DRAFT REPORT ON DAMAGE ASSESSMENT AND LIVELIHOOD REHABILITATION STRATEGY FOR TSUNAMI AFFECTED COASTAL FISHERS IN TAMIL NADU, INDIA

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INTRODUCTION

The tsunami that affected 12 countries in the Indian Ocean region, wreaked considerable damage in the state of Tamil Nadu, India. The damage to lives, property and livelihoods requires a sustained and coordinated strategy towards rehabilitation.

Any possible intervention towards rehabilitation needs to take into account the socio-economic and environmental situation prior to the tsunami, to be more effective. The report that follows is, therefore, in two sections. Section I provides background information on the fisheries sector in Tamil Nadu, and on the fishing communities in the state. Section II provides available information on the damage caused by the tsunami on the fisheries and other sectors. It also proposes an outline strategy to address the fisheries-livelihood rehabilitation needs of the affected populations.

It needs to be noted that this report focuses mainly on the fisheries sector, as estimates suggest that about 85 per cent of the total damage is to the fisheries sector and to fisheries-based livelihoods. A more comprehensive assessment of damages to the agriculture and other affected sectors, and strategies for rehabilitation of livelihoods based on these sectors, is in order.

SECTION I
BACKGROUND

Livelihoods along the coast

Fisheries

Fishing and fisheries-related activities are an important activity along the Tamil Nadu coast. Apart from fishing itself, fisheries-related activities such as fish marketing, fish transport, loading, unloading and other labour associated with fish handling, fish processing (drying and curing), boat-making and repair, net making and repair, repair of engines etc., provide an important source of employment and livelihood. In the past two decades, there has also been an increase in aquaculture along the coast, particularly of shrimp.

Non-fisheries

Other important livelihoods along the coast include agriculture, marketing of agriculture produce, supplying inputs for agriculture, animal husbandry and livestock rearing, production of salt from salt pans, petty trade, moneylending, basket making, masonry, etc.

Figure1: TSUNAMI AFFECTED COASTAL COMMUNITIES

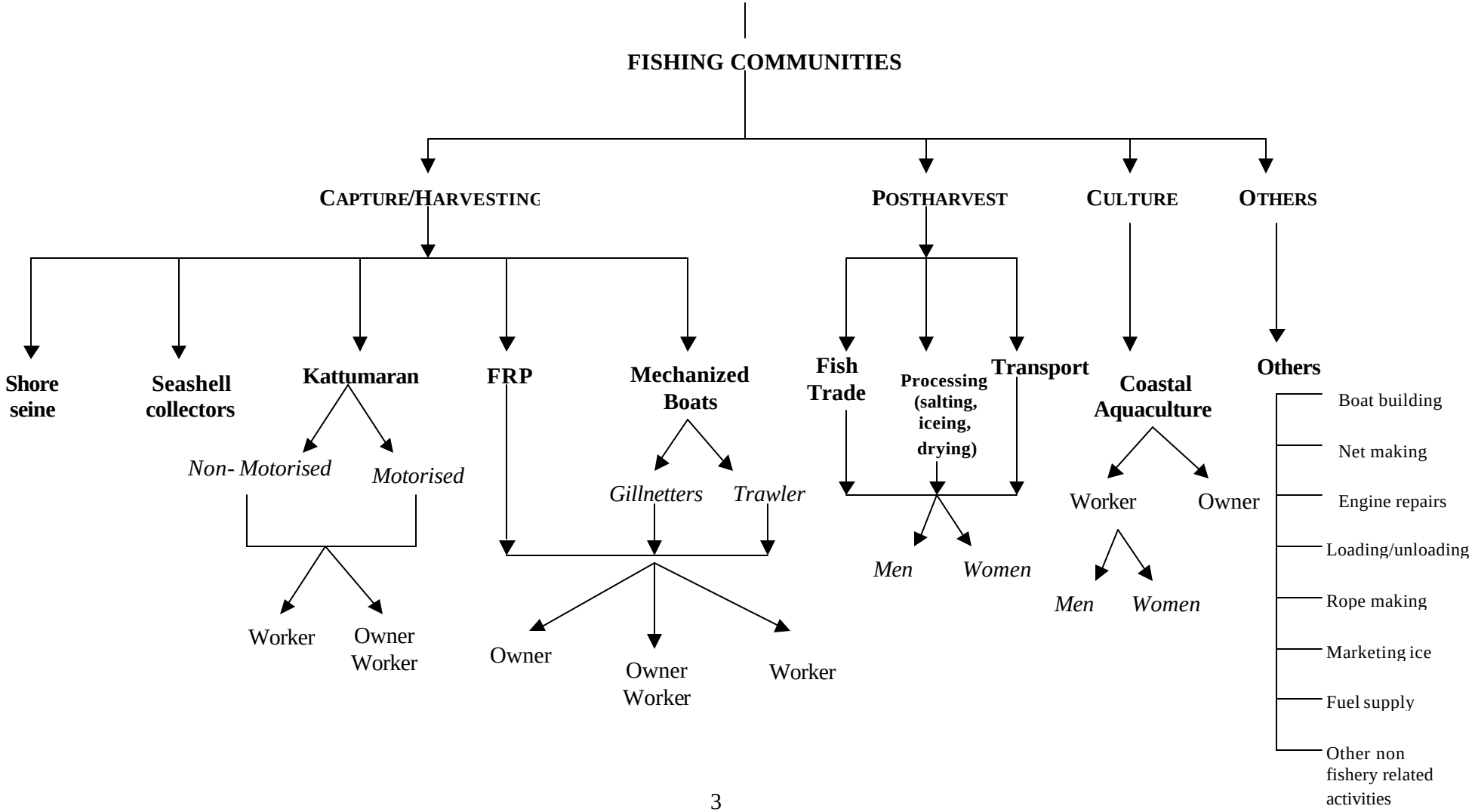
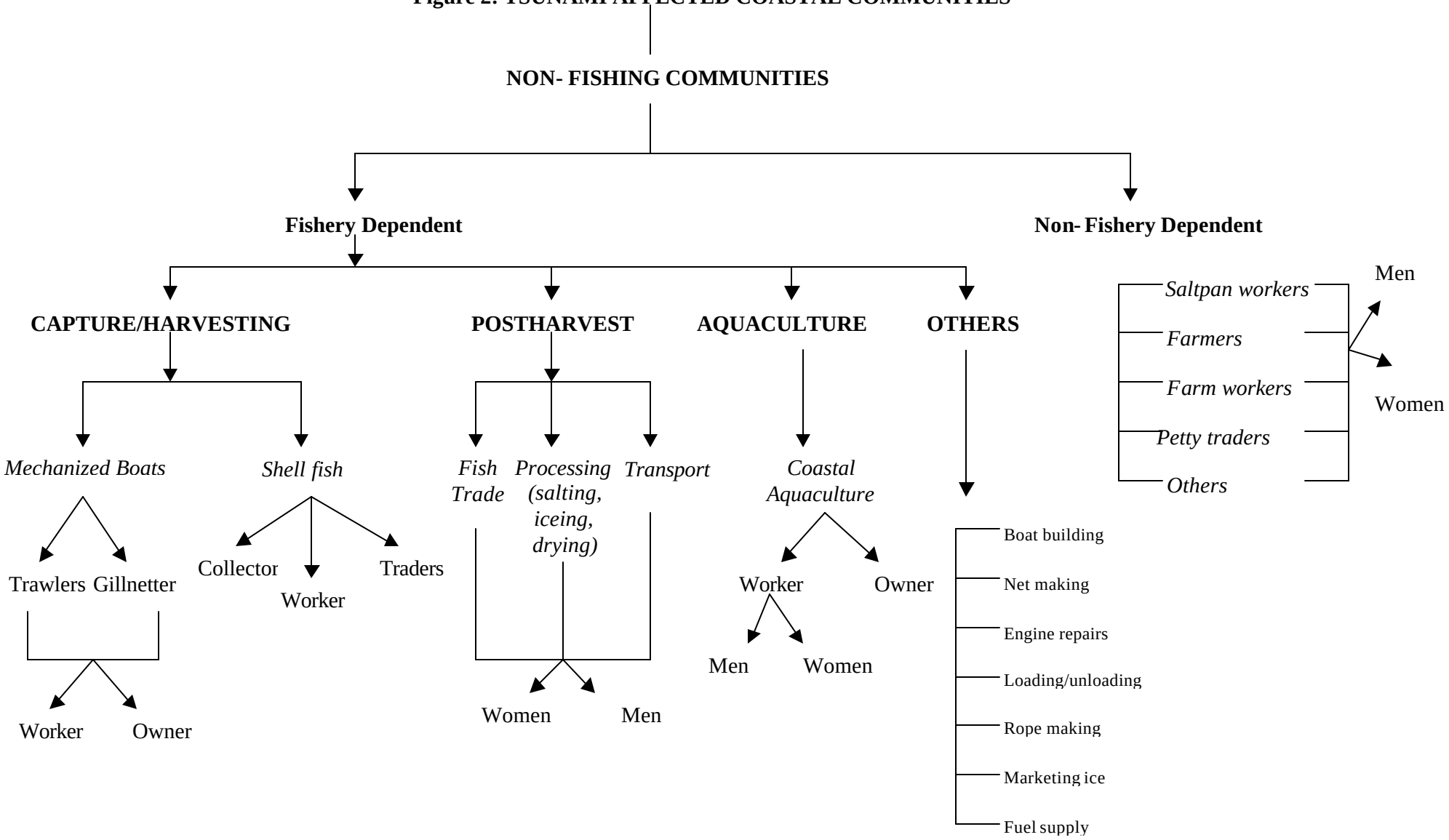


Figure 2: TSUNAMI AFFECTED COASTAL COMMUNITIES



All these activities together comprise the coastal economy, and are closely intertwined and interdependent. An impact on one has a domino effect on the others. Figure 1 and 2 bring out the interdependence within the coastal economy. It can be seen that fishing and fisheries-related activities are a major source of employment and income for both fishing and non-fishing communities, and that fisheries can be considered a major driver of the coastal economy in a rural context.

The Fisheries Sector

The following section provides brief information on the fisheries sector and on fishing communities in Tamil Nadu, to the extent that this information is relevant to the discussion on post-tsunami rehabilitation of livelihoods in the sector.

(1) The fisheries sector in Tamil Nadu

Physical features

Tamil Nadu has a long coastline of 1,076 km, of which about 60 km is on the west coast (Kanyakumari district). Table 1 provides the coastal length of each district.

Table 1: District–wise coastal length details

Sl.No	Name of the District	Coramandel	Palk-Bay	Gulf of Mannar	West Coast	Total
1	Chennai	19.00				19.00
2	Thiruvallur	27.90				27.90
3	Kancheepuram	87.20				87.20
4	Villupuram	40.70				40.70
5	Cuddalore	57.50				57.50
6	Nagapattinam	124.90	63.00			187.90
7	Thiruvarur		47.20			47.20
8	Thanjavur		45.10			45.10
9	Pudukkottai		42.80			42.80
10	Ramanathapuram		95.80	141.00		236.80
11	Thoothukudi			163.50		163.50
12	Thirunelveli			48.90		48.90
13	Kanyakumari			11.50	60.00	71.50
	Total	**357.20**	**293.90**	**364.90**	**60.00**	**1,076.00**

Source: Department of Fisheries, Govt. of Tamil Nadu, 2004

The tsunami affected mainly the Coromandel coast and parts of the west coast of Tamil Nadu. The following schema highlights the characteristics and different types of ecosystems along the Tamil Nadu coastline. It is to be noted that the type of fishing craft and gear along the Tamil Nadu coastline also varies according to the physical features of the coastline.

