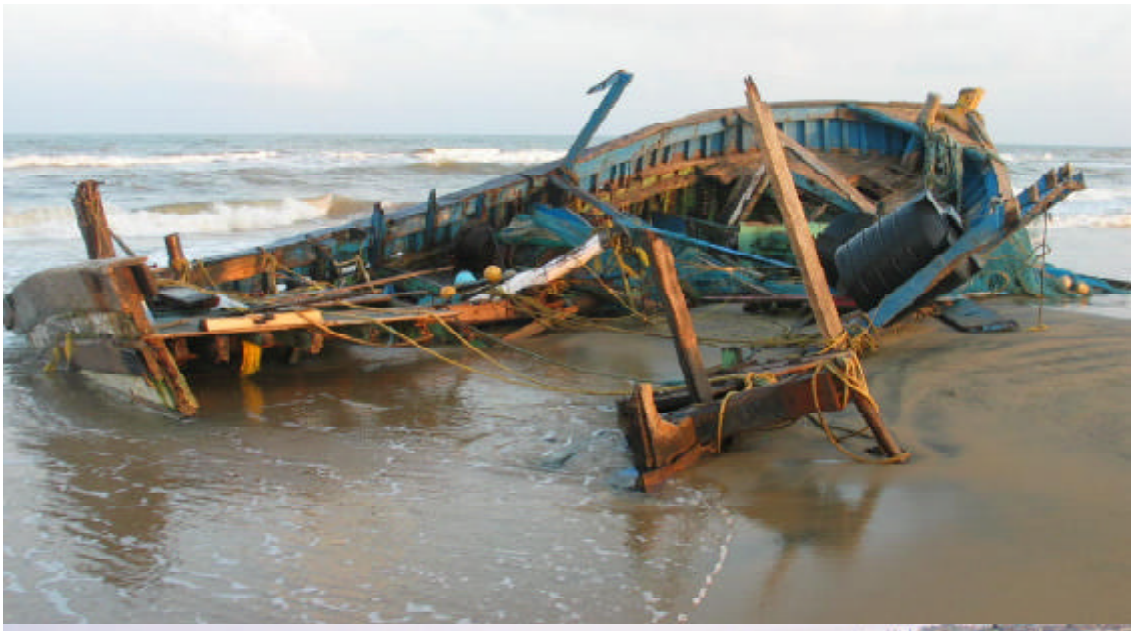
Post-Tsunami Rehabilitation of Fisheries Livelihoods: ICSF Information Dossier



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This dossier has been compiled by ICSF

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Front Cover
Nagapattinam coast

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Introduction

The tsunami that hit 12 countries of the Indian Ocean region had a particularly severe impact on coastal fishing communities. Apart from loss of life, severe damage to houses, craft and gear have been reported from several countries, particularly from Indonesia, Sri Lanka, India, Thailand and Malaysia.

In India the impact was primarily on the islands of Andaman and Nicobar, and in Tamil Nadu, Pondicherry, Kerala and Andhra Pradesh. More than a month after the tragedy, the focus is gradually shifting to rehabilitation issues and to restoration of livelihoods, fisheries and non-fisheries.

This dossier puts together various articles and information that is likely to be of relevance to those engaged with rehabilitation of fisheries-based livelihoods in Tamil Nadu, the state in India that has been hit most severely by the tsunami.

The contents of the dossier include a Preliminary Proposal by concerned citizens towards post-tsunami livelihood security for fishing communities in Tamil Nadu. This was first presented at a meeting organized by the Citizen's Platform for the Tsunami Affected at the Madras Institute of Development Studies, Chennai on 7 January 2005. The Proposal, put together by people with extensive experience of working with fishing communities in India and outside, is by no means prescriptive. It was formulated with the intention of initiating and stimulating a process of debate on short-term, medium-term and long-term measures to be taken for post-tsunami rehabilitation of fishing communities.

The dossier also contains other published and non-published articles on post-tsunami rehabilitation issues. These articles also provide information about the fisheries sector in Tamil Nadu. Also included are some statistics on marine fish production in Tamil Nadu, by year, by district, by craft and by gear group.

Information on socio-economic aspects of the fishing community are provided, based on an analysis of the data available from the Marine Fisherfolk Census undertaken by the Fisheries Department of Tamil Nadu on a periodic basis. Also included are excerpts from the write-up on the Pattanavan community—the fishing community predominant in Tamil Nadu—from the well-known book by Thurston and Rangachari on *Castes and Tribes of Southern India*, first published in 1909. The excerpts highlight the fishing-related knowledge and skills of this traditional community and its social organization, aspects that continue to hold true today.

It is hoped that the information in this dossier is found useful. Any comments and suggestions on the contents are welcome.

Towards post-tsunami livelihood security for fishing communities in Tamil Nadu: a preliminary proposal from concerned citizens

This note was prepared by John Kurien, *Centre for Development Studies, Trivandrum,* Nalini Nayak, *Protsahan, Trivandrum,* V. Vivekanandan, *South Indian Federation of Fishermen Societies, Trivandrum and* Paul Calvert, *EcoSolutions, Trivandrum.* *We express our thanks to the Citizens Platform for the Tsunami Affected, ActionAid and the International Collective in Support of Fishworkers, Chennai for the opportunity and facilities provided to make this intervention.*

It is now clear that tsunamis are rare happenings. However, they create a lifetime of havoc and devastation. Tsunamis always affect only coastal communities – but here too differentially. The poor suffer more than the rich. Those who live close to the sea suffer more than those who live further away. Fishing communities in Tamil Nadu, while they lived, were rarely the center of attention in civil society. Now that so many of them have been taken away by the sea and thousands are faced with a shattered future, they are the focus of an outpouring of concern. This swell of human kindness – if it is not to take the shape of a tsunami of misplaced concerns and competing priorities – needs to be properly channelized. This requires an understanding of the pre-tsunami realities and the post-tsunami needs.

This note is a preliminary attempt of a group of concerned persons with a significant fund of knowledge and work experience among fishing communities in India and abroad. It hopes to provide some modest guidelines for the formulation of a plan by the state for action in which the vast experience of civil society organizations will be integrated and the participation of the affected communities assured.

We are aware of the "Disaster Management in India" (Status Report) of the Government of India brought out in August 2004, on which the Government of Tamil Nadu has acted.

Presented at the Lecture Discussion on

Tsunami Relief and Rehabilitation: Perspectives and Challenges in the Context of the Aquarian (Fishing) Economy of Tamil Nadu

held at

Madras Institute of Development Studies
Chennai, Friday 7th January 2005

PHASES OF INTERVENTION

We consider that there are three phases of intervention:[1]

Short term (First month)

a) Immediate relief
b) Commencement of trauma management
c) Initial measures for getting back to the normal routine

In this phase the relief measures have been overwhelming, have reached all those in need and will probably reach its final stages very shortly. Plans for trauma management were well on their way. Some initial efforts have been made. There is perhaps need for greater coordination and consolidation of the approaches to be taken. As regards getting back to the normal routine varies from center to center. In the case of fishing the lead time will vary depending on the kind of fishing methods which individuals adopt. Fears about people loosing the land which they had inhabited calls for measures to institute some degree of community policing to prevent this. Unwarranted media scares about the hazards of fish consumption need to be effectively countered. This is affecting the livelihoods of many women who were not necessarily affected by the tsunami. It is also likely that fishing communities who live in the deltas close to the affected areas have not received adequate attention. Such oversights need to be immediately addressed.

The following two phases (medium and long term) are what require detailed thought and planning. It is essential that the policy of the state be clearly articulated and developed into a plan with the roles of the actors – state, civil society and the local affected community — clearly defined.

Medium term (second – fourth month)

a) Detailed stocktaking of land use, community needs and human and institutional resources for reconstruction.

Present land use patterns contiguous to the CRZ should be immediately mapped and documented so that a general idea of land availability for rehabilitation and relocation can be demarcated for acquisition. These surveys should include details about contour, soil, drainage, and ground water information. That such lands are currently private property should not be advanced as an excuse for not acquiring them. Community-need-assessment surveys will also have to be undertaken and should include an educational process on what other options are immediately available for livelihood. This will be a more credible manner to assess their interest to change livelihood options. Appropriate human and institutional resources and arrangement both within and outside the community may have to be listed and creatively involved in their possible areas of involvement in the rehabilitation process demarcated.

b) Immediate restoration of crucial communication and infrastructure

Creation of temporary but family/community managed shelters for families to move into and restart their lives. These temporary shelters should provide basic family accommodation possibly in clusters of 4 to ten families whilst family housing is rebuilt and the village is reconstructed. These will be of low cost construction but must be adequate to provide shelter during one monsoon.

In the temporary phase toilets that do not contaminate the ground water should be provided. The sanitation options selected should be appropriate to the local hydro-geological conditions. Where connecting bridges, roads, pipelines, power connections were disrupted, they need to be restored using temporary measures on a war footing. This is a priority for people to get back to some degree of normal activity.

c) Information on options for rehabilitation

The options for housing, alternate employment and the retraining possibilities for this should be communicated through well worked out audio-visual modules. This will help people to understand the options and provide them the freedom to make informed choices. Local NGOs and people should be provided with educational modules regarding coastal zone policy, rehabilitation and retraining options so that people can choose to move to other livelihoods.

Some underlying coastal realities

a) The people of the coastal communities are by and large outliers in terms of social development and livelihood opportunities despite decades of fisheries development efforts.

b) They contribute US $ 600 million in foreign exchange earnings every year and provide essential and inexpensive protein for domestic consumption.

c) The fish production has been stagnating in Tamil Nadu while pressure on coastal resources has been increasing.

d) Even the artisanal fishery has become increasingly capitalized and fossil fuel dependent. This makes the fishery unsustainable.

e) Fishing communities are socially differentiated where the weak/poor are always at the loosing end.

f) While tsunamis are rare, these communities are exposed to other coastal phenomena like tidal waves, cyclones and regular monsoon fury.

g) Investors and government have been targeting coastal resources disregarding people's livelihoods and security in gross violation of the CRZ norms, radically changing landforms.

h) The coastal zone is the country's tail end ecosystem and hence the final recipient of all terrestrial pollution.

Long term (Fifth month onwards)

d) Permanent reconstruction and rehabilitation

These measures are spelt out in the plan incorporated below.

POLICY FRAMEWORK

The core of a policy framework, which will go to ensure a secure future for the most affected coastal fishing communities, must clearly articulate the structure of rights over the coastal area ecosystem –

an interface of land and water – and the resources therein. These rights must relate to both the use and the conservation of the resources focusing on the long-term interests of the fishing communities. The policy should focus on women- specific issues and the need to change some traditional taboos that have discriminated women.

This policy should emphasize the need for greater human capacity building and an option for more labour absorptive techniques in all rehabilitation and reconstruction efforts.

While the state has the responsibility of policy formulation, which should be done through a consultative process, there should be a clearly demarcated coordinating platform/structure inclusive of government, NGOs and the local panchayats. A division of labour and responsibility should be worked out. Transparency must be assured. This coordinating body should operate on the ground through local village reconstruction and rehabilitation committees made up of local people and assisting NGOs, on which there should be gender and age-balanced representation.

Policy guidelines should be publicized through good audio visual aids. Volunteers, NGOs should be trained in such awareness raising with effective communication techniques. This process should include realistic and projected comparisons of the development options facing these communities. These must be clearly interwoven with the economic and environmental realities specific to each location.

PLAN

A plan for livelihood security of coastal fishing communities in Tamil Nadu needs to be framed after providing the affected communities the options for making informed choices regarding their long-term rehabilitation.

The overarching consideration pertains to the redefining the structure of the rights to livelihoods and utilization of coastal ecosystem space. The existing legal frameworks which facilitate this, need to be judiciously implemented with forceful political commitment. This is a plan which is indeed restricted to that spatial reality.

Pre-plan Rehabilitation options:

1. For those who wish to remain in fishing

   a) for those who have lost their homes, while in the temporary shelter they get an interim cash subsidy and receive appropriate fishing assets.

   b) For those who have not lost homes, they register, also receive a cash subsidy and receive appropriate fishing assets.

2. For those who do not wish to remain in fishing

   a) for those who have lost their homes, while in the temporary shelter they get an interim cash subsidy during which time they get into retraining.

   b) For those who have not lost homes but want to move out, they register, also receive a cash subsidy and then participate in retraining.

3. For those who are partially or seriously physically and psychologically affected as a result of the calamity

   a) specific efforts for person-oriented attention should be implemented. They may be provided with longer term cash subsidies, medical attention and greater community care.

4. For orphaned children, destitute men and women

   a) specific efforts for person-oriented attention should be implemented giving responsibility to agencies who have the competence in dealing with such individuals.

Components of a plan

A plan should consist of an agenda for action that covers the following realms:
(i) environmental protection of coastal land and sea, (ii) housing and related facilities of water and sanitation and lighting (iii) social infrastructure (iv) gainful employment in fishing and related activities, (v) education and training, (vi) safety and disaster preparedness and (vii) protective social security (viii) responsible fishery resource management.

The focus of the various measures of the plan are to the extent possible, to train, enable and support the local communities to manage and implement their own rehabilitation and village reconstruction. This serves three very important purposes 1) creative and meaningful work can act as an important trauma reliever 2) it provides immediate employment while

at the same time imparting training and new skills 3) it equips them with new livelihood opportunities, self respect, dignity and confidence to face the future.

Environmental protection of coastal land and sea

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 for their roles as protectors and food providers.

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 'soft' engineering options. These should not however, infringe on the use and access rights of the fishing communities for utilization of this space, to further their livelihood.

A mapping of the coast line over a two km stretch from the high tide line (HTL) with suggestions for the appropriate green belt cover which can provide natural protection. Local specificities are very important. There is a need to induce community involvement for green belt protection and compensate them 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.

Retain the 'priority use rights' for fishing communities in the CRZ and the Littoral Regulation Zone (LRZ). 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 which 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.

