. A senior manager from the LRML-NNR Management Authority reflected: *'they [the illegal fishing operators] really hate us because we shake their faith that money can buy everything they need. For us it [the enforcement of fishery regulations] is our responsibility, but for the Leizhou Fishery Authority, it is all about money.'*¹¹⁸ This view was echoed by a local fishery officer: *'We respect the way the MPA officers work... If you work in a low-level government department, things are different. It is so easy for senior local officials to get involved in the fishing business, and they influence their subordinates, as the system does not like people who behave differently'*.¹¹⁹ The comparison between the LRML-NNR Management Authority and the fishery authority in Leizhou suggests that the integrity and accountability of senior officials and their commitments to statutory environmental obligations are perhaps more important factors in determining the effectiveness of law enforcement than the availability of better equipments.

¹¹⁸ Interview with a senior manager of the LRML-NNR Management Authority (LZMBC), May 2008.

¹¹⁹ Interview with a fishery enforcement officer from Leizhou (LZFOX), June 2008.

7.6.3 *Alternative livelihoods and fishing subsidies in the LRML-NNR*

Successful reductions in fishing pressure in Leizhou not only rely on the enforcement of fishery and nature conservation laws, but also on the availability of alternative livelihoods. Initiatives that aim to provide financial incentives and resources to enable traditional fishermen to explore economic opportunities in other sectors, as a means to reduce both fishing pressure and poverty in traditional fishing communities, have started to emerge in the past few years. In 2002, a new policy scheme aiming to ‘transform the livelihoods of fishermen and diverting fishing-dependent labour into other sectors’ (TLF scheme) was initiated by the Ministry of Agriculture. Through the TLF scheme, the fishermen who want to demolish their fishing boats and give up fishing can receive financial compensation from the government, and can apply for grants from the government to develop new livelihoods that are less dependent on already depleted near-shore fishery resources. Such new livelihoods include mariculture and related seafood processing and trading, tourism and recreational fishing, long-distance and deep-water fisheries, and fishing equipment manufacturing. The TLF scheme is jointly funded and implemented by the central, provincial and local governments. From 2003 to the end of 2007, the Guangdong provincial government has invested 376 million Yuan (US \$55 million) in the TLF scheme, and over 4,000 fishing boats have been decommissioned (Liu 2008). In some pilot sites, such as the Wushi Town near the LRNLNNR, the TLF scheme provides grants for the development of shellfish mariculture and seafood processing industry (Liu 2008).

The development of scallop mariculture in the Zhengxi Village of the Wushi Town serves as a pilot project for the TLF scheme in the Guangdong Province. With the support from the Guangdong Province Ocean and Fisheries Department, in 2002, 20 fishermen who gave up fishing started scallop farming. A local farmer, who was once a fisherman, explained why he chose to give up fishing and to start

scallop farming:

In the past, there was no restriction on fishing and the area open to fishing was huge. But after the establishment of the delimitation line between China and Vietnam, we realised that the Vietnamese part was much more productive and resource-abundant than our part. In the mean time, the costs of petroleum and fishing gears were increasing rapidly and fishing could barely bring any profits. Therefore as a result of 1) the reduction in fishing areas and resources and 2) the increasing costs of fishing gears and petroleum, I decided to join the TLF scheme.¹²⁰

Among the fishermen who decided to give up fishing and start scallop mariculture, owners of fishing boats to be demolished were paid a one-off compensation (between 50,000 to 100,000 Yuan, or US \$7,315 to 14,630, depending on the size and condition of the fishing boat). Other government support also included the allocation of sea areas for scallop farming; in 2003, the provincial Ocean and Fisheries Department granted exclusive user rights to 200 hectares of coastal water to the Zhengxi Village Committee for the development of scallop farms run by villagers. Such exclusive use rights will be valid for thirty years and the annual user fee is relieved for the first five years. An initial investment fund of 135,000 Yuan (US \$19,752) per hectare was also granted to the fishermen for the first two years (Liu 2004), followed by an annual development fund for farmers who wish to expand their businesses. In addition, the provincial Ocean and Fisheries Department also organised training sessions on scallop mariculture to improve the skills of fishermen who turned into mariculture.

By 2008, the total area of the scallop farm in the Zhengxi Village reached 20 hectares, and was developed into a share-holding business venture, with 20 local residents (who were once fishermen) serving as investors and share holders. In

¹²⁰ Interview with a local scallop farmer (LZFFJ), June 2008.

2007, with further support from the Guangdong Province Ocean and Fisheries Department, a small factory was set up by local residents to produce gears and tools for scallop farms. The scallop farm and factory provide jobs to 80-100 local villagers. According to the head of the local village committee, the plan is to establish a complete production chain to generate more employment opportunities and incomes for the community:

*My wish is that 80% of the fishermen in our village can make a living through mariculture, and that we can establish a complete production chain, from the supply of gears and scallop larvae, logistic support, scallop farming, processing to marketing and sales. The fishermen here have been living on fishing for many generations, for them to leave the sea and find work on land is not an easy task, and needs to take step by step. The first step would be to develop mariculture, which is something that the fishermen are familiar with, and can learn relatively easily.*¹²¹

However, not every fisherman who wants to develop alternative livelihoods is able to benefit from the TLF scheme. Even in the Zhengxi Village, which serves as a pilot site for the TLF scheme, over 60% of its 980 residents are still dependent on capture fisheries, and those who have been able to receive grants through the TLF scheme are among the few very lucky ones in Leizhou.¹²² A number of factors contribute to the limited scale of the TLF scheme and the small number of local fishermen who are able to benefit from it. The first of these limiting factors is a shortage of TLF funds from various levels of government, particularly in comparison to fuel and other fishing subsidies, which have been serving as a disincentive to end overfishing globally (Evans 2007; Sumaila et al 2008). As discussed previously, excessive agriculture subsidies are one of the root causes of biodiversity loss globally (see Section 2.4.3). From 2006 to 2009, the

¹²¹ Interview with the head of the Zhengxi Village Committee (LZCLL), May 2008.

¹²² Interview with the head of the Zhengxi Village Committee (LZCLL), May 2008.

Chinese central government has appropriated 21.25 billion Yuan (US \$3.29 billion) fuel subsidy to the fishing industry, which accounts for 35.6% of the total amount of fuel subsidy received by fishermen in China (the rest was covered by provincial and local governments) (Guo 2009). In comparison, the total central government spending on the TLF scheme from 2002 to 2008 was only 1.31 billion Yuan (US \$191.7 million), the majority of which went to compensate the fishermen who want to demolish their fishing boats (Liu 2008). The huge difference between the total amount of government spending on fishing subsidies and the TLF scheme raises the question on whether the Chinese state is firmly committed to tackle the problem of overfishing. Fishing subsidies support illegal industrial fishing fleets seen in Leizhou, and make it an extremely difficult task to enforce fishery regulations. As Jack et al. (2008) point out, subsidies and other state policies that promote resource over-exploitation, directly or indirectly, interfere with incentive-based initiatives aiming to induce environmentally-friendly practices. The main concern for eliminating government fishing subsidies is the socio-economic costs to fishermen (Evans 2007). In other cases, fishermen value fishing as a 'way of life' and a cultural heritage, rather than on a pure economic basis (Blount and Pitchon 2007; Jones 2009), and that monetary compensations cannot compensate for the loss of such cultural identity and heritage (Jones 2009). However, the results from interviews with fishermen in Leizhou showed that it is less likely to be an issue there. Among the 33 fishermen and fish farmers interviewed, the majority (69.7%) indicated that they prefer trying another livelihood rather than continue fishing (Table 7.2). Economic hardship and hard working conditions are the common reasons that most small-scale fishermen choose to give up fishing, as described by a local fisherman:

Fishing is a tough business. We are forced to fish in order to survive, no matter you like it or not. We normally go out to the sea in the early morning, between 3 to 4 am, to deploy the fishing nets, at 11 or 12 am we need to collect the nets, and

*then without any rest we need to continue processing the catch and cleaning the nets until late afternoon. What kind of life is this? If I have some money I would rather do something else, for example, seafood trading, farming or anything apart from fishing.*¹²³

Most interviewees who want to continue fishing are industrial fishermen, and the prospect of developing more profitable long-distance fisheries, as well as the practical difficulties (*e.g.* lack of education and skills) of adopting new livelihoods are the main reasons that they choose to stay in the fishing sector (Table 7.2). It is also important to note that none of the 33 fishermen interviewed want their children to inherit fishing as a ‘way of life’, 32 were strongly opposed to this idea and 1 commented that it would be his children’s decisions. The idea that fishing is an important cultural heritage to fishing communities is not supported by the findings from Leizhou. Therefore it can be concluded that in the context of Leizhou, TLF funds, in the form of compensation to fishermen who give up fishing and follow-up grants to help them develop new livelihoods, are preferable to fishing subsidies, both ecologically and socially. An increase in the proportion of TLF funds in the total government budget for fisheries would therefore allow more fishermen who want to develop a new way of life to benefit from the TLF scheme.

¹²³ Interview with a local fishermen (LZFMX), June 2008.

Table 7.2 Perspectives of fishermen on fishing as a livelihood.

Do you prefer continuing fishing or trying new ways of making a living	Number of respondents (percentage of all respondents)	Main reasons for taking this proposition (number of respondents)
Continuing fishing	9 (27.3%)	Some prospect for developing long-distance fisheries, which are more profitable than in-shore fisheries (4), lack of knowledge and skills to try something else other than fishing (4), good money from fuel subsidy (1)
Trying new ways of making a living	23 (69.7%)	Economic hardship (10), long working hours and hard labour (14), no prospect for fishing in the long term (2)
Difficult to tell	1 (3%)	

A second limiting factor in the implementation of the TLF scheme has been the inequitable distribution of the limited funds. According to current regulations, only owners of fishing boats can receive TLF funds, but the fishermen hired to work in the boats, who constitute the majority of the local fishing force, do not receive any compensation if the fishing boats are decommissioned. This inequitable distribution of TLF funds gives rise to the phenomenon, as noted by some local fishery officers, that as large fishing boats are being decommissioned, more and more smaller boats are being built to join the fishing force. For example, after two years of implementation of the TLF scheme in the Wushi Town (located on the border of the LRNLNNR), more than 80 large fishing vessels were demolished; however, there has been no significant change in the actual number of fishing boats in the town (Liu 2004). Fishermen who used to work in industrial fishing fleets often start small-scale fishing in shallow waters, which has been a contributing factor to the increase in the number of small-scale fishing boats in the LRNLNNR, as discussed in section 7.5. Therefore it is questionable if the TLF scheme can effectively reduce fishing pressure by decommissioning large-scale fishing boats and allowing small-scale fishing boats to flourish.

A third limiting factor in the implementation of the TLF scheme is that the scheme is poorly designed to serve the needs of traditional fishermen who want to apply for government grants to develop new economic activities. As the head of the Zhengxi Village Committee complained, one of the major problems of the TLF scheme is that in the implementation of the scheme during the past five years, most funds went to the big seafood farming, processing and trading companies, and very little was actually allocated to support initiatives run by local fishermen.¹²⁴ From the government's perspective, investing in big companies and corporations could achieve better business returns and more efficient use of the limited government grants. In addition, the companies that receive government grants are obliged to provide employments for local fishermen (Liu 2004). However, in practice, there is no feedback on whether and how such obligations have been fulfilled by the companies receiving government grants, and as the head of the Zhengxi Village Committee complained, very few local fishermen can successfully compete with better educated and more skilled workers from other places.¹²⁵ In the meanwhile the requirements for granting TLF funds are set too high for most small-scale initiatives run by local fishermen to benefit from the scheme. For example, to be able to be eligible for government TLF funds and grants for the development of mariculture, the total area of the scallop farm must exceed 6.67 hectares. In addition, the farm must be registered as a private company and employ an accountant. Meeting all these requirements requires a level of initial financial investment that few local fishermen in the area are able to generate on their own.¹²⁶ Furthermore, generating sufficient investments and successfully securing grants from the government often require good personal connections with local officials and banks and sophisticated entrepreneurship. A key factor behind Zhengxi Village's success in implementing the TLF scheme is that the head of the Zhengxi Village Committee had run her own mariculture

¹²⁴ Interview with the head of the Zhengxi Village Committee (LZCLL), May 2008.

¹²⁵ Interview with the head of the Zhengxi Village Committee (LZCLL), May 2008.

¹²⁶ Interview with a MPA officer (LZEOF), June 2008.

business for many years, and was able to use her connections and business skills to help other fishermen in her village. As she pointed out, during the implementation of the TLF scheme, the Zhengxi Village Committee provides support in three areas:

- 1) Helping the fishermen to organise a joint share-holding business venture;
- 2) Providing small grants to those who encountered difficulties, for example when the farms were impacted by disastrous weather events;
- 3) Helping the fishermen to get access to low-interest loans from the bank, which helped them to expand their farms;
- 4) Securing sea use rights for scallop farming.¹²⁷

In comparison, in the nearby Zhengnan Village, the scallop farmers were not able to get the same government assistance as in the Zhengxi Village. In the Zhengnan Village, the scallop farm is jointly owned by 5 local villagers, and has a total area of 2 hectares. The scallop farmers have been encountering major difficulties in the past few years, due to low profit margins, limited access to the market (particularly to export market in other east Asian countries), and perhaps worst of all, heavy losses from extreme weather events. Despite the efforts made in the past few years, the farmers were unable to generate enough profits to reinvest in and expand the farm to a size that would qualify them for the TLF scheme. According to a farm owner from the Zhengnan Village, having access to government funds and grants is the key to successful scallop mariculture business.

[In the Zhengnan Village], very few fishermen joined the TLF scheme, the majority did not. They were scared of the current situation, as we keep losing money.... But there are people who are able to benefit from the TLF scheme, like those in the Zhengxi Village. Their farm can generate profits because the government invested in them, without government assistance they would not be

¹²⁷ Interview with the head of the Zhengxi Village Committee (LZCLL), May 2008.

