

# Building Sustainable Governance

## From Fisheries Development to Coastal Development in Tamil Nadu: Possible Implications for Fisher Wellbeing

**Ajit Menon and Brinda Viswanathan**

Madras Institute of Development Studies, Chennai & Madras School of Economics, Chennai

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## **Introduction**

Tamil Nadu has a long coastline of about 1000 kilometres which accounts for 26 per cent of India's coast. It has 581 fishing villages as per the marine fisheries census conducted in 2005 by Central Marine Fisheries Research Institute (CMFRI)<sup>1</sup> with a population of 790,408. It has an active fisher population of 206,908 out of which 185,603 are full-time. Not surprisingly, therefore, coastal development for much of the last 50 years has focused on the development of fisheries and the fishing community. However, over the last 20 years or so, coastal development has included new thrust areas such as industrial development as well as tourism in order to spur on economic growth. Moreover, as a consequence of the tsunami in 2004, the question of fisher safety near the coast was raised and a new draft coastal management zone (CMZ) notification was issued which embodied a much broader view of what constituted coastal well-being with potentially significant consequences for fishers. The new threat of special economic zones (SEZs) on the coast is also a looming issue due to the potential of SEZs to displace fishers from their historical places of settlement and fishing grounds.

This background paper examines the main developments along the coast in Tamil Nadu since the Blue Revolution in the 1960s with a special focus on fisheries development. By looking at fisheries development, we hope to provide a basis for future research that focuses in more detail on issues of fisher wellbeing and sustainable fisheries governance. We hold that wellbeing has both subjective and objective dimensions, but that both of these are constituted in social relationships (Gough and McGregor 2007). Interactive governance is an approach that emphasizes the diversity of forms of governance in the face of the diversity, complexity, and dynamics of context and concerns. Further, it acknowledges the importance of incorporating non-traditional governors into governance processes and it maps the process of governance from negotiation over principles, to maintenance of institutions, to implementation of governing actions (Kooiman et al 2005; Bavinck et al 2005). Our paper argues that fisheries and coastal development has generated contradictory effects in these two critical areas of concern for fishers. New opportunities for the pursuit of fisher wellbeing have been accompanied by new, and more complex, threats, including a highly patchy governance framework.

## **Coastal Development for Fisher Well-Being**

### *The Blue Revolution and Beyond*

In the 1960s, the Blue Revolution was aimed at improving fishing technology and boosting catch as a means to stimulate and develop the Indian economy. A parallel justification was the Blue Revolution would benefit the fisher population. As Bavinck (2001) highlighted, the Blue Revolution was an all-India occurrence with individual states forming their own specific policies. The Government of Tamil Nadu encouraged fisheries development from the Second Five Year Plan period. In brief, the Tamil Nadu government promoted new fishing technologies (boats and nets) and provided support infrastructure such as boatyards, harbours and improved preservation and processing facilities. In 1972, the Marine Products Export Development Authority (MPEDA) was established at the national level so as to improve exports and tap the international market for seafood especially prawns. The development of aquaculture was part and parcel of this export drive. As Salagrama has argued (2004), fisheries development in India as a whole has always been based on an open

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<sup>1</sup> Source for this information is obtained from [http://www.bobpigo.org/bbn/sep\\_06/pages33-36.pdf](http://www.bobpigo.org/bbn/sep_06/pages33-36.pdf).

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trade regime. Market incentives have been coupled with state support in order to modernize the fisheries sector.

The late 1980s and early 1990s witnessed the beginning of liberalization of the Indian economy. The fisheries sector was subject to new market opportunities and constraints. These came in the form of new European and American quality control standards and competition in fisheries. Diversification of fishing to include new species such as fin fish for international, and particularly Chinese, markets increased (see, e.g., Johnson 2001). In addition, local markets in India grew and diversified, with cities such as Bangalore, Hyderabad, Pune and Delhi becoming major centres of demand.<sup>2</sup>

### *Coastal Regulation Zone*

In 1991, the Government of India passed a Coastal Regulation Zone (CRZ) notification. This notification was important because it aimed at regulating activities along the coast. All stretches of the coast were classified into four CRZ categories (CRZ I-IV) and only certain activities were permitted in each of the zones. The broad principle behind CRZ was the precautionary principle and hence only industries that required beachfront were permitted to be there. The coast for the most part was to remain polluting industry free (Menon *et al.* 2007).