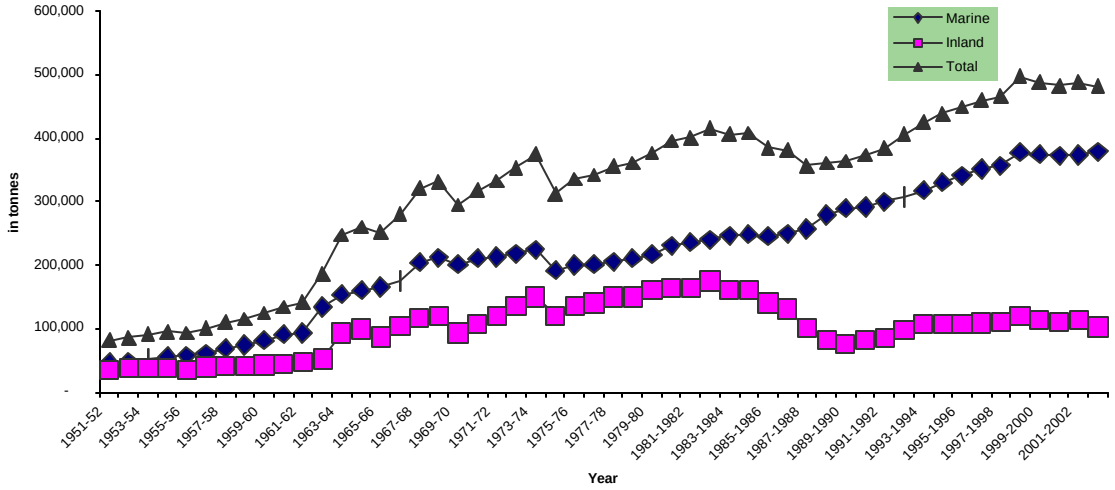
Coast Type	Ecosystems	Ecosystem Zonation
Muddy shallow (north) and high surf	Estuaries, delta, lagoons, mangroves, backwaters	Pulicat Lake, Coromandel coast,
Muddy, shallow (north)	Coral reefs, lagoons	Gulf of Mannar, Palk Bay
Rocky inshore and high surf		Cochin - Kanyakumari coast

Fish production

Given its long coastline, the fisheries sector is an important source of employment, income and food security in Tamil Nadu. In 2002-03, 63 per cent of the catch was of demersal species (such as pony fish, skates and ray, crabs and perches) and 37 per cent was of pelagic species (such as lesser sardines, carangids, mackerels).

Figure 3 below shows the fish production in Tamil Nadu from 1950 to 2003. It is to be noted that while marine fish production increased in the period between 1950 and 1998, from 1998-99 total marine production has stabilized, despite the fact that the number of mechanized vessels targeting marine resources has increased from 10,639 in 1998-99 to 11,889, in 2002-03. The number of *vallams* have also increased from 20,043 to 23,109 in the same period while the number of catamarans has more or less remained the same (see Table 2).

Figure 3: Tamil Nadu: Total Fish Production from 1950-2003



Source: Compiled from statistics brought out by the Department of Fisheries, Government of Tamil Nadu

Table 2: Details of fishing craft in Tamil Nadu from 1991-2003

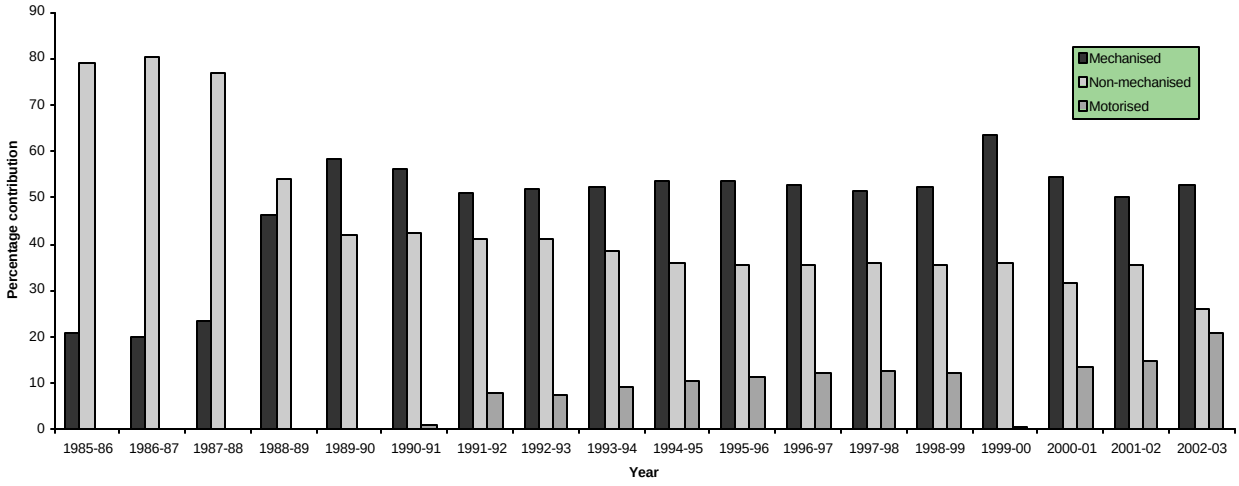
	Vallams	Catamarans	Country Craft	Mechanized Craft	Total
1991-1992		25,603	8,088	5,426	39,117
1992-1993		26,877	11,399	6,314	44,590
1993-1994		16,079	12,615	7,195	35,889
1994-1995		18,353	13,724	8,230	40,307
1995-1996		22,793	15,484	8,938	47,215
1996-1997		20,609	16,494	8,991	46,094
1997-1998	16,862	25,675		9,896	52,433
1998-1999	20,043	32,377		10,639	63,059
1999-2000	20,498	33,275		10,353	64,126
2000-2001	21,471	27,652		10,278	59,401
2001-2002	22,139	31,705		11,444	65,288
2002-2003	23,109	33,038		11,889	68,036

Source: Compiled from statistics brought out by the Department of Fisheries, Government of Tamil Nadu

Craft and gear-wise marine fish production

Figure 4 below is indicative of the changing structure of the marine fisheries sector in Tamil Nadu. It can be seen that till the early 1980s most marine fish production was from the non-mechanized sector (using catamarans). The importance of the mechanized sector (trawlers and gillneters) has since grown substantially. The 1990s has also seen the growth of motorization (motorized catamarams, motorized fiberglass [FRP] 'Maruti" catamarams), and the contribution of the motorized sector to marine fish production has increased substantially. There is a clear trend towards motorization and mechanization.

Figure 4: Tamil Nadu: Craft-wise Percentage Contribution to Marine Fish Production from 1985 - 2003



Source: Compiled from statistics brought out by the Department of Fisheries, Government of Tamil Nadu

Table 3 provides details of fishing craft registered in Tamil Nadu as on 31 March 2003. It is worth mentioning that according to informed sources, the number of vessels registered may be more than the actual number of vessels fishing, as there are no clear mechanisms for cancellation/ deregistration of vessels.

From Table 3 it can be seen that catamarans and *vallams* are still numerically in the majority, constituting 82.5 per cent of the total fleet in Tamil Nadu. However, according to available statistics they catch only 47.14 per cent of the total marine production. It can also be seen that mechanized vessels are concentrated in the districts of Ramanathapuram (includes stations of Rameswaram and Mandapam), Nagapattinam, Kanyakumari, Pudukottai and Chennai. This segment includes mainly trawlers. However, it also includes a smaller number of mechanized gillnetters, mainly in Nagapattinam and Kanyakumari.

Table 3: District-wise details of fishing craft in Tamil Nadu as on 31 March 2003

Name of the Station	No. of craft registered as on 31.3.2003			Total
	Mechanised Boats	Vallam	Catamarans	
Chennai	1,094	12	1,102	2,208
Kancheepuram & Thiruvallur	11	977	6,673	7,661
Cuddalore & Villupuram	975	367	6,549	7,891
Nagapattinam	2,419	628	7,067	10,114
Thiruvarur & Thanjavur	572	2,032	194	2,798
Pudukottai	1,113	2,246	-	3,359
Ramanathapuram	851	6,220	-	7,071
Rameswaram	1,561	2,058	200	3,819
Mandapam	702	402	-	1,104
Thoothukudi & Thirunelveli	930	3,960	5,702	10,592
Kanyakumari (East)	232	130	1,194	1,556
Kanyakumari (West)	1,429	4,077	4,357	9,863
Total	**11,889**	**23,109**	**33,038**	**68,036**
Percentage to total	**17.5%**	**34%**	**48.5%**	

Source: Department of Fisheries, Government of Tamil Nadu, 2004

An analysis of the fish production by mechanized vessels over time is revealing, as shown in Table 4. Even though the mechanized fleet has almost doubled between 1992-93 to 2002-03, the total fish production from the mechanized sector has increased by only 26 per cent, and the average annual catch per vessel has actually declined by 33 per cent (assuming that all vessels registered are actually fishing).

Table 4: Comparison of fish production by mechanized vessels across two time periods

	1992-1993	2002-2003	Percentage of variation over the last ten years
Number of Mechanized boats (registered)	6,314.00	11,889.00	88.30
Marine fish production from mechanized boats (in tonnes)	158,888.00	200,467.69	26.17
Average Catch per mechanized boat per year (in tonnes) *(assuming that all vessels are fishing)*	25.16	16.86	(-32.99)

Source: Fisheries Statistics, Department of Fisheries, Government of Tamil Nadu, 1994 and 2004

Conflicts between sub-sectors and status of coastal fish resources

The non-mechanized and the motorized sub-sector can broadly be categorized as the artisanal or traditional sector—even though use of motors and new net materials are clear indications of modernization. The trawlers, however, represent a distinctly different interest group in fishing, requiring much higher levels of investment. Conflicts, sometimes violent, between the two sub-sectors, both over space and resources, have been common over the past two decades. The artisanal sector has been pointing to the destructive environmental impact of bottom trawling, particularly in inshore waters, on the benthic ecosystem and on fish resources. They allege that overfishing by trawlers has impacted negatively on their catches and their livelihoods.

Several studies have also referred to the destructive and non-selective nature of trawl gear, particularly of bottom trawls and high-open bottom trawls. Devaraj and Vivekanadan (1999) point out, for example, that non-selective trawls indiscriminately exploit almost every fishery group. They further note that the very small mesh size in the cod end of the net used by trawlers is responsible for the exploitation of large quantities of juveniles of all the economically important large-sized fishes (bycatch), which are either used as fishmeal for poultry or discarded in the sea.