Housing and related facilities of water and sanitation and lighting

Priority should be given to provide safe and convivial houses at an adequate distance from the HTL. New concepts to community housing should be promoted and the old approach of "slum clearance" and replacement by match-box flats done away with. Encourage creative architects to provide alternative designs, keeping in mind family structure and social and cultural realities. Engage the community in a dialogue on the issue of alternative sites and housing plans.

Conceive a plan where space is provided around a house and only the basic 'shell' is standardized with the possibility to innovate around it. In some of the villages damaged by the tsunami, it is possible that there are many households who would be willing to settle away from the coast. Alternate house sites should be provided to them.

An overall water, sanitation and hygiene education component should be incorporated in the rehabilitation plan. However, the new approaches to sanitation, which are more coastal-ecosystem friendly will require a higher level of use-education. Lighting – public and private – need a careful review. Use of solar lamps in public space and CFL's in the private space could be options to explore. Arrangements to ensure potable water, using appropriate technological options, should be put in place. Unique features of the water table in coastal areas need to be kept in mind.

Social infrastructure

Greater attention and investment in community-oriented infrastructure should be given a priority. This will enhance the overall quality of life of coastal fishing communities, an issue that has been of major concern so far. Roads to coastal areas, bridges, community halls, schools, fishery-related infrastructure are major investments that can absorb a sizable amount of aid contributions and community labour. They can also become realms for conscious alternative employment

training programmes for many of the displaced persons who do not wish to go back to sea for a variety of reasons:

a) Training in and provision of potable water supply, gray water and waste management and good drainage infrastructure, roads, bridges, culverts etc. right from the start as part of a comprehensive village development plan. Training also to manage these systems and small businesses like bio gas plants, recycling systems and sanitation infrastructure. These are future marketable skills, and

b) Training of volunteers from the area in construction of shelters/housing and low cost building material and components[2]

Gainful employment in fishing and related activities

For a variety of reasons – importantly due to the open access nature of coastal fishing – the economic wellbeing of fishing unit operators in several parts of Tamil Nadu was not very bright. However, for the large majority, they may not be able to make any major occupational changes at this juncture. Consequently getting back to fishing may be the most sensible option. In order to facilitate this, a quick option will be to provide wood for kattumarams. Only a very minimum lead time is required to shape hundreds of kattumarams and put them out to sea. The appropriate wood for this is available in the plantations of the Govt of Kerala and the South Indian Federation of Fishermen Societies (SIFFS). These can be purchased and transported to the affected areas and if necessary traditional kattumarams makers from Kerala and Tamil Nadu can be mobilized to custom make these crafts. Net webbing is readily available with the numerous companies.

Other small-scale crafts – plywood and fibre glass boats – will require slightly longer time. However, here again there are existing boat yards of the SIFFS network currently operating in Tamil Nadu and Kerala as well as boat yards under the Kottar Social Service Society, can rise to the occasion. There are also many accredited private boat yards run by members from the fishing community that should be given priority.

The issue of replacement of trawlers with new trawlers is a proposition that needs some careful examination. For one it will take considerable amount of time to do this. Secondly, and perhaps more importantly, the economics of trawl boat fishing in the tsunami-affected areas were already in bad shape in the last couple of years. Several trawler owners may be open to a compensation package that will help them to stay out of the fishery permanently. This may need to be considered carefully. However, there is the situation of the crew on these trawlers. What will they do? As an interim option, the possibility of providing groups of trawler crew with second hand trawlers from the neighbouring areas can be considered, in the context of an overall resource management plan (refer section on *Responsible fishery resource management* below). The crew may also be informed and provided other options for rehabilitation. This possibility for reduction of the total trawler fleet size in the southern parts of Tamil Nadu, through this approach, will bring higher returns for those who remain in the fishery. Contrary to popular perception, the overall employment potential and labour absorption of the sector will also be enhanced.

The realms of fish processing and marketing in which the role of women is very significant also needs some fresh thinking. The opportunity to introduce low-cost, hygienic fish processing techniques for the domestic market must be seized. This will require coastal space, financial and physical investments, demonstrations and training. The fishery institutions of the state that have done considerable amount of research in this realm should be creatively involved in making this transition. Fish drying and curing yards; mobile flake ice vans, ice plants etc will be required. It needs to be stressed that high investments in cold chain technology are inappropriate at this juncture.

As the areas that have been hit are homes of some of the most skilled hook and line fishermen in the country, it maybe interesting to explore the possibility of placement under special bilateral agreements in foreign fisheries for a period of one to three year. Some advanced training in seamanship should be provided to such persons before they take up such assignments. Japan's fishery, for example, is suffering from a shortage of skilled fishermen. There are also

many opportunities in the Gulf Countries, which are already familiar to the fishermen of Tamil Nadu.

Coastal aquaculture has been a controversial issue in the pre-tsunami phase. Supreme Court rulings have pointed out to the gross violation of the CRZ by the coastal aquaculture industry. Considerable damage has been reported to aquaculture farms and installations. Given the adverse social, ecological and economic impacts which this industry has had on other coastal communities in the past, measures for its rehabilitation away from the coastal belt should be given serious thought. Adequate compensation should be provided to those workers who have lost their lives and alternate rehabilitation options should be provided to workers who have lost their livelihoods.

Education and training

There should, at the earliest, be an easily assimilated education and awareness programme to educate affected people about the realities of what has happened, how it happened, its likelihood of recurrence, the options that face them, the pros and cons of different reconstruction and rehabilitation options.

This would include raising awareness of the state of the fishery and effects and sustainability of various fishing methods, understanding the CRZ and why it is important – the impacts of neglecting or enforcing it, pros and cons of sea walls and vegetative defenses and coastal protection, how to live in a more comfortable micro-climate, sustainable fishing, alternative value-addition livelihoods in fishing, opportunities for alternative livelihoods, education and retraining outside the fishery.

For those women and others who have below middle school education, various skill training could be organized for e.g. construction, plumbing, papermaking, textile printing ecological sanitation, horticulture, vegetable gardening and health foods. Good professionals should organize these trainings so that a level of excellence is maintained and the trainees have truly marketable skills. Production units based on these skills should be built up alongside to provide long-term employment and income.

For those who have studied up to high school but have not passed the SSLC or Plus 2, an institution 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.

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.

Safety and disaster-preparedness

Sea safety is a matter 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 disaster management and mitigation at the community level warrants top priority. The idea of a full fledged sea safety and resource management corps 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 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.

Protective social security

Fishing is by far the riskiest occupation in the world. Loss of life is often covered by insurance schemes of state welfare funds with the contribution of fishermen. The reach of these schemes should be enhanced. The mechanism for disbursal of such welfare measures 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 scheme for 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. 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.

Responsible fishery resource management

Considerable lip service has been paid for the need to move towards responsible fishery resource management. This is the occasion to take firm decisions and positive action to achieve this. Some of the fishery community groups, which are formed in the process of rehabilitation measures mentioned above, can become the core for the implementation of a strategy for responsible fishery resource management. Details of this are not spelt out here as the literature in this realm is extensive.

CONCLUSION

The proposals presented above though they are based on considerable experience of working with fishing communities, must still be considered as preliminary. They should not be taken as models for rehabilitation and reconstruction across the coastal space. All interventions should be nuanced in accordance with the specific realities.

End Notes

1. The time periods assigned to short, medium and long term will vary. The possibility for overlap is also inevitable.

2. It is very important to guard against the rapid reconstruction of homes with inappropriate, hot, badly ventilated and material intensive structures. Participative planning committees, particularly including people with expertise in appropriate, sustainable and aesthetically pleasing housing, must be rapidly formed and activated. There must be detailed interaction and participation with the community (age and gender balanced) and a range of housing and sanitation options should be offered.

Tsunamis and a secure future for fishing communities

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Natural disasters are not a rare occurrence along the coastal tract of Asia. We always have a tidal wave here, a cyclone there, or a typhoon brewing somewhere. Despite the warnings beamed over early warning systems, all these acts of nature result in the loss of life and property. We have become immune to such media reports of nature's fury. Most often they are distant events. As long as we are not the affected party, these coastal natural disasters come and go. There is the momentary sense of pity; sometimes an effort at reaching out to the anonymous victims. Then our lives moves on.

The post-Christmas tsunami seems to have changed all this. This nameless, stealthy killer came in broad daylight, totally unannounced. Those who were fishing at sea did not perceive its presence. Those on land had no living experience of such wave behaviour and fury. It devastated the coastal communities of several countries all at once. It has traumatized those for whom Mother Sea was a source of life and sustenance. The adage that the oceans unite us and land mass divides us became undisputedly true—except that this was not unity in life, but rather, in death and destruction.

A tsunami is a silent sub-surface wave train formed as a result of a tremendous release of energy in the ocean floor due to an earthquake or volcanic eruption. Tsunami waves travel in the ocean at great speed akin to that of a jet airliner. There is little dissipation of energy even after covering long distances. As tsunami waves reach the shallower water near the shore, friction with the continental shelf slows the front of the wave. Then the trailing waves pile onto the waves in front, like a rug crumpled against a wall. This makes the wave rise up to 30 feet before hitting the shore. Although greatly slowed, a tsunami still bursts onto land at high speeds, with enough momentum to flatten buildings and trees and to carry boats from the shore miles inland. Their onslaught on land comes without wind and rain. They strike with great stealth and surprise.

Questions

Fisherfolk are traumatized by the fact that the sea, in a rare display of fury, has deceived them and taken away their children, family members and property. The position that this was nature's fury which no human agency could predict or prevent is untenable. Coastal communities, scientists, the government and civil society are asking several important questions. Could thousands of lives have been saved if proper Coastal Regulation Zone plans had been implemented without pleading for numerous exemptions in the name of 'development'? Could short and long term measures have been taken to mitigate the extent of devastation inflicted on the coastal communities? If all fisherfolk had been given housing sites on the landward side of coastal roads, would not the death toll have been lower? If natural green-belt barriers (such as mangroves, wind breaker trees) had been in place, would the damage to property and the death toll have been reduced? If the coastal communities had been given disaster management training, could more lives have been saved? If the prime responsibility, as well as the finances and material resources, for safety and rescue were vested at the community level, would the response time to the crisis have been more rapid and the damage greatly mitigated?

The answer to all these questions is a big YES! We now realize that the costs of neglecting several basic and simple precautionary measures have been so huge in terms of human lives and property. While the shock of this unprecedented disaster is still on our minds, it is the duty of those of us who have been spared the trauma to commit ourselves to ensure that coastal communities—particularly the fisherfolk among them who were the most affected—will have a safe and secure future. This disaster context should be turned into an opportunity—not just to put in place emergency measures and early warning systems, but to work out a rehabilitation plan for long term livelihood security for these communities.

Rehabilitation plan

There is need to generate a larger consensus on this at the level of state and civil society. The plan should be the responsibility of the state, but it should be formulated and implemented in a participatory manner. The roles of civil society organizations and the affected community should be clearly spelled out. Such a rehabilitation plan should consist of an agenda for action that covers the following realms:

Environmental protection of coastal land and sea

Protection of the coastal area ecosystem—composed of a sea and land interface—should receive top priority. Foresters should play a major role in this. They need to advise about location-specific, appropriate green belt protection alternatives and also lobby for implementation of the Coastal Regulation Zone requirement of a 200 to 500 meter 'no development' zone.

Suggestions being made in certain influential quarters for building sea walls along the entire coastline need to be countered for their huge investment costs, scope for corruption, impact on natural coastal sand and water dynamics, adverse impact on coastal small-scale fishing and even on tourism potentials. The right approach is to have a menu of alternatives with the appropriate one chosen keeping the geo-physical and ecological characteristics of the coastal tract and its uses in mind.

Housing and related facilities

Good housing, appropriate sanitation and water facilities, lighting, and spacious community facilities are a priority if the hitherto abysmal quality of life of fishing communities is to be radically improved. These facilities must be provided to them close to the 'no development zone' with secure land rights.

Creative architects need to provide several disaster-proof building plans where adequate space is provided around a house and only the basic 'shell' is standardized. Finances should be given to each family to innovate around it in accordance with their needs. Sanitation structures need to factor in the highly porous nature of coastal land. Portable water and rain water harvesting, where appropriate, should be provided.

Gainful employment in fishing and related activities

Most fisherfolk wish to get back to their livelihoods. This is also one way to get over the trauma which many of them suffered. All the small beach landing crafts—particularly kattumarams—can be replaced without much lead-time if appropriate wood from forestry schemes in states such as Kerala can be supplied. Nets and small-scale motors are also easily supplied by private companies. The major problem relates to replacing the trawlers which were destroyed. Supplying new trawlers is not the right option. There was so much excess capacity in trawlers in the pre-tsunami phase. This was contributing to economic, biological and ecosystem overfishing. If those who lost trawlers are insistent on getting them back, then the solution should be to provide them with good secondhand ones which are easily and quickly available. Trawler crew can be given the option of going back to small-scale fishing or being trained for alternate livelihoods.

Coastal aquaculture farms were damaged. However, given the adverse social, ecological and economic impacts which this industry has had on other coastal communities in the past, measures for its rehabilitation away from the coastal belt should be given serious thought. Adequate compensation should be provided to families of fish-farm workers who have lost their lives. Alternate rehabilitation options should be provided to fish-farm workers who have lost their livelihoods. Decentralized, low-energy-using fish processing techniques as well as coastal and market infrastructure for hygienic fish marketing should be popularized. They should focus on the domestic market potentials. These investments will greatly help women from fishing communities to attain improved incomes.

Social infrastructure

Investment in community-oriented social infrastructure should be given a priority. Roads to coastal areas, bridges, community halls, schools and fishery-related infrastructure are major investments that can absorb a sizable amount of aid contributions and community labour. They can also become realms for both immediate 'food for work' type of programmes and conscious alternative employment training programmes for many of the tsunami-

displaced persons who do not wish to go back to sea for a variety of reasons.