The CRZ notification was extremely important in the context of fisheries development throughout India and in Tamil Nadu. The notification allowed for the promotion of fisheries development infrastructure along the coast including landing sites and processing units. Equally importantly, as most fishing villages were located in CRZ III areas, no development activity was permitted in this area up to 200 metres from the high tide line. Coastal fishing villages were recognized and the coast was seen to belong to fishing communities primarily. For the large part fishers were supportive of the CRZ notification.

Thus, at one level development along the coast could be viewed as having the aim of promoting the well-being of fishers. Not only did the state government invest heavily into fishing technology and promote fishing exports, but it also sought to protect the coast from indiscriminate industrial activity. As we will show, however, this pro-fisher inclination has been a contested objective of coastal development policy and, in recent years, has only been maintained through fisher activism.

### **State-level Overview of Fisheries Sector**

Fishing habitations and active full-time fishers have both increased significantly from 422 villages and 87,000 (0.87 lakh) fishers in 1980 to the current 581 villages and 185,000 (1.85 lakh) fishers.<sup>3</sup> Moreover, while Tamil Nadu's share of coastal fishermen has declined from 29 percent to about 23 percent, Tamil Nadu is now ranked first according to the CMFRI 2005 Census in the number of fishermen (total and active), moving ahead of Kerala which was first in 1980.

Has the large fishing population benefited from the Blue Revolution? The Blue Revolution certainly seems to have had a significant impact in terms of the total value added from fisheries. As Figure 1 shows, there was a significant increase in value added from fisheries from the early 1960s to the mid-1970s. Then from the mid-1970s to the early 1980s, value

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<sup>2</sup> This discussion on liberalization is based on exchanges with Venkatesh Salagrama. His help is gratefully acknowledged. Very little published material on liberalization and its impact on the fisheries sector in India and Tamil Nadu exists.

<sup>3</sup> Same source as for footnote 1.

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added flattened off before picking up again in the early 1990s with a steeper growth rate in the latter part of the 1990s in particular.

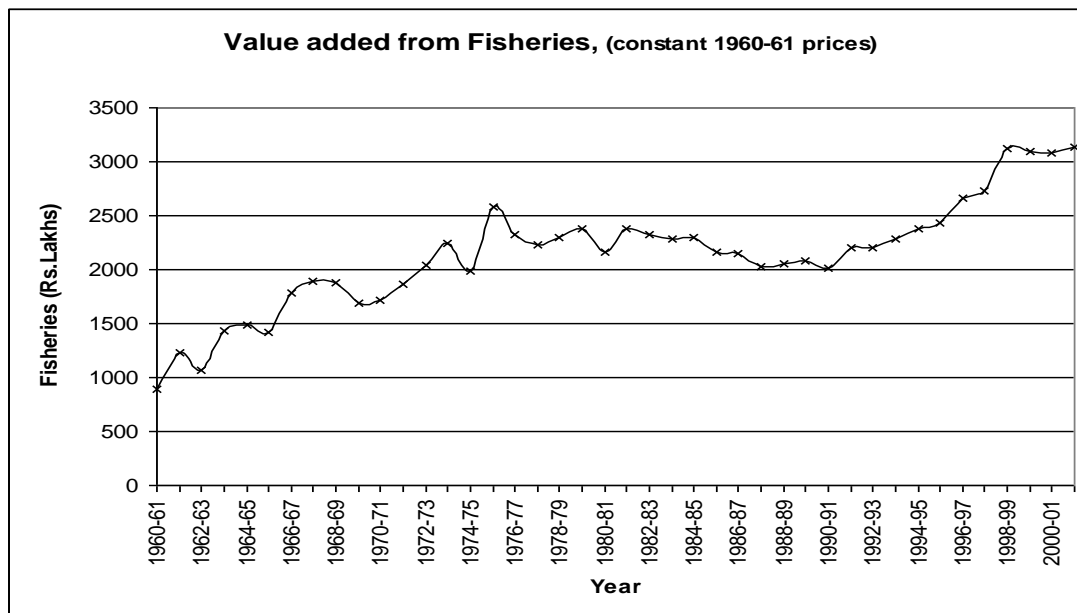


Figure 1: Value Added from Fishing for Tamil Nadu (1960-61 constant prices). Source: [www.indiastat.com](http://www.indiastat.com).