*able to make any profits. I know this because I have been running the farm for five years, and I know the market condition.*¹²⁸

In addition, he also mentioned a lack of leadership from the Zhengnan Village Committee and a lack of marketing skills as important limiting factors from their experiences: *'we know how to sail our boats to the Philippines, but do not know how to take a bus to the capital city in the province.'*¹²⁹ It can thus be concluded that to suit the needs of traditional fishermen and revitalise local economy, substantial policy changes will be required, along with changes in thinking amongst politicians and decision-makers, so that the limited resources can be made more accessible to individual fishermen and small-scale business owners struggling to make a living without fishing. It should also be noted that many fishermen who joined the TLF scheme, particularly from the younger generation, decided to decommission their boats and went to seek jobs in nearby cities, transforming themselves into one of the 200 million so called 'migrant workers' in China (people from rural areas migrating into cities to seek jobs). For example, in the Haikang Village, more than 60 fishing boats were decommissioned in 2006, and the majority of the fishermen went to work in nearby cities.¹³⁰ Those fishermen only received compensations from the decommissioning of their fishing boats, and did not apply for TLF grants and funds for starting a new business venture. As the process of urbanisation and industrialisation accelerates, more and more fishermen, particularly young fishermen, may choose to leave their homes and make a living in cities, however, for those who choose to remain at home, more alternative livelihoods and new means of development need to be found, if coastal resources were to be utilised in a more sustainable way.

¹²⁸ Interview with an owner of a scallop farm (LZFFX2), June 2008.

¹²⁹ Interview with an owner of a scallop farm (LZFFX2), June 2008.

¹³⁰ Interview with local fishery officer (LZFOW), May 2008.

7.6.4 *Participation of local communities*

In promoting community participation in MPA management, the advantage of the LRML-NNR over the other two case study MPAs is that the LRML-NNR is located in a rural area with little industrial and tourism development, and it has been managed in a way to reduce incoming industrial fishing (although with limited effectiveness in reducing the overall fishing pressure) and to protect the interests of local fishing communities, therefore so far, it has been relatively easy to generate community support for the MPA. In interviews with 27 local fishermen, the majority (88.9%) of local fishermen believe that the LRML-NNR helps to reduce industrial fishing, and to protect the properties of local fishermen, as the fishing nets deployed by local fishermen are often destroyed or trawled away by powerful industrial fishing vessels (Table 7.3). Local fishermen have provided assistance in various aspects of MPA management, for example, by providing information on the location of illegal industrial fishing boats within the LRML-NNR. The LRML-NNR Management Authority also maintains close working relationships with village committees in nearby villages. For example, the LRML-NNR Management Authority has signed co-management agreements with village committees in five villages, and according to the co-management agreements, the LRML-NNR Management Authority and the village committees will collaborate in five areas:

- 1) Environmental education and outreach in each of the five villages;
- 2) The prevention of pollution and ecological degradation, particularly from destructive fishing practices including electro-fishing, cyanide and blast fishing;
- 3) Information sharing and reporting of any illegal fishing activities within the LRML-NNR;
- 4) Law enforcement;
- 5) Natural disaster relief efforts.

Collaborations in area 3) are particularly active, and MPA officers often do not need to go out patrolling to know the whereabouts of illegal industrial fishing boats.¹³¹ The LRML-NNR Management Authority also holds annual meetings with village committees and representatives from each of the five villages within the MPA to discuss concerns of local communities. In addition, the LRML-NNR Management Authority also hires two local villagers as contract wardens, who serve as links between the LRML-NNR and local communities.

Table 7.3 Perspectives of local fishermen on the conservation objectives of the MPA.

Do you think the marine resources in the LRML-NNR should be protected?	Number of respondents (percentage of all respondents)	Main reasons for taking this proposition (number of respondents)
Yes	24 (88.9%)	The LRMNLNNR helps to reduce destructive industrial fishing (20); the LRMNLNNR protects the nets deployed in the water by local fishermen from being trawled away by powerful industrial fishing fleets (13); the LRMNLNNR protects high-value species (3); the LRMNLNNR protects resources for the future of fishing communities (1)
No	0	
Depends	2 (7.4%)	Depends on whether the LRMNLNNR can deliver more benefits than costs to local communities (2)
Difficult to tell	1 (3.1%)	The effects of protection are not clear (1)

Despite the past and existing efforts in promoting community participation in MPA management, further participation from local communities may be hindered by the following factors, particularly if MPA management and law enforcement were to be strengthened in the future to better protect natural resources and

¹³¹ Interviews with MPA officers (LZEEOC, LZEOF), May 2008.

biodiversity. The first factor is the low acceptance of MPA rules and regulations amongst local communities, particularly regarding the no-take regulation on fishing activities. This results from the unrealistic policy and regulatory goals imposed on local users, as discussed in section 7.6.1. For 25 local small-scale fishermen interviewed, 22 (88%) indicated that they were not aware that the LRML-NNR is suppose to be a no-take area, where all types of fishing are prohibited. Twenty-four (96%) of the 25 local small-scale fishermen interviewed said that it was both unnecessary and unrealistic to designate the area as a no-take zone. Only one fisherman thought that it might be possible to have a small no-take zone close to their village, which is currently being used as a small fishing port. Among the reasons why a no-take marine nature reserve is considered impossible, the lack of alternative livelihoods was mentioned by 21 (84%) of the 25 interviewees, the lack of financial compensation to fishermen if the no-take regulation were to be imposed was mentioned by 2 (8%), and finally 4 (16%) of the 25 interviewees believed that their fishing practices do not result in any harm to the endangered species protected within the LRML-NNR.

The second and related factor that may undermine local communities' participation in MPA management is that although there are growing concerns amongst local fishermen about the decline in fishery resources, most believe that their own fishing practices have little impacts on the resources, and should not be subject to any control. During the interviews with local fishermen, a total of 17 fishermen responded to the question on the factors that they believe to cause declines in fish stocks, and among them destructive fishing practices (trawling, electro-fishing and light attraction devices) were mentioned by 11, the increase in the number of fishing boats was mentioned by 6, pollution was mentioned by 2 and habitat destruction by 1. Among the 17 fishermen only 2 indicated that their own fishing practices are causing some destruction to the natural resource base. However, it should be acknowledged that such views on catch trends and the reasons behind the perceived declines in fish stocks cannot be substantiated by

other evidence, due to a lack of official fishery data and independent scientific assessments in the MPA. Industrial fishermen and small-scale fishermen often blame each other for causing stock declines. Resource users seem to have been locked into a typical ‘tragedy of commons’ situation (Hardin 1968), where individual users driven by narrow self-interests may lead to ruins in shared commons.

*In recent years, the number of small fishing boats operated by farmers who recently shifted to fishing is increasing rapidly, making our lives very difficult.... The farmers place too many gill nets in the sea. The mesh size of gill nets is huge, and all big fishes are caught by the gill nets. We don't catch anything other than trash fish – a quote from a bottom trawler.*¹³²

*I think bottom trawling causes some damage to the natural resource base... But the trash fish we catch, they are born as small ones, they would not grow much...Now the number of bottom trawlers is decreasing, and you seldom see trawling boats nowadays, but the number of small fishing boats using gill nets is increasing rapidly.*¹³³

*The net I use is fixed in a specific location, i.e. it does not move, and the mesh size is large enough for juveniles and larvae to escape..... If the MPA management authority can eliminate trawling and electronic fishing boats from the area, the fish stocks would not decrease, the stocks should increase, according to our experiences – a quote from a fisherman who uses light attracting device to catch small fish larvae.*¹³⁴

The idea that having a no-take marine nature reserve is both unnecessary and unrealistic in Leizhou is also shared by administrators at the LRML-NNR Management Authority. A senior manager at the LRML-NNR Management

¹³² Interview with a local fishermen (LZFMX), May 2008.

¹³³ Interview with a local fishermen (LZFMG), May 2008.

¹³⁴ Interview with a local fishermen (LZFMX1), May 2008.

Authority pointed out that he was reluctant to inform local communities of MPA-related national regulations, as this might cause ‘waves of opposition’ to the designation and management of the LRML-NNR. He also believed that there should be a difference in dealing with industrial and small-scale fishing:

*Most trawling and industrial fishing fleets in the LRML-NNR are from other cities, and they are a huge threat to the conservation of biodiversity and marine resources in the LRML-NNR. Therefore we must work hard to get them out of the reserve. But local small-scale fishing is different; it does not have significant impacts on marine biodiversity and resources, besides if we impose the MPA regulations on local communities, we would lose support from them. I think for small-scale fishers, the solution is to help them find alternative livelihoods...*¹³⁵

The quotes above imply that local users’ support for MPA management is based on the expectation that the LRML-NNR protects their interests by reducing incoming fishing pressure and not targeting local fishing boats. Attempts to regulate local small-scale fishing may likely result in tensions between the LRML-NNR and local communities. The regulation of the clam fishery within the LRML-NNR is a good example of such potential tensions and conflicts. As discussed in section 7.5, this fishery is only open to a very limited number of licensed fishing boats. A number of new applications from local fishermen to enter this fishery were turned down by the Guangdong Province Ocean and Fisheries Department, on the basis that it was not clear yet if an increase in the fishing pressure would lead to a population decline of this high-value species.¹³⁶ In 2008, angry fishermen held a few demonstrations outside the office building of the LRML-NNR Management Authority, claiming that ‘*the LRML-NNR does not address the development needs of local communities*’.¹³⁷ The case illustrates that further increasing and improving local participation in the future may likely to be

¹³⁵ Interview with a senior manager at the LRML-NNR Management Authority (LZMBC), May 2008.

¹³⁶ Interview with MPA officers (LZEOM, LZEON), June 2008.

¹³⁷ Participant observation, June 2008.

restrained by a dominant utilitarian views towards the marine environment and significant divergences between the primary goals of communities and the strategic objectives of the MPA. Like in other community-based initiatives (see section 2.4.3), conservation measures that are designed to achieve strategic conservation objectives, *e.g.* no-take zones that protect the key habitats of endangered marine species, are not favoured by local communities.

To summarise, the governance structure of the LRML-NNR is characterised by shared responsibilities between the LRML-NNR Management Authority, which is part of the provincial government, and the local fishery authority. Key issues that may have led to power imbalance in governing the MPA include:

- 1) The limited investment from higher-level (central and provincial) governments in the enforcement of conservation regulations and alternative livelihoods, which made MPA law enforcement partly reliant on cooperation from the local fishery authority;
- 2) Corruption within the local fishery authority, which in combination with fishing subsidies, encourages over-fishing.

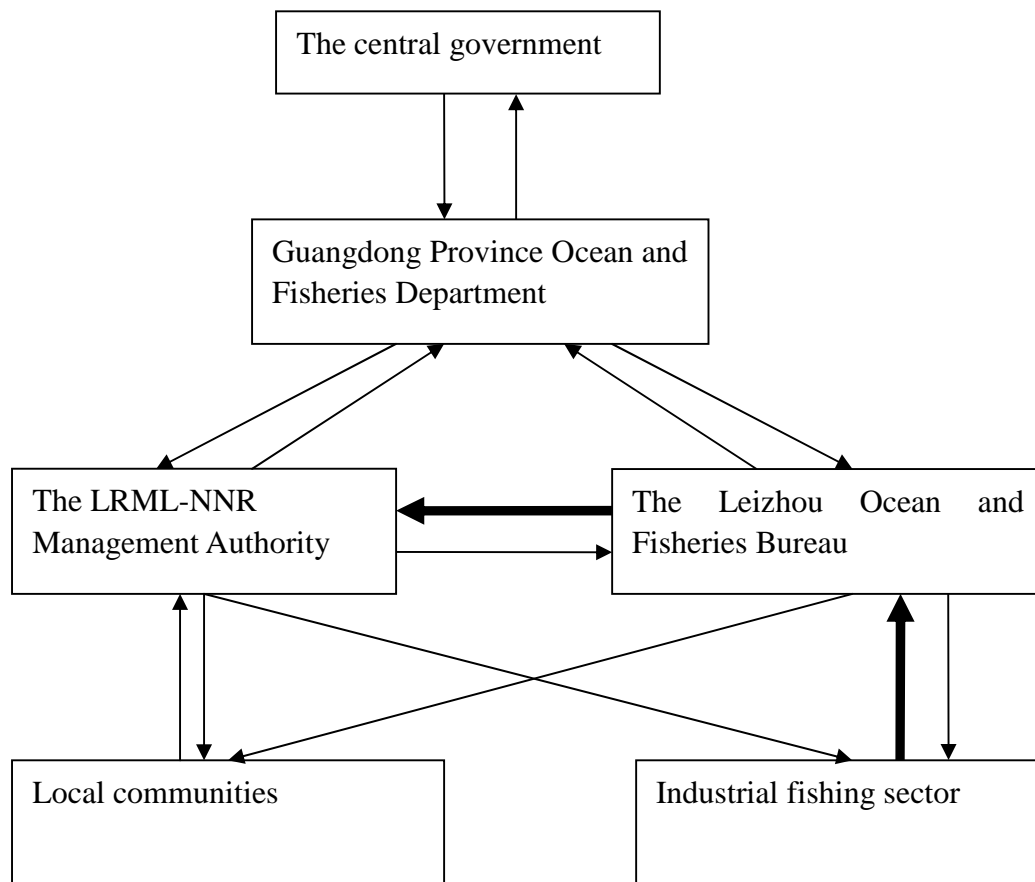


Figure 7.4 Governance structure of the LRML-NNR. The arrows indicate interactions between different actors in governing the MPA. Such interactions include top-down controls, coordination between different actors and bottom-up influences on higher-level decisions. The bold arrows indicate strong interactions (controls or influences) that may lead to power imbalance in the overall MPA governance.

7.7 Equity and community stewardship in the management of the LRML-NNR

The case of the LRML-NNR shows that the distribution of government TLF funds has been inequitable. With the main objectives being to relieve the economic hardship of fishing households and to reduce the pressure on fishery resources, the TLF scheme should not, in theory, favour established corporate enterprises over individual or group applications from local fishermen. In addition, the

scheme also limits its beneficiaries to owners of fish boats, but not their employees, excluding a large number of traditional fishermen from receiving the compensations, grants and potential opportunities to start a new livelihood. This inequitable distribution of the limited government resources may leave a lot of traditional fishermen with few choices other than shifting from being employed by industrial fishing boats to small-scale fishing, with increased pressure on coastal fishery resources.

