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Assessing the Governability of Capture Fisheries in the Bay of Bengal – A Conceptual Enquiry

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Abstract: *This paper contributes to the theory of interactive governance, which is one branch in the scientific discipline of governance studies, by exploring the application of the governability concept to the capture fisheries of the Bay of Bengal. It focuses on two aspects of governability: the definition of system boundaries, and the application of governability criteria. The focus with regard to the latter is on 'representation'. Two possible definitions of a system-to-be-governed are explored: an ecological definition on the basis of Large Marine Ecosystems (LME), and a social definition based on the jurisdiction of non-governmental fisher councils. The conclusion is that the boundaries of governance systems for natural resource management are arbitrary, and various delineations have competing strengths and weaknesses. Although interactive governance theory provides useful insights for understanding the issues at hand, the operationalization of its conceptualization of governability is, however, hampered by ambiguity in the definition of criteria. Analysis suggests that 'representation' as an indicator of governability is most usefully interpreted as 'level of attunement' rather than simply as the mirroring of characteristics of the system-to-be-governed in the governing system.*

Key words: governability, Bay of Bengal, capture fisheries, LME, institutional arrangements

1. Introduction

Throughout the world capture fisheries are regarded as being in deep trouble, particularly as a result of heavy fishing activity (FAO 2006, Kulbicki 2005). The large marine ecosystem (LME) of the Bay of Bengal is no exception to the rule. Fishing pressure is highest in inshore fishing zones. Deficient governance arrangements are held to be part of the problem (SAUP 2005, BOBLME 2004, Preston 2004), and academic and policy-oriented agencies are making concerted efforts to understand the attributes of more adequate approaches. Governance has become the catchword,

also with regard to capture fisheries (FAO 2007, Gray 2006, WHAT 2000, Fanning *et al.* 2007). Interactive governance is a theoretical approach that has gained international recognition (Kooiman 2003) and is recently being applied to aquatic resources (Kooiman *et al.* 1999, Kooiman *et al.* 2005).

Interactive governance theory proceeds according to the assumption that the actual practice of governance is the result of interaction between many governing actors (including the nation state) at dif-

ferent scale levels. It distinguishes three orders, or analytical levels, ranging from principles and values (meta-governance), to institutional arrangements (second-order governance), and the management of day-to-day affairs (first-order governance). Finally, the act of governing is deeply influenced by the diversity, complexity, and dynamics of the system, as well as by issues of scale.

Recent publications (Jentoft 2007, Jentoft *et al.* 2007) highlight governability, which is argued to be crucial particularly for the policymaking process. After all, “a fisheries governor aiming to put governance into action should first examine the governability of the fishery” (Mahon *et al.* 2005:351). Kooiman *et al.* (this issue) define governability as “*the overall capacity for governance in the totality of any System,*” the latter being made up of a system-to-be-governed (needs) and a governing system (capacities). The match between the system-to-be-governed and the governing system is measured on an ordinal scale, and may vary from high to low (Kooiman and Chuenpagdee 2005). Authors distinguish four (*ibid.*) or, alternatively, five (Kooiman *et al.*, this issue) criteria for measuring governability, each correlating with a dimension of interactive governance theory. The criteria mentioned are: representation, fit (or rationality), responsiveness, performance and the presence of interactions.

Although governability is a new concept, and still in the process of elaboration, it is worthwhile investigating its utility on the ground. Mahon (this issue) examines the implications of governance/governability theory for an understanding of the state of capture fisheries in the Caribbean. The present paper applies the same theory to the fisheries of the Bay of Bengal, yet also has a reflective ambition. It inquires to what extent governance/governability theory actually ‘works’ in concrete cases, and what aspects may require further thinking. As one of the last articles in this special issue, it therefore emphasizes the ongoing – and interactive! - nature of theory formation, and suggests areas for future activity.

However, rather than ‘testing’ the entire theory of governability, we focus on one criterion: representation and on the feature of diversity. An alternative selection might raise other issues. The expectation, however, is that even a partial analysis has significance for the whole.

The paper also addresses the issue of system boundaries. If governance is indeed systematic, or systems-based, as interactive governance theory assumes, it is important to distinguish what is inside the system from what is outside. We shall note, however, that, in the case of the Bay of Bengal, there are various entry points for the distinction of system boundaries, none of which has a natural prerogative.