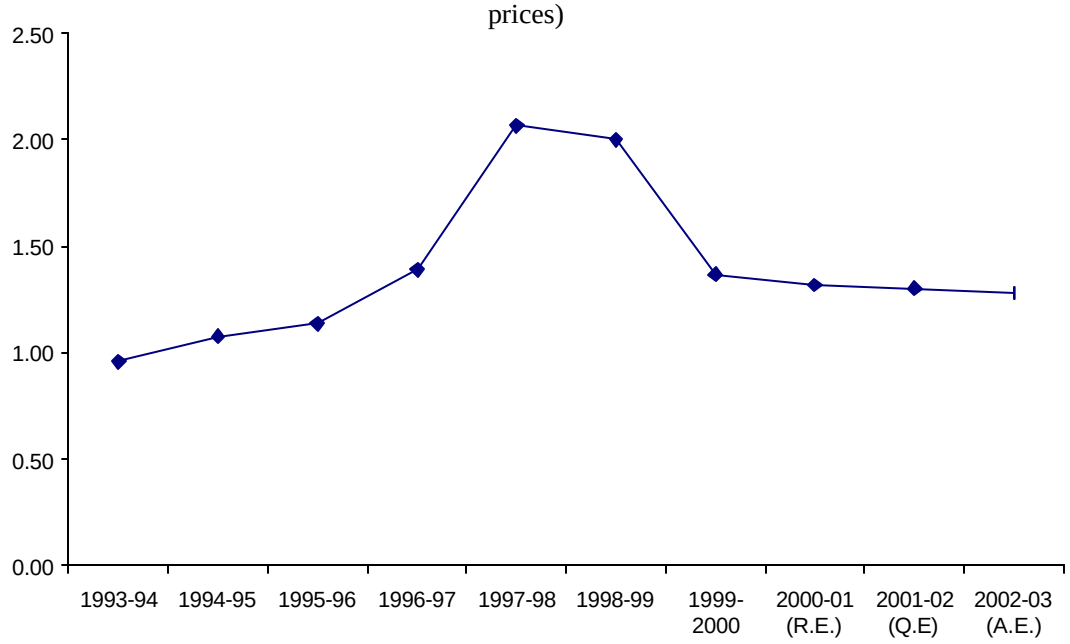
Research indicates that resources in Tamil Nadu and other parts of India are under pressure. Devaraj and Vivekanandan (1999) found that the catch rate of fishing vessels in several fishing centres is on the decline. They found, for example, that the catch rate of trawlers based in Chennai had declined from 110.8 kg/h in 1991 to 29.7 kg/h in 1997. That mechanized trawlers from Tamil Nadu are forced to cruise further to fish, is yet another indication that fishing is not economically viable for the trawlers anymore along the Tamil Nadu coastline. Thus, it is common for trawlers based in Chennai to fish in waters off Andhra Pradesh and Orissa, while trawlers based in the south, in Nagapattinam and Rameswaram, fish in Sri Lankan waters. There have been many instances where trawlers from Tamil Nadu have been arrested/ detained, particularly in Sri Lanka, but also in Andhra Pradesh. In the case of Andhra Pradesh, trawlers from Tamil Nadu are detained by local communities.

As coastal and inshore resources come under greater pressure, the most affected are the fishermen on non-mechanized craft using passive gear, numerically in the majority, who face depleting catches and increasingly vulnerable livelihoods as a result of non-selective fishing practices adopted by the rest of the fleet.

Contribution of the fisheries sector to SDP

The figure below (Figure 5) shows the contribution of the fisheries sector to the State Domestic Product (SDP) of Tamil Nadu at current prices. It can be observed that between 1993-94 and 2002-03, the contribution of the sector has ranged between about 0.96 to 2.07 per cent. It can also be seen that the percentage contribution has fallen from about 2.07 per cent in 1997-98 to about 1.28 per cent in 2002-03. Given that the fisher population has risen in the same period, this would imply that the fishery sector product per fisherperson has actually declined sharply. This has to be seen also in the light of increasing costs of inputs required for fishing operations. This analysis further reinforces the fact of the difficult situation existing in the fisheries sector in the pre-tsunami period.

Figure 5: Contribution of Fisheries to total State Domestic Product (at current prices)



Source: Tamil Nadu Statistical Handbook, 2003

It is evident from the above discussion that even in the pre-tsunami period all was not well in the fisheries sector, both in terms of resources and in terms of incomes from the fisheries, with implications for the wellbeing for those in the sector. The need to match fishing capacity to available fish resources is an important aspect to keep in mind in the post-tsunami period, to ensure that those in the sector, particularly the vulnerable groups who have few other livelihood options available, are able to earn a decent and sustainable livelihood.

Brackishwater shrimp aquaculture

Brackishwater shrimp aquaculture in Tamil Nadu was initiated in the early 1990s, and has since grown in importance. Table 5 and 6 provide information on the current status of shrimp aquaculture in Tamil Nadu. It can be seen that Nagapattinam district has the largest area under shrimp farms in Tamil Nadu, followed by Cuddalore and Ramanathapuram districts. It can be seen that only 16 per cent of total farms have obtained licenses, while the remaining are in the process of obtaining licenses.

Table 5: Salient information about brackishwater shrimp aquaculture in Tamil Nadu

Shrimp aquaculture potential (in ha)	56,000
Area developed for shrimp aquaculture (in ha)	4,455
Area under utilisation (in ha)	2,900
Total no. of shrimp farms in Tamil Nadu	2,778
Total no. shrimp farms in operation	1,846
Farms applied for licence	1,271
No. of licence issued	297
Applications for clearance with Aquaculture Authority	267
Applications for clearance with district committee	606
Number of hatcheries	68

Source: Central Institute for Brackishwater Aquaculture, 2004

Table 6: Area under shrimp culture, by district

District	Area (ha)	Production (tonnes)
Thiruvallur	60.50	100
Kancheepuram	80.20	150
Villupuram	78.70	135
Cuddalore	325.00	535
Nagapattinam	927.00	1585
Thiruvarur	72.75	150
Thanjavur	139.00	235
Pudukottai	76.00	140
Ramanathapuram	312.50	485
Thoothukudi	40.00	50
Thirunelveli	4.00	3.3
Kanyakumari	6.11	3.2
Total	**2121.76**	**3571.50**

Source: Central Institute for Brackishwater Aquaculture, 2004

It is to be noted that coastal communities in Tamil Nadu, as well as groups and organizations working with them, have been highlighting the negative environmental and

social impacts of unregulated brackishwater shrimp aquaculture. Fishing communities have pointed to aspects such as the loss of direct access to the sea due to expansion of shrimp farms; biodiversity loss as a result of clearing mangroves to make way for shrimp farms and as a result of effluent discharge from aquaculture farms; depletion of catches as a result of destructive practices adopted in collection of shrimp fry, etc. It has further been pointed out that coastal communities living near aquaculture farms have often had to contend with land alienation, disruption of drainage channels, as well as salinization and pollution of groundwater and other sources of water. Any post-tsunami rehabilitation intervention must take into account these concerns regarding environmental and social sustainability of shrimp aquaculture operations.

(2) Fishing Communities in Tamil Nadu

Socio-economic vulnerability of fishing communities

Information from the Fisherfolk Censuses conducted by the Tamil Nadu Department of Fisheries in 1957, 1978, 1985 and 2000 reveals that the population of fishing villages has almost tripled from 236,600 in 1957 to 679,700 in 2000, as has the population of active fishers (Table 7). It presently forms about 1.1 per cent of the total population of the State.

Table 7: Marine Fisherfolk Census: A Comparative Picture

Parameter	1957	1978	1985	2000
Number of coastal villages	242	402	442	591
Percentage increase		*66.12*	*9.95*	*33.70*
Total fisher population (in 000s)	236.6	337.7	463.8	679.7
Percentage increase		*42.7*	*37.33*	*46.55*
(Annual rate of growth)		*(1.9)*	*(4.66)*	*(2.90)*
Male population (in 000s)	84.4	173.17	236.50	348.3
Female population (in 000s)	85.1	164.53	227.29	331.39
Active fisher population (in 000s)		80.03	101.86	231.81
(Annual rate of growth)			*(3.41)*	*(7.97)*
Number of families		66,235	87,085	1,43,743
(Annual rate of growth)			*(3.93)*	*(4.06)*
Average family size		5.09	5.33	4.68
Literate			197,232	399,067

Source: Compiled from Marine Fisherfolk Census1957, 1978, 1985, 2000. Department of Fisheries, Chennai

According to the Fisherfolk Census data, the annual rate of population growth during the period 1985 to 2000 is 2.91, which is much higher than State average of 1.12 and the national average of 1.9 in the decade 1990-2000. This would indicate a higher rate of population growth in these communities. However, it is possible that this is a result of migration into these communities. The fact remains, however, that the population in fishing villages has increased, undoubtedly with implications for living conditions and pressure on resources.

A techno-socioeconomic survey of fishermen households in Tamil Nadu in 1987[2], (in 10 per cent of the marine fishing villages in the State, totalling 7,842 households) indicated that among all the districts in the State, Chennai and Kanyakumari districts had a higher density of marine fishermen population per sq km of coastal length, i.e. 1,778 and 1,690, respectively. The average density in the State was 464 marine fishermen per km of coastal length. In 2000, the density of population per sq km of coastal length is 1,929 in Kanyakumari, while, in Chennai, it is as high as 3,740. The average density in the State has increased to 632 marine fishermen per km of coastal length.

The data from the Fisherfolk Census indicates, however, that average family size has reduced to 4.68 members per family in 2000, from 5.33 in 1985. This is in keeping with national trends.

The sex ratio in fishing villages, an indicator of the status of women, is seen to be as low as 957, as compared to the State average of 985, which, in itself is low, and reflective of the discrimination again women in the society. This is clearly a cause for concern.

The literacy rate in fishing communities, in keeping with the above trend, is also seen to be lower at 64.47, as against the State average of 73.5. It is worth noting that that the literacy rates in coastal districts of Tamil Nadu are even higher, at 76.35, indicating that fishing communities remain `outliers' even in districts which fare relatively better on indicators such as literacy and sex ratio (Table 8). While interpreting this data, however, the fact that it is drawn from two different sources needs to be kept in mind.

Table 8: Human Development Indicators for fishing communities: A comparative picture

Parameters	Tamil Nadu		
	All Districts	Coastal Districts	Marine Fishing Villages**
Population (2001)	62,111,000	28,479,000	679,771
Population (1991)	55,859,000	25,910,000	463,800*
Annual Growth Rate	1.12	0.99	2.91
Literacy Rate	73.5	76.35***	64.47
Sex Ratio	985	1004***	957

Source: Tamil Nadu Human Development Report (2003)
** for the year 1985*
*** source: Marine Fisherfolk Census 2000. Department of Fisheries, Government of India*
**** average for coastal districts*

The data from the Fisherfolk Census also shows that, while the numbers living in terraced and tiled houses have increased since 1978, indicating an improvement in housing conditions, even in 2000, the vast majority of fisherfolk (almost 36 per cent) live in thatched houses, while about 12.8 per cent live in houses not owned by them, an increase over the previous census. From Table 9 on housing in districts most badly affected by the tsunami, it can be seen that in Nagapattinam the proportion of those living in thatched houses is much higher at 59.17 per cent, while in Kanyakumari only 13.71 per cent live

[2] Institute for Techno-Economic Studies (ITES), 1987. Study Report on Techno-Socio-Economic Survey of Fishermen Households in Tamil Nadu. ITES, Chennai

in thatched houses. It is also worth observing that the proportion of fisherfolk living in houses constructed by the Government of Tamil Nadu, is very high (between 40 and 54 per cent) in three tsunami-affected districts: Kancheepuram, Cuddalore and Villupuram.