The presence of large number of powerful industrial fishing boats, most of which come from other areas in the Guangdong Province or from the nearby provinces, has resulted in strong resentment amongst local communities. Trawling and other forms of industrial fishing have not only led to declines in fish catch, but also property losses to local fishermen, as unguarded nets placed by local fishermen are often destroyed or trawled away by industrial fishing boats. Economic losses from damaged or lost fishing nets can add up to 10,000 Yuan (US \$1,493) per year for a local small-scale fisherman, or around a third of the annual income of a fishing household.¹³⁸ Corruption amongst officials in the local fishery authority and ineffective enforcement of fishery regulations are adding to the frustrations of local fishermen.

In this context, the enforcement of the LRML-NNR helps to restore community stewardship of marine resources by reducing incoming fishing pressure, which is the main basis of community support for the MPA, as discussed in the section above. Although for many community members, such interventions are far from being sufficient. Some refer to the establishment of territorial fishing rights, defined by a higher-level government, as a more viable solution.

Most of the illegal trawling boats here are from the Suxi County. Suxi County is under the direct administration of Zhanjiang Municipality, so is Leizhou. Therefore the Zhanjiang municipal government can take measure to stop Suxi

¹³⁸ Interview with a local fishermen (LZFMX1), June 2008.

*trawling boats from entering the Leizhou area. The best measure is to stop them from entering our territory. Otherwise, no matter how hard you try, they (the poachers) can come secretly without being caught.*¹³⁹

Territorial fishing rights have been proposed by researchers as a solution to improve marine resource management (Costello et al. 2008; Hilborn et al. 2004; WB/FAO 2008). Though fishery legislations in China do not have provisions for the creation of fishing rights, it is possible for local fishermen to apply for exclusive sea use rights for fishing in a particular sea area under the Law on Sea Use Management. Creating legally protected territorial fishing rights and defining such rights in accordance with MPA management objectives may help strengthen community stewardship of fishery resources and provide local users with the incentives to better manage resource use. In addition, such territorial fishing rights, if properly defined, can provide a way for strengthening small-scale fisheries through the attachment of certain conditions (*e.g.* the prohibition of certain fishing gears and seasonal closures). Currently small-scale fishing is subject to very little control, which raises concerns about the risk of over-exploitation and equality of law enforcement, as already been recognised by few local fishermen:

*In the past generations, one big family usually owned only one fishing boat. The brothers took turns to go fishing. Now every couple owns a fishing boat and they can go fishing everyday, but still, the catch is much less than in the past. Now the catch from 100 nets would still be less than the catch from 30 or 40 nets in the past... Sometimes there are so many gill nets in the sea that they entangled with each other, it's like a suicide.*¹⁴⁰

In our village there are some villagers who use fish cages with very small mesh size to catch juveniles of demersal species.... If the MPA is to control fishing, law enforcement must be imposed equally on all fishermen who engage in destructive

¹³⁹ Interview with a representative from a local village committee (LZCLH), June 2008.

¹⁴⁰ Interview with a local fishermen (LZFMX), June 2008.

*fishing practices, no matter they are from local villages or outside. It is wrong to only tackle the boats from the outside. Local fishermen have to realize that the MPA officers help them to reduce destructive fishing boats from the outside, and they must follow the same rules too.*¹⁴¹

7.8 Summary and discussion: characteristics, strengths and weaknesses of the governance of the LRML-NNR

Compared to the other two case study MPAs, the LRML-NNR Management Authority is less dependent on local resources in managing the MPA. Unlike the MPA management authorities in other two MPAs, the LRML-NNR Management Authority has never been a part of the local government; it has always been supervised by the Guangdong Province Ocean and Fisheries Department and receives all its funding from the provincial and central governments. Even though the LRML-NNR Management Authority has to share part of its authority with the local fishery department (*e.g.* joint decision-making on the amount of fine for illegal fishing boats), due to its limited human and financial resources and enforcement capacity, its independence from the local government allows it to take firmer actions in enforcing conservation regulations against the interests of local officials. The integrity and accountability of MPA managers are also important factors that prevent the LRML-NNR Management Authority from being influenced by local vested interests.

In governing the LRML-NNR, both the ‘stick’ (law enforcement) and ‘carrot’ (economic incentives for alternative livelihoods and opportunities for community participation) have been employed to steer MPA management (Table 7.4). Enhanced law enforcement against illegal industrial fishing within the LRML-NNR helps to reduce destructive fishing and to protect the interests of small-scale fishermen, which also provides the incentives for local communities to participate in MPA management. On the other hand, the implementation of the

¹⁴¹ Interview with a local fishermen (LZFMX3), June 2008.

TLF scheme seeks to provide resources and opportunities for fishermen to adopt new livelihoods, thereby reducing fishing pressure and relieving economic hardship faced by traditional fishing communities.

The effectiveness of law enforcement and the TLF scheme in achieving the dual objectives of environmental protection and promoting community welfare are being hindered by a range of limiting factors, but most importantly, the limited financial and other resources available for such activities, inequality in both law enforcement and the access to and distribution of TLF funds, state subsidies that encourage over-fishing and the protection of illegal fishing by corrupted local officials. The driving forces of over-fishing in Leizhou comes from a variety of sources, including the closure of some fishing grounds in the Beibu Gulf, state subsidies, corruption in the fishery authority, and a growing coastal population. The measures taken to conserve biodiversity in the LRML-NNR are arguably insufficient and ineffective in the face of such strong driving forces.

Table 7.4 The strengths and weaknesses in the use of different steering mechanisms (state steering, economic instruments and community participation) in governing the BSSRW-NNR.

Potential sources of steer		Strength	Weakness
State steering	National policy and legal instruments	<ul style="list-style-type: none"> ➤ Legal basis for MPA management and the management of fisheries 	<ul style="list-style-type: none"> ➤ An ambiguous and unrealistic regulatory framework for MPA management ➤ A lack of funding and institutional resources for MPA enforcement and management ➤ Minimum sanctions against illegal activities and weak rule of law in the enforcement of fishing regulations in surrounding waters ➤ Existence of state policies that encourage resource over-exploitation, e.g. fishing subsidies ➤ Inequitable law enforcement, with sanctions imposed only on non-local users who practice destructive fishing but not local users who engage in similar activities
	Decentralisation and coordination between central and local governments	<ul style="list-style-type: none"> ➤ The separation of the MPA Management Authority from the local government ➤ Collaborations between the MPA Management Authority and local government agencies in enforcing MPA regulations ➤ Harsher punishments for violations imposed by the MPA Management Authority helping to overcome the problem of shared authority 	<ul style="list-style-type: none"> ➤ Strong alliances between the local government and private/corporate resource users undermining the authority of the MPA management authority and lead to resource over-exploitation and marginalisation of small-scale users
Economic instruments		<ul style="list-style-type: none"> ➤ Provision of compensation and 	<ul style="list-style-type: none"> ➤ Shortage of TLF funds, particularly in comparison with the

	<p>resources for developing alternative livelihoods through the TLF scheme</p> <ul style="list-style-type: none"> ➤ The allocation of exclusive sea use rights to local fishermen for developing alternative livelihoods 	<p>amount of fishing subsidies</p> <ul style="list-style-type: none"> ➤ Inadequate distribution of the TLF funds, which is only available to boat owners ➤ The TLF scheme poorly designed to serve the needs of traditional fishermen, i.e. the requirements for receiving the grants are set too high for most small-scale fishermen
Community participation	<ul style="list-style-type: none"> ➤ Promoting community stewardship through controlling incoming fishing pressure ➤ Collaborations between the MPA management authority and village committees in reducing incoming fishing pressure within the MPA ➤ Hiring wardens from local communities to serve as links between the MPA and local communities 	<ul style="list-style-type: none"> ➤ Low awareness and acceptance of MPA rules and regulations ➤ Low support for controlling resource uses by local users and for conserving high-value commercial species, or endangered species

Concluding remarks

The LRML-NNR is located in an area experiencing heavy fishing pressure, from both incoming and local small-scale fishing fleets. The success of the MPA in conserving biodiversity in such a context depends heavily on the broader fishery management institutions that are in place, as it would require a huge amount of resources and efforts to make a MPA effective in a sea crowded with illegal fishing boats. The LRML-NNR Management Authority has adopted a pragmatic approach in managing the MPA, by relying on strengthened law enforcement to control industrial fishing, and using economic incentives to reduce local small-scale fishing pressure. However, the key challenge is to address the forces supporting unsustainable industrial fishing at multiple levels, such as state subsidies and corruption in the local fishery authority. Whether the MPA can be made more effective will largely depend on the changes and improvements in the broader institutional environment.

8

Towards improving MPA governance in China

Overview

The key findings in the previous chapters (Chapters 5-7) are summarised and discussed in this chapter. The discussions focus on the main driving forces that shape MPA governance in the three case study MPAs, the characteristics of governance structures and the effectiveness of different steering mechanisms in addressing the key conflicts in governing MPAs. The differences and similarities between the three case study MPAs are compared. The chapter ends with a section on potential solutions towards existing problems, and the way forward for improving MPA governance in China.

8.1 The driving forces, challenges and key conflicts in MPA management

In the three case study MPAs, three types of driving forces that influence the way MPAs are being governed can be identified. Economic driving forces largely determine the patterns and intensity of marine resource uses within and adjacent to the MPAs and are the main threats to biodiversity conservation. The economic driving forces are being underpinned by the socio-political driving forces, which largely determine the allocation of access rights to natural resources, as well as the power relationships between different stakeholder groups in MPA decision-making. Finally, cultural driving forces shape the way resource users view the marine environment.

The three case study MPAs are located in areas with different economic structures, hence there are major differences in the patterns of marine resource use, as well as in the main threats to be addressed in MPA management. The three case study MPAs are located in areas at different stages of economic development: from a predominantly agricultural economy in Leizhou, industry-based economy in Binzhou to an economy that is increasingly reliant on the service sector in Sanya. The differences in the external economic driving forces result in differences in the main activities that conflict with MPA objectives (Table 4.1). It is difficult to tell if industrial and corporate resource users (*e.g.* tourism companies in the SCR-NMNR, chemical and maricultural companies in the BSSRW-NNR, and industrial fishing fleets in the LRML-NNR) are having a more significant impact on marine biodiversity and ecosystems than household-based, small-scale resource users (*e.g.* individual fishermen and fish farmers), particularly in the BSSRW-NNR and LRML-NNR, where a large proportion of local populations still engage in small-scale production activities. As industrialisation and economic development advance in China, more and more MPAs will experience socio-economic conditions that are similar to those in Binzhou and Sanya, and face multiple threats from both traditional (*e.g.*

fishing and mariculture) and new (*e.g.* industrial developments, urbanisation and tourism) activities. Despite these differences, all three MPAs face a high level of user pressure, reflected through large populations living within and adjacent to the MPAs and rapid GDP growth rates (Table 4.1). The growing demand for coastal and marine resources in a densely populated and rapidly emerging economy is the root cause of conflicts in MPA management in China.

The economic driving forces are being underpinned and promoted by the changes in the country's social and public administration systems, as part of its neo-liberal reforms since the late 1970s. The series of neo-liberal reforms, with decentralisation and privatisation at their core (see Chapter 3), has been viewed as a key barrier to environmental protection in China (Jahiel 1997; Lieberthal 1997; Tilt 2007). Local governments in China have since assumed dual roles both as the political agent of the state and the economic principal in their jurisdictions (Gong 2006). This motivates local officials to use their newly acquired power and resources to promote economic development at the cost of environmental protection, which further intensifies the economic driving forces. Furthermore, the decentralisation process and the dual identity of local governments have forged alliances between local governments and the private sector, *e.g.* the alliance between some tourism developers and the local government in the SCR-NMNR (see section 5.6.2), and between the industrial fishing sector and local fishery authority in the LRML-NNR (see section 7.6.2). What characterises decentralisation in China is a series of incomplete devolutions, *i.e.* decentralisation of power and authority to lower-level governments without measures to promote transparency, accountability and democratic representation (Gong 2006). All three case studies demonstrate that this incomplete transfer of power has shown some major disadvantages of decentralisation, *i.e.* institutional capture, increasing rent-seeking behaviour, resistance to national environmental regulations and power imbalances, without showing the main advantages of devolution, *i.e.* promotion of equity, local

stewardship and participation. Incomplete devolution and the formation of local government-private developer alliances undermines the authority of conservation agencies and leads to further marginalisation of small-scale resource users. This further complicates the social conflicts and makes it a difficult task to govern MPAs in a fair and equitable way.

Finally, the cultural driving forces that shape the way people view and interact with the marine environment cannot be ignored. In all three case studies, the majority of local resource users indicated that they support the achievement of the main MPA objectives, but this is largely based on the expectation that MPAs can deliver economic benefits (*e.g.* in terms of job opportunities and protection from incoming exploitation pressure to users) (see Tables 5.4 and 7.2). This reflects a major divergence between the utilitarian view towards the marine environment, which prevails among resource users and local communities, and the scientific and preservationist principles that underpin the formulation of MPA regulations and management objectives, particularly the no-take regulation. There has not been any strong opposition to MPA management amongst local communities so far, as national MPA regulations are only partially enforced and local small-scale users are often protected from law enforcement. However, where attempts have been made (*e.g.* in regulating entry to clam fishery in the LRML-NNR, see section 7.6.4), opposition and resistance from communities is clear. The establishment of modern protected areas is often viewed as bearing the fruits of western enlightenment thinking, in which nature is portrayed as something pristine and wild (Adams and Hutton 2007). MPA policies and regulations that are based on such thinking are indeed in conflict with local understandings of nature as stocks of resources serving human interests, which may potentially lead to sharper conflicts between MPAs and local communities.