2. Governability and the Contours of a Fishery System

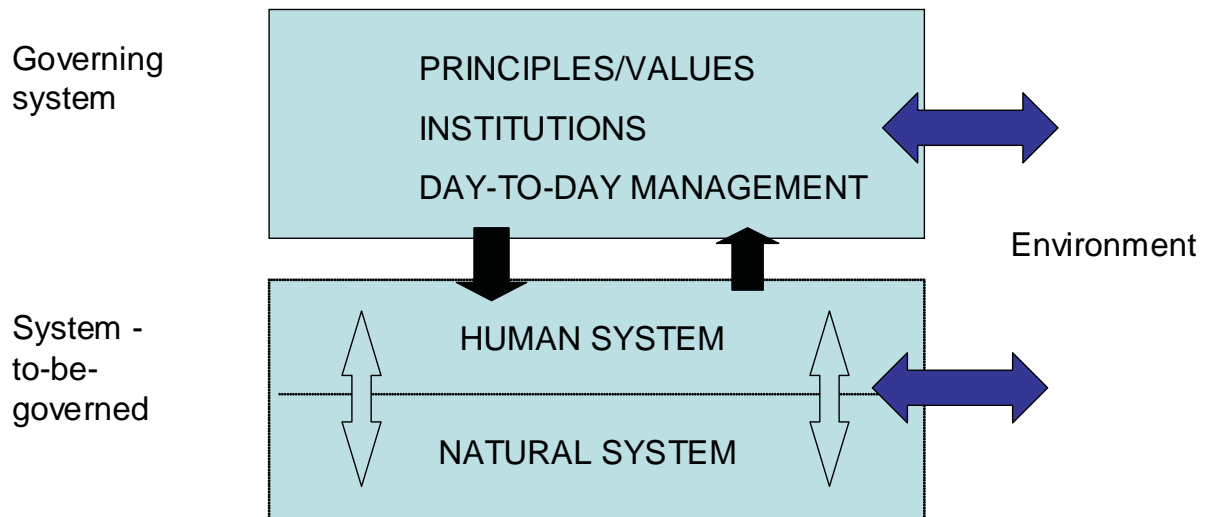
2.1 Theoretical Discussion

The analytical point of departure is a fishery system that encompasses a system-to-be-governed as well as a governing system (see Diagram 1). Kooiman *et al.* (2005) identify the system-to-be-governed in fisheries as the fish chain. Other than for example Charles (2001), who distinguishes a natural and a human system in fisheries, Thorpe, Johnson and Bavinck (2005) suggest that the fish chain includes the full set of interactions taking place from the marine ecology, to the fishing economy, to the consumer. The study of the workings of the fish chain thus brings together representatives from different disciplines. It also involves a variety of spatial scales, from local to global.

Fish chains are subject to the influence of strong drivers that are gathered under the umbrella concept of globalization (Chuenpagdee *et al.* 2005). Globalization refers to a process of economic integration, that has been gathering pace over a period of centuries. Market forces create demand-induced development (Thorpe, Williams and Van Zyl 2005), and contribute to fordism in fisheries (Johnson *et al.* 2005, Salagrama 2004). The changes induced by globalization pose severe challenges to whatever fisheries governance systems are in place, and constitute one of the major causes for their contemporary failure.

Kooiman *et al.* (2005) argue that there is a time trend in fisheries toward greater diversity, complexity and dynamics. Diversity refers to the variation that exists in a fishery, complexity to its architecture, and dynamics to its propensity for change. Moreover, these authors point out that time and space dimensions of fish chains are significant for governance (Kooiman and Bavinck 2005). The suggestion is

Diagram 1: Cross-section of a fishery system



that scale variations between different parts of the fish chain add to diversity, complexity and dynamics, and cause frictions that require specific governance attention. A good example of scale-related friction is the difference that often occurs between the scale of a marine ecosystem, the scale of fishing activity, and the scale of political and administrative units (BCLME 2005).

In reality, governance systems are as complex as the systems-to-be-governed. As was noted above, the interactive governance approach does not view governance – defined as the whole of interactions taken to solve societal problems and create societal opportunities - to be the sole prerogative of government. Many of the human actors involved in the fish chain also undertake governance activity, and their interactions contribute to the overall tendency of the fisheries. Such non-governmental actors include voluntary associations, business companies, NGOs, village councils, international organizations and political parties.

Governability is concerned with the match between the system-to-be-governed, or the fish chain, and the governing system. The latter, it is argued, must

‘correspond’ in some manner and degree with the former. As each fishery has its own features, governing systems must in principle differ from location to location. In addition, they differ in time. As Kooiman and Chuenpagdee (2005:342) point out, the level of “*governability is not static. On the contrary, it is always changing, depending on external and internal factors...*”.

2.2 The Fishery System defined

The first question relevant to our application of interactive governance theory is: what is a fishery system, and how does one proceed in defining it? Current publications provide no unequivocal guidance, and other aspects of interactive governance theory suggests that the exercise may be a difficult one. After all, fish chains are many in number, and closely enmeshed. Moreover, governing efforts, Kooiman and Bavinck (2005:14) argue, “*resemble a large, tangled and constantly changing spider’s web*”. How, in such a setting, does one distinguish one fishery system from another?

Current practice (cf. Mahon *et al.* 2005) is to approach this problem from the perspective of the ecosystem. The boundaries of the latter thus define the

remainder of the fishery system, from fish capture to processing and distribution. In a situation where ecosystem health is a prime concern, this perspective makes sense. But objectively speaking there is no reason why one should not start at another point, such as with the boundaries marking the range of a particular fishing fleet, the distribution field of a specific seafood product, or the range of influence of an important governing actor. Although disciplinary conventions sometimes suggest otherwise, none of these approaches is more intrinsically valid than another.¹

In order to investigate the implications of the governability concept for fisheries, we choose two in the range of possible points of departure: an ecosystem and a jurisdictional system. These correspond with the subject areas of marine ecologists and political scientists. The ecosystem we have chosen for the first application is the Large Marine Ecosystem of the Bay of Bengal, as defined in the international arena. The second application begins with the non-governmental fisher councils of Tamil Nadu, India, which exert great influence over fisheries. This governing system has a range of influence that does not coincide with ecosystem boundaries.

2.3 The Criterion of Representation

The following questions relate to the measurement of governability, and concern the criteria of representation and interaction. Representation “*is the manner and degree to which the features of a system correspond with those in its governing system*” (Kooiman and Chuenpagdee 2005:347), with ‘features’ referring to diversity, complexity, and dynamics. These authors also provide a hint to the kind of questions that researchers should pose themselves: “*Does the governing system reflect the diversity of the ecosystem it is supposed to govern, and of those exploiting it?*”. The supposition, it must be noted, is that correspondence is a ‘good’ thing, diversity in the fish chain is argued to be mirrored in the governing system, as is complexity, and dynamics.

But what does it mean for the features of a fish chain to be ‘reflected’ in the governance system? Is this a case of parallelism, whereby a particular pattern of diversity, complexity and dynamics in the fish chain is similarly mirrored in the governing system? Or is it a matter of adjustment, whereby the governing system is ‘cognizant of’ and ‘positively attuned to’

the nature of the fish chain, making maximum use of the opportunities that arise? Both interpretations prevail. Mahon *et al.* (2005) thus argue that the ‘dynamics’ that generally affect fish chains should be matched by the dynamics of the ‘learning organization’. Here dynamics are met with dynamics – a clear instance of mirroring. According to the same authors, however, the diversity and complexity of fish chains should, on the other hand, be matched by ‘partnership’ between governing actors. This is not a matter of one-to-one reflection, but a case of positive attunement: diverse and complex situations are best addressed in partnership. The conceptual ambiguity that thus prevails inhibits the application of the governability concept to concrete situations.