While in real terms fishing seems to have grown substantially over time until the mid-1980s, in terms of its overall contribution to the state's net domestic product (NSDP), the increase was less significant. Between the early 1960s and the mid-1970s, the share of fisheries increased from under 1 per cent to a little over 1 per cent, but since the mid-1980s it has in fact declined again and now is around 0.5 per cent (Figure 2). This might be because Tamil Nadu has become increasingly non-agricultural in the past four decades.<sup>4</sup> An important point to note, however, is that fisheries fared much better than agriculture as a whole (of which it is a part). The share of agriculture to total NSDP declined from more than 50 per cent in 1960 to under 20 per cent in 2000. In terms of its economic value, fishing currently accounts for about 3 per cent of the state domestic product in agriculture.<sup>5</sup>

### District-level Performance of Fisheries

A more disaggregated view across districts of Tamil Nadu illustrates that central and southern coastal districts such as Nagapattinam, Pudukottai and Ramanathapuram have contributed a greater share of value addition to fisheries than the northern districts in general though Cuddalore in the north fares relatively well (Figure 3). It is also important to point out that while inland fisheries also exist, their contribution to value addition is far less than that of marine fisheries, as Figure 3 demonstrates.

<sup>4</sup> While the share of agriculture in NSDP declined from about 38 per cent in 1977-78 to 13 per cent in 2004-05, the share of those in agriculture in the total rural male workforce declined from 74 per cent to 59 per cent during the same period.

<sup>5</sup> If one were to consider the share of fisheries in agriculture in 1999-2000 prices, then it ranges between 8-10 per cent between 1999-2000 and 2006-2007.

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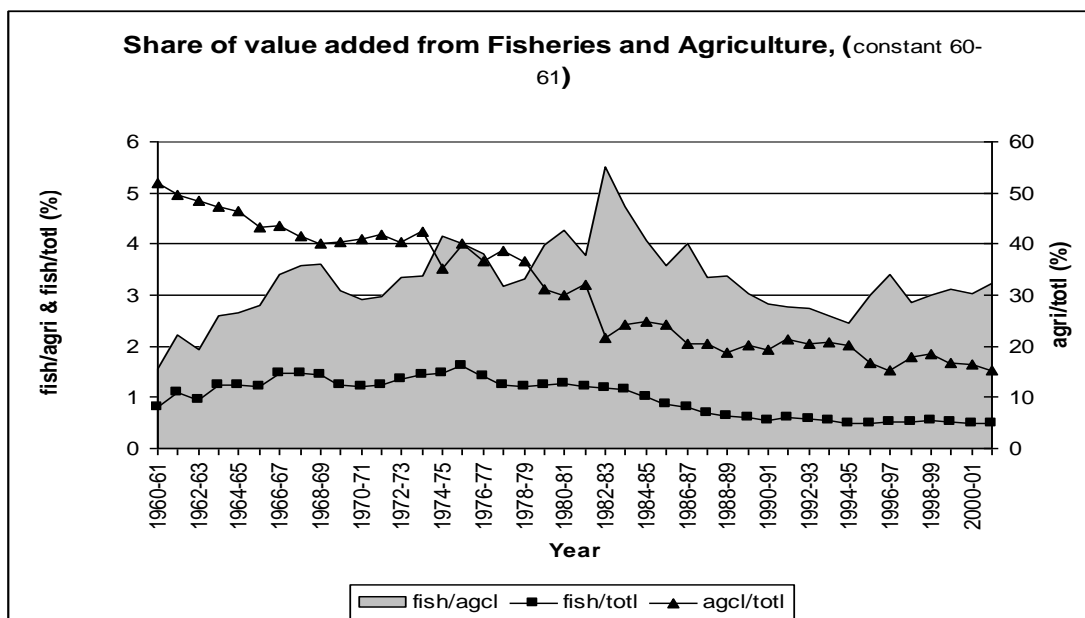


Figure 2: Shares of Value Added from Fishing and Agriculture in Total NSDP and Share of Fishing within Agriculture, Tamil Nadu (1960-61, constant prices). Source: www.indiastat.com.