Education and training

Post-tsunami rehabilitation is a good occasion to solve the educational backwardness of the fishing communities. They need a greater range of technical skills. This is an opportune moment to involve young men and women from the community in learning-by-doing. This can also be matched with a variety of training schemes to develop skills in trades which are now much sought after in the service sector—masonry, plumbing, carpentry, home nursing, geriatric care, water harvesting and ecological sanitation skills to name a few. Residential fishery schools starting from the primary classes onwards will also be a boon for the large number of tsunami orphans and future generations.

Safety and disaster preparedness

Though tsunamis are rare, monsoon sea ingress, cyclones and tidal waves are a fact of life along the coastal belt. The yearly calamities can be reduced if an early warning system is put in place and safety and disaster management training is provided. A village-based IT-enhanced communications network that is linked horizontally across coastal villages and vertically to higher level disaster management cells will be required. This can also be a realm to exchange the nuanced traditional knowledge of fishing communities on weather and the sea. Every village should have its own well-trained safety brigade of women and men, fashioned along the lines of a home guard. An FM radio service focusing on the coastal communities can serve the purpose of education, entertainment and safety. Sea safety kits and radios supplied to fisherfolk will be a worthwhile investment.

Protective social security

Fishing is by far the riskiest occupation in the world. The tsunami has revealed the very low insurance coverage across the coastal communities. 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 and social security packages for health, accident and old age pensions for men and women. The mechanism for disbursal of such welfare measures should be decentralized. A fishery disaster insurance scheme that will cover loss of life and property as a result of a collective natural disaster with the premium paid fully by the government is warranted.

Responsible fishery resource management

Considerable lip service has been paid to the need for moving towards responsible fishery resource management. This is the occasion to take firm decisions and positive action by both the state and the community to achieve this. Tsunami affected fisherfolk who wish to leave fishing, particularly the older among them, should be given a good compensation package. Many trawler owners may use this occasion for an honorable exit from the fishery. They must be adequately compensated. Community initiatives for erecting coastal artificial reefs which can act as barriers to nature's fury and also help to rejuvenate coastal living resources should be encouraged. Greater state and community co-management arrangements for the coastal waters need to be negotiated. Aquarian reforms assuring rights to coastal waters and producer controlled arrangements for the first sale of fish should be enacted.

CONCLUSION

Fishing communities have rarely been at the center of attention of civil society. Now that so many of them have been taken away by the sea and thousands are faced with a shattered future, they are the focus of an outpouring of concern. This swell of human kindness—if it is not to take the shape of a tsunami of misplaced concerns and competing priorities—needs to be properly channeled. The proposals above should be seen as a modest attempt to begin a discussion on the medium and long term issues that need to be factored into any rehabilitation plan for the survivors. If successful, this can form the basis for a plan for ensuring a secure future for fishing communities across the country.

Rehabilitation of livelihoods affected by the tsunami in Tamil Nadu: A note on the issues and options[1]

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The tsunami that hit the Tamil Nadu coast has devastated all fishery-based livelihoods as well as some of the other livelihoods close to the coast. Rehabilitating the lost livelihoods is a more difficult task than reconstructing the villages and homes. For one, the resources needed to rehabilitate the livelihoods are more than that needed to build new homes. However, that is also not a real problem given the extent of resources the Government, NGOs and international donors are ready to commit. The problem of rehabilitating livelihoods is complicated by various administrative problems related to assessment of loss and identifying genuine beneficiaries due to the informal and unorganised nature of most coastal livelihoods where no reliable system of records exists. Perhaps more perplexing are complex issues that stem from the common pool nature of coastal and marine resources and the need to ensure equity and sustainability in the rehabilitation process. This note is an overview of the issues affecting the rehabilitation of livelihoods and offers some options for their resolution.

LISTING THE LIVELIHOODS

It is important to remember that fishing, though the dominant livelihood, is not the only livelihood on the coast. Here is a rough list of the livelihoods on the coast and the varying degrees they have been affected by the tsunami.

Fishery based livelihoods:

Fishing, post harvest activities like fish drying, curing and vending, pre-harvest activities like boat making, net making, etc., fish marketing (merchant activity), fish transport, loading, unloading and other labour associated with fish handling, ice production, supply, boat/motor repair, and supply of nets and fishing accessories.

Agricultural livelihoods:

Farming, post harvest activities, supply of inputs for farming, animal husbandry (livestock), and casuarina cultivation and cutting.

Others:

Petty trade, provision shops, cycle shops, money lending, and basket making, house construction, etc. While fishing is the most obvious and noticeable livelihood on the coast, all the other livelihoods put together could in fact be employing a number equal to that of fishing. Further, these other livelihoods employ a wider mix of persons including women from the fishing communities and persons from non-fishing communities that live or work near the coast. Many of the persons employed in these occupations are also perhaps dependent on the custom of the fisherfolk and hence are in deep trouble because of the devastation to the fishing livelihood. In some of the occupations, Dalits are perhaps a significant number.

ISSUES RELATED TO REHABILITATION OF FISHING

Common pool nature of fishing

Fish resources in the sea are finite and limited. A large part of them are concentrated in the continental shelf near the shore. Hence there is a limit to the number of boats and nets that can be sustained as an economic proposition. If the fishing capacity exceeds a certain level, the fish resource base itself can be affected. This points out the need to have controls on the number and types of fishing equipment that can be used.

Four categories, but two conflicting groups

Tamil Nadu has the following four categories of fishing units:

Sailing Kattumaram with nets, Kattumaram with small motor and nets, Fibreglass "Maruti Kattumaram"

with motor and nets, and Mechanized boat with trawl net (Trawlers)[2].

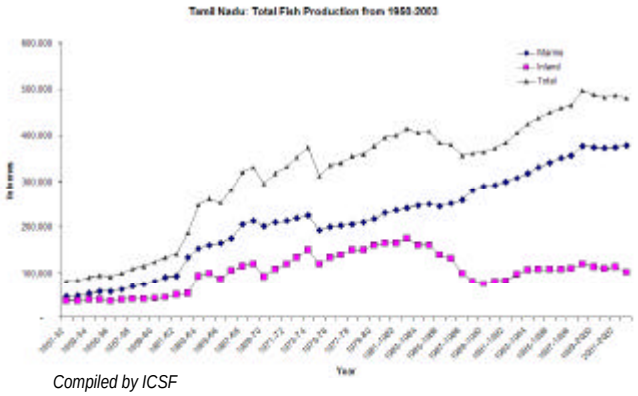
However, the first three do not have any serious conflict of interest amongst themselves and co-exist in the same village. They appear to represent a ladder with three steps that can be climbed provided there is skill, application and some luck. They together constitute a single interest group that is called "traditional" or "artisanal", even though the use of motors and new net materials have clearly modernised their fishing equipment.

The trawlers clearly represent a distinctly different interest group in fishing. The huge difference in investment clearly represents a quantum jump that not every fisherman can aspire to take. However, the conflict between trawlers and the "artisanal" fishermen does not come from just the difference in investment. It comes from the fact that trawlers harm the fishing interests of the small fishermen by virtue of their fishing method. The bottom trawl net that scrapes the sea bottom is not a "deep sea" fishing method, but actually catches fish on the shallow continental shelf. It is in competition for both space and resource with the smaller units. The conflict also comes from the fact that while the "artisanal" fishermen are into fishing for just a livelihood expending their own labour, the trawlers represent a new class of fishermen (though mostly from the fishing community) who are investors expecting a return.

Fish resources and fish catch in Tamil Nadu

Though Tamil Nadu does have unexploited and under-exploited fish resources in the deep sea, most of the coastal waters are exploited to the optimum or over-exploited. There is a stagnation in catch over the last many years despite an increase in the number of boats and nets (see chart).

Deep sea fishing needs higher investment, improvements in technology and an aptitude for deep sea fishing. The last factor is perhaps the most important and is often ignored. Moreover, deep sea fishing offers only a marginal increase in employment opportunities and is mostly capital intensive. Solutions like "diversification" to enable trawlers to shift to the deep sea have not been very successful in the past. Tamil Nadu's trawl fleet, estimated to be between



Compiled by ICSF

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

8,000 and 10,000, are clearly well over the carrying capacity of the sea. In fact, these trawlers survive only because they poach in the coastal waters of neighbouring Andhra Pradesh, Kerala and Sri Lanka. The fishing in Sri Lankan waters often has tragic consequences. Thus it is important to understand that indiscriminate distribution of fishing equipment under tsunami relief can be harmful and counterproductive.

Distribution of small boats, motors

While the trawler issue is perhaps easy to comprehend, problems associated with the distribution of inputs for the small fishermen are not so. Even though individually each small fishing net is harmless, put together a large number of them can also deplete some of the resources. Moreover, at present the shift from non-motorised to motorised fishing is taking place in an incremental manner that ensures that only fisherman capable of managing the higher investments is able to make the shift. However, if with the intention of improving the livelihoods of fishermen, motors are distributed to even those who did not have them earlier, there can be serious repercussions, especially on the economic front. The following are some of the problems if there is indiscriminate distribution of boats, motors and nets:

a) Lack of adequate crew to man all units,

b) High operating costs with low returns for motorised units

So a carefully planned distribution of boats, motors and nets are essential for maintaining the health of the fishery and ensure profitability in fishing operations. In conditions where fish resources are fished close to the optimum, it is important to

remember that fishing is a "zero-sum game". *It may be inadvisable to increase the total stock of fishing equipment to above the pre-tsunami level.* For one condition under which an increase in motorised small boats may work, look at the section below on "replacement of trawlers".

Assessment of fishing equipment loss

Assessment of the fishing equipment loss in order to decide on numbers to be replaced is fast becoming an administrative nightmare. The informal nature of the fishing occupation means that all pre-tsunami figures are only rough estimates and also suffer from lack of a detailed classification. Given that all those who have lost equipment can expect replacement with new equipment under grant schemes from the Government or NGOs, all fishermen with serviceable equipment are anxious to get replacements. Huge lists of equipments lost have been compiled by every village community. While there is no easy solution to this problem, it is important to alert all concerned officials and NGOs providing rehabilitation to be extremely cautious with figures given.

Group ownership of fishing boats

Many donors are talking about "cooperative" ownership of boats. In a way this could be an ideal solution to over-investment and ensure that there is equitable distribution of fishing equipment. Unfortunately, this is just notin tune with the culture of the Tamil Nadu fishermen. Group ownership of small boats has proved to be a failure and unacceptable. Individual or family ownership is the preferred mode.

Replacement of trawlers

As the number of trawl boats in Tamil Nadu is already in excess, this is an opportunity to reduce the trawl fleet and strengthen small scale fishing. In fact, if the trawl fleet destroyed is not replaced it provides an opportunity to push in more small motorised boats than the pre-tsunami levels. Here are some possible measures to ensure this:

a) Freeze trawl boat strength at Tamil Nadu level to post-tsunami level,

b) Stop new trawl boat production,

c) Allow sale of existing boats so that a redistribution of effort takes place between areas with excess trawlers and those where trawlers have been destroyed. For example, Chennai boats could be sold to Nagapattinam fishermen, and

d) Give a compensation for leaving trawl fishing rather than financial assistance for replacement of trawlers

This is a rare opportunity to solve, at least partially, the vexed trawler problem and to improve livelihood opportunities in fishing.

Use of credit for equipment replacement

There are talks of a package that will involve credit from banks for replacement of fishing equipment. Many banks have declared their interest in providing credit for rehabilitation. This is not a good idea. For one, no mechanism exists at the ground level for proper recovery of credit in the fishing sector with the exception of SIFFS societies in Kanyakumari[3]. In the present condition, all credit will be treated as grant by the community and it will be impossible to recover the loans.

NGO-GOVERNMENT PARTNERSHIP IN DISTRIBUTION OF FISHING EQUIPMENT

A scheme with Government contribution for equipment replacement supplemented by NGO/donor funds needs to be drawn up. This will ensure that NGOs at the grass roots level can make sure that the money meant for replacement of equipment is actually spent on the objective and is not frittered away. A proper mechanism for this has to be worked out by the Fisheries Department in consultation with NGOs/ donors.

Remarks on other livelihoods

a) Some of the livelihoods are fishery dependent and these will pick up once fishing picks up. However, financial assistance is also required to restart many of these. A proper assessment of these livelihoods and the losses they suffered is needed urgently,

b) Technical expertise is needed to handle the problem of agricultural lands affected by the tsunami, and

c) Though there has been no "discrimination" against Dalits as alleged in some quarters, the fact remains that Dalits have been invisible to both the

administration and NGOs, and care needs to be taken that livelihoods lost by Dalits are restored.

ALTERNATIVE LIVELIHOODS

Giving alternative livelihoods to fishermen is being talked about in view of the fact that many are still fearful of the sea. This is not a practical proposition. At least 99% of the fishermen will return to fishing after a while. Alternative livelihoods are however needed for the following:

a) Women in the fishing community of whom only 10-25% are involved in fish vending; appropriate income generating projects need to be taken up,

b) Educated youth from the fishing community who would like to join mainstream occupations, technical and non-technical; vocational training programmes may be organised by NGOs and Government.

CONCLUSION

Livelihoods regeneration is probably the most important part of the rehabilitation programme. However, a well-nuanced plan is required to ensure that it takes place systematically with an added objective of putting the fishing community on a path of development correcting some of the ills of the pre-tsunami period.

End Notes

1. Prepared by V. Vivekanandan, NGO Coordination Centre, Nagapattinam (16 January 2005).

2. There is a fifth category "mechanized gill netter" which is a marginal one and is not in any conflict with others. Though it is also a mechanized boat, the fishing method is common to the artisanal sector. Despite having a larger net, in economic terms it is not that attractive and is preferred by a few fishermen who go deep and undertake "niche" fishing. There is actually a sixth group. The mechanized gill netters of Thoottoor in Kanyakumari have transformed themselves in long line boats going for shark fishing all over the west coast of India. However, they are not germane to this discussion, and are not part of the tsunami affected area.