Table 9: Details of housing in badly-affected districts (Percentage distrbution)

	Terraced	Tiled	Thatched	Houses consttd by Govt
Nagapattinam	10.08	11.20	59.17	19.54
Kanyakumari	20.85	43.27	13.71	22.16
Cuddalore	12.66	14.37	32.39	40.58
Chennai	55.83	14.78	29.39	0.00
Kancheepuram	14.01	7.43	35.64	42.92
Villupuram	9.40	11.89	25.15	53.56
Total for coastal districts	20.36	22.59	35.97	21.07

Source: Census of Marine Fisherfolk, Department of Fisheries, Government of Tamil Nadu, 2000

The earlier mentioned techno-socioeconomic survey of fishermen households in Tamil Nadu in 1987 also indicated that sanitation facilities in the marine fishing village surveyed were poor, and that the open beach was used as toilet. It also revealed that none of the sampled households owned agricultural land, indicating an almost complete dependence on fisheries for a livelihood. Based on information collected, the study concluded that the bulk of the fishermen lived below the poverty line. Available data would, therefore, seem to indicate that fishing communities in Tamil Nadu are highly vulnerable from a socio-economic perspective.

Vulnerability of fishing communities due to environmental factors

It is also important to mention that even though over time there has been an improvement in incomes, in literacy and in housing, fishing communities in Tamil Nadu and elsewhere, are increasingly vulnerable from an environmental perspective. Apart from the fact that they occupy the margins of the land mass and are exposed, on a regular basis to cyclones, typhoons and other natural disasters, in many parts of Tamil Nadu the lands they occupy are also exposed to sea erosion.

In addition, being at the receiving end of land-based activities as it were, coastal communities also bear the brunt of environmental degradation and pollution caused by land-based sectors. These activities take a heavy toll on the coastal and marine environment and biodiversity, and directly impact on productivity of fisheries resources and fish catches. Again, the impact of such negative developments are most acutely felt by those traditionally fishing in coastal and inshore waters using non-mechanized craft who are not able to relocate to fish in less polluted or more resource-rich fishing grounds. Negative impacts are also experienced by those fishing, collecting and gleaning in coastal and intertidal areas without boats, many of whom are women, such as those who engage in gleaning activities—work that involves wading in water for many hours. This also exposes them to serious health risks, as in the estuarine area near the Cuddalore industrial area in Tamil Nadu. It needs to be mentioned that many *dalit* and tribal communities are involved with fishing/ gleaning/ collecting in backwaters.

Community structure

The tsunami affected large parts of Tamil Nadu, particularly the Coromandel coast along the Bay of Bengal, and Kanyakumari district in the south-west. Along the Coromandel coast of Tamil Nadu (between the districts of Thiruvallur and Nagapattinam), the *Pattanavars* are the main caste involved in fishing, while Kanyakumari is dominated by the *Mukkuvars*. Kanyakumari also has the *Paravas*. The *Mukkuvars, Pattanavars* and *Paravas* have traditionally been fishermen and are known for their high levels of skill.

Among the *Pattanavars*, where the predominant religion is Hinduism, the most important institution at the community hamlet (*kuppam*) level for the fishing community is the caste *panchayat*, with the *talaivar* as the head. Its most important role is in the realm of conflict resolution in fishery and/or related social issues in the village. This institution is a nested structure working from the village upwards. Though patriarchal and hierarchical in nature, with no overt political affiliation, these *panchayats* tend to choose leaderships that have a locus with the political party in power in the state. They have their own funds, largely raised through a "tax" levied as a percentage of fish sales of the individual fishermen. These funds are utilized for community-related expenses. The decision-making process of the caste *panchayats* is relatively "open"—in that they are taken in a physical space (on the beach front, the temple portal etc), which is public in nature.

Among the *Mukkuvars*, where the predominant religion is Christianity, the caste *panchayats* have been 'superceded' by the church committees with the parish priest playing the role of *talaivar*. In these villages too a church tax is levied and utilized for community-related expenses. The decision making process may be less 'open', but the tradition of an occasional community gathering can be said to lend the air of democratic process to the institution. More recently the formation of smaller neighbourhood groupings (Basic Christian Communities) give greater representativeness to the community.

Other caste groups in fishing villages and in coastal areas

Data from the fisherfolk census reveals that, overall, about two percent of the population of fishing villages or *kuppams*, belong to the Scheduled castes (SC) and Scheduled Tribes (ST). Details of these populations in the most affected districts, as mentioned in the Marine Fisherfolk Census of 2000, are provided below (Table 10). It can be seen that SC populations within fishing villages are found in Nagapattinam, Chennai and Kancheepuram, while the ST population is mainly in Cuddalore and Chennai.

Table 10: Caste composition of fisherfolk villages in badly-affected districts

District	Community						Percentage to total population	
	Forward	Backward	Most Backward	S.C.	S.T.	Total	S.C	S.T
Nagapattinam	0	2273	76627	868	0	79768	1.09	0.00
Kanyakumari	0	19776	118154	10	0	137940	0.01	0.00
Cuddalore	0	109	39637	75	761	40582	0.18	1.88
Chennai	1118	1379	67729	792	39	71057	1.11	0.05
Kancheepuram	0	29	25255	525	0	25809	2.03	0.00
Villupuram	0	6	14917	0	0	14923	0.00	0.00
Total for above districts	1118	23572	342319	2270	800	370079	0.61	0.22
Total for all coastal districts	1244	122273	535442	19312	1440	679711	2.84	0.21

Source: Marine Fisherfolk Census 2000. Department of Fisheries, Government of India

Dalit and tribal communities, both those living within fishing villages and outside it, are also known to participate in and depend on fisheries in various ways. According to a report by the National Campaign on Dalit Human Rights, in tsunami-affected coastal areas the economic livelihoods of *dalits* is inextricably linked to that of the fisherfolk in various ways. Members of these communities are known to engage in fishing, particularly in backwaters. They are also employed as crew, as loaders and unloaders, in vending fish and in manufacturing and selling salt. Apart from this, in south Tamil Nadu, *dalits* are engaged in collection of seashells and conches. *Dalits* in coastal areas also work as agriculture labour and as labour in saltpans. Some families are also engaged in farming and livestock rearing.

The *Irulas,* a tribal group with a total population of population of about 1.5 lakh persons, are concentrated in north-eastern Tamil Nadu. The *Irulas* do not own land, the literacy rate is less than 4 per cent, and they suffesr from social and economic discrimination. They are traditionally a forest-based community that inhabited the Eastern Ghat scrub hills fringing the coastline. Following the displacement of these communities from forests, some *Irula* communities settled at the mouths of rivers and canals, near the coast. They engage in fishing in backwaters (for fish, prawns, etc.). They also fish in coastal areas, using catamarans and nets, or work as labour on shore or as crew on fishing vessels.[3] They also find work as labour on agriculture farms, rice mills etc. *Irula* communities located near the coast were also affected by the tsunami.

Women in the fisheries sector

Women are an integral part of the fisheries in Tamil Nadu. While they are predominantly involved in the post-harvest sector, in marketing and processing fish, they are also known to be active in pre-harvest activities, such as repair of nets, and, in some cases, in fishing. However, there has been a general policy neglect of women in the fisheries sector, with the state providing greater attention and support to fish harvesting activities, and to higher-end processing for the export market. Comparatively little attention has been paid

[3] Information on Irulas has been obtained from the Irula Tribal Women's Welfare Society, based in Chengalpet, Tamil Nadu

to the improving marketing and processing for the domestic market, and towards improving economic opportunities and livelihoods of those involved in this sub-sector. It is also worth noting that women are often absent from traditional decision-making structures at the community level, such as the caste *panchayats.*

Some other institutions at the village level

Self-help groups

In the last few years there has been a great focus on encouraging women to form Self-Help Groups (SHGs) as part of the larger trend towards the same in Tamil Nadu. The Policy Note for 2004-05, prepared by the Fisheries Department, notes the presence of 314 fisherwomen SHGs with 6,000 members functioning in seven districts of the State as of 31 March 2003. The SHG members have been given training and are engaged in various economic activities, including freshwater prawn farming, ornamental fish raising, integrated fish farming, crab and lobster fattening, pickle making, fish drying, fish marketing etc. They have also been supported in obtaining economic assets, such as catamarans and nets. Reports suggest, however, that marketing has been a major bottleneck in strengthening the economic activities of the SHGs.

Fishermen/ fisherwomen cooperatives

Fishermen/ fisherwomen cooperative societies exist in Tamil Nadu. These were first organized with the objective of providing an "indispensable means for preventing exploitation by middlemen, removing the indebtedness of fishermen and increasing production" (Third Five-Year Plan).

As of 31 March 2003, there were 505 Marine Fishermen Cooperative Societies and 253 Marine Fisherwomen Cooperative Societies with 3,78,457 members. There were also 19 other types of cooperative societies (engaged in prawn farming, marketing and boat construction) with 3,559 members, 11 District Fishermen Cooperative Federation and one State Federation (Policy Note 2004-05, Fisheries Department). Kanyakumari and Nagapattinam had the highest number of marine fishermen cooperative members, while Chennai, Kanyakumari, Ramanathapuram and Cuddalore have the highest number of marine fisherwomen cooperative members.

The Tamil Nadu State Apex Fisheries Cooperative Federation Limited (TAFCOFED) has a membership of 580 Primary Fishermen Cooperative Societies and 9 District Fishermen Cooperative Societies and has been implementing Integrated Marine Fisheries Development Project with financial assistance from the National Cooperative Development Corporation (NCDC).

Field reports suggest, however, that the cooperative societies in Tamil Nadu have not been very effective and that their main role is limited to channelizing government schemes to fisherfolk, and that they have not really achieved the objectives with which they were set up.

Other relevant aspects

It is also in order to mention other aspects of the political economy of fishing communities that will have implications for rehabilitation measures considered. These are mentioned in brief. However, more detailed references can be provided if required.

The sharing system

A distinguishing feature of small-scale fisheries in many parts of the developing world, including Tamil Nadu, is the prevalence of the sharing system—earlier often kinship-based— implying a sharing of the risk between owner and crew. The sharing system can also be observed in the mechanized sector in Tamil Nadu. This also makes it a more equitable society, where class relations may not be so well developed.

Credit and indebtedness

Credit plays an important role in the fisheries sector. Credit, often provided through informal sources, has played a major role in fuelling investment and technological change in the sector. The role of credit has become even more important in recent years, given the higher costs of inputs, and the greater pressure and competition over resources.