Table I gives a glimpse of the inter-district variation in fish catch and fishing population between 2006 and 2008 based on the annual employment report for several districts of Tamil Nadu. It can be inferred from the table and the reports that there is significant inter-district variation in fisher population and fish catch. The largest fisher population is in Ramanathapuram, followed by Kanyakumari and Thiruvallur. While in the case of Ramanathapuram, the large fisher population appears to be linked to the large coastline in the other two districts it appears to be because of more densely populated fishing villages. Largest fish catch is also in Ramanathapuram followed by Villupuram and Pudukkottai. Moreover, many of the districts with longer coastlines such as Ramanathapuram and Nagapattinam also fared better in value addition from fisheries as seen in Figure I. However, in per capita terms Villupuram and Pudokkottai were the most productive. Chennai, which also had a high catch per capita like Villupuram and Pudokkottai, however, did not fare as well in terms of per capita catch probably because of its high density of population.

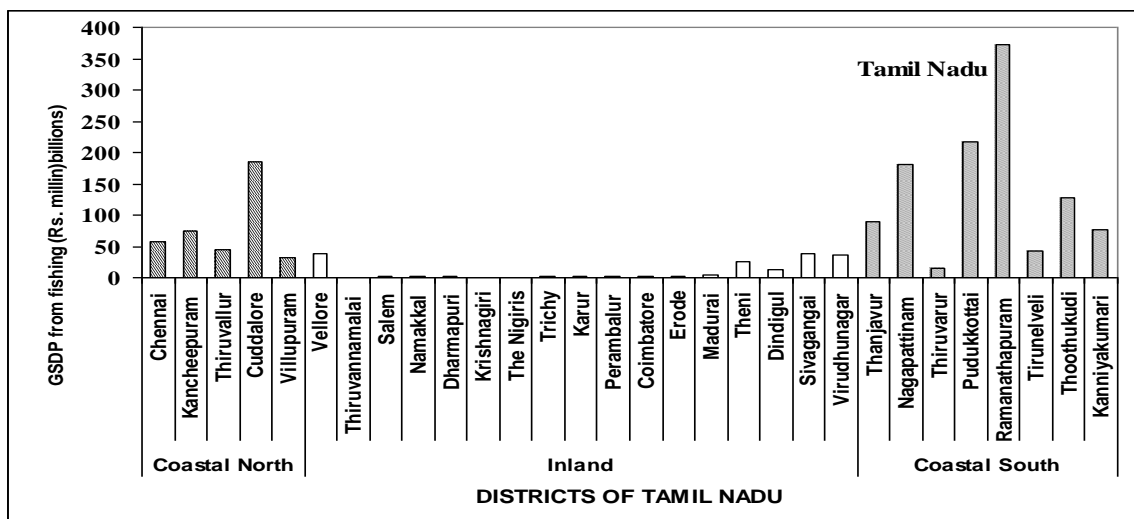


Figure 3 GSDP from Fisheries across districts of Tamil Nadu, 2004-05 (1999-2000 prices). Source: Data provided by Tamil Nadu State Planning Commission

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Table 1 Inter-district variation in Marine Fisher Population and Fish Catch

	Year	Fisher Population	Coastline (kms)	Fish Catch (Tonnes)	Catch per kilometre (Tonnes/km)	Catch per capita (Tonnes/fisher population)
Chennai	2005/06	16414	19	31851	1676	1.94
Kancheepuram	2006/07	7820	87	12825	147	1.64
Thiruvallur	2007/08	26863	50	14451	289	0.54
Cuddalore	2006/07	18000	58	28000	483	1.56
Villupuram	2007/08	9739	41	74758	1823	7.68
Thanjavur	2007/08	5500	48	1246	26	0.23
Nagapattinam	2006/07	10200	187.9	37000	197	3.63
Thiruvarur	2007/08	550	47.2	900	19	1.64
Pudukkottai	2006/07	8640	42	57618	1372	6.67
Ramanathapuram	2007/08	37760	241	84985	353	2.25
Tirunelveli	2006/07	4620	35	9861	282	2.13
Thoothukudi	2007/08	17437	163.5	44224	270	2.54
Kanniyakumari	2007/08	27500	72	31147	433	1.13