3. SIFFS societies in Kanyakumari link marketing and credit and have a 90% recovery rate. Just three SIFFS societies exist in Nagapattinam district while nine exist in Nellai and Tuticorin districts.

Nagapattinam relief camp

Tsunami relief and rehabilitation in Nagapattinam district: Tamil Nadu

V. Vivekanandan

INFORMATION RELEVANT FOR REHABILITATION OF FISHING

Fishing units

A fishing unit is composed of the following components: A boat, a motor (not necessary for sailing vessels), and fishing gear (nets, hooks, traps, etc.). The boat (with or without motor) is only useful to transport fishermen and fishing gear to the fishing grounds and to bring back the fish. It is the fishing gear that actually catch fish.

Boat types

The fishermen of Nagapattinam use three basic boat types: Kattumaram[1], "Maruti" Boat, and Mechanized Boat. While the Kattumaram is the traditional boat type of Nagapattinam, the other two are boat types introduced in recent times. While the Kattumaram is essentially a sailing vessel, many of them are increasingly used with small motors. The "Maruti" boat is a recent introduction made of fibreglass and meant for use with motors and is considered a Kattumaram substitute. However, it is more than a substitute and needs to be seen as a technology upgrade for the traditional fishermen. While the Kattumaram and the Maruti Boat are "beach landing boats", the third category of Mechanized boat is much larger and requires harbours to land or has to be anchored at sea.

Four types of fishing units

The following are four types of fishing units in Nagapattinam that represent also a hierarchy in terms of scale, investment and incomes: Kattumaram with sail and small nets, Kattumaram with motor and nets, Maruti boat with motor and nets, and Mechanized boat with trawl net[2]. The sailing Kattumaram is obviously the lowest in the hierarchy while the trawler is the highest.

Fishing gear

The fishing gear of the Nagapattinam can be classified under the following groups: Small gillnet, Large drift net, Hook & line, and Trawl net.

Gillnets are basically nets that are hung vertically in the sea and when a shoal of fish crosses them, the fish are caught in the mesh of the net around their gills. The fish caught depends on the mesh size of the net. So for every fish variety, a separate net is needed with the appropriate mesh size. The Nagapattinam fishermen use a variety of small gillnets to catch different fishes with their Kattumarams or Maruti boats. Each gillnet is made up of a "webbing" with ropes on top and bottom. While the top line is held up by floats, the bottom line is kept in place by sinkers or lead pieces.

Large drift nets are a specialised form of gillnets. They are long pieces of net that are used in deeper water to catch larger species of fishes like Seerfish (Vanjaram in Chennai, Surumai in Mumbai) or Tuna. These nets can be more than a kilometre long when allowed to drift at sea. Use of large drift net is a specialised fishing done by some fishermen. Some villages also have a tradition of doing this.

The small gillnets are nowadays made of nylon monofilament material. The large drift nets are made with nylon multifilament. The ropes are mostly made of polypropelene material while floats are made of polyurethane foam. Small gillnets are essentially factory made with a large number of small factories producing them in Chennai, Kochi, Mumbai, Pondicherry and Nagercoil. Large drift nets are mostly handmade by women in locations like Kanyakumari from nylon twine that is supplied to them by fishermen. (It needs to be checked whether Nagapattinam fisherwomen have net making skills)

The term gillnet is a generic name and is unlikely to be recognised by the fishermen. They only give the names to the fish based on the fish that is caught or have some nick name for some nets.

Hook and line fishing is done in many villages. There are hand-lines as well as long-lines. Hand-lines are just a few hooks put on a line with some bait fish (or artificial bait). Long lines are a large number of hooks put on a long line with bait fish. Hook and line fishing is relatively inexpensive but requires great skill and stamina.

Trawl nets are bag shaped nets dragged on the sea bottom with two wooden boards that keep the mouth of the net open. The trawl nets are made of HDPE twine and are available as machine made nets and also can be handmade.

Motors

Fishermen use "Outboard motors" or OBMs which are easy to fit on boats and can be removed. However, the OBM used by the Nagapattinam fishermen are not conventional OBMs that are entirely the monopoly of Japanese manufacturers. They use small light diesel motors that have a long shaft with propeller attached to them. These 'long tails' are fitted on to a metal bracket at the end of the Kattumaram or Maruti boat and there is a swivelling system that allows the shaft to be rotated horizontally for navigation and vertically for removing out of water. The long tails are mainly supplied by the Greaves Company. The long tail OBM is also called as "lombardini" as the motor is a design by the Italian Lombardini company. It is important to note that small boats using OBMs are called "motorised" to distinguish them from the larger category which are called "mechanized".

Fishermen: divisions based on technology

Fishing is a competitive affair involving the harvest of a common pool resource and conflicts between different groups are inherent in the process. However, the conflicts are between different gear types rather than boats. As mentioned earlier, this is because the boat is only meant for reaching the fishing ground and it the gear that catches fish.

However, the conflict between Mechanized trawlers and the "artisanal" fishing boats is one that is significant and present virtually throughout the South Indian coast. The sail Kattumaram, the motorised Kattumaram and the Maruti boat represent a continuum that is present within all villages and together represent one interest group in the fishery. Despite differences in incomes between the three groups, they form one single group in which mobility from one level to other is taking place regularly. The trawl owner, though also from the same fishing community represent, a new class of better off fishermen and the trawlers are concentrated around centres where harbours or safe anchorages exist. The conflict is basically based on the fact that the trawl net is used to sweep the sea bottom and leads to reduction of catch for the small fishermen and also destruction of sea bottom habitat.

Owners and workers

In the artisanal category (Kattumaram and Maruti boats), ownership is essentially an individual/family affair with the owner also part of the crew. The crew will be composed of family members as well as others not owning boats. The crew size is 3-4 fishermen depending on size of boat and type of fishing operations. The crew are not paid a wage but a share of the net income (after deducting trip expenses like fuel, marketing commission, contributions to village or temple, etc.). The sharing pattern varies according to type of boat and net and reflects the level of investment needed. The net income is divided into a number of shares with each crew receiving a share with an additional share for the owner. If the owner is also on board, he also takes a crew share. It is not appropriate to see the owner-worker relationship with an understanding borrowed from the agrarian sector with its well defined class relationships.

As far as the Mechanized boats are concerned, they also operate on a sharing system with the owners having a much higher share (say 65%) than on the artisanal boats in view of the substantially higher investment. The crew members however get "batta" which is a fixed amount per trip (say 200 rupees or so) in addition to the share. This batta is due irrespective of whether there is catch or not. Therefore many crew members on Mechanized boats have better incomes than owners of artisanal boats. In fact, in recent times with the proliferation of Mechanized boats in Tamil Nadu, many Mechanized boats are making losses and struggling. The Nagapattinam trawlers are no exception.

DETAILS OF CRAFT AND GEAR

Kattumaram

The Kattumaram is a boat which is built by tying together a few logs of wood which are shaped by traditional carpenters. The timber used for Kattumarams is Albizia which is grown extensively on the western ghats and can be found in Kanyakumari and southern Kerala. Albizia is nowadays grown mainly for match stick making

and 5-10% of the trees grow straight and have enough girth to suit Kattumaram specifications. The Kerala Forest department has considerable number of Albizia trees in its plantations. Lots of trees are also found in large numbers in private plantations. In principle there should be enough number of trees to replace the entire stock of Kattumaram on the east coast of India. However some policy support that will ensure access to Kerala Forest Department plantations, free movement of Albizia across state borders are needed to smoothen the process. The Kattumaram is a non-standard craft and each Kattumaram will have slightly different dimensions and is custom built. So costs will also vary from Kattumaram to Kattuamaram.

Maruti boat

The Maruti Boat is a glass fibre boat made by a large number of small boat yards along the coast. SIFFS is perhaps one of the few manufacturers from the organised sector and has a boat yard in Tharangambadi. It is possible that some of the small boat yards are also damaged by the tsunami.

Trawlers

Mechanized trawlers are mostly wooden boats with inboard diesel engines. They are manufactured also by boat yards in the informal sector. There is a huge stock of trawlers in Tamil Nadu that is more than enough to match the fish resources available. It might be possible to redeploy some of the trawlers of Chennai in Nagapattinam and ease the fishing pressure in Chennai. This of course needs policy support.

Nets

It is important to note that it may be advisable to have a proper dialogue with fishermen before ordering nets as minor changes in mesh sizes may make a net useless. It may be better to get a sample net and show to manufacturer/supplier before placing orders.

End Notes

1. The word Kattumaram is used as Catamaran in Tamil Nadu — Ed.

2. Towards Vedaranyam in the south, some of the mechanized boats use "gillnet" rather than the trawl net.

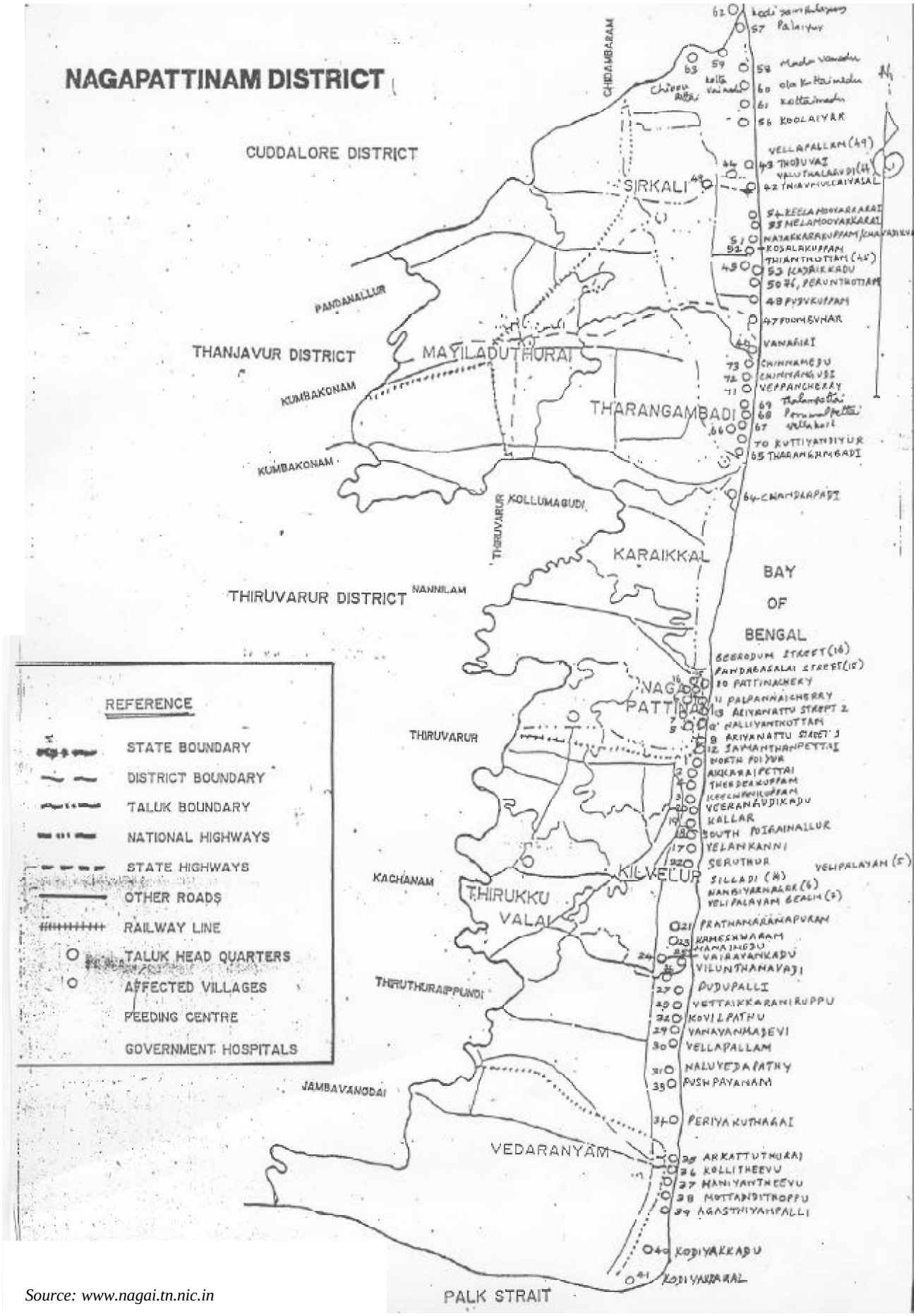
Specifications of fishing equipment with prices (Nagapattinam)

Fishing Boats/Motors

Name	Specifications	Cost Rs.
Kattumaram	Albizia logs	10,000-20,000
Maruti Boat	24 ft	60,000-75,000
Trawlers	36-42 ft	10,00,000-15,00,000
Long tail	7-10 hp	32,000-42,000
Imported OBM	Suzuki 9.9 hp	60,000

Fishing Nets

Name of net	Material	Twine size	Mesh size mm	Mesh Depth	Min. quantity kg	Rate/kg	Total amount Rs.
Kavala vala (sardine net)	Nylon monofilament	0.2	25-30 mm	300	20	700	14,000
Thattakavala vala (lesser sardine net)	Nylon monofilament	0.2	36 mm	150	15	800	12,000
Kanankelutu Vala (Mackerel net)	Nylon Monofilament	0.23	55-57 mm	100	20	650	13,000
Kola Vala (flying fish net)	Nylon multifilament	0.23	42-48 mm	55	10	950	9500
Salangai/mani vala (trammel net)	Nylong multifilament	1/2	Three layered net with different mesh sizes	65	5	1250	6250



Source: www.nagai.tn.nic.in

Artisanal fishing units in Kanyakumari

[*This document is a work in progress*]

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Artisanal fishing units in Kanyakumari are broadly divided into three strata: the unmotorized or sail kattumaram; the motorised kattumaram; and the FRP/Marine plywood kattumaram or canoe.