To summarise, the problems encountered in governing MPAs in China come from the challenge to conserve nature in an era of rapid economic growth

coupled with incomplete decentralisation and a dominant utilitarian view towards the marine environment, in which economic development is given an overwhelming priority and any initiatives that hinder short-term economic growth may generate political tensions and local resistance, as well as the challenge to address social equity and justice in a society where there is a historical and continued lack of government accountability and democratic participation. In fact, the challenges to MPA governance to a large extent mirror the challenges to the governance of socio-economic development in China (see Chapter 2, particularly the Concluding Remarks). The success or failure of governing MPAs in such a society depends on how a set of key conflicts are addressed, or how well balances are made between achieving high economic growth rates and environmental sustainability, between national and local priorities, and economic growth and social equity. The section below examines how effectively these conflicts are being addressed in MPA management.

8.2 The effectiveness of MPA governance in addressing key conflicts

As shown in the previous chapters, there are differences and similarities in the governance of the three case study MPAs. This section summarises and compares these differences and similarities in two areas:

- 1) Governance structures, *i.e.* the role of different actors in governing the MPAs and the power relationships between them
- 2) Effectiveness of different steering mechanisms, *i.e.* state steering, economic instruments and community participation, in addressing the key conflicts in MPA management

8.2.1 Differences and similarities in governance structures in the three case studies

Due to the differences in their socio-economic and institutional contexts, there are considerable differences in the governance structures between the three case study MPAs. These differences can be found in the following three areas (Table 8.1):

1) The degree of decentralisation of management authority.

In both the SCR-NMNR and the LRML-NNR, the authority to manage and enforce MPAs is devolved to provincial (higher-level) governments, however, in the BSSRW-NNR, the authority lies within the Wudi county (lower-level) government. This means that the SCR-NMNR and LRML-NNR Management Authorities are relatively independent of local governments compared to the BSSRW-NNR Management Authority. A degree of independence from the local governments allows the SCR-NMNR and LRML-NNR Management Authorities to take some decisions and actions against the will of local governments, as seen in the divergence between the provincial and Sanya municipal governments in the issuing of sea use rights (see section 5.6.2), and stricter enforcement against illegal industrial fishing protected by the local fishery authority in Leizhou (see section 7.6.2). Even in these two cases, compromises have been made between provincial and municipal governments, *e.g.* the pending of decisions on sea use rights in the SCR-NMNR, and retaining of the authority to sanction illegal fishing operators by the local fishery authority in the LRML-NNR. However, it is much more difficult for the BSSRW-NNR Management Authority to challenge the decisions made by the municipal government, as the former is essentially appointed by and serves the interests of the latter (see section 6.6.2).

2) The roles and influence of the private sector in MPA management.

Among the three case study MPAs, the SCR-NMNR has seen much more

positive contributions from the tourism sector compared to the other two MPAs, although some negative impacts on governance from the increasing influence of the tourism industry are also evident (see table 5.5). This is mainly due to the relatively convergent objectives between the development of the tourism industry and nature conservation, which in combination with other incentive programmes (*e.g.* the issuing of exclusive sea use rights to tourism developers), created the basis for cooperation. In comparison, due to the relatively divergent objectives between industrial development and nature conservation, the private sector in the BSSRW-NNR and industrial fishing operators in the LRML-NNR have been largely excluded from MPA decision-making and management processes. Furthermore, they have been able to exert a negative influence on MPA governance through their political influence and/or buying off local officials in exchange for protection of illegal operations (see sections 6.6.3 and 7.6.2).

3) The degree of participation from local communities.

In both the SCR-NMNR and LRML-NNR, local communities have participated in community outreach activities and assisted in law enforcement against incoming fishing fleets, often through the provision of information and additional manpower for enforcement (see sections 5.6.5 and 7.6.4). In both MPAs, efforts have been made to provide important benefits to local communities and to promote their participation in MPA management, such as the provision of alternative livelihoods and reduction in incoming fishing pressure (see Tables 5.3 and 7.3). In comparison, there has been no genuine effort in the BSSRW-NNR to encourage participation or to promote alternative livelihoods. Although the BSSRW-NNR can potentially provide important benefits to local communities through slowing down the expansion of industries and promoting local stewardship, such potential has been greatly reduced, due to its ineffective enforcement (see section 6.6.5).

Table 8.1 The differences between the three MPAs in terms of their governance structure and the incentives and steering mechanisms used to address the key conflicts in MPA management.

	Sanya Coral Reef National Marine Nature Reserve (SCRN-MNR)	Binzhou Shelly Sand Ridge and Wetland National Nature Reserve (BSSRW-NNR)	Leizhou Rare Marine Life National Nature Reserve (LRML-NNR)
Governance structure			
The degree of decentralisation of responsibilities in financing, managing and enforcing MPAs	Devolved to the provincial government	Devolved to the municipal government	Devolved to the provincial government
The roles and engagement of the private sector	Participated in MPA management with both positive and negative contributions	Excluded from MPA management and exerting a negative influence on MPA governance through connections with local officials	Excluded from MPA management and exerting a negative influence on MPA governance through connections with local officials
The degree of participation from local communities	Participating in outreach and law enforcement activities	Little or no community participation	Participating in outreach and law enforcement activities
Incentives and steering mechanisms used to address the key conflicts			
The conflict between biodiversity conservation and economic development	Market-based incentives (provision of development opportunities, alternative livelihoods and sea user rights to tourism developers)	Negotiations and compromises on the size and configuration of the MPA	Market-based incentives (TLF scheme) and law enforcement against incoming industrial fishing fleets
The conflict between national and local governments	Separation of MPA management authorities from local governments	Negotiated decision-making guided by well-established national guidelines and protocols	Separation of MPA management authorities from local governments
The conflict between elite/capitalist and public interests	Not addressed	Not addressed	Strengthening law enforcement against incoming industrial fishing fleets

Despite these differences, MPA governance structure in the three case study MPAs share some important characteristics. The same pattern of power relationships between the key actors, *i.e.* the state, local governments, the private sector and local communities, has been observed in all three MPAs. This pattern is characterized by:

- 1) An unenthusiastic central state, which often adopts a non-interventionist strategy in MPA management and law enforcement, as long as the MPAs exist on paper. In all three case study MPAs, a lack of political will, resources and oversight from the central government to support MPA management and enforcement is one of the main reasons that national policies cannot be implemented, and obvious breaches of environmental regulations are often tolerated (see sections 5.6.1, 6.6.1 and 7.6.1). In managing a national marine reserve (marine reserves declared by the State Council), according to the Regulation on Nature Reserves and the Law on Sea Use Management, the central government still retains the ultimate authority in interpreting and overseeing the enforcement of environmental regulations, as well as the responsibility to assess proposals for economic activities within national marine reserves before approving such proposals (see section 3.6.3). However, in reality, a diverse array of development activities, including tourism developments in the SCR-NMNR (see point (3) in section 5.6.1) and the construction of the Binzhou Harbour and a sewage discharge channel in the BSSRW-NNR (see sections 6.6.2 and 6.6.3), were carried out without prior permissions from the central government. Inactions from the central government to a degree encouraged breaches of environmental regulations. The result is that in all three MPAs, there is a huge gap between what is written on national regulations regarding how MPAs should be managed and what has been enforced. It should be noted, however, when clear regulatory provisions exist, *e.g.* the rules on resizing MPAs and the prohibition of industrial developments within MPAs (see

section 6.6.1), it is easier for national conservation agencies to intervene directly.

- 2) Corporatised local governments, which are keen to influence and dominate MPA decision-making and law enforcement to promote their own political (*e.g.* more opportunities for local officials' promotion) and economic (*e.g.* more development opportunities as well as illegal personal gains) interests. In all three cases study MPAs, the powerful alliances between the local governments and the private sector (tourism industry in the SCR-NMNR, industrial sector in the BSSRW-NNR, and the industrial fishing industry in the LRML-NNR) have resulted in imbalances of power in governing MPAs and the over-exploitation of natural resources by few governmental/corporate users, with negative impacts on both biodiversity conservation and community empowerment. As pointed out in the discussion in section 6.8, local governments in China are often the *de facto* developer, and are often left to regulate themselves and the local economy. This further encouraged the rent-seeking behaviour and increased local governments' incentives to promote corporate development at the cost of the environment and local communities.
- 3) A growing private sector, which can both strengthen or undermine MPA governance by forming alliances with government institutions. As discussed previously in this section, the roles of the private sector vary among the three MPAs. However, a common trend in all three MPAs is the penetration of the private sector into the political sphere through developing webs of connections with local and higher level officials in order to enhance its own interests, *e.g.* through developing joint business ventures and sharing profits with local governments (see sections 5.6.3 and 7.6.2), or through their memberships at high-level polity such as the National People's Congress (see section 6.6.3). This is consistent with the overall trend in the broader

Chinese society (see section 3.4.2).

- 4) Silent communities, which remain excluded from MPA decision-making processes in all three case study MPAs. Although communities in the SCR-NMNR and LRML-NNR have participated in some outreach and law enforcement activities (see discussions above), their roles in other areas have been minimal. Local communities have extremely limited influence on the making of key decisions, such as the size and configuration of a MPA (see section 6.6.5) and the allocation of resource use rights (see sections 5.7.2 and 6.7). Nor are they aware of the conservation agenda and official regulations that may have a significant impact on their livelihoods following the establishment of a MPA (see section 7.6.4).

Community participation in MPA management in China still faces important obstacles, which include a lack of legal and other institutional basis for the rights of communities to participate in MPA-related policy and decision-making processes, a lack of representative and accountable grass-root village organisations with the capacity to protect and promote the rights of communities (*e.g.* the refusal from the Ximao Village Committee to publicise information on the use of compensation funds in the SCR-NMNR, and a lack of leadership and marketing skills in the Zhangnan Village Committee in securing TLF funds for the development of mariculture (see sections 5.7.2 and 7.6.3), and the dominant utilitarian views towards the marine environment (see discussions above). In addition, communities in all three case study MPAs have seen their access to and stewardship of natural resources being deprived or threatened due to the government-sponsored expansion of private developers (tourism developers in the SCR-NMNR, chemical companies in the BSSRW-NNR, and industrial fishing operators in the LRML-NNR, see sections 5.7.2, 6.7 and 7.7), which has led to the further marginalisation of traditional and small-scale producers, as well as

escalated conflicts and mistrust between communities and governments/developers. This is arguably the most important source of social inequity and obstacle for achieving a balance of power in governing MPAs in China.

8.2.2 The effectiveness of steering mechanisms in addressing key conflicts

Murphree (2004: 227) suggests that in transitional southern African societies, key conflicts parks face are a subset of two confrontational fault lines that challenge the future of such societies: conflicts over conservation and development goals, and conflicts over central and peripheral interests. In the context of protected areas, the first set of conflicts pits long-term biodiversity conservation goals against short-term subsistence and development needs, and the second set of conflicts pits the interests of local populations against those of centrist politics and capital (*ibid*). Murphree's analysis of conflicts faced by parks in southern African societies also applies to protected areas in the transitional Chinese society, but with one important difference: in China the 'centre' itself is divided, as seen from the inconsistencies and tensions between the central state and local authorities in MPA management and decision-making (see sections 5.6.2, 6.6.2 and 7.6.2). This is consistent with Agrawal and Ostrom (2001)'s observation that within a state there are '*hierarchically arrayed entities with opposed interests*'. As discussed in section 8.1, the challenges in governing MPAs in China are therefore part of the challenges to address three sets of key conflicts in the Chinese society: conflicts between environmental conservation and economic development goals, between national and local priorities, and between elite/capitalist and popular interests.

In addressing the conflicts between biodiversity conservation and economic development, different incentives and steering mechanisms have been used in the three case study MPAs (see table 8.1). These include the use of economic

instruments (*e.g.* tourism development, provision of alternative livelihoods, and the allocation of exclusive sea use rights), which are often supported by relevant government policies and regulations (*e.g.* the TLF policy and the Law on Sea Use Management). Improved law enforcement can also be a way to reduce the conflict between biodiversity conservation and natural resource exploitation, *e.g.* law enforcement against destructive industrial fishing provides benefits to both ecosystems and local communities in the LRML-NNR. In the BSSRW-NNR, the conflict between conservation and economic development needs has been mitigated through negotiations and compromises between the central and local governments on the size and configuration of the MPA. However, it can be concluded that despite the use of these different incentives and mechanisms, given the growing demand for natural resources and the continuity or even intensification of most economic activities within the MPAs (see sections 5.5, 6.5 and 7.5), more efforts will be needed to stabilise and alleviate economic pressures on coastal and marine resources.

In addressing the conflicts between national and local priorities, a common practice in both the SCR-NMNR and the LRML-NNR has been the separation of MPA management authorities from local governments, as a move to strengthen the intervention from provincial and national conservation agencies and to ensure a degree of independence of MPA management authorities from local interests. However, the effectiveness of this strategy remains limited, as in both the SCR-NMNR and the LRML-NNR, the management authorities receive very limited funding and political support from the central government and they are not prepared to sanction law breakers from within the government (see section 5.6.1) or to tackle the problem of corruption and patronage, which lies at the centre of government-sponsored environmental destruction (see section 7.6.2). A notable achievement in MPA governance in the BSSRW-NNR has been the reaching of compromises between the central and local governments during the resizing process, guided by well-established national guidelines and

protocols, which allows the delivery of benefits for both central and local governments.

Finally, the conflicts between elite/capitalist and popular interests have not been addressed in the SCR-NMNR and BSSRW-NNR. As discussed in the section above (8.2.1), community stewardship of natural resources has been undermined in all three MPAs, due to the joint forces between local governments and private enterprises. MPAs may directly or indirectly encourage the exploitation of local communities by prioritizing tourism developments over small-scale fishing (as in the case of the SCR-NMNR, see section 5.7.2), or failing to protect the interests of local communities (as in the case of the BSSRW-NNR, see section 6.7). The LRML-NNR Management Authority has taken measures to strengthen fishery law enforcement against the will of the local fishery authority and the industrial fishing sector, but to what extent their efforts can foster a sense of community stewardship is questionable, given the limited resources and capacity of the LRML-NNR Management Authority and the fact that the MPA is located in a sea of illegal industrial fishing (see section 7.7).