A techno-socioeconomic survey of fishermen households in Tamil Nadu in 1987 revealed that most of the families (62.6 per cent) were indebted, with a debt amount averaging Rs 3,100. As many as 58 per cent had borrowed from moneylenders (at an interest rate of 36 per cent), 13 per cent from banks, and about 8 per cent each from traders, cooperative societies and other relatives, respectively, while the rest had borrowed from boatowners. Clearly, the informal sector was the most important source of credit, while only about 20 per cent of the credit was accessed from formal sources. This is also linked to the fact that formal sources of credit are not adapted well enough to the realities of the sector, making it more difficult to obtain and repay loans.

Where credit is obtained from traders and merchants, it often means that the fishermen are bound to sell their fish to the trader who has advanced them money, implying that they are unable to sell to the highest bidder. As in other sectors, it is likely that fishermen with few or no assets find it more difficult to access credit from formal sources, and have to resort to informal sources of credit, often at much higher rates of interest.

Little recent data on this issue is available. However, it is likely that levels of indebtedness, both to formal and informal sources, are very high among the fishing community. In the aftermath of the tsunami an important issue to understand will be the extent and type of indebtedness among the affected population.

In conclusion, this section has tried to provide information on various aspects of the fisheries sector, and of the communities dependent on this sector for a livelihood in Tamil Nadu. Given that even in the pre-tsunami period all was not well in the fisheries sector, with implications for the wellbeing for those in the sector, it is essential that post-tsunami rehabilitation strategies lead to a better quality of life for those dependent on fisheries for a livelihood. This would also be in keeping with the main objectives for fisheries set by the Tamil Nadu Tenth Five Year Plan (2002-2007), to encourage fishermen to exploit the

underutilized fishery resources, to reduce fishing pressure in the inshore areas and to uplift the socio economic condition of the fisherfolk through welfare measures and by generating employment opportunities for fisherfolk.

SECTION II:
DAMAGE ASSESMENT AND LIVELIHOOD REHABILITATION STRATEGY FOR TSUNAMI AFFECTED COASTAL FISHERS

a) Provide an overall assessment of the damage to the livelihood of small fishers, fish vendors and processors, and wage labourers as well as coastal farmers from the impact of the tsunami

This section provides an overall assessment of the damage to the livelihood of small fishers, fish vendors and processors, and wage labourers as well as coastal farmers from the impact of the tsunami. It further provides estimates of damages to other sectors, where such estimates are available.

Areas affected in Tamil Nadu

The attached map shows the areas affected by the tsunami in Tamil Nadu. The government of Tamil Nadu has classified tsunami-affected areas into badly affected and partly affected. The badly affected area, according to the government, covers six districts, that is Kancheepuram, Villupuram, Cuddalore, Nagapattinam., Chennai and Kanyakumari, covering a coastal length of 464 kms (of the total Tamil Nadu coastline of 1,076 km). The remaining seven coastal districts, that is Thanjavur, Thiruvarur, Thiruvallur, Pudukottai, Ramanathapuram, Thirunelveli and Tuticorin, have been classified as partly affected.

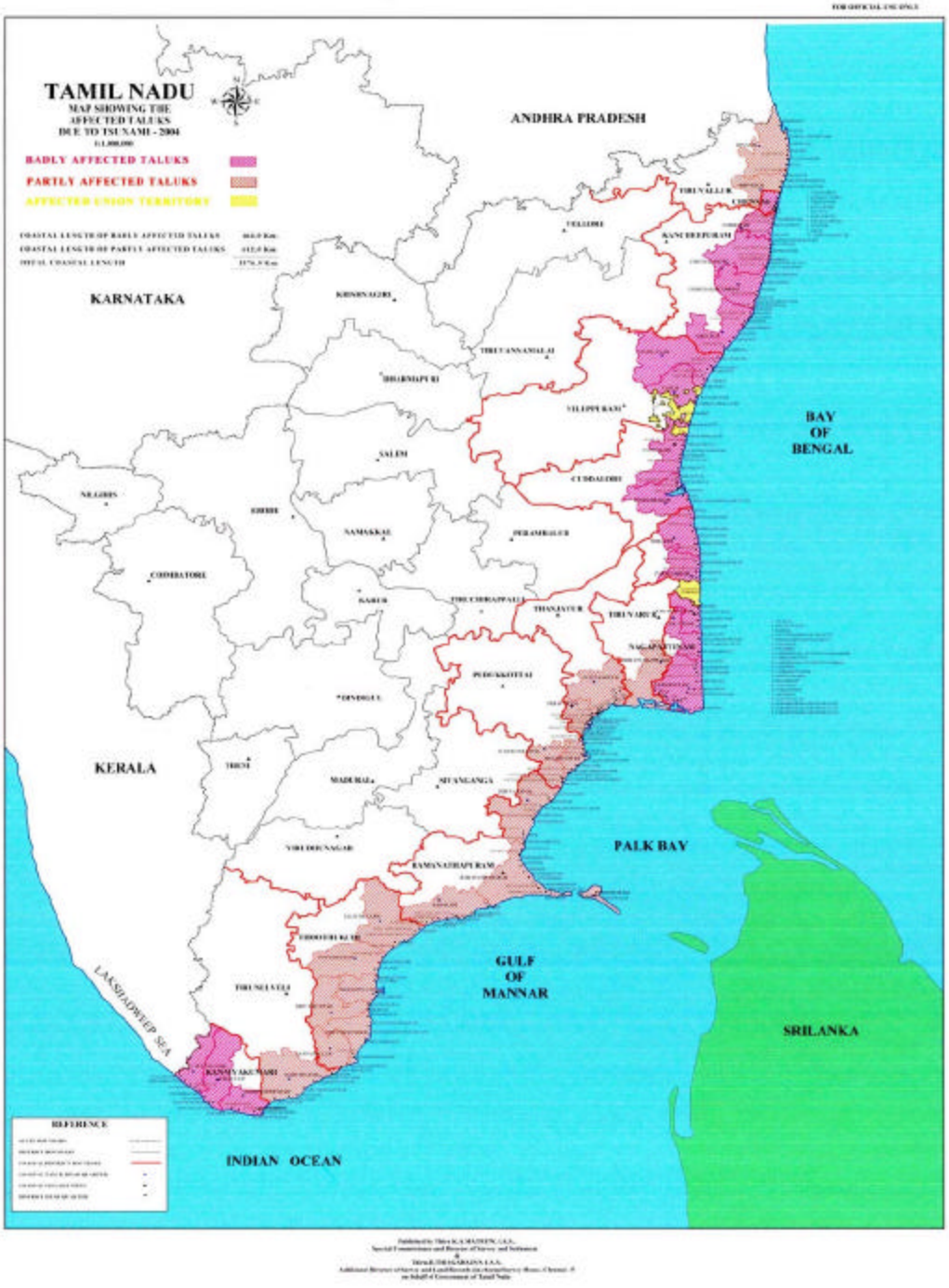
The following table (Table 11) provides a detailed description of the severity of impact in different areas/ districts of Tamil Nadu.

Table 11: Severity of impact in tsunami in Tamil Nadu, by district

Area	District(s)	Nature of impact	Severity
Chennai-Cuddalore	Chennai, Thiruvallur, Kancheepuram, Villupuram, Cuddalore	Loss of life, houses and livelihood	Moderate to low
Nagapattinam	Nagapattinam	Loss of life, houses and livelihoods	Severe
Palk Bay	Pudukottai, Ramnad	Negligible impact	Negligible
Gulf of Mannar	Tuticorin and Tirunelveli	Loss of livelihoods	Low
Southern Kanyakumari	Chinna Muttom to Kurumbanai	Loss of life, houses and livelihoods	Severe
Central Kanyakumari	Mel Midalam to Mulloorthurai	Loss of livelihoods	Moderate to low
Northern Kanyakumari	Thoothoor belt of Kanyakumari	Temporary loss of livelihoods[4]	

Source: South Indian Federation of Fishermen Societies

[4] Temporary loss of livelihoods resulted from initial evacuation, fear of the sea and subsequently very poor catches when fishing operations started, presumably due to post tsunami changes in the sea



Source: Government of Tamil Nadu, 2005

Total relief amount sought by Tamil Nadu

Table 12 details the total relief amount sought by the Government of Tamil Nadu, for relief and rehabilitation of tsunami-affected populations. The largest components of this are the amounts sought for rehabilitation of fishermen and restoration of livelihoods, for permanent housing and for restoration of community assets.

Table 12: Total relief amount sought by the Tamil Nadu Government

	Rs (in crore)
Total Relief Amount sought by the Government of Tamil Nadu to the Central Government of India	**4,800.00**
Particulars	
Search, Rescue and Gratuitous Relief	204.95
Temporary Relief Package	90.00
Public Health – Prevention of epidemics and treatment of injured	71.45
Sustenance Package to make good livelihood loss	261.36
Temporary Housing	250.00
Permanent housing	750.00
Community Assets Restoration	709.22
Rehabilitation of fishermen and restoration of livelihood	1,054.00
Restoration of livelihood of others	130.62
Protection of sea coast, prevention of sea erosion and plan for prevention of inundation in Nagappattinam District	449.00
Restoration of Ecology and development of Mangrove forest along the coast line	200.00
Restoration of infrastructure, repairs and reconstruction	628.88

Source: Press release, Government of Tamil Nadu, 2005

Loss of life and damage to houses

The attached table (Table 13) provides information from the Tamil Nadu government on overall damage as a result of the tsunami, in terms of population affected, houses damaged and number of human lives lost. It also provides information on number of children orphaned by the tsunami. Again, it can be seen that the loss of life has been highest in Nagapattinam. It is worth taking note of the large number of women who have died in the tsunami (more than deaths of adult men, male children and female children), and the psychosocial implications that this is likely to have on children and on family life. It is also important to take note of the 362 children (under 14 years of age) who have been orphaned, and of the 149 orphaned adolescent girls.

Data on number of women widowed by the recent tsunami has been collected by People's Watch, Tamil Nadu, in three districts, as in Table 14. The study found that 419 women have been widowed due to the tsunami in the three worst affected districts. It also notes the high number of widows even in the pre-tsunami period. This aspect is important to keep in mind in the post-tsunami rehabilitation phase, particularly as some field reports have indicated that women-headed households are not receiving aid to the same extent as other households.