FISHING CRAFT

The following are the price ranges for fishing craft used in Kanyakumari:

Kattumaram (4-log, sailing) Rs. 8-15,000

Kattumaram (4-log, motor) Rs. 20-25000

Fibreglass kattumaram Rs. 100,000

Fibreglass vallam Rs. 105,000

[The prices for FRP units are inclusive of taxes. Prices may come down marginally if there is sales tax exemption]

The following table summarizes the overall features of the sail kattumaram, the motorised kattumaram, and the FRP/ Marine plywood kattumaram or canoe:

Unit Type	*Approximate cost (Rs)*	*Craft*	*Gear*	*Propulsion*
Sail kattumaram	50000	Kattumaram made from *Albizzia falcataria* logs	Gill nets for anchovy, sardine, mackerel, shrimp and lobster	Sail
Motorized kattumaram	150000	Kattumaram made from *Albizzia falcataria* logs; slightly larger than sail kattuamaram	Gill nets for anchovy sardine, mackerel, shrimp and lobster; bottom set net; drift net; longlines	Longtail diesel, originally made by Lombardini, but made in India by Greaves
FRP/plywood canoe or kattumaram substitute	250000-300000	FRP/Marine plywood canoe with deck *or* FRP kattumaram substitute	Gill nets for anchovy, sardine, mackerel, shrimp and lobster; bottom set net; larger drift net; longlines	Imported outboard motor from Suzuki (dominant brand) or Yamaha

OBMs AND LONGTAILS

The price of Suzuki 9.9 OBM is about Rs. 67,000 inclusive of taxes, while that of the Longtail is about Rs. 37,000 inclusive of taxes.

FISHING GEAR

Fishing gear consists of gillnets (where fish get caught in their gills), driftnets (large nets where fish get entangled), hooks and line and traps. There are a variety of small-gillnets in use in Kanayakumari. Nets are highly fishermen specific, and setting a net from its parts is an intricate process. A full net is made out of webbing (either multifilament or lately, monofilament), floats, ropes, sinkers (either cement blocks or iron sinkers) and jerry-cans used as end-of-net floats.

Indicative prices of webbing

Name of the Net		Material	Size	Qty (Kgs)	Float (Nos)	Sinkers	Rope (Kgs)	Cans (No)
Chalavala	Sardine net	Monofilament	28-32 mm	10	100	10kgs Cement	10	15 (5litre)
Kachavala	Anchovy net	Monofilament	12-14 mm	10	100		10	10 (5litre)
alavala	Ribbonfish net	Monofilament	38-40 mm	10	200	10kgs Cement	15	15 (2litre)
Ayalavala	Mackerel net	Monofilament	40-44 mm	15	200	10kgs Cement	15	20 (5litre)
Echavala	Mackerel net	Nylon (1-1.5 No)	40-44 mm (210 D 1/3,3/2)	50	200	10kgs Cement	10	30 (5litre)
Lobster net	Lobster net	Monofilament	60 mm	5	25	10 Kgs sinkers	10	
Othakunduvala	Bottom-set net	Monofilament	60 mm	25	100	50 Kgs sinkers	25	
Vazhivala	Driftnet	Nylon (2,4,6 No)	44 mm (210 D 2/3)	15 Kgs	100		25	30 (5litre)
			60 mm (210D 4/3)	15 Kgs				
			80 mm (210D 6/3)	20 Kgs				
		Nylon No. ¼	36-38 mm 210 D ¼	10 Kg				
"Disco" vala	Prawn net	Nylon No. 3	120 mm 210 D 3/3	10 Kg	800 small	50 sinkers	20 kg	

Monofilament thickness (mm)	Mesh size	Price/kg
0.16	18	395
	20	385
	22	375
	24	370
	26	365
	30	355
	36	345
	40	335
	46	325
	50	315
	56 and above	310
0.2	26	360
	28	350
	30	340
	36	330
	40	320
	50 and above	310
0.23	36	300
	40	290
	42	285
	46	280
	50	275
	52	270
	56	265
	58 and above	260
0.28	52,56,58	265
	60,65,70	255
	75 and above	250
0.32	52	260
	56,58	250
	60,65	240
	70 and above	230

A note on poverty and coastal fishing communities in Tamil Nadu

Excerpts from the report on, *Rural Poverty Among Coastal Fishers: Profile and Possible Interventions.* This report on India was prepared by the International Collective in Support of Fishworkers (ICSF) for International Fund for Agricultural Development (IFAD), October 2003, PP.5-7.

Information from the Fisherfolk Censuses conducted by the Department of Fisheries in 1957, 1978, 1986 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. This presently forms about 1.1 per cent of the total population of the State.

According to the data, the annual rate of population growth during the period 1986 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 has increased, undoubtedly with implications for living conditions and pressure on resources.

A techno-socioeconomic survey of fishermen households in Tamil Nadu in 1987, (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 km of coastal length, i.e. 1778 and 1,690, respectively. The average density in the State was 464 marine fishermen per km of coastal length. In 2000, the density of marine fishermen population per 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 1986. 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 against 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 2). While interpreting this data, however, the fact that it is drawn from two different sources, with possibly different methodologies, needs to be kept in mind.

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 (Table 3). It is worth noting that the data does not differentiate between houses with thatched roofs and walls, and those only with thatched roofs. Thatched walls would be clearly indicative of poorer housing conditions.

The earlier mentioned techno-socioeconomic survey of fishermen households in Tamil Nadu in 1987 indicated that sanitation facilities in the marine fishing villages 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. This was also clear from the information obtained during this survey that 98.5 per cent of the total income of the villages surveyed came from fishing and allied activities. 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 do not fare well on indicators of human development, highlighting the need for a special focus on these communities. It needs to be kept in mind, however, that the above

data presents only a partial picture. Other information, commonly available with other departments but unfortunately difficult to find in one place or to access easily—such as infant and maternal mortality rate in fishing communities, life expectancy, proportion of those in fishing villages living below poverty line, proportion of those without titles to the land they live on, etc.—would also be very meaningful to obtain a broader picture.

Poverty and coastal fishing communities: Evidence from other States

Evidence from other States is, at best, anecdotal. Several studies on socioeconomic aspects of fishing communities were conducted through the erstwhile Bay of Bengal Programme of the FAO, particularly in the 1980s. However, given the rapid subsequent changes in the sector, these need to be updated to take into account current realities. In general, as mentioned earlier, there is almost no current comprehensive socioeconomic information about fishing communities. Some information available from the literature is summarized below.

An evaluation of Centrally Sponsored National Welfare Schemes for Fishermen, conducted in 1995 in five States (Kerala, Andhra Pradesh, Tamil Nadu, Pondicherry and Uttar Pradesh), interviewed a sample of fishermen households (NIRD, 1995). The study found that a majority of those in the sample were landless. In Tamil Nadu, for example, 98 per cent of the sample was found to be landless, while the corresponding figures for Andhra Pradesh was 92. It is not clear though how landless is defined in the study: whether it means those who own no land or those who own no land other than the land they live on.

Following the devastating cyclone in Andhra Pradesh in 1996, AFPRO (1998) conducted a survey of affected villages. In Bhairavapalem village, a major fishing village near the mouth of the river Godavari, the study found that, prior to the cyclone 80 per cent of the houses in the village had been thatched, and that only 44 per cent had been electrified. General sanitation was very poor and there was a shortage of drinking water (available from an open tank). The situation in the three other villages surveyed (Balusutippa, Masanitippa and Peddagadimoga) also indicated that the proportion of thatched houses ranged from 87 to 94 per cent.

In a recent study of coastal fisherfolk population in selected villages of Thane district of Maharashtra (Tewari, 2003), men and women in the sample reported that, in their view, the overall socioeconomic condition in the villages has improved appreciably. However, it was reported that basic amenities such as toilets, potable water and ventilation were still lacking, though a majority of fisherfolk households now lived in concrete houses.

A survey conducted in the major fishing villages in Ratnagiri district presented an alarming situation regarding the health of the fisherwomen and their children. Many of the women were found to be suffering from gynecological problems due to unhygienic conditions. Epidemic conditions for dysentery, diarrhea and scabies were prevalent in the fishing villages. Children were found to be suffering from scabies and ringworm infections (Mohite, 2003).

All these aspects need to be seen in light of the fact that marine fishing households in the coastal areas in India increased from about 350,000 in 1980 to 500,000 in 1998, while the marine fishermen population grew from 2 million to 3 million during the same period (Sathiadhas and Biradar, 2000).

Available evidence would thus seem to suggest that fishing communities, in general, have lower levels of literacy, a lower sex ratio, and poorer conditions of housing, as compared to State and national averages, indicative of a lower level of well-being in fishing communities, even though, as indicated in the Maharashtra study, it is likely that there has been overall improvement in socioeconomic conditions, as compared to past decades.

It is necessary to keep in mind that most of the available evidence on the socioeconomic situation of fishing communities is from Kerala and Tamil Nadu—States that are, in fact, better off in terms of human development indicators. The situation of fishing communities in States that are lower on the human development scale is certainly worth exploring.

Table 1: Tamil Nadu Marine Fisherfolk Census: A Comparative Picture

	1957	1978	1986	2000
Number of coastal villages *Percentage increase*	242	402 *66.12*	442 *9.95*	591 *33.70*
Total fisher population (in 000s)	236.6	337.7	463.8	679.7
Percentage increase *(Annual rate of growth)*		42.7 *(1.9)*	37.33 *(4.66)*	46.55 *(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
Children (in 000s)	67.62			
Active fisher population (in 000s) *(Annual rate of growth)*		80.03	101.86 *(3.41)*	231.81 *(7.97)*
Number of families *(Annual rate of growth)*		66,235	87,085 *(3.93)*	1,43,743 *(4.06)*
Average family size		5.09	5.33	4.68
Literate			197,232	399,067

Source: Compiled from Marine Fisherfolk Census: 1957, 1978, 1986, 2000. Department of Fisheries. Chennai

Table 2: Human Development Indicators for fishing communities in Tamil Nadu: A comparative picture

	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)

** from the Marine Fisherfolk Census 2000. Department of Fisheries, Government of Tamil Nadu*

*** for the year 1986*

**** average for coastal districts*

Table 3: Details on housing in fishing communities in Tamil Nadu

	1978	1986	2000
Number of houses *(Annual growth in percentage)*	63,315	84,410 *(4.14)*	1,41,340 *(4.21)*
Number of owned houses *(Percentage to the total)*		76,196 *(90.26)*	1,23,238 *(87.19)*
Number of not-owned houses *(Percentage to the total)*		8,214 *(9.73)*	18,102 *(12.80)*
Terraced *Percentage to the total)*	9,174 *(14.47)*	17,200 *(20.37)*	28,783 *(20.36)*
Tiled *(Percentage to the total)*	12,503 *(19.72)*	18,966 *(22.46)*	31,928 *(22.58)*
Thatched *(Percentage to the total)*	41,632 (65.68)	48,244 (57.15)	50,845 (35.97)
Free house*			29,784

Source: compiled from Marine Fisherfolk Censuses: 1978, 1986, 2000. Department of Fisheries. Chennai

** Free House: In the case of Marine Fisherfolk Census 2000, "free house" could either be tiled or terraced, but the exact number of house under each is not provided. Free house is a scheme started by the Government of Tamil Nadu to distribute free houses for the fishing community.*

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Helping fishermen: Proceed cautiously

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In the aftermath of the tsunami, relief measures are now making way for reconstruction and rehabilitation. Fishing communities, in particular, have taken a heavy beating by the tsunami onslaught. Several proposals have been made towards restoring normal life in the affected areas.

According to Tamil Nadu Chief Minister Jayalalithaa, the focus of the state's rehabilitation programme will be on relocation of fishermen's families by acquiring land. The government of Tamil Nadu has invited NGOs, corporate houses as well as public and private enterprises to participate in a public-private partnership for ''permanent relocation and rehabilitation'' of people affected by the calamity, subject to a minimum investment of Rs. 50 lakhs.

Fishing communities can be assisted in rebuilding lost houses, repairing their fishing vessels or acquiring new craft and gear to resume their occupation. Immediate government relief in terms of grant for buying new fishing gear and for repair of vessels has already started reaching fishermen.

Houses destroyed by the tsunami include those built on land with and without "patta", which stood mostly within 500 metres of the high tide line. What made fishermen, including seasonal migrants from inland areas, choose such locations for their dwellings was mainly the proximity to the sea to practice their traditional, beach-based occupation using kattumarams and vallams. They lived close to the sea because it was expedient to fish, and to ensure security of their fishing craft and gear that are often kept on the beach after fishing.

Systematic attempts are yet to be made to consult fishermen across affected areas about whether or not they would indeed like to be relocated away from where they lived before the tsunami hit. The long-term implications of such a proposed resettlement plan for fishing has not been sufficiently discussed. Fishermen, after occupying new houses, may find them inconvenient for undertaking fishing operations. They may even return to their original house sites. This may give rise to law and order problems.

An important decision such as housing cannot be separated from the occupational requirements of fishing. Such a decision should not be taken in haste. The government should consider appointing a commission including chosen representatives of fishing communities, to arrive at a housing policy for the affected people. Even in cases where fishermen agree to be relocated, such an approach is required to avoid complications that could arise in future from fishermen claiming a right to their original land.

The loss to the fishing sector from destroyed and damaged assets far outweighs the loss from destroyed and damaged houses. Lack of proper mechanisms for registration, monitoring, control and surveillance of fishing vessels has added to the losses suffered by the fishing industry. There were far too many fishing vessels, including unregistered ones, at the time of the disaster.