3. LME 34: The Bay of Bengal

3.1 Genesis

The concept of Large Marine Ecosystems (LME), which was first ventured in the 1980s (Sherman and Alexander 1986), attained wide ranging acceptance as a result of the United Nations Conference on Environment and Development (UNCED) in 1992 and the World Summit on Sustainable Development (WSSD) in 2002, which highlighted the degradation of marine and coastal environments. LME’s were to serve as “*an ecological framework of management*” (BCLME 2005:2). We use following working definition (Duda and Sherman 2002:802):

“Large Marine Ecosystems are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves, enclosed and semi-enclosed seas, and the outer margins of the major current systems. They are relatively large regions [...] characterized by distinct bathymetry, hydrography, productivity, and tropically dependent populations (italics by the authors)”.

It is important to underscore the basis for the delimitation of LME’s, which lies in a combination of natural characteristics, as determined by natural scientists (and not, e.g., by fishers), at a relatively high scale level. Each LME possesses distinctiveness, which, according to the experts involved, also make them sensible management units.

Management efforts at this scale level, however, are only just starting to emerge, and LME’s still exist

mainly as an ideal construct. In interactive governance the term for such steering notions is ‘images’. The image underlying the LME effort is as follows (URI 2005a:2):

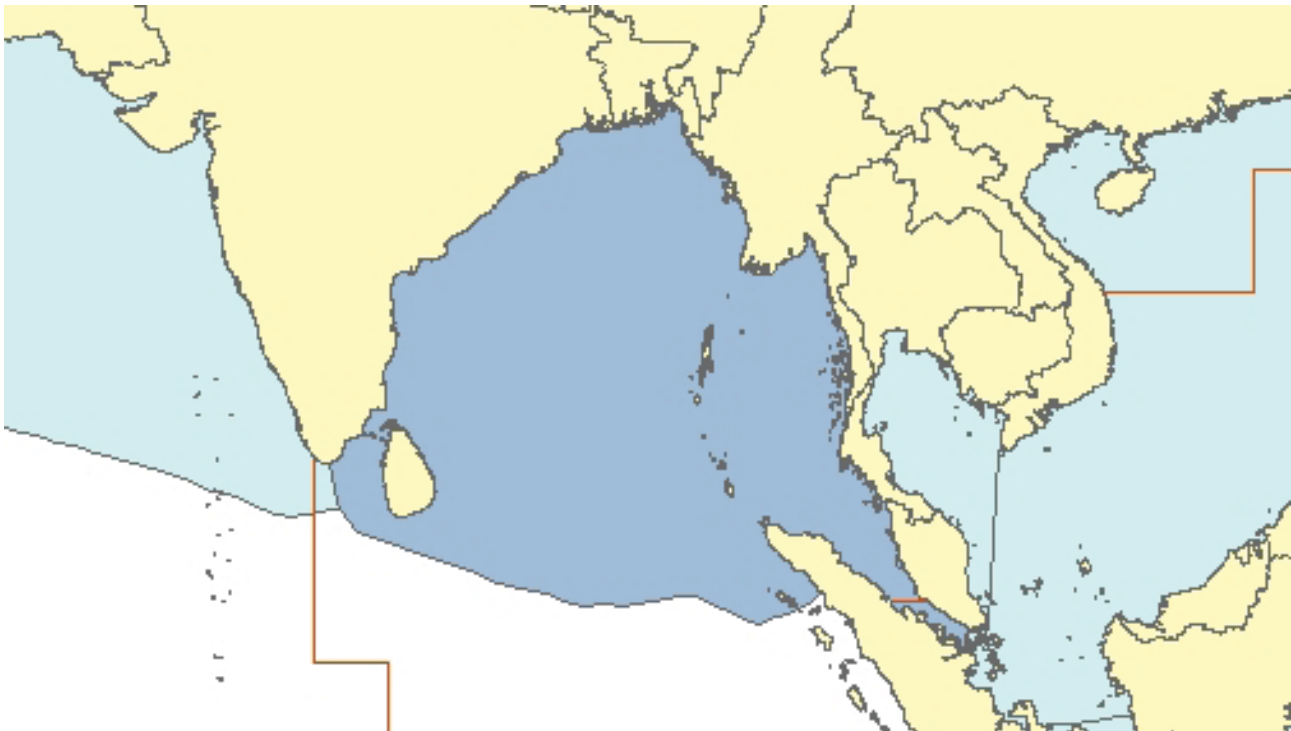
“If the spiraling degradation of coastal and marine ecosystems is to be reversed so that these ecosystems continue to provide both livelihood benefits to coastal communities and foreign exchange to governments, a more ecosystem-based approach needs to be implemented. The fragmentation and competition characteristic of post-UNCED coastal ocean activities should be overcome and stakeholders enlisted as a force for reform in the economic sectors creating the stress on marine ecosystems”.

International organizations – notably the World Conservation Union (IUCN), the Inter-governmental Oceanographic Commission of UNESCO (IOC), the US National Oceanic and Atmospheric Administration (NOAA), and the Global Environmental Facility (GEF) – have played an important role in the elaboration and implementation of the LME concept. This has resulted in a division of the world’s oceans into 64 distinct LME’s, which together are responsible for 95% of the annual global fisheries biomass yields. The Bay of Bengal is known as LME 34 (Map 1).