Source: Compiled from the (a) district level annual employment reports provided by the district rural development agency ([www.rural.nic.in](http://www.rural.nic.in)),

(b) District statistical handbook ([http://www.tn.gov.in/district\\_statistics.html](http://www.tn.gov.in/district_statistics.html)) and

(c) Statistics at a Glance ([http://www.tn.gov.in/deptst/08\\_FISHERIES.pdf](http://www.tn.gov.in/deptst/08_FISHERIES.pdf))

Table 2 presents the district level variation in performance of the fisheries sector for three time-periods stretched over a decade. Within the agriculture sector, the share of fishing has increased dramatically in the late nineties across all but one of the districts and this has continued in the early 2000s as well suggesting that the state-level phenomena of the late 1990s highlighted in Figure 1 has continued in the districts well into the first few years of the 21<sup>st</sup> century. This sudden and huge increase could be attributed to the impact of trade liberalization and globalization opening up the fishing sector for both national and export markets. However, like at the state level, the share of fishing in the total domestic product of the coastal districts has been declining. This decline is attributed again to a large increase in non-agricultural activities mainly in the tertiary sector, an issue that might affect fishers in the future (see below).

### **Past and Emerging Challenges**

The fisheries sector has proved to be much more resilient than many expected it to be. Fears of fishing becoming an uneconomic livelihood do not seem to have materialized with new market opportunities opening up. However, significant knowledge gaps exist in terms of new challenges such as the impact of new trade regimes and environmental standards and how this might affect fishers and fisher well-being. The fisheries sector also faces a very real set of more immediate challenges related to the legacy of Blue Revolution development and ongoing struggles between fisheries and other interests over legislation regarding the coastal zone.

It is also important to point out that fisheries development did not impact all fishers equally. The Blue Revolution resulted in a partitioning of the fishing economy. In addition to the traditional artisanal fisheries, a mechanized sector emerged that played a pivotal role in the

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export sector especially. This 'dual' economy also had adverse social impacts in terms of conflicts between artisanal and mechanized fishers especially in the 1970s and 1980s. Mechanized fishers had superior technology which often resulted in their ability to catch more fish and fish in deeper waters, resulting in artisanal fishers being marginalized. The Tamil Nadu Marine Fisheries Regulation Act, 1983, was aimed at delimiting areas for artisanal fishers and for mechanized fishers though conflicts sporadically continue (Bavinck 2001).

Table 2: Trends in Share of GSDP for fishing and agriculture across districts of Tamil Nadu (TN)

Coastal districts of TN	Share of Fishing in Agriculture GSDP			Share of Fishing in Total GSDP			Share of Agriculture in Total GSDP		
	1993-1994	1999-2000	2004-2005	1993-1994	1999-2000	2004-2005	1993-1994	1999-2000	2004-2005
Chennai	8.66	30.45	39.41	0.37	2.39	0.39	0.46	7.85	1.46
Kancheepuram	0.31	6.27	14.38	1.31	0.42	0.81	37.04	6.68	6.75
Thiruvallur	0.10	2.38	8.48	0.39	0.28	0.48	44.43	11.84	6.43
Cuddalore	0.39	6.72	19.84	0.37	1.79	3.45	13.42	26.61	21.14
Villupuram		3.80	2.81		0.85	0.68		22.41	25.43
Thanjavur	0.48	4.06	11.89	1.48	1.27	1.91	33.84	31.32	18.41
Nagapattinam	1.66	13.89	46.06	4.91	5.40	6.21	32.50	38.90	20.32
Thiruvarur		0.75	3.53		0.36	0.78		48.10	23.69
Pudukkottai	2.77	21.02	44.95	7.88	5.09	7.40	31.30	24.21	24.47
Ramanathapuram	5.04	51.84	97.84	13.02	10.95	14.09	28.45	21.12	29.02
<b>Tamil Nadu</b>	<b>0.47</b>	<b>6.15</b>	<b>8.82</b>	<b>0.97</b>	<b>1.00</b>	<b>1.01</b>	<b>22.39</b>	<b>16.32</b>	<b>12.80</b>