Indiscriminate expansion of the fishing fleet, both large and small, has been a fact and this is why the value of the damage suffered by the fishing industry has been high. In the reconstruction and rehabilitation phase, the government should examine if all excess fishing capacity should be replaced. Some rationalisation of the fishing industry should be introduced, at least by not replacing unregistered fishing vessels, or by having a formula to replace vessels that are completely lost.

Such a fleet rationalisation programme is also warranted considering that the Tamil Nadu marine fisheries are overexploited. Fish production in the most affected districts of Nagapattinam and Kanyakumari, for example, has significantly dropped over the last decade. Replacing the fishing fleet to the pre-tsunami level, without matching fisheries resource availability to fishing capacity, may prove to be counter-productive in the long run.

Again, it would be worthwhile to appoint a commission to look into all fisheries' management issues before hastily announcing reconstruction and rehabilitation packages for the fisheries sector. In the meantime, the state can consider providing reasonable compensation for lost fishing days and opportunities. There is also a need for greater coordination between government and non-government agencies in reconstruction and rehabilitation work, especially in the distribution of new fishing vessels to replace the old destroyed ones. Already, private agencies are adopting fishing villages and distributing fishing vessels. From the point of view of effective monitoring and control of fishing vessels, it is better that such distribution is undertaken through the Tamil Nadu fisheries department.

However, targeting only the victims of the tsunami disaster in fleet rationalisation will not be fair. Such a policy should extend to the entire marine fishing industry. The Union Ministry of Agriculture, together with the Planning Commission, should develop norms for fleet rationalisation in Indian waters. The implementation of such norms perhaps could start with the tsunami-affected areas with excess fishing capacity, and later expand to other parts of the country.

Reconstruction and rehabilitation of Tamil Nadu fisheries is important. For long-term benefits to the affected communities and coastal fisheries, a coherent and comprehensive approach should be adopted to optimise benefits rather than to precipitate, or exacerbate, conflicts. The housing needs of fishermen cannot be separated from the requirements of fishing. This presupposes adopting a fisheries perspective on issues of reconstruction and rehabilitation within an overall national perspective of sustainable fisheries development and management.

Source: New Indian Express, 1st February, 2005
http://www.newindpress.com

Chennai fishing harbour

Pattanavan – The fishermen on the East Coast

Excerpts on Pattanavars from Castes and Tribes of Southern India. Volume VI. by Edgar Thurston and K. Rangachari *(assisted by), Cosmo Publications, Delhi, pp.177-186, 1975.*
The book was first published in 1909.

Pattanavan – The fishermen on the east coast, from the Kistna to the Tanjore district, are popularly called Karaiyan, or sea-shore people. Some Karaiyans have, at times of census, returned themselves as Taccha (carpenter) Karaiyans.

Pattanavan means literally a dweller in a town or pattanam, which word occurs in the names of various towns on the sea-coast, *e.g.*, Nagapattanam (Negapatam), Chennapattanam (Madras). The Pattanavans have two main divisions, Periya (big) and Chinna (small), and, in some places, for example, at Nadukuppam in the Nellore district, exogamous septs, *e.g.*, Genganange, Peyananga, Kathananga (children of Ganga, Pçyan, and Kathanar), and Kullananga (children of dwarfs). In the Telugu country, they go by the name of Pattapu or Tûlivandlu.

Some Pattanavans give themselves high-sounding caste titles, *e.g.*, Ariyar, Ayyayiraththalaivar (the five thousand chiefs), Ariya Nattu Chetti (Chettis of the Ariyar country), Acchu Vellala, Karaiturai (sea-coast), Vellala, Varunakula Vellala or Varunakula Mudali after Varuna, the god of the waters, or Kurukula vamsam after Kuru, the ancestor of the Kauravas. Some Pattanavans have adopted the title Pillai.

The Pattanavans are said to be inferior to the Sembadavans, who will not accept food at their hands, and discard even an earthen pot which has been touched by a Pattanavan.

Concerning the origin of the caste, there is a legend that the Pattanavans were giving silk thread to Siva, and were hence called Pattanavar, a corruption of Pattanaivor, meaning knitters of silk thread. They were at the time all bachelors, and Siva suggested the following method of securing wives for them. They were told to go out fishing in the sea, and make of their catch as many heaps as there were bachelors. Each of them then stood before a heap, and called for a wife, who was created therefrom. According to another story, some five thousand years ago, during the age of the lunar race, there was one Dasa Raja, who was ruling near Hastinapura, and was childless. To secure offspring, he prayed to god, and did severe penance. In answer to his prayer, God pointed out a tank full of lotus flowers, and told the king to go thither, and call for children. Thereon, five thousand children issued forth from the flowers, to the eldest of whom the king bequeathed his kingdom, and to the others money in abundance. Those who received the money travelled southwards in ships, which were wrecked, and they were cast ashore. This compelled them to make friends at local sea fishermen, whose profession they adopted. At the present day, the majority of Pattanavans are sea-fishermen, and catch fish with nets from catamarans. "Fancy", it has been written, [1] "a raft of only three logs of wood, tied together at each end when they go out to sea, and untied and left to dry on the beach when they come in again. Each catamaran has one, two or three men to manage it; they sit crouched on it upon their heels, throwing their paddles about very dexterously, but remarkably unlike rowing. In one of the early Indian voyager's log-books there is an entry concerning a catamaran: 'This morning, 6 A.M., saw distinctly two black devils playing at single stick. We watched these infernal imps about an hour, when they were lost in the distance. Surely this doth portend some great tempest.' It is very curious to watch these catamarans putting out to sea. They get through the fiercest surf, sometimes dancing at their ease on the top of the waters, sometimes hidden under the waters; sometimes the man completely washed off his catamaran, and man floating one way and catamaran another, till they seem to catch each other again by magic." In 1906, a fisherman was going out in his catamaran to fish outside the Madras harbour, and was washed off his craft, and dashed violently against a rock. Death was instantaneous. Of the catamaran, the following account is given by Colonel W. Campbell. [2] "Of all the extraordinary craft which the

ingenuity of man has ever invented, a Madras catamaran is the most extraordinary, the most simple, and yet, in proper hands, the most efficient. It is merely three rough logs of wood, firmly lashed together with ropes formed from the inner bark of the cocoanut tree. Upon this one, two or three men, according to the size of the catamaran, sit on their heels in a kneeling posture, and, defying wind and weather, make their way through the raging surf which beats upon the coast, and paddle out to sea at times when no other craft can venture to face it. At a little distance, the slight fabric on which these adventurous mariners float becomes invisible, and a fleet of them approaching the land presents the absurd appearance of a host of savage-looking natives wading out towards the ship, up to their middle in water." "A catamaran", Lady Dufferin writes,[3] in an account of a state arrival at Madras, "is two logs of wood lashed together, forming a very small and narrow raft. The rower wears a 'fool's cap,' in which he carries letters (also betel and tobacco), and, when he encounters a big wave, he leaves his boat, slips through the wave himself, and picks up his catamaran on the other side of it. Some very large deep barges (masula boats), the planks of which are sewn together to give elasticity, and the interstices stuffed with straw, came out for us, with a guard of honour of the mosquito fleet, as the catamarans are called, on either side of them; two of the fool's cap men and a flag as big as the boat itself, on each one. " The present day masûla or mussoola boat, or surf boat of the Coromandel Coast, is of the same build as several centuries ago. It is recorded,[4] in 1673, that "I went ashore in a Mussoola, a boat wherein ten men paddle, the two aftermost of whom are the Steersmen, using their Paddles, instead of a Rudder: The Boat is not strengthened with knee-timber, as ours are; the bended Planks are sowed together with Rope-yarn of the Cocoe, and calked with Dammar so artificially that it yields to every ambitious surf. Otherwise we could not get ashore, the Bar knocking in pieces all that are inflexible." The old records of Madras contain repeated references to Europeans being drowned from overturning of masula boats in the surf, through which a landing had to be effected before the harbour was built.

In 1907, two Madras fishermen were invested with silver wrist bangles, bearing a suitable inscription, which were awarded by the Government in recognition of their bravery in saving the lives of a number of boatsmen during a squall in the harbour.

The following are the fishes, which are caught by the fishermen off Madras and eaten by Europeans:-

Cybium guttatum, *Bl. Schnl.* Seir.
Cybium Commersonii, Lacep. Seir.
Cybium lanceolatum, *Cuv* and *Val.* Seir.
Sillago sihama, *Forsk.* Whiting.
Stromateus cinereus, *Bloch.*—
Immature, silver pomfret.
Adult, grey pomfret.
Stromateus niger, *Bloch.* Black pomfret.
Mugal subviridis, *Cuv* and *Val.* Mullet.
Psettodes erumei, *Bl. Schn. 'Sole'.*
Lates calcarifer, *Bloch,* Cock-up; the begti of Calcutta.
Lutjanus roseus, *Day.*
Lutjanus marginatus, *Cuv.* and *Val.*
Polynemus tetradactylus, *Shaw.*
Chorinemus lysan, *Forsk.*
'Whitebait.'

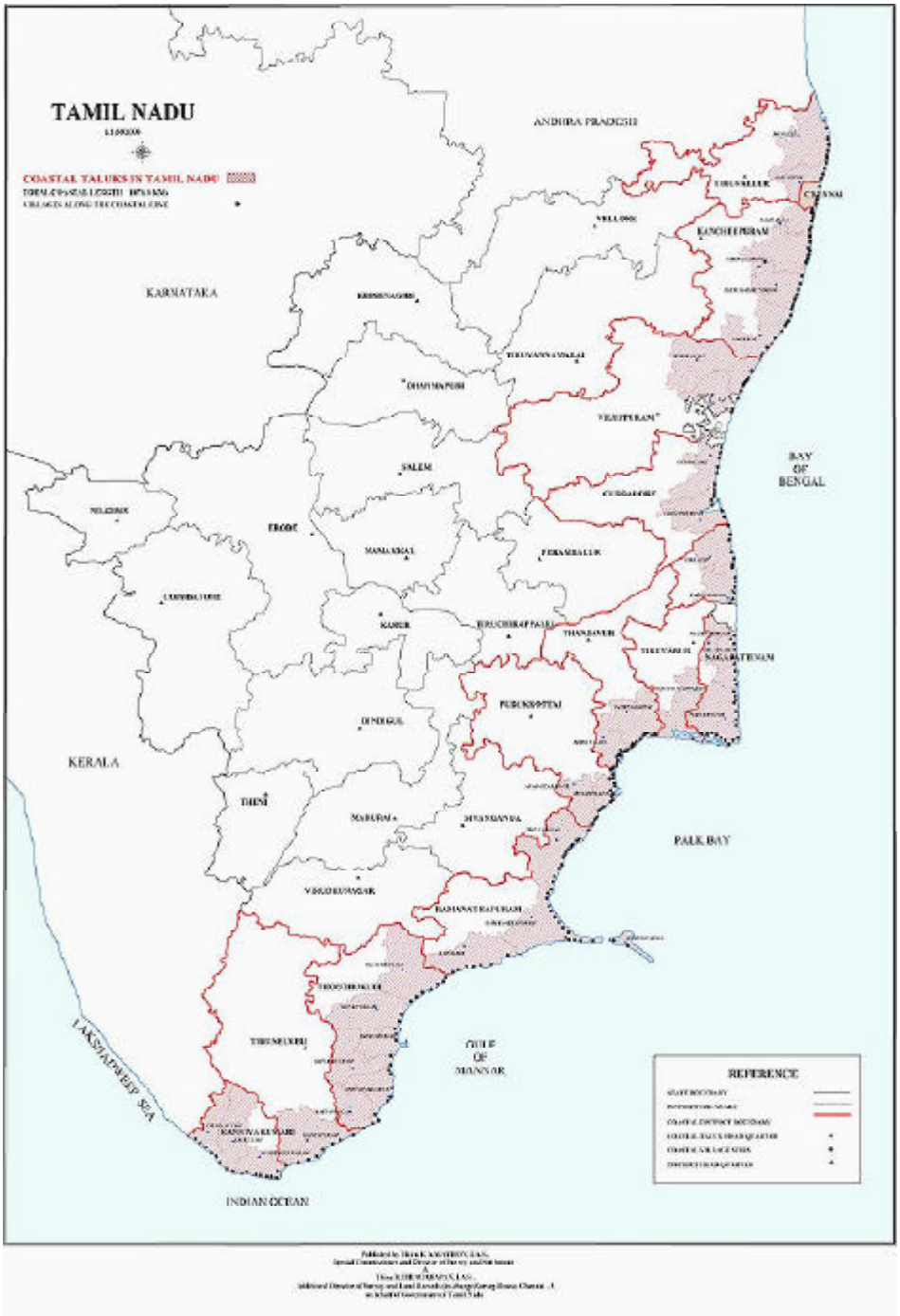
The Pattanavans are Saivites, but also worship various minor gods and Grama Devatas (village deities). In some places, they regard Kuttiyandavan as their special sea god. To him animal sacrifices are not made, but goats are sacrificed to Sembu Virappan or Minnodum Pillai, an attendant on Kuttiyandavan. In Tanjore, the names of the sea gods are Pavadairayan and Padaithalaidaivam. Before setting out on a fishing expedition, the Pattanavans salute the god, the sea, and the nets. In the Tanjore district, they repair their nets once in eight days, and, before they go out fishing, pray to their gods to favour them with a big catch. On a fixed day, they make offerings to the gods on their return from fishing. The gods Pavadairayan and Padaithalaidaivam are represented by large conical heaps of wet sand and mud, and Ayyanar, Ellamma, Kuttiyandavar, Muthyalrouthar and Kiliyendhi by smaller heaps. At the Masimakam festival, the Pattanavans worship their gods on the sea-shore. The names Jattan and Jatti are given to children during the Jatre or periodic festival of the village goddesses.