3.2 The System-to-be-governed

LME 34 covers an ocean area of 3.66 million km² located between India and Sri Lanka in the west, and Malaysia and Indonesia in the east. It includes territorial seas (where adjacent states have full judicial competence), continental shelf areas (under state jurisdiction) and high seas (beyond jurisdiction of coastal states). LME 34 is characterized by a tropical climate, and is affected by monsoons, storm surges, and cyclones. It has no seasonal upwelling. Major rivers such as the Ganges and the Brahmaputra discharge large quantities of fresh water into the bay annually. LME 34 is considered to be a moderately productive (Class II) ecosystem based on SeaWiFS global primary productivity estimates. The force driving the LME is understood to be intensive fishing, with climate as the secondary driving force. Wetlands, marshes, and mangroves play an important role in the overall productivity.

Although there is an element of unity that distinguishes the Bay of Bengal from other LMEs, LME 34 is characterized internally by great diversity and complexity in its fisheries. To start with, URI (2005b:2) points out that the LME *“has a relatively great marine biodiversity that is reflected in the catch composition”*. The prevalence of a large measure of



Map 1. LME 34: The Bay of Bengal (Sea Around Us Project 2005).

marine biodiversity corresponds with the tropical location of the Bay of Bengal. It is also linked to the existence in the LME of a large variety of marine habitats, including mangroves, wetlands, estuaries, coral reefs, deep seas etc.

The human side of the fisheries system too is highly diverse. Thus, the eight countries bordering the LME (Sri Lanka, Maldives, India, Bangladesh, Myanmar, Thailand, Malaysia and Indonesia) are home to a quarter of the world population, and 400 million people are estimated to live in the LME catchment area. This population is spread along thousands of kilometers of coastline, and divided into many fractions by differences of language, ethnicity or caste, religion, class and other identities. In addition, this population is historically divided by the borders of the prevailing nation states, which have followed different political trajectories. Although transboundary migration flows exist, travel between these countries is still often difficult, and, for many fishers, even hazardous (ICSF, 2003).

The fishing population of the region too is divided. Table 1 provides an overview of the distribution of the marine fishing population of the region according to nation states.

Besides the social differences noted above that also permeate the fishing population, the fishers of this region are also divided into categories such as small-scale, semi-industrial and industrial (Johnson *et al.* 2005). Many conflicts between these categories prevail (Bavinck 2005). But there are many more subtle variations in fishing practice too – distinctions that require different governance approaches.

The fisheries of the Bay of Bengal are affected at least by the following dynamics (cf. URI 2005b):

- A continuous increase in the number of fishers;
- A continuous process of technical innovation and expansion of range;
- Signs that, despite increasing catch levels, over-fishing is occurring;
- Indications that conflict levels remain high and may even be intensifying.

Some factors outside the direct realm of fisheries, but of relevance for developments therein are:

- The high incidence of poverty, and a lack of alternative employment avenues, in the countries concerned;
- The globalization of markets, that affects the intensity and direction of fishing effort; and
- Pollution, sedimentation, construction of dams, and intensive coastal aquaculture threatens fish spawning and nursery areas.

This second set of factors points out that, for management of LME 34 to be at all effective, the scope must be enlarged beyond marine ecosystems and the process of fish capture. This is in line with interactive governance thinking, which emphasizes the connections between economic sectors and different scale levels (Pascual-Fernandez *et al.* 2005).

3.3 The Governing System

The first important observation to be made is that LME 34 does not possess a corresponding organizational structure. URI (2005b:4) notes that: “a multitude of international, regional and sub-regional institutions operate in the Bay of Bengal, many of which have similar mandates, resulting in overlap and duplication”. Most of these are not specifically concerned

Table 1. Distribution of the fishing population of LME 34 in millions (FAO 2006)

	Sri Lanka	Maldives	India*	Bangladesh	Myanmar	Thailand	Malaysia*	Indonesia*
Length of coastline (km)	2,825	2,002	8,590	3,306	14,708	7,066	4,661	47,590
Marine fishing population	146,188	19,108	2,979,372	1,320,480	610,000	354,495	5,333	2,559,285

* As the shorelines of India, Malaysia and Indonesia also border other LME's and separate figures are not available, we have estimated the number of fishers in LME 34 as 50% of the official country figures.

with governance of the marine ecosystem, and many have different geographical scopes than the Bay of Bengal. Thus the Regional Fisheries Bodies (RFB) that have been constituted for South and Southeast Asia cover regions that do not coincide with the boundaries of LME 34 (FAO 2005).

The locus of state authority in the Bay of Bengal region currently lies at the country level. The eight governments that exercise power over parts of LME 34 are segmented vertically into departments and ministries, and horizontally into many tiers. With respect to the fisheries policies of these governments, URI (2005b:2) concludes that *“in most of the countries surrounding the Bay of Bengal, clear policies, appropriate strategies and measures for the sustainable management of the fishery resources are weak”*. With regard to India, Hosch and Flewweling (2003:6) conclude that *“fisheries policies... have been developed with few linkages between the sectors, based on dated legislation, and focused on increased production with little emphasis on conservation, sustainability or responsible fisheries management”*. One reason for this state of affairs may be that, as Bavinck and Johnson (2008) argue, the onus of government policy hitherto has been on fisheries development, not on management. To again cite Hosch and Flewweling (2003:5): *“coastal Fishing Policy is thus production and export oriented and under the control of State Governments with support from the National/Union Government”*.

Outside government, the LME region possesses many private governors involved in marine fisheries regulation. These include NGOs and INGOs - such as World Fish Center and the International Collective for the Support of Fishworkers (ICSF) - which are influential in tabling and promoting fisher and marine ecosystem interests. The ICSF efforts to promote direct communication between the fisheries sectors of various countries stand out for creating new linkages between fisher actors.

But the fisheries of the region too possesses a rich organizational infrastructure that ranges from professional organizations to traditional village councils. Such organizations frequently exert substantial influence over fishing activity. However, their geographical range is generally limited, and very few if any reach up even to the country level. In addition, there are often few contacts between state and pri-

vate governors, and the latter are generally accorded limited recognition.