Note: All shares are for Gross State Domestic Product (GSDP) and are based on current prices as per the available data. These shares for Tamil Nadu may not be directly comparable to those in Figures 1 and 2 as those were compiled based on Net State domestic Product (NSDP) in constant 1960-61 prices. Source: Data provided by State Planning Commission, Government of Tamil Nadu

The marine census of 2005 shows that the increase in fisher population has not come mainly from a high population growth but perhaps from the inclusion of people not in fisheries earlier. While this might indicate the robustness of the sector, the entry of non-fishers into fishing could pose challenges to traditional fisher populations.

These challenges could be aggravated by the fact that the growth of fish landings which increased marginally for about a decade between 1985 and 1995 has flattened out after the late 1990s. There are of course minor variations in the pattern of this change across species type as shown in Figure 4 (Francis, 2007)<sup>6</sup>. This suggests that fish stocks might be getting exhausted which brings into question the sustainability of fishing and fisher livelihoods in the future.

<sup>6</sup> The authors would like to thank Irene Francis for allowing the use of data from her thesis.

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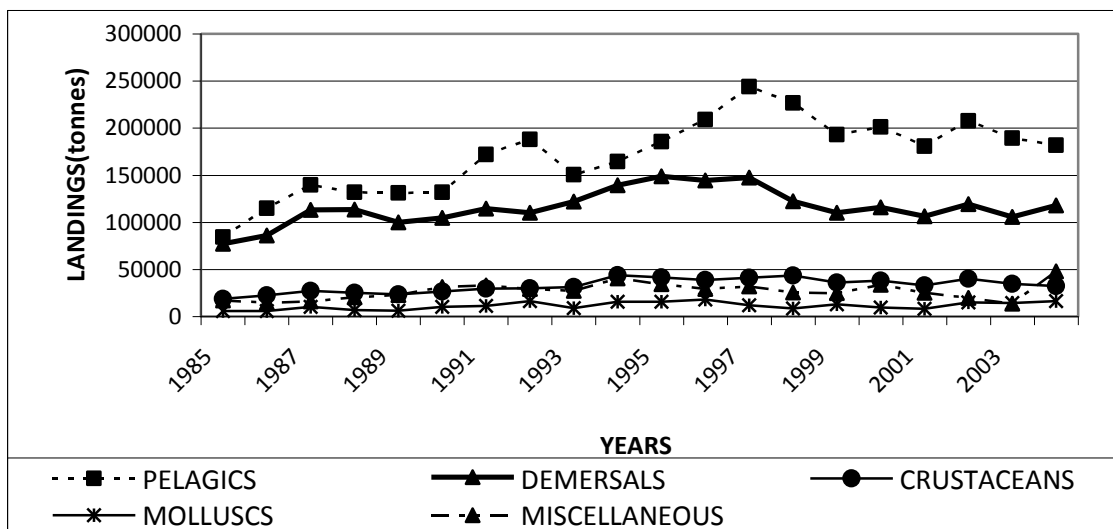
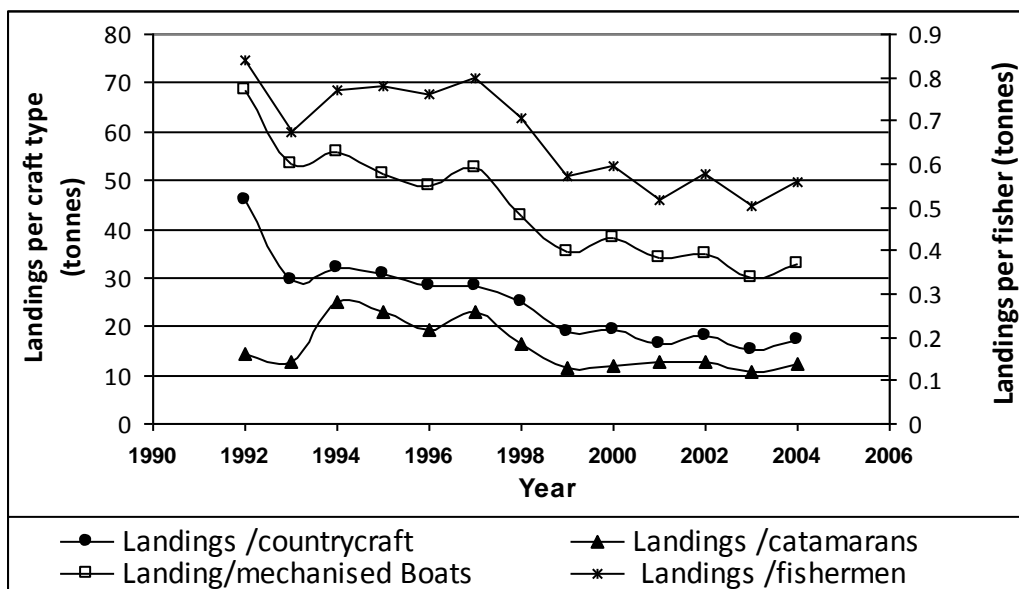