Table 13: Overall Damages caused by Tsunami in Tamil Nadu

											Total number of orphaned children					
			Human lives lost								Below 6 yrs		Between 6 and 14 yrs			
District	**Population affected**	**Houses/Huts affected**	**Total Human lives lost**	*Adult Male*	*Adult Female*	*Male Child*	*Female Child*	No. of persons missing	No. of injured	No. of persons evacuated	*Male*	*Female*	*Male*	*Female*	Total	Orphaned adolescent girls
Nagapattinam	196,184	39,941	6,065	*1,883*	*2,406*	*887*	*889*	791	1,922	196,184	*50*	*45*	*70*	*57*	222	70
Kanyakumari	187,650	31,175	828	*196*	*239*	*182*	*211*	104	732	46,280	*0*	*0*	*0*	*3*	3	4
Cuddalore	99,704	15,200	617	*110*	*285*	*111*	*111*	48	199	61,054	*18*	*23*	*41*	*53*	135	75
Chennai	73,000	17,805	206	*94*	*71*	*18*	*23*	82	55	30,000	*0*	*0*	*0*	*0*	-	-
Kancheepuram	100,000	7,043	129	*38*	*53*	*19*	*19*	4	14	60,000	*0*	*0*	*1*	*0*	1	-
Villupuram	78,240	9,500	47	*6*	*27*	*3*	*11*	1	30	37,500	*0*	*0*	*0*	*0*	-	-
Thanjavur	29,278	3	33	*17*	*11*	*4*	*1*	35	482	4,600	*0*	*0*	*0*	*0*	-	-
Thirvarur	-	-	30	*18*	*7*	*3*	*2*	14	-	-	*0*	*0*	*0*	*0*	-	-
Thiruvallur	15,600	4,143	29	*9*	*11*	*3*	*6*	28	-	15,600	*0*	*0*	*0*	*0*	-	-
Pudukottai	66,350	1	15	*2*	*5*	*3*	*5*	21	-	4,857	*0*	*0*	*0*	*0*	-	-
Ramanathapuram	-	6	6	*4*	*2*	-	-	-	-	8,315	*0*	*0*	*0*	*1*	1	-
Tirunelveli	27,948	630	4	*2*	*1*	-	*1*	1	4	11,170	*0*	*0*	*0*	*0*	-	-
Tuticorin	110,610	735	3	*2*	-	-	*1*	-	-	11,625	*0*	*0*	*0*	*0*	-	-
Total	**984,564**	**126,182**	**8,012**	***2,381***	***3,118***	***1,233***	***1,280***	**1,129**	**3,438**	**487,185**	***68***	***68***	***112***	***114***	**362**	**149**
Percentage				29.7179	38.917	15.389	15.976									

Source: Government of Tamil Nadu, 2005 as on 17 February 2005

Table 14: No. of widows in the pre- and post-tsunami period

District	No. of women widowed due to the tsunami	No. of widows pre-tsunami
Cuddalore	114	1958
Kanyakumari	103	1072
Nagapttinam	202	320

Source: Profiling of widows: People's Watch, Tamil Nadu (Findings of RRA carried out between 15 and 24 January 2005)

Damage to the fishing assets

The following table (Table 15) provides information on damage to fishing craft and gear, provided by the government of Tamil Nadu. District wise details of damage are not as yet available. It is also understood that the assessment of damages may yet be revised.

Table 15: Details of damages to fishing craft

Type of Vessel	Fully Damaged	Partially Damaged	Total
Wooden Catamaran	26,943	4,147	31,090
FRP Catamaran	4,440		4,440
Wooden/FRP Vallam	8,140		8,140
Mechanized boats	2,655	1,775	4,430
Total	**42,178**	**5,922**	**48,100**
Outboard Motors	1,560		
Fishing nets (sets)			106469

Source: Government Order No. 48, Government of Tamil Nadu, dated 29.01.2005

The approximate number of fishermen and crew who have been directly affected by the damage to craft and gear can be roughly calculated from the above estimates. Assuming that the approximate crew size of catamarans in about 3, of *vallams* about 4, and of mechanized boats about 8, it can be estimated that about 1,74,590 fishermen have been directly affected in terms of loss of employment. It is also worth mentioning that in the post-tsunami period in tsunami-affected districts of Tamil Nadu, even those whose craft and gear have survived unscathed have not resumed fishing for various reasons. The loss of fishing employment is, therefore, likely to be much higher.

***Damage to fisheries infrastructure*:**

No comprehensive assessment to the damage to fisheries-related infrastructure is available as yet. The Tamil Nadu Small and Tiny Industries Association (TANSTIA) has provided a preliminary assessment of damages. It has reported that at least 1000 small-scale units engaged in activities linked to the fishing sector, such as processing of marine food, maintenance of fishing boats and supply of ice and fishing nets in Tamil Nadu, have been affected by the tsunami.

District level federations have made some assessments of the damages to the small and tiny industries in the districts due to tsunami. It is reported that at least 150 such industries have been damaged in Nagapattinam, of which 35 are ice plants and the

majority of the others are engineering units and saw mills—ancillary industries that engage in the construction and repair of fishing vessels in the district. It is worth noting that as these units have been damaged during the tsunami, particularly the equipment they use, they are not able to respond to the huge demand for new boats that has arisen in the post-tsunami period.

According to the State Ice Manufacturers Federation (SIMF) 176 ice-block producing units have been affected in Tamil Nadu, in the coastal districts of Chennai, Kancheepuram, Cuddalore, Nagapattinam, Ramanathapuram and Kanyakumari. This is mainly because the demand for ice has reduced due to the disruption of fishing activities. In Kanyakumari and Nagapattinam ice-producing units have also suffered physical damage. SIMF estimates that more than 1000 workers employed in ice factories have been seriously affected. SIMF is urging the Tamil Nadu government to consider declaring the units as cottage industries and to waive sales tax. The Collector of Cuddalore has deferred the power bill payment by these units for a period of six months. It is also worth mentioning that some of the ice-producing units are owned by fishing communities in these areas.

While it is evident that the damage to these units has also affected workers employed in these units, it is difficult to assess the exact number of those affected. It is understood that TANSTIA will be undertaking a more comprehensive survey of damage to small enterprises.

Other fisheries-related sectors affected

The damage to fishing craft and gear has meant that fishing activities have been completely disrupted along a large part of the Tamil Nadu coast. It is estimated that it will take a minimum of six months for fishing activities to assume any semblance of normalcy. The disruption of fishing activities has had a severe and domino effect on various segments of the coastal population: those who load, unload and otherwise handle the fish, those who vend the fish in local markets, those who process the fish, those who provide ice, salt and other inputs, those who transport and export fish, those who repair engines and boats, etc. It is difficult to arrive at the exact number of people who have been thus affected. However, it is generally accepted that for every person who fishes, there are about three persons on shore who earn an income and livelihood.

Processors, vendors, traders, wholesalers and retailers of fresh and dry fish, are undoubtedly an important segment of those affected by the disruption of fishing. It is worth noting that the impact is not only confined to those within the community engaged in these activities, often women, but is also on those in distant markets who were sourcing the fish/ fish product from coastal areas. Till such time as the fishing activity is resumed, they segment, particularly those who depend only on this activity for an income, will need interim support. Again, it is difficult to estimate with any degree of accuracy, without a comprehensive survey, the exact numbers of processors, vendors and trader affected. Less money in hand also means that purchasing power goes down, further impacting on petty traders, shopkeepers etc in affected areas.

Damage to the aquaculture sector:

Information available on damage to hatcheries and shrimp aquaculture farms has been summarized below (Table 16)

Table 16: Damages to the aquaculture sector

	Hatcheries		Farms			
District	Total no.	No. Affected	No of farms	Total area under culture (ha)	Area affected by tsunami (ha)	Impact
Chennai, Tiruvallur and Kancheepuram	48					The major damages were to hatcheries, in terms of damages to boundary wall, damage to sea water motor, damage to sea water pipelines and damage to air blower
Cuddalore			150	470	10	Shrimp farms located in Kundu Uppalavadi village and TVS Pettai near Chidambaram were affected
Villupuram	15	10	44	140		Borewells and compund walls were damaged in the hatcheries
Nagapattinam			996	2384	300	Water intake systems were affected
Pudukottai				100		No damage
Ramanathapuram			167	711.58		Farms were affected
Tuticorin	1	1		57.5		Water intake systems were affected

Source: Central Institute of Brackishwater Aquaculture (CIBA)

It is understood that the main damage has been to the hatcheries in affected districts, particularly in the Chennai, Kancheepuram, Thiruvallur, Villupurum belt. According to informed sources this will also mean a setback to aquaculture operations as the seed production capacity has been partially affected. About 310 ha out of 2,900 ha under utlization for aquaculture in Tamil Nadu are also reported to have suffered from the tsunami. The implications for those employed on the farms and hatcheries are difficult to assess. However, given that the impact on the sector as a whole in Tamil Nadu are considered minimal, implications for employment are not likely to be significant.

Agriculture and livestock

The table below (Table 17) provides information on damages to agriculture land. According to government estimates about 8,818 farmers and 5,837 hectares of land have been affected, not including coconut farmers. It can be seen that the impact on agricultural land has been maximum in Nagapattinam district, followed by Cuddalore and Kancheepuram district. It can also be seen that all the agricultural land in Nagapattinam, a traditionally drought prone area, is rainfed, and that both small and medium farmers have been affected. It can further be observed that most of the affected land was under paddy, a very labour intensive crop, that employs an average of 10 to 15 persons per

hectare during the period of cultivation (land preparation, planting, harvesting etc.). It can be inferred that apart from the impact on owners of the land, the impact on those who are employed as labour, is likely to be severe. Reports indicate that horticultural activities in Cuddalore districts have also been affected. A survey is underway to assess damages.

Table 17: District-wise Tsunami affected crop details as on 12.1.2005

District	Total area affected by Tsunami (Ha.) (>50% crop damage)	No. of farmers affected						
		SF		MF		Others		Total
		Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	
Agricultural Crops								
a) Paddy								
Kancheepuram	109	11	0	146	0	2	0	159
Cuddalore	22.96	26	0	11	0	1	0	38
Nagapattinam	4021.36	0	2999	0	2409	0	541	5949
Kaniyakumari	6	0	0	27	0	0	0	27
Total	**4159.32**	**37**	**2999**	**184**	**2409**	**3**	**541**	**6173**
b) Oilseeds								
Cuddalore	280.1	80	0	298	0	73	0	451
Kancheepuram	190	22	0	232	0	2	0	256
Nagapattinam	1132.37	0	696	0	890	0	161	1747
Villupuram	8.98	7	0	3	0	0	0	10
Total	**1611.45**	**109**	**696**	**533**	**890**	**75**	**161**	**2464**
c) Pulses								
Cuddalore	14.87	0	0	44	0	0	0	44
Nagapattinam	50	0	42	0	86	0	8	136
Total	**64.87**	**0**	**42**	**44**	**86**	**0**	**8**	**180**
d) Sugarcane								
Kancheepuram	1	0	0	1	0	0	0	1
Total	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**
Grant Total	**5836.64**	**146**	**3737**	**762**	**3385**	**78**	**710**	**8818**
e) Coconut (Nos.)								
Cuddalore	2	8	0	0	0	0	0	8
Kanyakumari	264.8	88	0	413	0	6	0	507
Villupuram	2	2	0	0	0	0	0	2
Total	**268.8**	**98**	**0**	**413**	**0**	**6**	**0**	**517**

Source: Department of Agriculture, Government of Tamil Nadu, 2004

The agriculture department has estimated that reclamation of land affected by salinity will take a minimum of three years, as the salinity will need to be flushed out with fresh water. It will be important to look at livelihood options and support in the interim period, both for the farmers, and as importantly, for the labour employed by these farmers.

Assessment of damages to livestock in Tamil Nadu is provided in Table 18. The government has worked out a compensation package for those who have lost livestock.

Table 18: Damages to livestock

Type of livestock	**Number**
Cattle and Buffalo	1,418
Calf and draught animals	235
Sheep and Goat	12,547
Poultry	2,183
Total	**16383**

Source: Government Order No. 39, Government of Tamil Nadu, 25-1-2005

Other relevant information

Damages to dalit and tribal communities

It was not possible to obtain any comprehensive assessment of damages to *dalit* and tribal households due to the tsunami. The only information available is from human rights and other NGO groups. All these reports indicate that these communities have been severely affected. They also draw attention to the fact that relief packages have not reached these communities in the same measures, indicating the need for a special focus on these communities in all intervention to be taken up.