3.4 Governability

How is the representation of the features – diversity, complexity and dynamics - of the system-to-be-governed within the governing system to be assessed? This is no easy task even under the best of circumstances, as much of the information that would be necessary for a thorough assessment is simply not available. Conceptual issues also impede assessment, with the definition of ‘representation’ being especially problematic. Let us take the feature ‘diversity’ as a case in point.

We already pointed out a rich variety of ecosystem components within the ‘unity’ of the LME. On the human side of the equation too, a great diversity was pointed out. These two diversities do not correspond, as human societies - although cognizant of and responsive to the characteristics of natural systems - possess their own dynamics. The governance system too is very diverse. Can we now conclude that, because there is diversity on all fronts, that the level of representation for LME 34 is high?

The likely answer is ‘no’. After all, the diversity of the governing system in LME 34 is not a governance-induced response to the diversity of the system-to-be-governed. These diversities have different origins, and are only very partially tuned to one another. For the features of a governing system to represent those of the system-to-be-governed, there is a need for a conscious evaluation of the diversity of the latter, and for a deliberated attunement of the governing system. In addition, one would expect that the various parts of the governing system would be better adjusted.

In terms of representation the current governability of LME 34 is therefore low. One should, however, bear in mind that the LME-image has strong supporters. It is therefore not unlikely that, at a future moment of time – if, e.g., the RFB’s are readjusted to LME-scales, and achieve more responsibilities – the governability of this LME will increase.

We noted above that LME 34 has many governors, ranging from international organizations, national and sub-national governments, and a range of non-governmental actors. Although governments are in touch with each other, also with regard to fishing,

co-ordination is weak. This emerges for instance in the fact that fishers who stray into the territorial waters of other states are incarcerated for longer periods of time. Relations between governments and non-governmental actors too are nascent. Although participatory management has received a willing ear in at least a few of the countries adjacent the Bay of Bengal, implementation is uneven.

4. Fisher Councils' Jurisdiction: Tamil Nadu, India

4.1 The Governing System

The starting point of the second application of interactive governance theory is the jurisdiction of fisher institutions in Tamil Nadu, India. We have pointed out elsewhere that the main source of authority over fisheries along this coastline has historically been located in non-state village councils (Bavinck 2001a,b). For an understanding of the situation, we need to fill in some background.

With the exception of several trade ports, the coastline of Tamil Nadu has historically been peripheral. The marine fishing population of the state, although numerous, is settled in small, homogeneous fishing villages, governed by its own councils and headmen. These authorities take charge over a large range of village affairs, including fisheries. Each village council is acknowledged as enjoying jurisdiction over an area of land and an adjacent sea area, the boundaries of which are fixed in mutual agreement by neighbouring villages.

The British colonial government was little interested in marine fisheries, as production and value-levels were low. Consequently, marine fisheries legislation was extremely limited in nature and scope, and government officers rarely involved themselves in fishing affairs. In the post-independence period, the state government of Tamil Nadu, which was granted authority over fisheries in the territorial seas, initiated a change in the late 1950s that later became known as the blue revolution. This intervention created a semi-industrialised fisheries, and a new group of fishers, in addition to the existing small-scale fisheries. The tensions that commenced between these two groups of fishers have continued to the present and are the primary trigger for government involvement in fisheries regulation (Bavinck 2003, 2005).

The formal government structure for managing capture fisheries is challenged in several important ways. First, the fisheries regulations (The Tamil Nadu Marine Fishing Regulation Act, 1984), are not focused on resource management. Instead, they are mainly concerned with containing the conflict between the semi-industrialized and small-scale fishers. Second, the capacity of the Fisheries Department is limited in its ability to implement many parts of its legislative mandates. Additionally, the Department faces opposition from fishermen who generally resent the infringements of officials on 'their' domain. For these reasons, we have concluded elsewhere (Bavinck 2001a:343) that *"the artisanal [small-scale fisheries] system is the most effective in developing and enforcing fishing regulations"*.

The unwritten, yet fundamental clause of small-scale fisheries is that village councils have prerogative over adjacent waters and seashore. As the average distance between villages along this coastline is approximately 2 km, and fishing tends to concentrate in a belt 5 km wide, each council enjoys exclusive control over an average of 10 km². This, however, does not mean that fishers always stay within village waters – in fact, there is a large measure of mobility up and down the coast, and fishers regularly encounter 'strangers' on their and others' fishing grounds. This is taken to be a normal course of affairs; after all, as fishers point out, 'the fish does not stick to boundaries, so how can we?'. The only condition for fishing in other than the own fishing territory is that one follows up local rules and instructions.

Here village councils and headmen come in. These non-state authorities – often termed 'panchayats' or 'caste councils' - lack offices, uniforms and regular meeting times, and in fact constitute a variation of an older Indian pattern of decision-making (Mandelbaum 1970). Village meetings, in which council members and headmen preside, provide local fishers with *"the opportunity to talk over important topics and to arrive at an acceptable decision. Furthermore, such meetings provide a favoured platform for tabling disputes and for speaking justice"* (Bavinck 2001a:149).

Village councils regularly take action to regulate fishing, focusing on the process of technical innovation. The introduction of new fishing gears or fishing practices often provokes deliberations on their

desirability and preferred modes of implementation. It is not unusual for a fishing gear to be banned, or for its implementation to be curtailed (Bavinck and Karunaharan 2006a). There are three reasons for banning or curtailing a new fishing gear or practice: harm to the fishing grounds and the future of fishing, harm to the style of fishing practiced by the majority of fishers, and harm to the community. The first motive in particular is relevant to the concerns of contemporary fisheries management. It means in practice that a village council – or, as is frequently the case, a chain of village councils – takes action to prevent a fishing practice that it considers deleterious for the ecosystem. This rule applies to local fishers as well as to strangers working in the local sea territory, and is enforced by the body of local fishers.