The Pattanavans afford a good example of a caste, in which the time-honoured village council

(panchayat) is no empty, powerless body. For every settlement or village there are one or more headmen called Yejamanan, who are assisted by a Thandakaran and a Paraiyan Chalavathi. All these offices are hereditary. Questions connected with the community, such as disrespect to elders, breach of social etiquette, insult, abuse, assault, adultery, or drinking or eating with men of lower caste, are enquired into by the council. Even when disputes are settled in courts of law, they must come before the council. Within the community, the headman is all powerful, and his decision is, in most instances, considered final. If, however, his verdict is not regarded as equitable, the case is referred to a caste headman, who holds sway over a group of villages. No ceremony may be performed without the sanction of the local headman, and the details of ceremonies, except the feasting, are arranged by the headman and Thandakaran.

End Notes

1. Letters from Madras, By a Lady, 1843.
2. My Indian Journal 1864.
3. Our Viceregal Life in India 1889.
4. Roe and Fryer. Travels in India in the seventeenth century.



Tamil Nadu Fisheries Statistics

Coastal Information

Coastal Information	East Coast	West Coast	Total
Coastal Length (in Km)	1016	60	1076
Continental shelf (in sq.Km)			41412
Upto 50m depth	22411	844	23255
51m to 200m depth	11205	6952	18157
Exclusive Economic Zone (in million sq.km.) extends to 200 nautical miles from shore	-	-	0.19
Territorial Waters (in sq.km.) (Approximately)			19000

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.6

District-wise Coastal Length

Name of the District	Coramandal	Palk-Bay	Gulf of Mannar	West Coast	Total
Chennai	19.0	-	-	-	19.0
Thiruvallur	27.9	-	-	-	27.9
Kancheepuram	87.2	-	-	-	87.2
Villupuram	40.7	-	-	-	40.7
Cuddalore	57.5	-	-	-	57.5
Nagapattinam	124.9	63.0	-	-	187.9
Thanjavur	-	45.1	-	-	45.1
Pudukottai	-	42.8	-	-	42.8
Ramanathapuram	-	95.80	141	-	236.8
Thoothukudi	-	-	163.5	-	163.5
Tirunelveli	-	-	48.9	-	48.9
Kanyakumari	-	-	11.50	60.0	71.5
Total	**357.2**	**293.9**	**364.9**	**60.0**	**1076.0**

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.6

Marine Fisherfolk Population

Name of the District	2001-2002	2002-2003
	Fisherfolk Population Total	Fisherfolk Population Total
Chennai	75004	77067
Thiruvalluvar & Kancheepuram	71368	73331
Villupuram	15752	16185
Cuddalore	42836	44014
Nagapattinam	84200	86516
Thiruvarur	10941	11242
Thanjavur	26788	27525
Pudukottai	26417	27143
Ramanathapuram	123807	127212
Tuticorin	73422	75441
Tirunelveli	21333	21920
Kanyakumari	145603	149607
Total	**717471**	**737203**

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.7

Marine Fishing Village & Landing Centres

Name of District	No. of Fishing Villages	No. of Fish Landing Centres		
		Major	Minor	Total
Chennai	44	2	9	11
Thiruvallur	58	1	24	25
Kancheepuram	44	2	37	39
Villupuram	19	1	18	19
Cuddalore	49	2	26	28
Nagapattinam	51	4	42	46
Thiruvarur	13	-	-	-
Thanjavur	27	2	19	21
Pudukkottai	32	3	17	20
Ramanathapuram	184	8	70	78
Thoothukudi	21	2	20	22
Thirunelveli	7	1	7	8
Kanyakumari	42	3	42	45
Total	**591**	**31**	**331**	**362**

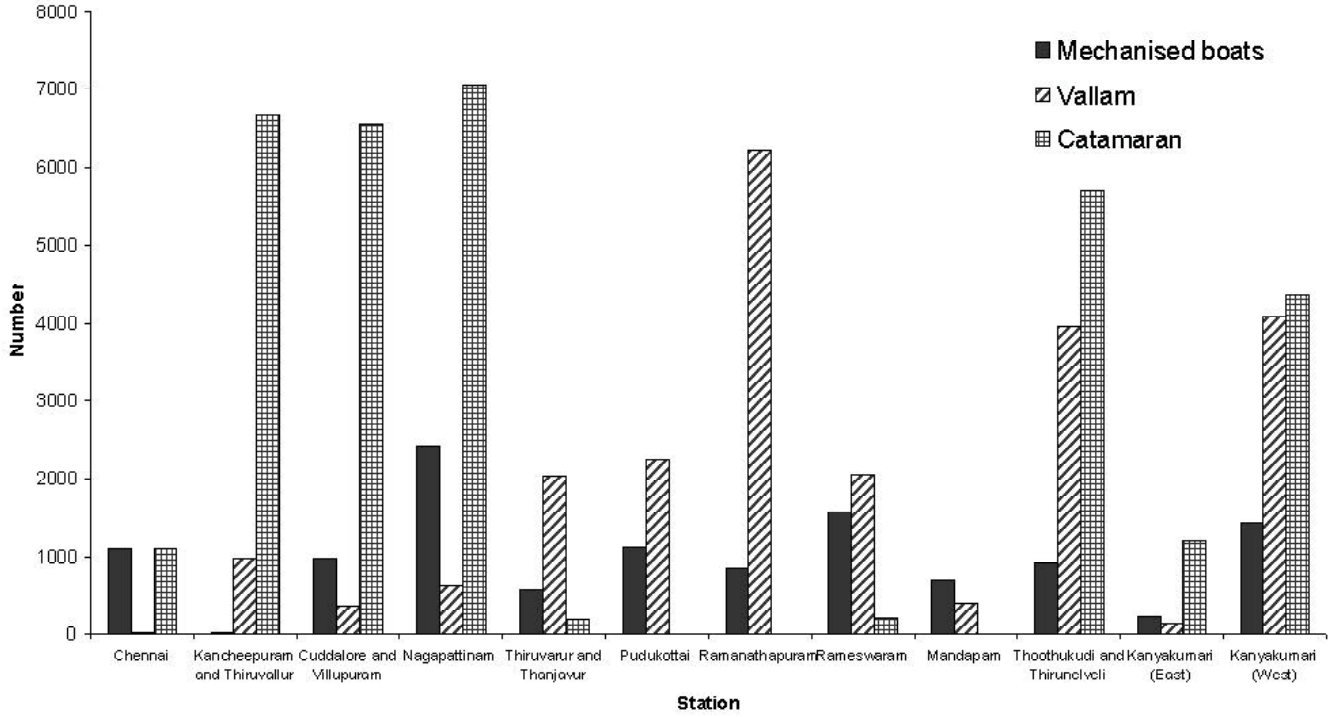
Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.7

Details of Fishing Craft

Name of the Station	No. of craft registered as on 31.3.2003 (2002-2003)			
	Mechanised Boats	Vallam	Catamarans	Total
Chennai	1094	12	1102	2208
Kancheepuram & Thiruvallur	11	977	6673	7661
Cuddalore & Villupuram	975	367	6549	7891
Nagapattinam	2419	628	7067	10114
Thiruvarur & Thanjavur	572	2032	194	2798
Pudukkottai	1113	2246	-	3359
Ramanathapuram	851	6220	-	7071
Rameswaram	1561	2058	200	3819
Mandapam	702	402	-	1104
Thoothukudi & Thirunelveli	930	3960	5702	10592
Kanyakumari (East)	232	130	1194	1556
Kanyakumari (West)	1429	4077	4357	9863
Total	**11889**	**23109**	**33038**	**68036**

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.8

Tamil Nadu: Number of Fishing Craft (registered as on 31 March 2003)



Compiled by ICSF

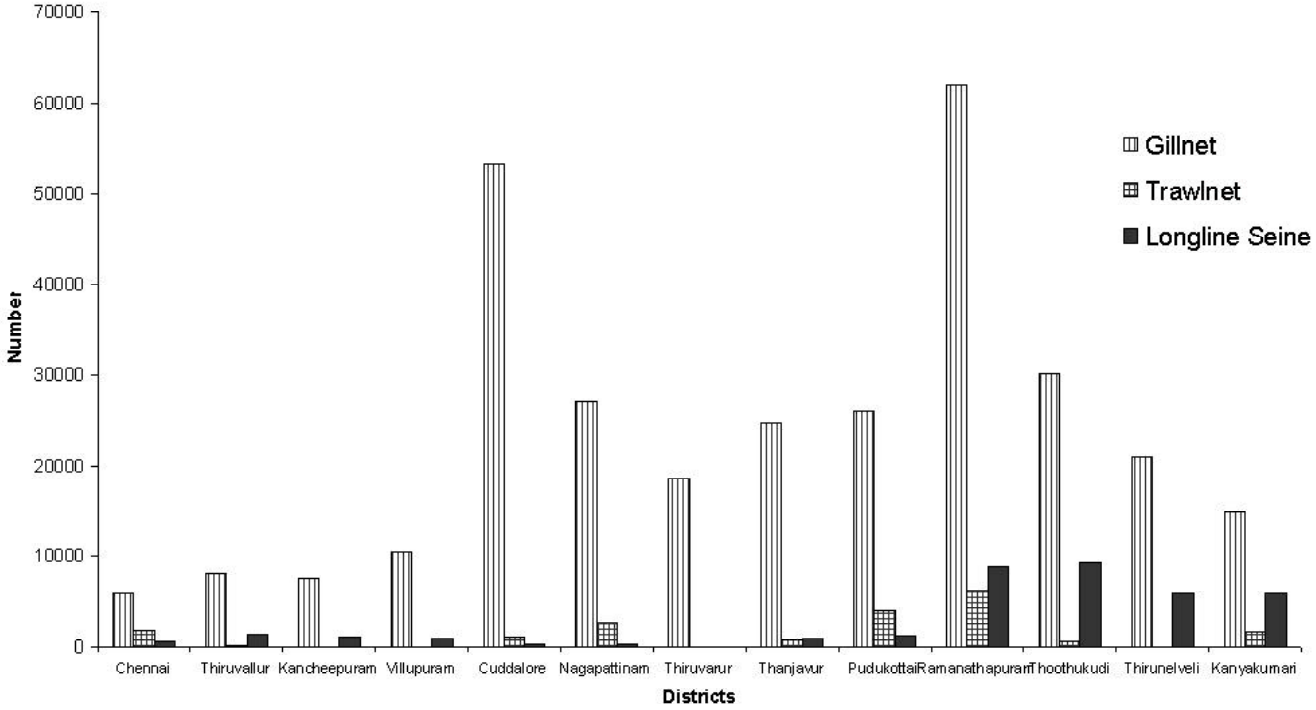
Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

Details of Fishing Gear

District	Gillnet	Trawlnet	Shore Seine	Boat Seine	Longline Seine	Trap	Others	Total
Chennai	5878	1827	43	255	672	0	743	9418
Thiruvallur	8185	149	12	0	1363	4306	22614	36629
Kancheepuram	7506	40	56	459	1059	135	1036	10291
Villupuram	10469	54	21	0	835	0	98	11477
Cuddalore	53355	992	368	28	238	0	1006	55987
Nagapattinam	27111	2614	1116	439	289	471	612	32652
Thiruvarur	18723	0	194	267	18	352	35	19589
Thanjavur	24692	771	970	283	926	43	5347	33032
Pudukkottai	26073	3979	124	1	1109	61	782	32129
Ramanathapuram	62046	6248	448	147	8895	2754	8309	88847
Thoothukudi	30170	602	90	2	9353	0	1976	42193
Thirunelveli	21062	0	0	276	5927	0	1388	28653
Kanyakumari	14954	1640	190	0	5851	768	1332	24735
Total	**310224**	**18916**	**3632**	**2157**	**36535**	**8890**	**45278**	**425632**

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.9

Tamil Nadu: Details of Selected Fishing Gear



Compiled by ICSF

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

Marine and Inland Fish Production : 1992 - 2004

(Quantity in Tonnes)

Year	Marine		Inland		Total	
	Target	Achievement	Target	Achievement	Target	Achievement
1992-93	307000	307349	98000	98400	405000	405749
1993-94	315000	317716	107000	107200	422000	424916
1994-95	330000	330729	116000	108000	446000	438729
1995-96	340000	341317	108000	108050	448000	449367
1996-97	350000	350790	109810	109000	459810	459790
1997-98	355000	356487	110000	109500	465000	465987
1998-99	359000	377483	111000	119800	470000	497283
1999-2000	363000	373926	112000	114089	475000	488015
2000-2001	367000	372402	113000	110134	480000	482536
2001-2002	371000	373861	114000	113691	485000	487552
2002-2003	371500	379214	125400	102217	496900	481431
2003-2004	373000		137940		510940	