As per the baseline survey undertaken by the Irula Tribal Women's Welfare Society (ITWWS), about 1200 *Irula* families living in over 57 *Irula* villages near the coast were affected by the tsunami, as follows: Thiruvallur: 10 villages; Kancheepuram: 24 villages; Villupuram: 12 villages; and Cuddalore: 9 villages. Around 16 persons from the community are reported dead and several others are still missing.

Self Help Groups

According to the Department of Rural Development, Government of Tamil Nadu, members of 2,184 SHGs, totalling 36,498, have been affected in the recent tsunami, while as many as 831 SHG members have lost their lives.

Table 19: Damages to members of SHGs

Name of the district	No.of village panchayat affected	No. of habitation affected	No. of Urban areas affected	No. of SHGs affected	No. of SHG members affected	No. of SHG members died	Details of assets damaged *(Rs in lakh)*		
							Asset through SGSY	*Other Personal*	*Common infra-structure*
							Value	*Value*	*Value*
Kancheepuram	20	31	2	112	1766	3	16.25	138.25	0
Thiruvallur	2	14	0	57	0	1	---	22	0
Cuddalore	25	34	18	87	1510	10	---	213.05	1.93
Villupuram	9	20	0	14	280	0	4.36	0	0
Thanjavur	0	0	0	0	0	0	0	0	0
Thirunelveli	0	0	0	0	0	0			
Tuticorin	2	5	0	24	456	0	2.57	45.22	0.5
Kanyakumari	18	33	1	1204	20162	140	292, 360	1712.16	23.3
Pudukottai	0	0	0	0	0	0			
Nagapattinam	29	48	17	674	12132	677	140	202.2	10.5
Ramanathapuram	1	1	0	12	192	0	16.49	0	0
Total	**106**	**186**	**38**	**2184**	**36498**	**831**	**179.67**	**2332.88**	**36.23**

Source: Department of Rural Development, Government of Tamil Nadu, 2005

It can be seen that there has been considerable damage to the assets of SHGs. Given that SHG members have obtained loans for purchasing the above assets—loans which they are yet to repay in full—measures such as waivers/ deferment of these loans may be required.

b) Identify vulnerable groups and communities who may need long term relief and rehabilitation assistance in order of priority

The tsunami has left entire coastal communities traumatized, and in need of psychosocial counseling and support. The following groups can be considered particularly vulnerable, and in need of special attention:

- Children and adolescent girls who have lost their parents, women who have lost their husbands, pregnant and lactating women, disabled and aged people who have lost their caregivers and have no other support structure, irrespective of geographical location
- Women-headed households, particularly in view of field reports that relief/ compensation packages has not reached these families in the same measure
- Populations of *dalits* and other tribal groups, such as *Irulas*, particularly in view of field reports that relief/ compensation packages have not reached these families in the same measure
- Vulnerable groups even in the pre-tsunami context, including small-scale processors and vendors of fish, crew members, collectors and gleaners, fishing in

inshore waters, often for subsistence purposes, agriculture labourers and catamaran fishermen

In general, factors that increase vulnerability can be related to caste, gender, ownership of assets and age. For example, a woman-headed asset-less household from a *dalit* or tribal community may be considered more vulnerable. This has to be factored into any intervention taken up by IFAD, to ensure that the vulnerable sections are specifically targeted.

c) Propose an outline strategy to address livelihood rehabilitation needs of vulnerable sections of the affected population, including a broad indication of the main components in any future intervention

The strategy below focuses on rehabilitation of fisheries livelihoods, given that the major impact of the tsunami was on this sector. A strategy for rehabilitating livelihoods of those dependent on agriculture and other sectors will also be required.

Fisheries is a small sector in Tamil Nadu's economy—it rarely accounts for more than two percent of the state domestic product. It however contributes to significant employment along the 1,076 km coastline of the state. Its share in the food intake of the population and the state's contribution to national exports is also worthy of mention. However, fishing communities have by and large been social and political 'outliers'. The tsunami has brought the communities into the centre of public visibility. The concern of international and national agencies to assist in the rehabilitation of the sector have brought to the forefront the dilemma of possible excessive investment in fishing craft and gear accompanied by a drop in the labour and capital productivity in the sector in the context of a falling output. This is most evident in the marine sector where access to the resource is relatively open to all and largely without any significant regulation. This would imply that any decisions with regard to new investments in the fishery – particularly in its largest marine sector – would have to be crafted with care. There will be meaning in moving toward a context where the men and women, who wish to continue to be involved in the sector, can take measures to raise their productivity through new organizational arrangements and/or upgradation of skills. This has to be matched by involvement of the state and community in regulation of access to the fisheries resource. Alternatively, the youth who have the desire to take other avocations outside the sector, should be encouraged to equip themselves to seek employment opportunities outside the sector. The thrust of this proposed strategy is to chart a rough road map of these paths.

There are two overarching considerations to be kept in mind in addressing the medium (0 to 12 months) and long-term rehabilitation of the affected fishing communities in Tamil Nadu. These are (1) the need to provide a permanent solution to get them out of the vicious cycle of low quality of life and (2) the need to move towards a responsible management of the fishery resources starting with greater community involvement.

Quality of Life

Improving the quality of life of fishing communities (as distinct from raising their incomes levels) requires most importantly the provision of safe housing, good water supply and sanitation and the related awareness to sustain this. Many fishing villages are densely populated, due to land availability limitations. The porous nature of soils along coastal stretches has led to pollution of the water sources through leaching of human and other wastes into it. These two factors have in turn led to strong, reciprocal, negative externalities leading to the vicious cycle of communicable diseases that get reinforced with time. Increased income is no palliative for this syndrome. It is essential to break this cycle and to ensure that living conditions and quality of life in fishing villages is substantially improved

The emphasis on social infrastructure and quality housing by state government, with the assistance of the large number of NGOs, is welcome in this context. In this proposal to IFAD we do not propose any activity or investment in these realms. However, the urgency and the positive long-term implications for wholesome livelihood of the coastal communities is inextricably linked to a strong political, and financial commitment to undertake these measures.

Responsible Fisheries

A sustainable future for fishing communities lies in moving towards responsible fisheries. In this context the important issue of rehabilitation of the fishing assets of the fishing communities is a matter of debate. There is a view that the post-tsunami phase should be seized as an opportunity for 'modernizing' the fishery of the state. There is need to ensure that this does not lead to excessive and/or inappropriate artifacts being provided to fisherfolk who may, in their enthusiasm for making the best of the circumstance, be enticed to accept technological changes which in the long term may prove to be inappropriate from a fishery resource conservation perspective and on sustainable income grounds. Here again, while we do not propose any IFAD involvement in the supply of fishing assets, we would consider any overall rehabilitation package as being crucially dependent on the successful movement towards matching fishing capacity to the fishery resource base.

Keeping the above two considerations in mind, we move towards proposing a medium and long-term strategy (road map) for livelihood rehabilitation of coastal communities. The success of the proposed strategy is crucially dependent, among other things, on the institutional arrangements that are crafted for its delivery. This arrangement must be based on a combination of the elements of what already exists on the ground, stressing of the strengths of the existing organizations and where possible creating new relationships and linkages which will help to alter their weaknesses.

MEDIUM-TERM

Credit: A Crucial Input

Much of fishing and fishery-related operations function because of the availability of credit. However, the unfortunate fact is that the shark's share of this credit comes from the informal market with very high interest rates, normally charged on a daily basis (eg. Rs. 100 is taken from the lender in the morning and Rs. 110 is returned in the evening). The formal banking sector has not been able to make major inroads into this sector because of the lack of a repayment collection mechanism, the high risks associated with fishing and fish marketing and the high transaction costs. This lacuna needs to be filled with new arrangements for supply and collection of timely and appropriate sized credit.

The role of women self-help groups and fishery cooperatives need to be highlighted here. It would also merit mention that self-help groups and cooperatives which arrange credit would be better equipped for recovery of the credit if they are also involved with the marketing of the produce of their members. Working towards such an objective can help to bring about a major change in the economic well-being and self-reliance of fishermen and women

Skill and Quality Improvements for Fish Processing and Marketing

The realms of fish processing and marketing in which women have an important role require some fresh thinking and a different shelf of technology and training options. There is a new opportunity to introduce numerous low-cost, hygienic fish processing techniques oriented for the domestic market. These will require training and appropriate investments in packing technologies that are fairly widespread in our neighboring Asian countries (the best example being in Thailand and Indonesia). Associated with this should be the setting up of model infrastructure such as fish markets.

Aquaculture and Mariculture Opportunities

Training in appropriate form of aquaculture and mariculture that can be taken up by communities/ SHGs/ cooperatives can be considered. This could include cage culture of certain finfish species, such as seabass, crab and lobster fattening, mussel and oyster culture and culture of ornamental fish species. Culture of local species of seaweed could be considered in areas where it is appropriate. It is essential to ensure that all such forms of aquaculture are environmentally and socially appropriate and sustainable.

Alternative Employment-Training Schemes

A conscious strategy of the medium-term rehabilitation schemes should be to have built-in employment-training schemes which are tagged to the material construction programmes for housing, social infrastructure, water supply etc. There is also scope for this in the realms of boat construction, engine repair etc which will get a boost in the rehabilitation phase. Skills such as plumbing, welding, masonry skills, carpentry,

painting, FRP boat making, engine repair etc would fit the bill. There is a perceived reluctance on the part of fishermen to engage in non-fishery occupations particularly on food-for-work or cash-for-work programmes. However, this may be more a result of some cultural conditioned 'mental blocks' among the older generation. With regard to the younger members, such hesitation may be easily removed if an effort is made to enlighten them on the benefits of getting add skills which may offer lucrative employment avenues along with fishing or even as an alternative.

Enhancing Fishing Skills

The acute shortage of good, competent labour in the fisheries sector of other countries is an opportunity that should be capitalized upon. The fishermen of Tamil Nadu are by far some of the bravest and the best in the world. However, many of them, including the younger and more educated among them, have been 'locked in' to their inter-generational traditional skills. While this is a great heritage, the widening of occupational horizons will take place only with the familiarity of 'modern' instruments of navigation, use of the latest fish finding and communication technology, sea safety and seamanship skills and the like. The basic infrastructure for such training programmes may be presently available in the Department of Fisheries, but the aim should be to bring these centres up to international standards. Proper equipping of these centres, the funds for bringing in external consultants, the possibility of technology and skill exchange programmes should also be envisaged.

Training of Youth

The educational attainments of youth from the coastal communities have not been of high enough quality to allow them to successfully compete for jobs outside the fisheries realm. Corrective measures for this need to be put in place if the future is to be brighter. A proposal for " Skill Empowerment for Coastal Communities" can be considered where short term (1 month) and long term (6-months) training programmes can be offered to educated youth from coastal fishing communities. The possibility of working out a menu of social and leadership skills, nutrition and health-related knowledge, eco-sanitation education, and other functional skills can be envisaged. The possibility for providing good quality training for professional competitive examinations to the youth who are adequately qualified and motivated should also be considered.