The locus of governance activity in the small-scale fisheries of Tamil Nadu thus lies at the village level. For problems at a higher-than-local level, the fishers of this region have found a special institutional solution, called a ‘panchayat circle’ (Mandelbaum 1970). According to this old-time practice, councils from up to 20 villages gather on an ad hoc basis to discuss and decide on common problems. More recently, fishers in the region have also formed new-style organizations for political representation and lobbying. However, so far the competence of these organizations has fluctuated significantly with changes in leadership, causing them to be ineffective in influencing fisheries regulations.

Although the small-scale fisher system of regulation continues to stand firm, there is evidence for a gradual weakening of control. Governmental non-recognition and opposition is one important cause. The fact that semi-industrialized fishers transgress into village fishing grounds with impunity also undermines council authority from the outside. Internal factors too have weakened village decision-making. Particularly, the increased integration of the fishing villages within mainstream society, the differentiation of village economies, and doubts as to the legitimacy of council decisions have all affected performance.

4.2 The System-to-be-governed

The system-to-be-governed by the village councils of Tamil Nadu lies on the fringe of the western section of the Bay of Bengal, and makes up only a small portion of its total surface area. Although

the continental shelf area is generally known as the most productive, the Tamil Nadu coast is of a varied nature. It is often held to consist of three natural areas. South of the section known as the Coromandel Coast, which even in colonial times had the reputation of being “*the poorest fishing ground in the Presidency*” (Madras Fisheries Bureau 1916), and is surfbeaten, unlike the shallow Palk Straits and the Gulf of Mannar. The latter, sprinkled with islands and coral reefs, is internationally recognized as possessing a remarkable biodiversity, and a major section has therefore been declared a marine biosphere reserve as well as a national park. The southernmost section of the Tamil Nadu coast abuts the Indian Ocean, and constitutes, for example, the base for communities of long-distance shark fishers. The range of fish species along the Tamil Nadu coast is large, and is made up of demersal as well as pelagic varieties. The Central Marine Fisheries Research Institute (CMFRI 1991) distinguishes 192 species of fish along the Coromandel Coast.

The Department of Fisheries (Department of Fisheries 2000) calculates the marine fishing population of the state today at 700,000 with almost 170,000 active fishers. There are presently almost 50,000 fishing craft in operation, of which 8000 belong to the semi-industrial fleet. This fleet is based in ten harbour sites scattered at intervals along the coast. Seasonal migration is a regular phenomenon, particularly in the southern reaches of the state.

The Tamil Nadu inshore fisheries is characterized by a large variety of fish chains, varying by sub-region, season, and markets. The export market has expanded in volume as well as in scope since the 1960s, with the most important species being shrimp, fin fish, cuttlefish and squid². The domestic market too is large and intricate, and is served via a large number of channels. A complicated network of processors and traders is responsible for the distribution of produce from fish landing centres to the various centres of consumption.

4.3 Governability

Evaluated according to the criterion of representation, the governing system of the village councils of Tamil Nadu possesses noteworthy qualities. The first is that the governing system matches the geographical diversity of the system-to-be-governed. Being

located at the level of the individual fishing village, governors are able to react to variations in the fish chain as they occur along the coastline.

The system's comprehensiveness too has a positive bearing on governability. Every fishing village along the coast possesses a governing system more-or-less of the type described above³, and together they cover the inshore waters of the coast up to approximately 5 kilometers distance. The most productive fishing grounds along the Southeast Indian coastline are therefore under some form of management. We have argued elsewhere that a closely woven regulatory framework of this kind offers important opportunities for governance (Bavinck 2001a).

The fact that the governors are part of the system-to-be-governed also stands out. Fishers jointly take decisions for the regulation of the fisheries, and are responsible for the monitoring of rules and the judgement of offences. At the same time they are the ones being monitored and judged. The involvement of fishers in governing activity is often promoted because it increases the legitimacy of a governing system (Jentoft 1989). From this perspective, village councils make a useful contribution.

But there are factors too that detract from the governability of the fishery system as a whole. The governing system suffers from a lack of fit with the contours of the ecosystem. Each village unit covers a limited sea territory, the boundaries of which were not constructed to coincide with ecosystem boundaries. This means that many ecosystem changes are beyond the influence of the village council. The same holds true if one takes the village councils together. The inshore marine ecosystem of the coast of Tamil Nadu is part of a larger land and marine ecosystems. The village councils are able to control only a small part of this larger system-to-be-governed.

From the viewpoint of institutional connections too there are disadvantages. Although the governing system at the village level is geared to maximize interactions through the institution of village meetings, at other levels interactions are few in number. Thus the nesting of village councils in larger non-state units, such as panchayat circles, is weak. If such larger units existed in the past, they have largely been worn away. The connections with government agencies, on the other hand, are contradictory and

infused with distrust. Although government officers realize that they cannot bypass the village councils in daily affairs, genuine cooperation is rare.

Taken as a whole, the governability of this fishery system is uneven. There are many positive aspects in fisher councils' governing system, however, that deserve attention and might be built upon.

5. Theoretical Reflection

This paper aimed to assess and contribute to the theory of governability through an application to the capture fisheries of the Bay of Bengal. It centred on two aspects of governability theory: the issue of system boundaries, and the governability criterion of representation, with a further focus on diversity. The latter is part of a larger schema for the comparative evaluation of governability.

From the viewpoint of analysis it is important to be able to delimit the object of study. In the case of a fisheries system the problem, however, is where to start: in ecology, social structure, or in prevailing patterns of governance? Our analysis demonstrates that as natural and human systems often do not coincide, the point of departure tends to establish the study's parameters. An ecosystem approach thus leads us for example to define the fisheries system at the regional, Large Marine Ecosystem level (3.66 million km²). Commencing at the level of an important governing system, the village councils of Tamil Nadu, however, results in the delimitation of small (10 km²) zones. In reality, the range of choices is of course much larger. How to proceed?