8.3 Strategies for improving MPA governance

It has been clear from this study that the key problems encountered in governing MPAs in China are deeply rooted in the weaknesses of both state and community institutions and the overall power relationships between the state, local governments, the private sector and communities in the Chinese society. While recognising that many of such wider-scale institutional and social problems cannot be fully addressed in the short-term, efforts can be directed to enable a better balance of power in MPA governance through the empowerment of both conservation agencies and local communities. Major weaknesses have been identified in MPA governance in relation to the use of legal and economic

instruments, central-local coordination in decentralisation processes, and in relation to community participation (Tables 5.5, 6.1 and 7.4). Improvements in the following six areas can potentially lead to more sustainable and equitable MPA governance.

8.3.1 *Reforming the legal framework*

The current legal approach to MPA regulations presents an ambiguous, unrealistic and ‘one-size-fits-all’ prescription for MPA management in China. At first glance, governing MPAs in complex socio-political conditions such as those in the three case study MPAs through the seven-page Regulation on Nature Reserves seems to be an impossible mission. The vagueness in the official regulations has left room for misinterpretation and over-exploitation (such as in the case of the SCR-NMNR, see section 5.6.1). Secondly, designating large strict nature reserves in densely populated areas experiencing rapid economic growth has proven to be unenforceable in all three MPAs and its rationale poorly understood and supported by local governments and stakeholders (*e.g.* see perspectives from local fishermen in section 7.6.4). Over 90% of the total area of MPAs in China has been designated as no-take marine reserves. This creation of *de jure* full protected, but poorly enforced MPAs is counterproductive to conservation efforts, whilst providing a veneer of apparent protection (Qiu et al. 2009). This ‘one-size-fits-all’ approach rules out the chances for local adaptation and support, as a senior official from the Guangdong Provincial Government pointed out:

*I think the biggest problem in MPA management lies in the legal framework. It is impossible to fully enforce the national regulations here, but we cannot pass laws in our province that override or conflict with national ones.*¹⁴²

¹⁴² Interview with an official in the Guangdong Province Ocean and Fisheries Department (LZPOM), May 2007.

The problems encountered call for a more diversified and comprehensive legal framework with clear and consistent conservation mandates, as well as scope for local discretionary action to induce compliance. One way of achieving this is through the development of a system of well-integrated and mutually supportive regulations at international, national and local levels, which combines strategic directions with mechanisms for local actions (Day 2006). This is essentially a form of ‘nested hierarch’ recommended by Ostrom et al. (2002), but with a degree of top-down control. International environmental policies and conventions have always been an important impetus for the Chinese government to take concrete actions in protecting the environment. As a signatory to major international conventions, China has committed to the achievement of global targets for MPAs, for example the target of effectively conserving at least 10% of the marine environment within MPAs by 2010, established under the Convention on Biological Diversity (UNEP 2004). The progress in achieving these global MPA targets has been slow in China. Currently less than 2% of China’s seas are designated as MPAs (see section 3.6), and the effectiveness of protection is questionable in most designated MPAs. China is not unique in its failure in meeting global MPA targets. According to Wood et al. (2008), meeting even the most modest international MPA target will be postponed by several decades globally. In the context of China, adhering to such international targets for MPAs, particularly for no-take MPAs, may not be a good approach. Such ‘dangerous targets’ may represent ‘*enthusiastic prescription of simplistic solutions to marine conservation problems*’ (Agardy et al. 2003: 353), which is counter-productive to conservation efforts in China. International treaties and conventions may however enhance the political will for conservation. For example, the creation of the World Heritage in Danger list puts political pressure on individual states to strengthen conservation measures in World Heritage sites, as in the case of Galápagos Islands (Carroll 2010). China has 40 World Heritage sites, most of which are cultural sites, but none of them contain any marine

components (UNESCO World Heritage Centre 2010).

For national MPA legislations, Gibson and Warren (1995) suggest a two-tier structure, which involves both primary and secondary measures. This recommendation is based primarily on the experience with MPA legislation in the UK; however, it may help overcome the problems raised by the ‘one-size-fits-all’ approach currently in place in China. As the social and ecological contexts for MPA management vary greatly between different locations, greater flexibility can be achieved by combining the primary legislation, which often takes the form of a national law or act, with secondary legislation enacted by a particular ministry or local government legislative body (*ibid*). The primary, or national legislation should establish an overarching framework with a set of principles and grounding rules to ensure clarity and consistency in secondary legislations. The secondary legislation can supplement the national legislation by establishing more detailed rules and protocols for enforcement, often tailored to the context of a MPA or MPAs within a specific jurisdiction. The development of secondary legislation can provide partial autonomy for local governments and other local actors in devising rules that govern the management of MPAs within a particular MPA or jurisdiction, which may potentially lead to greater legitimacy of the rules and better compliance from local stakeholders. Such local autonomy and subsidiarity are key conditions in successful common-pool resource governance (Ostrom et al. 2002) and successful decentralisation in natural resource management (Ribot 2002), albeit decentralisation must provide for compliance with the objectives of the primary legislations. A degree of state control is an inherent part of such decentralisation.

In general, national legislations for MPA management should cover the following areas (Gibson and Warren 1995; Kelleher 1999):

- 1) The delegation of power to designate and regulate MPAs to particular government ministers and public entities
- 2) The objectives and purposes for which MPAs may be established
- 3) Principle rules and restrictions to be imposed and the kind of activities that may be controlled
- 4) Offences and prescribing penalties
- 5) Mechanisms for inter-agency coordination and resolution of potential conflicts among different government departments, statutory bodies and local authorities exercising administrative functions in the coastal zone
- 6) Precedence between MPA management and other activities (*e.g.* fisheries, shipping and defence) in the coastal and marine areas
- 7) Statutory requirements for public consultation and participation
- 8) Criteria and arbitration mechanisms for interpretation, decision-making and evaluation
- 9) Compensation to affected users and communities

Comparing the list above with China's national legal framework for protected areas reveals major problems and gaps in the current framework. First of all, the Regulation on Nature Reserves prescribes an unrealistic and 'one-size-fits' all approach to the management of all protected areas under areas 2) and 3) in the above list, as discussed above. Fully protected nature reserves have been viewed as the only legitimate protected areas in China until very recently, as there has been a lack of laws and regulations for other types of protected areas (PATF 2004). Recognising the failures of many fully-protected nature reserves in China, there have been calls for an integrated and consistent legal framework that provide for the management of different categories of protected areas, from fully protected nature reserves to multiple-use areas managed primarily for

sustainable exploitation, similar to the IUCN protected area categories (PATF 2004). National MPA legislation can include such provisions under areas 2), 3) and 8), establishing the objectives, levels of protection and minimum environmental standards for different categories of MPAs.

In addition, the weakest areas in the current legal framework for protected area are those related to 5), 6), 7), 8) and 9) in the above list, with no detailed provisions being established. Detailed provisions in any of these areas will inevitably have major political and economic implications and may lead to conflicts and resistance, as they touch upon the relationship between different government authorities, rights of the public to participate in protected area policy processes, the setting of performance standards for MPA management, and local users' entitlements to compensation for opportunities forgone, which are all critical issues in determining the long-term success of a MPA. However, the lack of these provisions has led to many problems encountered in the use of legal instruments in the three case study MPAs, such as a lack of cross-jurisdictional and cross-sectoral cooperation, a lack of clarity and consistency regarding how and to what degree different economic activities can be accommodated in MPAs, and a lack of institutional basis for organised community participation (Tables 5.5, 6.1 and 7.4). These issues will largely remain unsolved without improving clarity in the legal framework and transparency in enforcing this legal framework.

In fact, many problems and gaps in the existing legal framework for protected area management in China have long been recognised. The National People's Congress, the national legislative body, has been going through a decade-long process to review existing regulations and establish a new law on protected areas. The key proposed changes focus on enhancing clarity regarding the responsibilities of and cooperation between different government ministries, the

role of the central and local governments in financing protected areas (with the proposed changes requiring the central government to secure funding for all protected areas designated at the national level), providing for the management of different categories of protected areas, and the requirements for conducting socio-economic assessments before designating a protected area (Sun and Chen 2004). If all the proposed changes can be included in the new protected area law, it will allow some of the problems and gaps to be addressed. However, the process of passing the new law has been significantly delayed in the past eight years, mainly due to the disputes amongst different government ministries (environment, forestry, marine and agriculture) on the allocation of authority (which falls under area 1 on the above list), leading to a ‘turf battle’ that often becomes a nightmare in the making of environmental policies (Yaffee 1997).

8.3.2 Strengthening law enforcement for MPAs

The lack of law enforcement has long been recognised as a key problem undermining the effectiveness of protected areas (Abbot and Mace 1999; Bruner et al. 2001; Mora et al. 2006). Enforcement is considered to be more challenging in MPAs than their terrestrial counterparts due to the logistic and budgetary requirements for policing large marine areas (Jones 2006). To strengthen law enforcement for MPAs, improving the legal framework, as discussed above, is a necessary first step, but is far from being sufficient. This is because the effectiveness of law enforcement is also heavily influenced by other factors, such as the financial and technological resources available for law enforcement, the political will for strengthening rule of law, equality in law enforcement, availability of various forms of compensation, and the legitimacy of rules imposed.

Ensuring sufficient and sustainable levels of funding from the central

government, at least for MPAs designated at the national level, remains a key priority for improving the management and governance of MPAs in China (Qiu et al. 2009). In all three case study MPAs, law enforcement has been hindered by a lack of funding from the central and local governments (see Tables 5.5, 6.1 and 7.4). Frequent patrolling in the sea may be costly but there are both traditional and new ways of reducing the costs. For example, it is a common practice for tourism operators and fish farmers in China to place guards on floating wooden houses in the sea to patrol tourism areas and fish farms. In the SCR-NMNR, areas patrolled by tourism companies in this way seem to be better guarded than other areas in the MPA (see section 5.6.4). These floating houses are mobile and can be anchored in different locations within a MPA. They provide a low-cost exclusion technology for MPAs, which is one of the critical enabling conditions for successful governance of common-pool resources (Agrawal 2002). The use of modern technologies, such as vessel-monitoring systems (VMS) and satellite technology can also greatly improve the efficiency of law enforcement (Anon 2000; Roberts 2003; Jones 2006). Some long-distance fishing boats in China are required by law to install VMS when they fish in foreign EEZs and high seas, but most inshore fishing boats (including industrial and small-scale fishing boats) do not have such VMS installed. However, the application of such advanced technologies in marine inspections is beginning to be explored in China. For example, there have been ongoing discussions between the Sanya Ocean and Fisheries Bureau and marine research institutes in developing satellite surveillance systems to monitor illegal sand mining activities. Illegal activities such as sand mining in the sea result in heavy economic losses and affect other important marine sectors such as maritime shipping, tourism and oil-and-gas industry (Yang 2010); therefore there will be growing interests in the application of new technologies to oversee such activities, which can also be used in enforcing MPAs. Finally, 'peer' enforcement by small-scale fishers and village committees can also help increase the effectiveness of law enforcement and reduce the costs of

enforcement activities. This is already a practice in the SCR-NMNR and LRML-NNR, but the cooperation between the MPA management authorities and local fishers or village committees can be enhanced by promoting local stewardship and participation.

A second critical factor is the political will to enforce laws and regulations even under circumstances that may lead to political tensions and local resistance. Like many other parts of the world (Robbins 2000; Smith et al. 2003; Laurance 2004; Standing 2008), corruption and extralegal exchanges that allow illegal access to natural resources such as coastal land, mudflats and fishing grounds, are rules not exceptions in China, and this lies at the centre of resource over-exploitation problems. Environmental law enforcement in China is often shaped by competing values and priorities, vested local political and economic interests, and the discretion of enforcers (Dasgupta et al. 1997; Tilt 2007). Enforcing MPAs is no exception (see the last paragraph in section 5.6.1). Worldwide, there is a lack of effective strategies for addressing the problem of institutional capture by corporate interests in natural resource management, as Whitten et al. (2001: 2) rightly point out: *'there was a failure by many to find effective means of entering into dialogue with those big players who owned the business conglomerates and who exerted "influence" over more humble officials who made the planning and land-use decisions. Gaining access to such corporate interests and encouraging them to forge a sustainable path proved difficult, and when it did occur there was little effective action'*. Increasing transparency and public access to information (Standing 2008), and strengthening the enforcement of international and national anti-corruption laws and agreements (Laurance 2004) are both potential solutions towards the problem. Implementing both will, however, require an unprecedented level of political will for continued opening-up of China's socio-political systems and strengthening the rule of law, as endorsed at the 17th National Congress of the Communist Party of China (People's Daily, 25 October 2007). The Chinese believe that *'where there is a*

will, there is a way', whatever the strategy for improving MPA governance is, a sufficient level of political will must pave the way for future changes and reforms.

Having recognised the importance of establishing and enforcing ground rules to increase compliance amongst potential free riders (Jones 2006), other measures and incentives are also needed to ensure that such free riders represent only a minority of user communities. Kelleher (1999) acknowledges that '*it is absolutely unrealistic to manage primarily on the basis of enforcement in the face of general public hostility or to apprehend every breach of regulation*'. There are a number of measures that can be applied to enhance awareness of and compliance to MPA regulations. Such measures include promoting public consultation and community participation in making important decisions (Jones 2006), *e.g.* in determining the management objectives, size and configuration and restrictions on access to natural resources. In addition, another set of incentives, aimed at improving local livelihoods and empowering local communities, can also play an important role in promoting community participation and compliance with MPA regulations (Jones 2006; Xu and Melick 2007). These measures include the promotion of small-scale development initiatives, alternative livelihoods, community stewardship and fair sharing of economic benefits from MPA management. All these measures will be discussed in detail in the following sections. The effectiveness of law enforcement can also be increased through collaborations with village committees, particularly in reducing illegal industrial fishing, as in the SCR-NMNR and LRML-NNR (see sections 5.6.5 and 7.6.4).