For those who have studied up to high school but have not passed the SSLC or Plus 2, an institution can be set up where these young people are given intensive education to get their certificates. This will enable them to go in for further professional training. Importance should be given to professions like nursing, physiotherapy, geriatric care, welding, plumbing, motor mechanics etc. Provision should be made now to assure the participating tsunami victims of entry into professional colleges by creating trust funds that they can draw upon.

LONG TERM

Coastal Fisheries Resource Management

In the long term the sustainability of the fishing community of Tamil Nadu depends crucially on the health of the coastal fishery resource. The most important requirement for this is a resolution of the rights to the coastal resources. There have been traditional approaches to this – such as each village claiming the resources in the sea in front of its land boundary. However, in the emerging context of more mobility of fishing craft there will have to be less insular approaches and greater consensus on the need for an overall approach to resource management. For this to materialize it is necessary to initiate a process where all the stakeholders can air their perspectives and then agree on a common minimum programme for resource management. For this to materialize there is need for contemporaneous action on the part of the state from 'above' and the stakeholders from 'below'. In the latter, the role of the caste *panchayats*, the church committees, the boat owner associations, the fishermen sangams, the village-level cooperatives etc. cannot be understated. This is also an opportunity for structuring into this process the role of the women in the community.

Environmental Protection of Coastal Land and Sea

There is need to view the coastal area ecosystem – an interface of water (littoral zone) and land (coastal zone)– as a valuable natural asset of this nation. The coastal fishing communities, which have drawn their sustenance from this for centuries, need to be more creatively rewarded by society for their roles as protectors and food providers.

There is need to invoke all relevant legal provisions (e.g. Coastal Regulation Zone (CRZ)) and rights to ensure that the coastal area ecosystem is duly protected using a combination of predominately natural protection measures, and where necessary use appropriate engineering options like artificial reef barriers at sea. Seawalls may be considered where all other options are ruled out. None of the options should infringe on the use and access rights of the fishing communities for utilization of this coastal space to further their livelihood.

There is need for mapping of the coastline over a 500-metre stretch from the high tide line (HTL). Particular attention needs to be paid to identifying and demarcating the `vulnerability lines' along the coast based on parameters such as elevation, geology, geomorphology, sea level trend, horizontal shore line displacement, tidal ranges and wave heights, as highlighted in the Report of the Committee chaired by Prof. MS Swaminathan to Review the Coastal Regulation Zone Notification 1991 (February 2005). Appropriate green belt cover along the coast, keeping in mind local specificities, to provide natural protection, should be actively explored. There is a need to induce community involvement for green belt protection. Communities should be compensated for creation of these positive externalities. The community should also be involved in participatory resource mapping and resource use.

The coastal area ecosystem is the 'tail-end' ecosystem of the country and all our terrestrial sins of pollution ultimately reach it. Measures to reduce this pollution load from a variety of sources using a menu to measures is called for.

Retaining the 'traditional rights' of fishing communities in the CRZ and in the Littoral Regulation Zone (LRZ) is essential. In the CRZ these would be rights to dry nets, park beachlanding crafts etc. In the LRZ these would be rights for the small-scale operators to fish, to place artificial reefs and to have the right to unpolluted waters.

There is already a wealth of information generated by various government departments, scientific institutions that should be freely made available to local communities. In this context, experts who express the willingness to creatively involve in helping communities in their efforts should be encouraged to do so, by the departments.

Community Based Sea Safety and Disaster Management

Sea safety is a realm for which constant and consistent measures need to be taken. However, the first link in a sea safety chain must be at the individual community level. The physical facilities and the human resources required for this must be always in a state of alertness. The development of human capacity for sea safety and disaster management and mitigation at the community level warrants top priority. The idea of a full fledged sea safety and disaster management body with personnel recruited from able-bodied, educated youth—men and women—in the fishing community is an idea worthy of consideration in this context.

A decentralized land-based technically sophisticated monitoring network, disaster response mechanisms and procedures, and local, possibly IT-enhanced communications processes which are linked horizontally across coastal space and vertically to the district disaster management cells will be required. This can also be a realm for exchange of a lot of the traditional knowledge of fishing communities on weather and sea.

Encouragement and financial incentives should be given to fishermen to carry safety devices on their fishing crafts. Subsidies for walky-talkies and FM radios, GPS or cell phones are far better than subsidies for fishing nets and engines. The possibility of starting community radio project aiming at fishing communities' needs is worthy of consideration.

Social Security

Fishing is by far the riskiest occupation in the world. Loss of life in the course of fishing needs to be covered by insurance schemes sponsored by the state, with subsidized premium contribution by fishermen. The reach of these schemes should be enhanced. The mechanism for disbursal of such insurance payments should be decentralized. There is a need to conceive a fishery disaster insurance scheme that will cover loss of life and property as a result of a collective natural disaster. The premium for this can be paid fully

by the government. As the very low coverage of insurance across the coastal communities has been now acknowledged, this should also be the occasion for the state and public sector insurance companies to reach out to the weaker sections in the community with affordable and subsidized insurance policies for health, accident and old age. An innovative re-insurance scheme, which can reduce the moral hazard normally associated with insurance of assets – fishing, housing, and durables – should be devised. In this context it is worth mentioning that in the current disaster women and children were the main casualties. State-sponsored fishery insurance coverage, where it exists, is generally limited to the men alone. Though Tamil Nadu has rectified this lacuna, the coverage of women is limited.

The possibility of enhancing the social security coverage to include fishworkers in the export-oriented fish processing factories, in aquaculture activities and fish trade may also need to be considered. In this context the possibility of getting employers, such as exporters, to contribute to premium payments should also be worked out. This may also be in their self-interest to highlight their pro-active involvement in worker welfare which may help neutralize any social-clause controversies in the context of international trade.

There are numerous 'tiny industry' activities of women SHGs which do not get insurance coverage. The possibility of linking SHG savings-cum-credit schemes with insurance coverage should be explored by nationalized banks and government insurance companies.

Quality Formal Education

A long term educational policy for the current and future generation must focus on the overall improvement of educational levels and infrastructure in fishing communities, including through establishment of residential fishery schools from primary level onwards. These can be modeled along the lines of the institutions set up for tribal youth with appropriate corrective measures taken for the shortcomings which we have

d) Identify suitable institutional delivery mechanisms, including government and non-government bodies, financial institutions and other resource institutions which could participate in a future rehabilitation project as IFAD partners.

The tsunami has affected both those dependent on fisheries and those dependent on other sectors (such as agriculture). IFAD could decide to have two main project components, a fisheries sector component and an agriculture sector component. Given that the maximum impact has been on the fisheries sector, IFAD could consider allocating a larger component of project funds to the fisheries sector.

The institutional delivery mechanism proposed below is for the fisheries sector component. A similar delivery mechanism for the agriculture sector component should be considered.

IFAD could consider a two-tier structure for project implementation, comprising an Advisory Board and an implementing group. The Advisory Board could have representation from organizations with expertise in fisheries and related issues, such as from fisheries-line agencies at the national and state level, from the DRDA, from the State Women's Commission, from the SC/ST board, from the FAO, etc, as appropriate.

The implementing group, responsible for actual implementation, could comprise a select number of NGOs with a history of working on fisheries-related issues in Tamil Nadu. A lead organization, such as SIFFS, to coordinate the work of this group, could be considered. Mechanisms to ensure transparency and accountability, particularly in the use of funds, should be built into at all stages of project design and implementation.

It should be emphasized that any future intervention would necessarily have to take full cognizance of the traditional village-level institutions and give them an explicit recognition in the process of any project intervention. In the post-tsunami relief phase, the strength of these institutions, around which the daily life of the community is organized became very apparent to all. It was also a new experience for these traditional community institutions to be at the receiving end of so much material and financial assistance and external contacts. These contacts need to be continued and strengthened. These new relationships can also be used as a strategic occasion to broaden the agenda of these community organizations and help them to move into new realms – for example, safety and disaster preparedness, fishery resource management etc. It may also be a starting point for raising issues such as the need for structuring greater participation of women and youth from the communities into local decision-making.

In general, there is a need to devise new "community-civil society-state" partnerships which can hold trust funds which can support new development initiatives for social and economic development. The community institutions could be the caste *panchayats*, village church committees, trade unions, fishermen/ women cooperatives, boat owners associations, local NGOs, SHGs etc. The civil society institutions could include organizations with a history of working on fisheries issues in Tamil Nadu and corporate sector firms. The state institutions may include the fisheries and other state department, nationalized banks, the state universities, public sector enterprises located in the coastal region etc.

f) Make any other suggestions of relevance that would assist IFAD in preparing for a future role in assistance

- This report and the interventions proposed focus mainly on rehabilitation of fisheries livelihoods. However, the tsunami has also affected other sectors, such as agriculture and livestock rearing. IFAD should consider undertaking a separate assessment to decide on livelihood rehabilitation options for vulnerable populations in those sectors.

- Many of the interventions being proposed in this report may not be `new' in the sense that similar projects have been implemented earlier, and have met with

varying degrees of success. For this reason, IFAD should take stock of the various initiatives that have already taken place, for example, in the field of credit delivery, improvement in the post-harvest sector etc., and to draw out the lessons for interventions currently being planned. It is further suggested that this exercise of `stock taking' be taken up in a participatory manner, drawing inputs form various stakeholders and that a specific time-frame for such an exercise be set aside.

At the same time, various interventions are being planned/ implemented in the post-tsunami phase by a range of actors, including the government and private organizations. IFAD should take stock of these before finalizing its own interventions, and should focus on areas/ issues that may not receive adequate focus, particularly issues that need a longer-term intervention and that focus on capacity building and institutional strengthening, particularly for aspects such as coastal resources management.

e) Provide indicative figures of investment and a time-frame for such investment focused on rebuilding of the livelihoods of vulnerable groups

IFAD should finalize its strategic interventions, based on the broad road map proposed in this report, only after the above `stock-taking' exercise is undertaken. Time frames and the investments that will be required can be worked out once the nature of interventions to be taken up, are finalized.

g) Propose next steps for IFAD to identity specific programme interventions

Based on this initial document it may be possible to initiate discussions at three levels to ascertain the feasibility and viability of its components. These levels may be (1) at the state-level institutions such as the department of fisheries and other related departments (2) the intermediate level organizations such the cooperative federations, boat owner associations, trade unions and the NGOs which relate to the fishing communities at least on a district level and (3) with the a selection of community-level organizations such as the caste *panchayats*, the church committees, local SHGs etc.

These discussions will provide the opportunity to obtain the various perspectives from 'above' and 'below' towards the proposals, contribute to adding new ones, and ascertain the broad contours of a minimum framework for crafting a more specific and viable programme of interventions that can be 'owned' by all the stakeholders in the sector. The discussions should also provide the opportunity to discuss, draw out and integrate the lessons from various similar initiatives that have already taken place.

Based on this outcome a more detailed mission may be considered with the participation of a wider group of persons with good knowledge of the fisheries of the state and the coastal communities. The group can be drawn from state institutions, NGOs and community level institutions.