Figure 4: Fish Catch (tonnes) by species, Tamil Nadu. Source: Francis (2007)

Moreover, in the late 1990s, fish landings per fisher or landings by different craft type declined although the decline was arrested within four years and has remained stable as shown in Figure 5. The initial decline did not vary much with craft type as there was a parallel downward shift for all crafts. However, fishers using catamaran have become the worst off over the years being at the lower end of the share of landings. This would call for



a study to understand the impact on their livelihood and well-being.

Figure 5: landing per type of craft and landings per fisher population (tonnes). Source: Francis, 2007

Also, in the past twenty years, coastal development has been increasingly influenced by a broader set of interests, including the promotion of coastal tourism and significant industrial development along the coast. In addition to this, more people are living in coastal urban cities and towns putting increasing pressure on resources.

The growing interest in and competition for coastal space has been reflected in struggles over coastal zone regulation. While fishers have had some recent successes in promoting

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their interests, the long term erosion of their position has yet to be reversed in any concrete legal sense. Reflecting the growing diversity of demand for the use of coastal space, the CRZ notification of 1991 has been amended 25 times, with each amendment allowing more industrial activity on the coast. The tsunami has also had a profound impact on how coastal development is envisaged. The issue of 'fisher safety' has been raised and some argue has provided a *raison d'être* for the government to move fishing communities away from the coast in order to promote other sectors such as tourism and industry. The recent 2008 CMZ draft notification would appear to substantiate this claim. The broad aim of the notification was to manage, as opposed to, regulate development on the coast. Unlike the original CRZ notification which was based on the precautionary principle, the new CMZ notification more explicitly spoke about the importance and need for development (Menon et al. 2007). Sceptics worried that, despite talk about integrated coastal zone management and set back lines, the notification was aimed primarily at regularizing existing development on the coast. Many fishing villages, it was feared, which had been protected with no development zones in CRZ would no longer have been protected by such zones, seeing an influx of developmental activity (Sridhar et al. 2008).

But the fears over the new draft CMZ notification are partly of the past. The government's decision to let the notification lapse on July 22, 2009 as a result of concerted organization and mobilization by fishers and fisher unions and objections from the states means that the above mentioned concerns about diluting CRZ might not happen in the near future (MoEF 2009). The lapsing of the CMZ notification can be seen as a positive sign in terms of prioritizing the well-being of fishers. Having said that, the objections from state governments may be also be about seeking new legislation which is more favourable to the development interests of non-fisher coastal users, as much as they are about protecting fishers.

Moreover, fisher's rights to the coast are still not legislated in any way. Without an act such as The Scheduled Tribes and Other Forest Dwellers (Rights to Forest) Act, 2006, to grant them priority access to the coast, it seems likely that industrial, tourist, and other competing sectors will continue to pursue strategies to displace fishers from their livelihoods. This is all the more the case given the most recent development of special economic zones (SEZs) that could have an impact on coastal development and fisher wellbeing. Special economic zones (SEZs), like its predecessor export processing zones (EPZs) are located mainly in coastal states. Over 80 per cent of total SEZs in India are in coastal states. This does not imply, however, that they are on the coast; in fact most are not. Nonetheless, in Tamil Nadu one of the big SEZs is at Ennore. Also if the SIPCOT industrial estate at Cuddalore is anything to go by, problems of pollution are a possible threat (Narayan 2004). The real implications of SEZs and development on the coast are likely to be felt later if current plans remain on course. The ongoing threat of development has been illustrated most recently by the proposal to build an express highway from Chennai along the coast, a plan which will surely have impacts of its own in addition to catalyzing further coastal development. In summary, therefore, very significant threats to fisher wellbeing clearly remain from both within and outside the sector.