8.3.3 Strengthening state steering in decentralisation

As discussed in Chapter 2, the thinking on role of the state in relation to other

economic and civil society actors in governing societal affairs and protected areas has evolved with the emergence of new modes of governance. The role of the state has been challenged in neo-liberal and neo-institutional views on governance, but as highlighted by several commentators (see sections 2.2.1), the capacity of the state to steer, perhaps through different tools and mechanisms, is still of vital importance even in 'new governance', considering the various constraints of governing through the market and/or community institutions, as well as their dependence on supportive legal and other government institutions. Ribot (2002: 2) argues that in natural resource governance, '*decentralization is not about the downsizing or dismantling of central government; rather, it calls for mutually supportive democratic central and local governance*'.

As discussed in section 8.1, what characterises decentralisation in China is a series of incomplete devolutions, *i.e.* decentralisation of power and authority to lower-level governments without financial and technical resources and accountability. This is consistent with the finding that democratic decentralisation is rarely implemented in natural resource management, particularly in developing countries (Hutton et al. 2005; Larson 2005). In China, the state's responsibility in ensuring successful decentralisation may be even greater than in other countries, as local officials are upwardly accountable, because they are appointed by higher hierarchies, rather than being elected by citizens. Although politically difficult, the Chinese government still possesses the means and capacity to steer local governance.

The central government can influence local governance through legal interventions. The approach adopted by the central government currently is characterised by a high level of retention of legislative power, coupled with significant decentralisation of enforcement responsibility, often without financial and technical resources. In a devolved governance system, a better way of steering can be achieved through devolving more legislative power and

resources to local levels, but developing the strength in performance evaluating and ensuring that a set of minimum environmental standards are achieved (Ribot 2002; Child 2004). Monitoring existing ecological and social conditions and regular performance evaluations are key requirements for effective conservation institutions (Barrett et al. 2001). However, the existing capacity for monitoring and evaluation is weak (Qiu et al. 2009; see section 5.6.6). A lack of systematic monitoring and evaluation in MPAs may result from the under-valued role of science and scientists in decision-making (discussed later in section 8.3.6), and a lack of political will to objectively evaluate the management effectiveness of MPAs.

The central government can also influence local governance through administrative means. Despite three decades of decentralisation, the central government still retains the power to appoint, promote, or remove local officials (see section 3.4.2). This power has been used by the central government to ensure two key national priorities, family planning and green house gas emission reduction, are adequately addressed at local levels. If local officials at the provincial or lower levels fail to meet the targets in any or the two areas, they cannot be considered for any awards or promotion, regardless of their accomplishments in other areas (Zhang 2004). This has been recognised as the ‘one ballot veto’ in target-based local cadre performance evaluation, and has recently been applied to control carbon emission at local levels. This requires local officials and heads of large state-owned enterprises to strictly adhere to their assigned targets on emission reduction and energy efficiency, with detailed monitoring criteria being issued (Xinhua News, 29 November 2007). According to one media report, over 50 officials have been sacked or punished due to failures in controlling emissions during the past two years of implementation of this ‘climate-veto’ system, which represents a shift from the ‘GDP worship’ in the previous cadre evaluation system (China Youth News, 13 June 2010). The Ministry of Environmental Protection is already exploring the possibility of

developing similar environmental targets as one of the assessment criteria for officials, particularly in the rural areas where large sums of investments have been made by the central government to improve environmental quality (Zhang and Zao 2010). This can provide a strong incentive for local officials to fulfil their obligations in environmental protection, with protected area management effectiveness being one of the key indicators of environmental quality.

Finally, the central government can also steer through economic policies and incentives. These can include measures such as tax rewards for local governments who have contributed to the achievement of national targets in environmental protection and state-administrated funds for developing greener industries and more sustainable rural livelihoods, an example being the use of TLF funds for fishery resource conservation (see section 7.6.3).

To conclude, improving MPA governance in China requires strengthening, not weakening the steer from the central state. This contradicts the view that the state should not exert a degree of control on local common pool resource institutions (Ostrom et al. 2002). However, the steering role of the central state is not restricted to legal and political control. The state can also influence local institutions through markets, rather than by markets as prescribed in liberal economic policies (Mirowski 2009).

8.3.4 Downscaling economic development within MPAs

The relationships between biodiversity conservation, economic development and social equity in protected area management have long been debated. Three approaches in conservation have been identified previously in Section 2.4. The classic, command-and-control approach sees economic development in local communities as a key threat to biodiversity, the community-based approach sees community participation and empowerment as essential for more sustainable use

of biodiversity, and the neo-liberal approach seeks solutions to conservation problems through adding market values to biodiversity. It is worth noting that the latter two approaches are reconciled in neo-institutional studies through the provision of property rights to local communities and local autonomy in devising and enforcing resource access rules, as Agrawal and Ostrom (2002: 77) argue: *‘in the overall discourse about development, the co-existence of strategies that advocate the market and the community as possible agents of development can be seen as the attempt to pursue two conflicting objectives [growth and equity] through different institutional instruments’*.

In the context of China, fully-protected and no-take MPAs only exist on paper, therefore the command-and-control approach was attempted, but to a degree ineffective (see sections 5.6.1, 6.6.1 and 7.6.1). The community-based approach is rare, given that community stewardship and participation is not an explicit goal in any of the three case study MPAs. It would seem that the three case study MPAs are managed primarily through a neo-liberal approach, by accommodating multiple ‘compatible’ uses (see sections 5.5, 6.5 and 7.5) and promoting ‘win-win’ scenarios between conservation and development. The dangers of relying on such a neo-liberal approach are clear, as local governments and stakeholders all decide whether or not they want to support a MPA based on a standard cost-benefit economic analysis. As Redford and Adams (2009) pointed out, markets can undermine or crowd out other non-economic justifications for conservation (see section 2.4.4). When the short-term costs of conservation outweigh the benefits, MPAs risk losing their supporters (see sections 5.6.2 and 6.6.2 on changing perspectives of local governments on MPAs). A key issue is that if conservation is only pursued when there are clear economic benefits, then it has very limited chance of success in China. In the face of strong economic driving forces, very few protected areas can be managed in a sustainable way if they act as the vehicle for driving two-digit GDP growth locally (*e.g* in the case of the SCR-NMNR),

or when no one is willing to give up the huge and ever-growing profits derived from alternative land or sea uses (*e.g.* in the case of the BSSRW-NNR). In such a context, conserving nature often requires a sacrifice from humans (Locke and Dearden 2005), particularly from high-impact corporate and industrial resource users.

A more sustainable and equitable approach in managing MPAs is to focus on improving the environment and promoting a greater and fairer share of benefits for local communities. While it may not be as profitable as other types of land and sea uses, MPA management can provide socio-economic benefits through scaling down rural development, and providing benefits to small producers, who are often not well absorbed by the market economy and marginalised in traditional ways of development (Sanderson and Redford 2003).

Strategies to reconcile conservation with community development in protected area management include community-based ecotourism, compensation and payments for ecosystem services, the establishment of biosphere reserves and buffer zones, integrated conservation and development projects (ICDPs) and small-scale fishing and agricultural practices (Brown 2002; Kiss 2004; Barton et al. 2009; also see Chapter 2). The success of such small-scale and community-oriented development initiatives is underpinned by several key factors. The first factor is the ability of MPA management authorities and/or community organisations to effectively reduce incoming exploitation pressure from corporate resource users. One of the main issues in common-pool resource governance is the inability to address root causes of biodiversity and its vulnerability to external pressures (see section 2.4.3). As revealed in all three case studies, communities cannot compete successfully with more powerful corporate or industrial users in gaining access rights to natural resources (*e.g.* the loss of land and sea use rights in villages in the SCR-NMNR and BSSRW-NNR), or to prevent or stop over-exploitation from non-local users (*e.g.*

industrial fishing fleets in the LRML-NNR). Controlling corporate user pressure can be achieved through strengthening the issuing of permits for tourism and other developers to operate in the MPA, and a system of evaluation can be established so that corporate investors can only be involved in developing activities in a MPA through providing financial and managerial resources to support MPA management and community-run initiatives. Strengthening law enforcement can also control exploitation from non-local users, such as in the LRML-NNR.

The second factor in promoting small-scale rural development, as identified to be a key factor in determining the success of common-pool resource governance, is the allocation of property rights to local communities (Agrawal and Ostrom 2001; 2002). This issue will be explored in detail in the next section.

The third factor in ensuring success in small-scale development is the supporting role of sub-national and national governments, particularly when community capacity is low (Barrett et al. 2001; Bradshaw 2003). This can start by reforming some existing agricultural and rural development policies, such as removing excessive fishing subsidies, and making government funds (*e.g.* the TLF funds for compensating fisherman who gave up fishing and supporting those who are developing alternative livelihoods) more accessible to small-scale fish farmers and producers (see 7.6.3), in order for them to develop new and more sustainable livelihoods. When conservation cannot provide direct economic benefits, compensation and payments for ecosystem services can also be an option, although this is rarely explored in marine conservation, probably due to a lack of clearly defined property rights regimes. In the terrestrial environment, China runs one of the world's largest payments for ecosystem services programme, with some 15 million farmers in 25 provinces participating in the Grain for Green programme (Xu et al. 2004; Uchida et al. 2007; Gauvin et al. 2010). The scheme requires farmers to set aside farm lands for soil and water

resource conservation, as well as reforestation; in return, they receive compensation in three forms: an annual compensation of grain and cash, and free tree seedlings in the beginning (Xu et al. 2004; Uchida et al. 2007). Similar markets for marine ecosystem services have been proposed by international organisations (FT/TKG 2010). The financial resources required for implementing community-based development or compensation schemes to support marine conservation can be drawn from a few sources, including redistributing part of the fishing subsidies, currently standing at US \$3.1 billion per year (Oliver 2008), or reinvesting a small proportion of the marine GDP, which reached 3.2 trillion Yuan (US\$ 471 billion) in 2009, equivalent to 9.53% of China's total GDP (SOA 2010).

8.3.5 Nurturing stewardship and social capital

Loss of access to natural resources is a key obstacle to the empowerment of local communities and the development of social capital in support of MPA management. In China, community autonomy in managing natural resources, which is seen as an enabling condition for successful common-pool resource governance (Ostrom et al. 2002), is and will be rare in the foreseeable future, given the deep penetration of government control in the socio-political system (Plummer and Taylor 2004). Even well-intended public participation in environmental initiatives in China, such as those mandated by the national Law on Environmental Impact Assessments, shows limited success so far, due to the highly selective and manipulated consultation processes, and limited public access to information and judicial services (Zhao 2010). Increasing community participation in MPA management will therefore not only require the state to establish a favourable policy environment that recognises the legal rights and entitlements of communities and encourages information exchange, dialogue and public involvement in decision-making, but more importantly, the empowerment of local communities, so that communities can have more

resources and capacity in influencing decision-making and defending their own interests. Two factors are key to the empowerment of local communities: the leadership, accountability and capacity of community organisations, and the allocation and protection of community property rights.

The success of both community-based development and local participation in MPAs management relies heavily on the accountability and capacity of grass-root village organisations. Village committees play an essential role in coordinating community affairs, providing a link between communities and external organisations, and securing much-needed government resources and investments to support development activities initiated by local communities, such as the small-scale fish farm owned by villagers in the LRML-NNR (see sections 5.7.2. and 7.6.3). More importantly, village committees often administer the distribution of government and compensation funds within the community, such as the land compensation fees in the SCR-NMNR (see section 5.7.2). If a village committee is accountable and has the trust and confidence from the communities they represent, measures should be taken to enhance its capacity and increase its roles in MPA management and decision-making. If however, a village committee lacks the accountability, such as in the case of the SCR-NMNR, efforts should be directed towards identifying additional or alternative community representatives, or to engage communities at individual household levels. Ways for holding village committees more accountable, such as publicizing information on the use and distribution of various funds, should also be encouraged. It is important for MPA managers to develop an understanding of the power dynamics within a village or community, without assuming that elected village committees have the legitimacy and capacity to coordinate and manage community affairs in a fair and equitable way. Inviting new partners, such as environmental NGOs discussed in the next section, can also help to mobilise communities and improve community governance.

The allocation of property rights enables and motivates local communities to devise and enforce a set of rules to manage natural resource use in a sustainable way (Agrawal and Ostrom 2001). As revealed in the SCR-NMNR and BSSRW-NNR (see sections 5.7 and 6.7), as well as in other studies (*e.g.* Börnera et al. 2010), without holding such property rights, communities are unlikely to secure an equitable share of benefits from development activities or compensation schemes in a MPA, and such benefits or compensation can easily be captured by a few private property rights holders. The allocation of use rights for all types of marine resource use in China's seas are now regulated under the Law on Sea Use Management, which serves as the basis for private developers to secure exclusive use rights over large marine areas previously used by local communities in both the SCR-NMNR and BSSRW-NNR (see section 5.7.2 and 6.7). However, from a legal perspective, local communities are equally entitled to such use rights (individually or collectively) under the provisions of the Law on Sea Use Management, only they are often not knowledgeable about such legal provisions or lack the access to legal services and advice. The designation of MPAs often alters existing property regimes (Mascia and Claus 2009), and protected areas are often seen as 'enclosures' for the state and/or big corporations to exclude local people (Neuman 2004a, also see section 2.4.1). However in China, true enclosures established by local governments and large private enterprises are becoming so common that protected areas, if designed and managed properly, can become a powerful mechanism through which corporate uses are 'fenced off' and vital resources can be reserved for the sustainable use of local communities (as opposite to the present reality, see section 6.6). This can be achieved by designating zones (*e.g.* traditional fishing grounds or community-development zones) for the exclusive use of local people, which can be a means to conserve nature whilst enhancing social equity.

It is also important to note that like other market-based conservation strategies, allocating property rights alone is rarely adequate for conservation, particularly

for species and habitats of low economic value and wider ecosystem- or landscape-scale conservation (see section 2.4.4). Such concerns can be addressed through explicitly linking property rights with MPA conservation objectives. For example, the allocation of property rights for small-scale fishing can be accompanied by restrictions on fishing area, season and the type of fishing gear, to ensure that such activities are sustainable and compatible with conservation (see section 7.7).