The interactive governance approach indicates that there is no definite answer to this question. In line with the increasing diversity, complexity and dynamics of fish chains, and the availability of multiple images regarding their constitution, this approach in fact allows for many responses, none of which possess absolute validity. Instead, each angle offers information that is useful in assessing the governability of the system as a whole. This system has no unequivocal boundaries; it is composed as to the needs of the researcher or practitioner, who recognizes the parallel existence of multiple images. As Johnson *et al.* (2005:143) point out: "*governance solutions need to be multiple and able to work at different spatial, institutional, and disciplinary scales*".

A second issue regards the meaning of the evaluation criterion termed 'representation'. Is 'representation' of the features of the system-to-be-governed in the governing system a matter of mirroring, or rather of attunement? And if the latter is true, what would distinguish 'representation' from the criterion of 'responsiveness' (Kooiman and Chuenpagdee 2005)?

Our two cases brought out the difficulties of operationalising representation with regard to the feature of diversity. This is partly due to the general nature of the latter concept, which prevents precise and unequivocal application to the field of fisheries. The discussion also raises fundamental doubts, however, as to the value of the representation criterion in assessing governability. For is a governing system with, for example, a high diversity better able to govern a diverse fisheries system? It would appear to depend, first of all, on the types of diversity involved and the extent to which the diversity of the system-to-be-governed corresponds with the diversity of the governing system. But even then: is a diverse governing system better able to govern a diverse system-to-be-governed than a non-diverse system? This is not necessarily the case. Rather than the mirror definition of representation, we therefore argue the case of representation as attunement. The main question to be asked is: does the governing system in question take adequate account of the diversity of the system-to-be-governed?

6. Postscript: Governing LME 34

In a recent publication on Caribbean fisheries (Fanning *et al.* 2007:436), a group of scholars concludes that "*the reality of Caribbean governance is a diversity of networks of actors serving various purposes that seldom intersect effectively*". Similar to the Bay of Bengal, the Caribbean hosts a rich human diversity, and a severe depletion of marine resources. The four LMEs, which have been distinguished for that region, are, in many respects, no more than images of potential governance. This is reminiscent of our study area.

Some avenues for future governing emerge from theory. Recognizing the plethora of governing actors at various scale levels, the first suggestion is to create and strengthen linkages between policy cycles that prevail in a LME. As these scholars point out: "*the goal of interventions would be to establish and*

enhance cycles and linkages that are context specific and appropriate to purpose, capacity and complexity" (ibid.:441). Another group of authors refers in this regard to the reinforcement of partnership through inclusion and interaction. They argue that, as many of the challenges, concerns and hard choices faced by governing actors are generated by the complexity of the fish chain, the solution is to be as inclusive as possible (Bavinck *et al.* 2005). In the context of our case study this implies connecting the village councils of Tamil Nadu with various state departments and Regional Fisheries Bodies, to mention only a few of the governing actors present. It will be clear that this is not an trouble-free process. The end goal would be to "draw the organizations of all the actors into a commonly understood and agreed framework" (Mahon *et al.* 2005).

A second avenue regards the promotion of a learning approach (Bavinck *et al.* 2005, Mahon *et al.* 2005). If interactive governance theory is correct in arguing that systems-to-be-governed are characterized by diversity, complexity, and dynamics, this can only be met by creating a governing system that is, as a whole, adaptive and flexible. This too is a challenging, yet meaningful task.

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Notes

- 1 See Johnson *et al.* (2005) for a thoughtful analysis of disciplinary predilections with regard to the analysis of the fish chain.
- 2 The Marine Products Export Development Authority (MPEDA) maintains statistics with regard to exports, but does not provide a breakdown according to states. The main export items from India in terms of volume as well as value in 2004-2005 were shrimp, fin fish, cuttlefish and squid (MPEDA 2006).
- 3 There are differences, however, between the governing system of the Coromandel Coast, which is dominated by members of the Hindu Pattinavar caste, and arrangements along the other two sections of the Tamil Nadu coastline. Thus village councils occupy a less prominent position

along the Gulf of Mannar and the Palk Strait, where fishing populations have other caste and religious backgrounds (cf. Bavinck and Karunaharan 2006b, Sundar 1999).