### **Conclusion: A Way Forward?**

The Millennium Ecosystem Assessment recognizes coastal ecosystems as being among the most ecologically threatened zones in the world. As the Tamil Nadu case illustrates, this pressure is driven by the intensification of human settlement and economic activity, of which fisheries is just one part. In this paper we have argued that fishers, and particularly small-scale fishers, should have pre-eminent rights of access to coastal resources. One argument for this is their right of prior residence; another is their direct livelihood dependence on

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marine resources which gives them an emblematic, if not always merited, place in terms of stewardship.

The Millennium Ecosystem Assessment also asks us to look to the regional history of resource use as a guide to understanding current patterns of degradation and barriers to addressing them. For Tamil Nadu's fisheries sector, the past 50 years have seen transformation driven at first by development aimed at the sector itself. More recently, the locus of change has shifted to other users of the coastal zone. Our analysis shows that there are important challenges within the sector arising from its Blue Revolution history. Among others, these are the lack of effective controls on entry into the sector, overfishing, and conflict between sub-sectors (cf. Bavinck 2001; Bavinck and Johnson 2008). In terms of the competition for access to the coastal zone, there are increasing pressures not only on the resource base by industrial and other users but also on the fishers who have derived a primary livelihood from the coast for many generations.

Wellbeing and interactive governance are two important and related entry points into addressing the place of fishers in coastal and marine resource sustainability in Tamil Nadu. While the challenges to halting and reversing marine resource degradation are huge, these perspectives provide the basis for a restorative strategy. From the perspective of the wellbeing of fishers and fisher communities, Blue Revolution impacts and recent changes in the nature of coastal development have exacerbated fisher uncertainties. Improvement in coastal and fisheries governance, again from the fisher perspective, would address these uncertainties. Most pressingly, a reformulated governance system would embrace principles related to social justice that would prioritize fisher rights to coastal resources. In terms of governance arrangements, this would mean a far stronger fisher voice in coastal zone governance. It would also mean that other policies in support of the fisheries sector intended to achieve such objectives as maintaining ecosystem health and moderating the volatility of the markets be embraced.

We recognize that such a reformulation of governance faces numerous challenges, although here also an interactive governance perspective provides guidance. A major challenge is that rules to address one dimension of the fisheries governance problem may be at loggerheads with others. This conundrum leads to hard choices that can only be resolved through processes of interaction that are designed to be as fair as possible. A further level of complexity arises as rules are set at multiple geographical scales (local, sub-national, national and international) which are often inconsistent. A third hurdle is that a new governance structure would need to combine formal and informal institutions – the former having the advantage of relative homogeneity and hence being easier to regulate while the latter varies from one group to other and hence preserves autonomy (Newton, 2007). The challenge, therefore, is to have institutional arrangements in place at multiple scales that recognizing the conflicting needs of various actors, attempt to address them, all the while having a clear priority list for coastal wellbeing. Again, we argue that fisheries should be considered to have a priority interest.

The data and the argument that we have presented here are but one step along a difficult and long-term path towards the more sustainable use of coastal and fisheries resources in Tamil Nadu. Our analysis has leant primarily on macro-level secondary data sources. There is a pressing need now to take insights such as we present here and link them carefully to the actual experience of fishers and fisher communities along the coasts of Tamil Nadu and elsewhere in South Asia. Some scholarly work has already been done in this regard (Bavinck 2001; Coulthard 2005) along with the very important work of pro-fisher organizations such as the South Indian Federation of Fishworkers' Societies, but much more remains to be

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undertaken. In particular, we need to develop governance arrangement that facilitate the understanding and supporting of fisher wellbeing.

### **Acknowledgement**

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