8.3.6 Inviting new partners

Compared to MPA initiatives in other countries, the undervalued role of scientists and NGOs have negative impacts on MPA governance. There is often a debate amongst the conservation community concerning the role of science in MPA initiatives (Jones 2001). Some argue that the selection, designation and management of MPAs should primarily be based on ‘expert’ science uncompromised by socioeconomic and political factors; since failure to do so may jeopardize the conservation goals. This is contrasted by the argument that the role of science should be confined to determining the principles and benefits of MPAs at a conceptual level, and site-specific decisions are better left to social and political processes (*ibid*). At least two of the three case study MPAs, the SCR-NMNR and BSSRW-NNR, have clearly taken the second approach, in which socio-economic and political interests usually dominate the decision-making arena (see sections 5.6.6 and 6.6.4). The downside of this approach is that when the role of science is undervalued in the planning, management and evaluation processes, conservation can easily fall into a faith-based and/or political agenda (Sutherland et al. 2004). Insufficient inputs from natural and social sciences have contributed to several key problems: the lack of robust MPA designs and sound monitoring and evaluation programmes (see sections 5.6.6 and 6.6.4), and failures to understand local power dynamics and identify the right community representatives in participation processes (*e.g.*

in the SCR-NMNR, see section 5.6.5).

There is little doubt that MPA decision-making processes in China need to value independent scientific advice, rather than engaging with the scientific community on an *ad hoc* basis, *i.e.* using science to justify socio-political interests and ignoring scientific advice when it conflicts with such interests. Considering that MPA designation and management often have to address local socioeconomic and political concerns, a ‘middle way’ may be to divide factors that may affect MPA effectiveness into those that can be negotiated through socio-political processes and those that are determined by nature and hence non-negotiable (Davis 2005). For example, in designing the marine reserve networks in California Channel Islands, most of the questions about what and how much habitats and populations should be conserved were based on non-negotiable ecological principles, while questions on how to allocate resources and share benefits and risks were decided collectively in a consensus-oriented process amongst different groups, including the use of local knowledge (*ibid*).

In addition, the role of social scientists is rarely recognized in MPA decision-making in China, but would be an essential complement to natural sciences. Social science can provide insights into many critical issues in MPA decision-making, such as the potential socioeconomic impacts of MPA establishment, local power dynamics and conflicts, and the needs and aspirations of local users (Christie et al. 2003; Mascia et al. 2003).

Finally, experiences in other countries have shown the importance of dedicated conservation NGOs in facilitating public participation and mediating people-park conflicts in MPA initiatives (Beger et al. 2005; Wescott 2006). Over the past three decades, China has seen an emerging civil society and both the number and influence of environmental NGOs are increasing (see section 3.4.3).

Given the historical and existing government-community conflicts in natural resource management, and a lack of trust and social capital between government agencies and local communities, government alone may not be able to handle the complex people-park conflicts, and encouraging the active involvement of environmental NGOs can help to facilitate genuine bottom-up participation in MPA initiatives in China (Jim and Xu 2003). In addition, the significance of environmental NGOs, particularly in China, is that they can be a key ally to the environmental agency. For example, the State Environmental Protection Administration (now the Ministry of Environmental Protection) has joined forces with environmental NGOs in several important and/or difficult initiatives, such as the call for a Green Olympics, shutting down some big polluters, and appealing against the decision to build dams in sensitive freshwater ecosystems (SIDA 2004). Given that most environmental and conservation agencies, even at the national level, are often in a weaker position compared to other big players, building partnerships with environmental NGOs can strengthen the force for environmental protection.

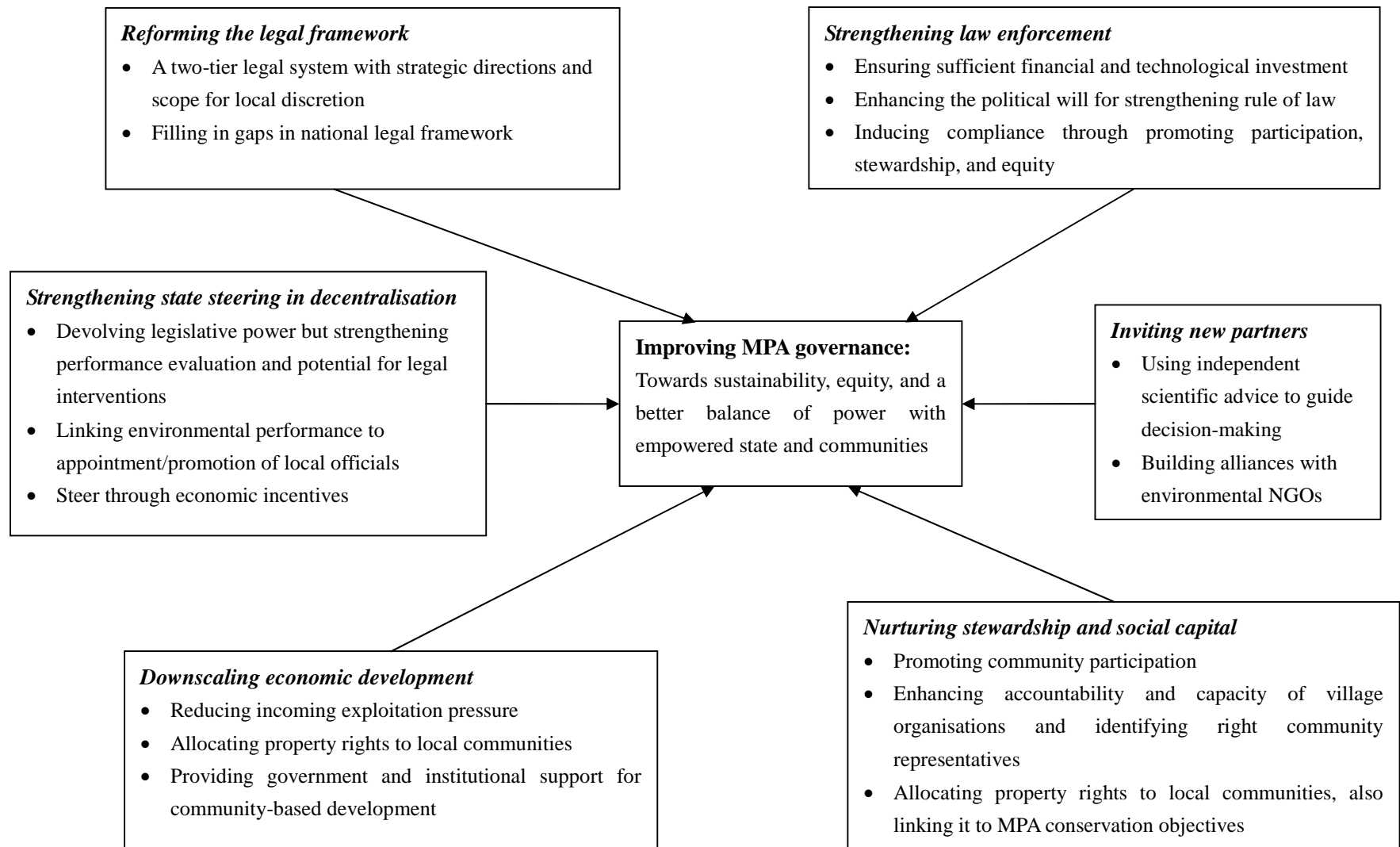


Figure 8.1 Measures to improve MPA governance, so that MPAs can be managed in a more sustainable and equitable way, and governed through a better balance of power with empowered state and local communities.

8.4 Priorities and prospects for change

The strategies listed above and in Figure 8.1 illustrate the areas of improvements required if a more balanced governance approach is to be developed. Each area of improvements can be seen as promoting or restricting the roles and influences of one or more actors, in order to achieve the key objectives in relation to MPA management (Figure 8.2). Some areas of improvements (shown in bold arrows in Figure 8.2) are considered to be of a higher priority for achieving a balance between different objectives-biodiversity conservation, equity and sustainable development, as identified in section 2.5. The prospects for implementing such priority areas of change are discussed below.

Strengthening law enforcement and state steering in decentralisation are two inter-related areas that will allow the state to reposition itself, shifting from being the rule setter towards becoming a quality controller in overseeing the enforcement of conservation regulations. Repositioning the state is particularly important for the achievement of biodiversity conservation objectives, at least in the near future, considering the vested interests from local elites and the dominant utilitarian views towards the marine environment amongst local users. Repositioning the state is also essential for preventing local elites (*e.g.* local governments and developers) from capturing the benefits from the use of natural resources, often at the costs of marginalised local communities as seen in the three case studies. The efforts and investments from the central and provincial governments in MPA management, although seemingly insufficient, made some positive contributions to MPA governance in the case studies (see sections 6.6.1 and 7.6.2). Economic development in the past two decades has greatly improved the resources and capacity available for the Chinese government to protect the environment (Xu and Melick 2007). With sufficient political will, the Chinese government has the capacity to undertake policy reforms and to respond to urgent problems in a very rapid and efficient way (*ibid*).

Historically, the impetus for the Chinese central government to take actions on conserving the environment came mainly from the need to fulfil international

obligations, prevent natural disasters and to meet popular demands from the civil society (see section 3.5). Given the growing global concerns over climate change and the impacts of China's economic growth on the global environment (Grumbine 2007), it is possible that increasing international pressure will urge the Chinese state to find a more sustainable path to development. With regard to natural disasters, the most frequent ones in the coast of China are tropical storms and typhoons (SOA 2009b), which are not related to anthropogenic impacts, though the damages can be reduced if natural habitats such as mangroves and coral reefs are well preserved. Therefore the impetus from the need to prevent natural disasters will arguably be limited. In the long term, the most important impetus may come from a greening civil society and increasing demands for environmental protection amongst citizens, as seen in the development of environmentalism in other countries (Ho 2001).

Downscaling economic development activities within MPAs, in combination with strengthened state steering in decentralisation processes, will be essential for reducing institutional capture by local governments. Given that local government sponsored economic development is at the centre of environmental destruction in all three case studies, reducing the negative intervention from local governments and the private sector will be essential to achieve sustainability in economic development. This is also essential for enabling local communities to gain a more equitable share of benefits from MPA management. Downscaling economic development will, however, trigger strong resistance from local elites and political tensions. There are cases in which decisions were taken to protect the environment in China despite strong resistance and tensions. For example, decisions were taken to stop the construction of several hydro-electric dams in southwest China (SIDA 2004) and to relocate a chemical plant for health and environmental reasons in the coastal city of Xiamen (Yuan 2007). In both cases, joint efforts from government officials, leading scientists and citizens are the key to overcoming the resistance (*ibid*). Downscaling economic development can be seen as a short to medium term priority. It can benefit from strengthened law enforcement and state steering as discussed above, and/or improved environmental awareness amongst citizens.

Finally, nurturing stewardship and social capital amongst local communities will be a long-term priority. This will be essential for empowering local communities and the achievement of objectives relating to equity and stewardship in MPA governance. The empowerment of local communities is being constrained by major structural problems that underpin the way the state and market function in China. Such structural problems include a lack of institutional basis for protecting community property rights and their rights to participate in MPA initiatives. Furthermore, like in other countries (Berkes 2002), the interactions between local communities, the state and market in China are also influenced by historical and cultural factors, such as low levels of social capital in the Chinese society (see section 3.1) and past conflicts in natural resource management. Considering the struggles of communities under different regimes in China's long history, changes in areas related to community stewardship and empowerment will probably take a longer time to emerge. Such changes will likely to happen when there are significant improvements in individual citizens' education, living standards and social well-being. McCay (2002) suggests that individual agents are influenced by the wider-scale structures in which they are embedded (see section 2.5), however, they can also influence and alter such structures. Jones (2008) builds on such views and suggests that structures and agencies are intertwined and co-evolve. Peasant movements and revolutions from the bottom-up were always the trigger for political and regime changes in the history of China (Roberts 2006, see section 3.1). Therefore in the long term, the increasing demand for social and environmental justice amongst empowered citizens may become the ultimate drive for broader structural changes in China.

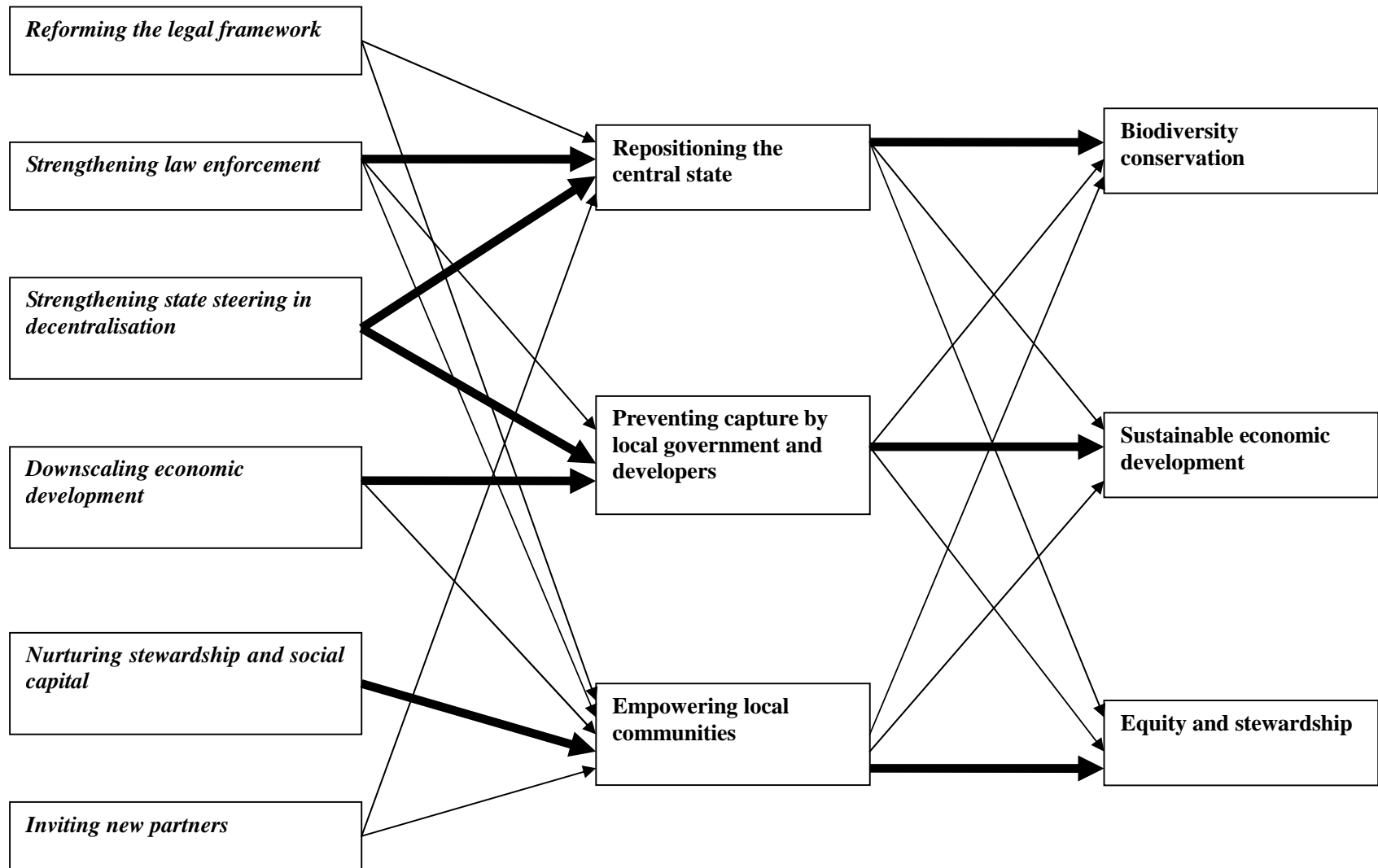


Figure 8.2. Areas of improvements (the left column) that are required to restore a balance of power between different actors in MPA governance (the central column), in order to achieve a balance between different objectives (the right column). The bold arrows indicate areas of higher priority.