References

- Bavinck, M. (2001a): *Marine resource management. Conflict and regulation in the fisheries of the Coromandel Coast*. New Delhi: Sage.
- Bavinck, M. (2001b): Caste panchayats and regulation of fisheries in Tamil Nadu. *Economic and Political Weekly* 36 (13): 1088-1094.
- Bavinck, M. (2003): The spatially splintered state: myths and realities in the regulation of marine fisheries in Tamil Nadu. *India, Development and Change*, 34 (4): 633-657
- Bavinck, M. (2005): Understanding fisheries conflicts in the South – a legal pluralist perspective. *Society and Natural Resources* 18 (9): 805-820.
- Bavinck, M. and D. Johnson (2008): *Handling the legacy of the blue revolution in India – social justice and small scale fisheries in a negative growth scenario*. American Fisheries Society Symposium 49: 585-599.
- Bavinck, M. and K. Karunaharan (2006a): A history of nets and bans: restrictions on technical innovation along the Coromandel Coast of India. *Maritime Anthropological Studies* (MAST: 5(1): 45-59.
- Bavinck, M. and K. Karunaharan (2006b): *Legal pluralism in the marine fisheries of Ramnad District, Tamil Nadu, India*. Working Papers Series 2006 Nr 2, Indo-Dutch Programme on Alternatives in Development (IDPAD).
- Bavinck, M., R. Chuenpagdee, M. Diallo, P. van der Heijden, J. Kooiman, R. Mahon and S. Williams (2005): *Interactive fisheries governance – A guide to better practice*. Delft: Eburon Academic Publishers.
- Benguela Current Large Marine Ecosystem (BCLME) (2005): *The LME concept*. <http://www.bclme.org/about/lme-concept.asp> (accessed June 8, 2005).
- Bay of Bengal Large Marine Ecosystem (BOBLME) (2004): Preparatory Meeting of the Bay of Bengal Large Marine Ecosystem Programme (BOBLME) 15-17 March 2004, Penang, Malaysia (CD-ROM).
- Central Marine Fisheries Research Institute (CMFRI) (1991): Scientific, popular and local names of common marine living resources along the Coromandal Coastal with special reference to fin fishes and shell fishes. *Marine Fisheries Information Service* No 111: 1-16.
- Charles, A. (2001). *Sustainable fishery systems*. Oxford: Blackwell.
- Chuenpagdee, R., P. Degnbol, M. Bavinck, S. Jentoft, D. Johnson, R. Pullin, and S. Williams (2005): Challenges and concerns in capture fisheries and aquaculture. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 25-37.
- Department of Fisheries (Tamil Nadu) (2000): *Fishermen census 2000*. Chennai.
- Duda, D.A. and K. Sherman (2002): A new imperative for improving management of large marine ecosystems. *Ocean and Coastal Management* 45: 797-833.
- Fanning, L., R. Mahon, P. McConney, J. Angulo, F. Burrows, B. Chakalall, D. Gil, M. Haughton, S. Heileman, S. Martínez, L. Ostine, A. Iviedo, S. Parsons, T. Phillips, C.S. Arroya, B. Simmons, and C. Toro (2007): A large marine ecosystem governance framework. *Marine Policy* 31: 434-443.
- Food and Agriculture Organization (FAO) (2005): Regional fishery bodies – home page. <http://www.fao.org/fi/body/rfb/index.htm> (accessed July 20, 2006).
- Food and Agriculture Organization (FAO) (2006): *The state of world fisheries and aquaculture 2006*. Rome: FAO.
- Food and Agricultural Organization (FAO) (2007): Making global governance work for small-scale fisheries. *New Directions in Fisheries – A Series of Policy Briefs on Development Issues*, No. 09. Rome: FAO.
- Gray, T.S. (ed.) (2006): *Participation in fisheries governance*. Dordrecht: Springer.
- Hosch, G. and P. Flewweling, (2003): *East India Country Review (Draft)* prepared as part of the State of World Marine Capture Fisheries Management, Food and Agriculture Organization of the United Nations.
- ICSF (International Collective in Support of Fishworkers) and IOI (International Ocean Institute) (2003): *Proceedings of the Indian Ocean Conference Forging Unity: Coastal Communities and the Indian Ocean's Future*. 9-13 October 2001, Chennai, India.
- Jentoft, S. (1989): Fisheries co-management: delegating government responsibility to fishermen's organizations. *Marine Policy* 13 (2): 197-209.
- Jentoft, S. (2007): Limits of governability: institutional implications for fisheries and coastal governance. *Marine Policy* 31: 360-370.

- Jentoft, S., T. C. van Son, and M. Bjørkan (2007): Marine protected areas: a governance system analysis. *Human Ecology* 36: 611-622.
- Johnson, D., M. Bavinck, and J. Veitayaki (2005): Fish capture. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 71-92.
- Kooiman, J. (2003): *Governing as governance*. London: Sage Publications.
- Kooiman, J. and M. Bavinck (2005): The governance perspective. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 11-24.
- Kooiman, J. and Chuenpagdee, R. (2005): Governance and governability. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 325-350.
- Kooiman J., M. van Vliet, and S. Jentoft (eds.) (1999): *Creative governance: opportunities for fisheries in Europe*. Aldershot, UK: Ashgate.
- Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.) (2005): *Fish for life. Interactive governance for fisheries*. Amsterdam: Amsterdam University Press.
- Kulbicki, M. (2005): Aquatic ecologies. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 45-70.
- Madras Fisheries Bureau (1916). *Madras fisheries statistics and information, West and East coasts*. Bulletin 9, Madras.
- Mahon, R., M. Bavinck, and R.N. Roy (2005): Governance in action. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 351-374.
- Mandelbaum, D.G. (1970): *Society in India*. 2 volumes. Berkeley: University of California Press.
- Marine Products Export Development Authority (MPEDA) (2006): Export performance of marine products during 2004-05. www.mpeda.com/publications/exportreview/trends.htm (accessed 23-5-2006).
- Pascual-Fernandez, J. J., S. Jentoft, J. Kooiman, and A. Trinidad (2005): Institutional linkages. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 217-238.
- Preston (2004): 'Review of the Status of Shared/Common Marine Living Resource Stocks and of Stock Assessment Capability in the BOBLME Region' in BOBLME (2004).
- Salagrama, V. (2004): *Policy Research: Implications of Liberalisation of Fish Trade for Developing Countries A case study for India*. Project PR 26109, Food and Agriculture Organization of the United Nations, 2004.
- Sea Around Us Project (SAUP)(2005): LME 34: Bay of Bengal, <http://saup.fisheries/ubc.ca/lme/SummaryInfo.aspx?LME=34> (accessed 9 June, 2005).
- Sherman, K. and L. Alexander (eds.)(1986): *Variability and management of large marine ecosystems*. Boulder (Colorado): Westview Press.
- Sundar, A. (1999): Sea changes: organizing around the fishery in a South Indian community, In: Barker, J. (ed.) *Street-level democracy: political settings at the margins of global power*, 79-114. Toronto: Kumarian Press.
- Thorpe, A., D. Johnson, and M. Bavinck (2005): Introduction [to the system to be governed]. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 41-44.
- Thorpe, A., S. Williams, and J. van Zyl (2005): The post-harvest chain. In: Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds.), 109-132.
- University of Rhode Island (URI)(2005a): Large marine ecosystems of the world. <http://www.edc.uri.edu/lme/intro.htm> (accessed 22 June, 2005).
- University of Rhode Island (URI)(2005b): LME 34: Bay of Bengal. <http://www.edc.uri.edu/lme/text/bay-of-bengal/htm> (accessed 8 June, 2005).
- World Humanity Action Trust (2000): *Governance for a sustainable future*. Part 2. Fishing for the future. London: WHAT.