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.42

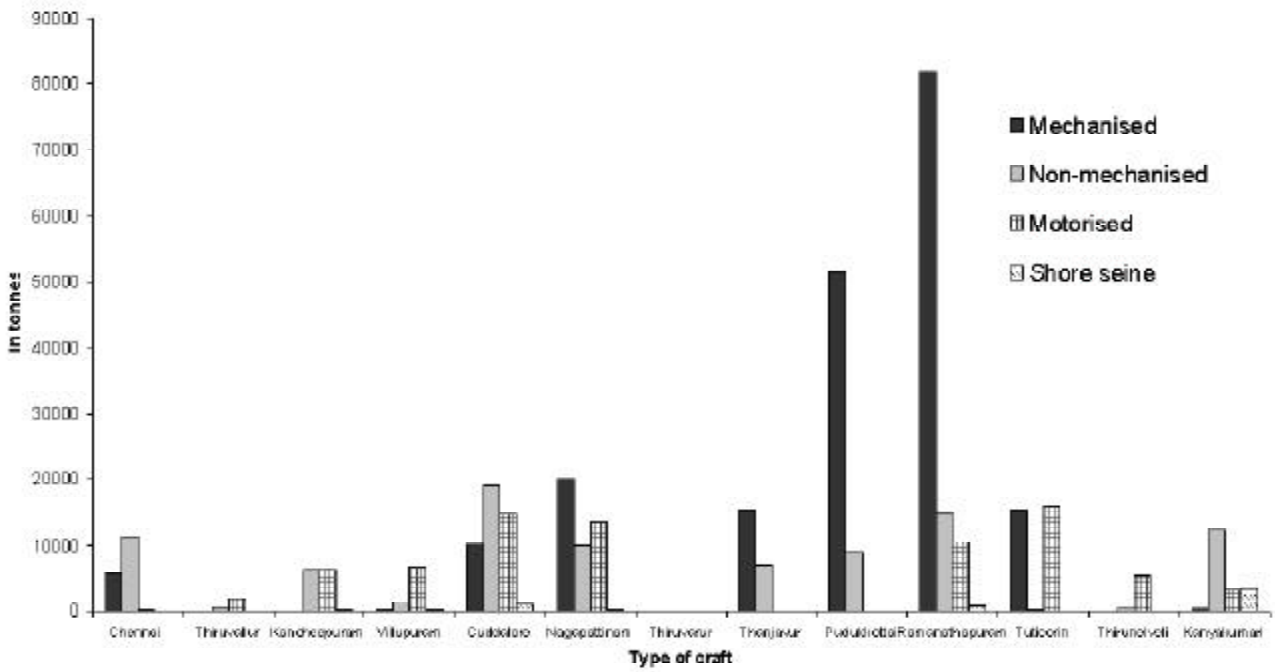
Estimation of Marine Fish Production for the Year 2002-2003: District-wise & Craft-wise

Qty.: Tonnes

Name of the District	Mechanised	Non-Mechanised	Motorised	Shoreseine	Total	Percentage
Chennai	5687	11465	268	0	17420	4.59
Thiruvallur	0	669	1953	0	2622	0.69
Kancheepuram	14	6378	6290	270	12952	3.42
Villupuram	148	1477	6998	219	8842	2.33
Cuddalore	10098	19210	14806	909	45023	11.87
Nagapattinam & Thiruvarur	20050	9884	13832	208	43974	11.6
Thanjavur	15315	7087	0	0	22402	5.91
Pudukkottai	51553	8987	0	0	60540	15.96
Ramanathapuram	81992	14989	10486	811	108278	28.55
Tuticorin	15279	254	16054	0	31587	8.33
Thirunelveli	0	498	5433	0	5931	1.56
Kanyakumari	332	12523	3354	3434	19643	5.18
Total	**200468**	**93421**	**79474**	**5851**	**379214**	**100.00**
Percentage	**52.86**	**24.64**	**20.96**	**1.54**	**100.00**	

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.32

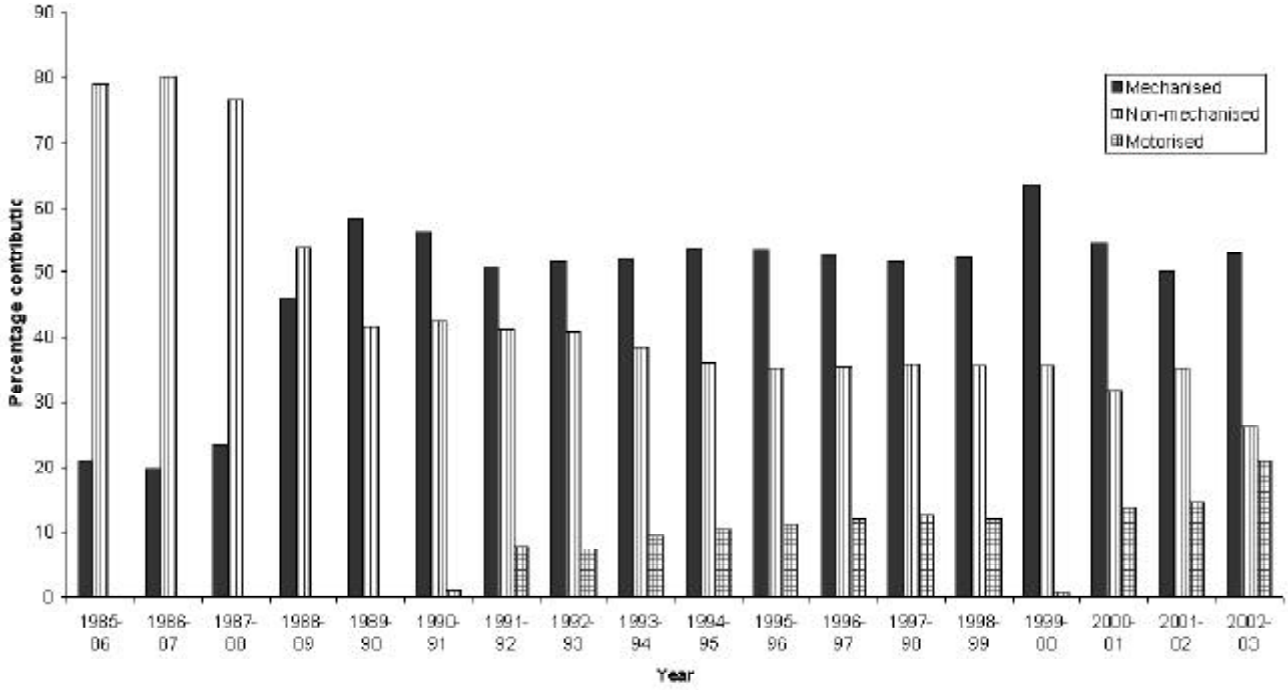
Tamil Nadu: Estimation of Craft-wise Marine Fish Production for the Year 2002-2003



Compiled by ICSF

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

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



Compiled by ICSF

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

Estimation of Marine Fish Production - Gear Wise (2002-2003)

Name of the Gear	Chennai	Thiruvallur	Kancheepuram	Villupuram	Cuddalore	Nagai Thiruvarur	Thanjavur	Pudduk-kottai	Ramana thapuram	Thooth-ukudi	Thirunelveli	Kanniya-kumari	Total	Percen-tage
Dragged gear														
Trawl net	3900	0	191	0	3416	28442	0	10076	77206	22207	0	482	145920	38.48
Surrounding nets	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gill nets	9127	1767	9975	6959	27704	11305	5600	9577	18279	3989	3598	8339	116219	30.65
Seine nets	11	0	233	509	1409	208	0	0	1211	813	0	3855	8249	2.18
Tangle nets	71	680	1634	421	7976	385	16802	35317	8388	1706	2333	442	76155	20.08
Lift nets	152	0	123	173	2851	1137	0	34	192	0	0	0	4662	1.23
Hook net	4014	173	713	0	1032	2141	0	5536	830	2872	0	6525	23836	6.29
Bag nets	145	2	83	214	635	356	0	0	475	0	0	0	1910	0.5
Falling gears	0	0	0	566	0	0	0	0	1697	0	0	0	2263	0.6
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**17420**	**2622**	**12952**	**8842**	**45023**	**43974**	**22402**	**60540**	**108278**	**31587**	**5931**	**19643**	**379214**	**100.00**
Percentage	**4.59**	**0.69**	**3.42**	**2.33**	**11.87**	**11.6**	**5.91**	**15.96**	**28.55**	**8.33**	**1.56**	**5.18**	**100.00**	

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.34

Estimation of Marine Fish Production: Month-wise and Year-wise (2002-2003)

Month	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003
April	28500	29020	30039	32349	35937	27437	28970
May	28589	28513	29092	29449	34261	20155	21621
June	30045	31149	31281	30165	32771	30195	44284
July	32000	32612	33190	34921	32176	26921	35532
August	30110	30820	31070	38629	32474	31032	33570
September	32057	32421	32498	35506	33553	35449	36828
October	30048	30489	30775	31359	23424	31796	24456
November	25263	25685	29408	24659	21413	26871	28268
December	28129	28662	30941	26662	32585	32269	33548
January	29857	30310	26259	23916	33218	36856	32223
February	27407	27788	35985	31618	30351	36225	31550
March	28785	29018	36945	34693	30239	38655	28364
Total	**350790**	**356487**	**377483**	**373926**	**372402**	**373861**	**379214**

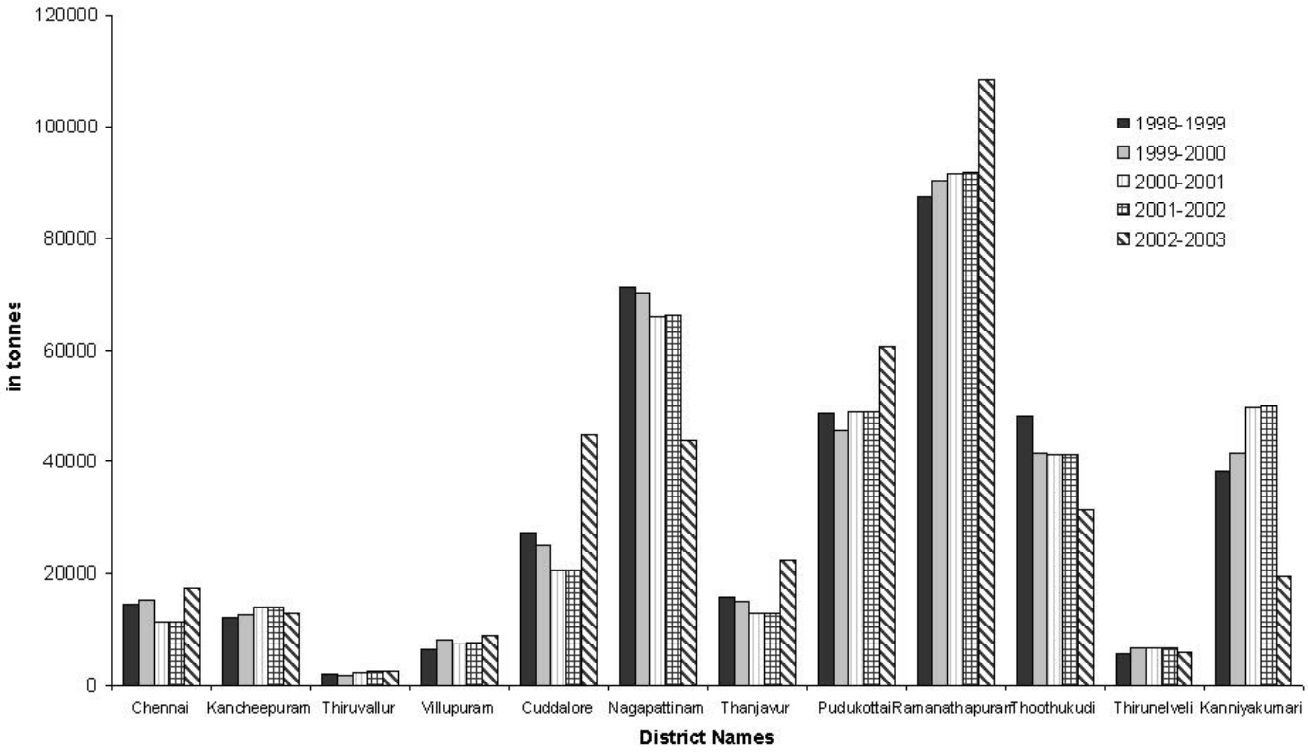
Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries, p.40

Estimation of Marine Fish Production Year-Wise Tamil Nadu

Year	Chennai (Kanchee puram)	Chengai	Thiruvallur (V.R.P.)	Villupuram (S.Arcot)	Cuddalore	Nagai	Tanjore	Pudduk kottai	Ramanad (V.O.C.)	Thoothu kudi	Thirunel-veli	Kanniya-kumari	Total
1991-92	15812	9556			21709		54392	53913	59921	46308	4322	34009	**299942**
1992-93	14868	9926			24471	52569	8691	52589	64866	39575	4527	35267	**307349**
1993-94	16525	9895			24819	59337	8565	51340	74351	39137	4512	29235	**317716**
1994-95	16988	10037		4493	25110	67537	8993	47145	76969	37201	4078	32178	**330729**
1995-96	15686	12096		4618	25910	72384	10203	48871	81943	33658	3657	32291	**341317**
1996-97	15889	12416		4851	26768	71170	9565	49743	83332	34478	4838	37740	**350790**
1997-1998	16040	10204	2427	5341	25938	70212	9790	48513	83417	33609	4556	46440	**356487**
1998-1999	14555	12081	1947	6255	27282	71284	15804	48804	87508	48140	5507	38316	**377483**
1999-2000	15118	12648	1751	8117	25064	70422	14932	45583	90425	41678	6536	41652	**373926**
2000-2001	11416	13944	2416	7474	20451	66002	12829	48898	91474	41275	6507	49716	**372402**
2001-2002	11477	13982	2430	7515	20525	66248	12860	49088	91820	41423	6542	49951	**373861**
2002-2003	17420	12952	2622	8842	45023	43974	22402	60540	108278	31587	5931	19643	**379214**

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries

Tamil Nadu: District-wise Marine Fish Production for the Years 1998-2003



Compiled by ICSF

Source: Government of Tamil Nadu, 2004. Endeavour and Achievements 2002-2003, Department of Fisheries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ICSF is an international NGO working on issues that concern fishworkers the world over. It is in status with Economic and Social Council of the UN and is on ILO's Special List of Non-Governmental International Organizations. It also has Liaison Status with FAO. Registered in Geneva, ICSF has offices in Chennai, India and Brussels, Belgium. As a global network of community organizers, teachers, technicians, researchers and scientists, ICSF's activities encompass monitoring and research, exchange and training, campaigns and action, as well as communications.

PICTURES

1. 6 log Catamaran, Coramandal Coast
2. Fibre reinforced plastic boats
3. 28 foot Gillet Kat plywood boat
4. 3 log Catamaran
5. FRP Catamaran with longtail
6. Fishermen carrying outboard motor
7. 6 log Catamaran
8. High-stern trawl boat
9. Longtail motor
10. Trawler engine room
11. Mechanized boat
12. 42 foot Trawler