Concluding remarks

The patterns of MPA governance have been shaped by economic, socio-political and cultural driving forces operating at both national and local levels. The resultant conflicts between environmental conservation, economic growth and social equity in MPA management mirror the key conflicts faced by wider Chinese Society. Despite some variations, MPA governance in all three case studies is characterised by inherent weaknesses in both state and community institutions for conservation and community well-being, which provide opportunities for institutional capture by vested interests from local authorities and developers. This imbalance of power in governing MPAs undermines the effectiveness of all steering mechanisms in addressing strong driving forces.

As the problems occur at all levels of MPA governance, from national to local, so will the expected solutions. The analysis of potential solutions (Figure 8.1) resonates with the key findings from the literature on community-based and market-based conservation (see Chapter 2). Economic incentives, property rights, greater local autonomy in devising rules, social capital and genuine community participation are central themes in the strategies to improve MPA governance in China. These measures all serve a fundamental purpose – the empowerment of people. The driving forces may be strong but they all work through individual people, and MPAs will have a better chance of success when people are empowered to conserve natural resources for their long-term well-being. As Ashish Kothari said: *‘my biggest hope is that we will get to a situation, across the world, where indigenous and local communities will demand the creation of protected areas, to protect themselves against outside destructive forces, and to derive social and economic benefits from them without compromising on their conservation values’* (quoted in Blaustein 2007: 221). However, the analysis also addresses an important theme in the study of

governance - the role of the state in steering socio-economic development (see Chapter 2). The state has a fundamental role to play in controlling and mitigating the neo-liberal forces that produced the dual problems of environmental destruction and social inequity. In a society like China, the state bears more responsibilities than most other federal states, as it is a society with upward accountability, *i.e.* most officials are still appointed by the central government, as discussed earlier. In addition, China is also a country that has been ruled by top-down regimes for the last three thousand years, therefore it can be expected that pure market- and/or community-based initiatives are and will be rare in China in the near future, and if they do exist, they will have to be fostered and supported by the government. It will necessarily require the central state to play a more active and strategic role than being an unenthusiastic regulator, employing different ways (legal, political and economic) to steer local governance for biodiversity conservation.

Conserving biodiversity in a society amid weak institutions and political will is never an easy task (Barrett et al. 2001). Changes and improvements in multiple areas are needed to improve in MPA governance in China. Among these proposed areas of change, strengthening law enforcement and state steering in decentralisation are considered to be short-term priorities and nurturing stewardship and social capital amongst local communities a longer-term priority. In some areas efforts have already been initiated (*e.g.* reforming legal framework), while in other areas (*e.g.* fostering community stewardship and social capital) greater challenges remain. Improving MPA governance requires a better balance of power with a willing and capable state at the 'top' and empowered communities at the 'bottom'. The chance of success can be increased by combining the strengths of both the state and local communities, and the competitive advantages of different steering mechanisms (Barrett et al. 2001).

9.1 Struggles in governing MPAs in China

MPA governance is being shaped by strong driving forces that direct socio-economic development in China. Following the pursuit of socialism in the past, the country has turned to neo-liberalism in seeking better socio-economic development, which is centred around privatisation, decentralisation and economic growth. Unfortunately, this is turning into the form of neo-liberalism that works from within state institutions (particularly the local agents of the state) and undermines social equity (Mirowsik 2009). Such a form of neo-liberalism is advancing rapidly in a society with weak grass-root and civil society institutions – a legacy inherited from the country's imperial and socialist past. Following such a form of neo-liberalism may lead to disregard for both the natural and human capital that underpins rapid economic growth.

It is fair to conclude that efforts have been made in all three MPAs investigated in this study to address at least some elements of these driving forces, most notably through the development of tourism as a source of conservation funding and alternative livelihoods in the SCR-NMNR, the establishment of minimum environmental standards that guide central-local negotiations in the BSSRW-NNR, and the combination of enhanced law enforcement with the promotion of alternative livelihoods in the LRML-NNR. However, the effectiveness of such steering mechanisms in achieving biodiversity conservation objectives and community empowerment is arguably limited, as the problems rise from the broader settings of state, market and community institutions, and the way different institutions are balanced against each other. The struggles to govern MPAs in China are in fact the struggles in reaching a balance of power between those with primary interests in environmental conservation, economic growth, and social equity.

9.2 Towards a balance of power: the repositioning of the central state and empowerment of local communities

The power imbalances in governing MPAs result from a lack of political will and withdrawal of the state in managing socio-economic development at local levels, institutional capture by powerful alliances between local authorities and developers, and a lack of capable and accountable community institutions. To achieve a better balance of power requires the repositioning of the central state and the empowerment of the people.

The state itself is a mixture of different institutions and interests (Agrawal and Ostrom 2001). While some institutions, such as conservation regulations, can be used to conserve biodiversity, some tend to undermine it, such as fishing subsidies. There are also divergences in interests between different levels of the state, for example the resistance from local governments to certain national policies and regulations that would undermine local development interests. It cannot be assumed that the central government would always be a more accountable alternative to local governments and value biodiversity conservation more than their local agents. However, the evidence from this study shows that in most cases, the central and provincial governments and their representatives on the ground (*i.e.* the MPA management authorities) are less likely to break the rules set by themselves and are less prone to vested interests at local levels. From this perspective strengthening the political will and role of the central state can help reduce the abuse of power by local governments and enhance conservation efforts. This can be achieved through the repositioning of the central state, from being the sole rule maker, but with insufficient commitments to the enforcement of the rules, to a strategic player that shares rule-making power with local actors, but is prepared to intervene whenever a set of minimum environmental standards are breached. The central state can intervene through its representatives on the ground, which are fully independent of local interests. The central state can also adapt smarter ways of steering and holding local agents accountable, *e.g.* through economic incentives that induce compliance and support, and/or the veto power in the appointment of key local

officials, and building alliances with new partners, such as scientists and civil society organisations.

At the other end of governance, the empowerment of communities and small-scale users is also a pressing issue, and perhaps a more challenging one. The Chinese Central State, although increasingly being challenged, still has the means (*e.g.* legal power and the power to appoint/remove key local officials) and resources (financial, technical and institutional) to pursue its interests. But many communities have few means or resources to take control of their own destinies in the face of external forces. Most of them are not well absorbed by the market economy, and are experiencing further marginalisation due to the expansion of corporate interests. Securing local communities' rights to natural resources, the basis for economic development in rural areas, is one of the most important sources of empowerment. Another important element of equity and empowerment is the accountability of village committees, through which property rights and other resources available to communities are shared and/or distributed within communities. The institutional basis for securing property rights for local small-scale users already exists (*i.e.* the Law on Sea Use Management), and where there is an accountable and capable community leadership, it can be used to enhance community development, as in the granting of exclusive rights to a local village for developing scallop farming in the LRML-NNR (see section 7.6.3).

With regard to sustainable resource management and biodiversity conservation, there are divergences as well as common endeavours between the central state and local communities. The common endeavours are based on the shared interests in the sustainability of resources and maintenance of certain ecosystem services (see section 6.6.5), controlling user pressure from corporate and incoming users (see sections 6.6.5 and 7.6.4), promoting more economically and ecological sustainable livelihoods (see section 7.6.3), as well as combating corruption amongst local officials (see section 8.3.2). Combining the strengths of a repositioned central state and empowered communities is perhaps the most effective way to control the power and penetration of local government - private sector alliances and to minimize the negative ecological and social impacts of

neo-liberal economic development. The divergences lie in the incompatibility between the dominant utilitarian views towards the marine environment amongst local communities and the strategic obligations of the state in conserving biodiversity (see sections 5.6.5 and 7.6.4), including its obligation to international conventions such as the Convention on Biological Diversity. One way of overcoming the divergences between the state and communities is through attaching conditions to property rights (see section 8.3.5). In this way, the state and communities engage in a new form of Hobbes' 'social contract' (see section 2.3.1) or a modified form of Hardin's 'mutual coercion' (see section 2.4.1), *i.e.* individual users giving up part of their freedom in the commons in exchange for protection of their property rights and insurance of the long-term sustainability of natural resources. In the face of strong external driving forces, the protection of community property rights and sustainability can hardly be achieved through the autonomy of local institutions, as argued in the common-pool resource literature (see section 2.4.3); a form of state control and intervention will always be needed.

9.3 The importance of combining the strengths of different conservation approaches

The analysis has shown the importance of combining the strengths of command-and-control, market- and community-based conservation approaches in achieving an appropriate balance of power in governing MPAs in China, which is conducive to the achievement of biodiversity conservation objective in an equitable way. As discussed in the previous chapter, improvements at multiple levels of MPA governance (from the central government to local communities) and different steering mechanisms (legal, economic and participative) will be needed to improve MPA governance in China. It is also important to recognise the interdependence between different steering mechanisms, for example, enhancing community participation in MPA initiatives requires the state to establish favourable policy and legal frameworks and the use of economic instruments, such as the granting of user rights to coastal resources. On the other hand, promoting community participation and stewardship helps to induce compliance to conservation regulations (see Figure

8.1).

Such conclusions can only be arrived by exploring MPA governance through different theoretical perspectives (*i.e.* state-centric, neo-liberal and neo-institutional, see Chapter 2), without adopting a particular perspective in analyzing the strengths and weaknesses of MPA governance in China. Focusing on any one aspect of governance, be it the state or local communities, is likely to lead to more biased conclusions. Despite the continued debates on the relative advantages of different conservation governance approaches, the reality in China is that they need to be combined in an appropriate manner to enable a balance of power between the key actors in MPA governance.

9.4 Auto-critique

A key focus of this study is the power relationships between the actors involved in governing MPAs, which largely determine how effectively different steering mechanisms are being used. By focusing primarily on power and politics in MPA governance, it is possible that the study may have overlooked other key issues that are having or will soon have major impacts on MPA governance. These key issues may include large-scale demographic changes in rural areas as more and more rural populations migrate into cities, changes in values and life-styles amongst the younger generation as compared to their parents' generation, social relationships and networks between different groups within a community, and access to education and other social services in communities living adjacent to MPAs as a source of empowerment. In addition, what constitutes a balance of power in MPA governance may vary according to the changes in contexts, and it is often a dynamic, rather than static balance. The potential for generalisation of the key conclusions from this study may be constrained by the limited temporal and spatial scales of this research, considering the limited number of case studies and interviewees in each case study, and the fact that the research only constitutes snapshots of the long-term, on-going processes of institutional development in the case study MPAs.

The recommendations for improving MPA governance (see Figure 8.1) are

mostly based on the experiences in other countries documented in the literature, for which few have been tested in MPA initiatives in China. The recommendations are therefore over-simplified and offer only possible directions for future improvements, and not all strategies in Figure 8.1 can be adopted in China. More detailed research will be needed in the future on whether and how different strategies can be applied to improve MPA governance in China.

9.5 Directions for future research

Drawing on the conclusions of this study, future research will be needed to provide insights into how state, market and community institutions can co-evolve and be combined to achieve biodiversity conservation objectives in a fair and equitable way. Future research can be directed towards the following areas:

- Inter-disciplinary research that links governance performance with ecological performance, for example, how do changes in governance (*e.g.* shifts from a dominance of corporate users towards more community-based, small-scale indicatives) affect the patterns of resource use in a MPA? Is small-scale, community-based resource use always more sustainable than corporate uses?
- The scope and degree of power-sharing between the central government and local governments, *e.g.* what will be the key considerations in devolving more rule-making power and resources to lower levels of governments, how to ensure the coherence of policies and rules in a more devolved governance system, and how to develop a set of minimum environmental standards? How to develop mutually supportive national and local institutions for marine biodiversity conservation?
- How do changes in state policies influence different groups in a community, and the level of social capital within the community?
- The design of property rights allocated to communities, for example, will new policies and legal instruments be needed to provide for and regulate

the distribution of such property rights? Are collective user rights more preferable than individual user rights?

- What will be the specific entitlements, responsibilities and obligations of property rights holders?

The research questions listed above should ideally be addressed through action-based research focusing on case studies of MPA governance. Such research can become part of a policy experiment, with researchers working with government authorities in monitoring the outcomes from policy experiments (Jones and Burgess 2005). In this way, the recommendations can be grounded on real testing of governance innovations.

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