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Improving safety and health among fishers:

A major challenge in small-scale fisheries

The safety and health of fishers now rank foremost among the concerns about small-scale fisheries. At two recent conferences at Mahabalipuram near Chennai, experts examined several facets of safety and health. This issue of ***Bay of Bengal News*** *sets out their ideas and recommendations.*

Improving safety and health among fishers:

A major challenge in small-scale fisheries

The safety and health of fishers is paramount among small-scale fisheries issues that call for urgent action. Governments, fisher associations and the community must address the issues head on. Recommendations from IFISH 3 and from a post-tsunami workshop held recently at Mahabalipuram, India, must be taken up in right earnest.

Safety and health in the fisher community. The subject threatens to become an embarrassment. Despite strong vocal support and a show of hands at conferences, there seems little to show by way of action. Fishers themselves, who once regarded health and safety as occupational hazards, now look upon it with fear and awe. The sea is no more a benign mother and provider: she bristles with menace and peril. 12/26 changed many things – most of all, perhaps, the cozy equation between fishers and the sea.

During the past two decades, small-scale fisheries in developing countries has undergone fundamental changes. It is no longer a near-shore coastal fishery. Small boats are going deeper and deeper in search of fish and profit, and embracing ever-greater risks.

Fishing technologies have improved, but boat construction norms and use of safety and communication equipment have failed to keep pace; and boat and engine maintenance have been non-existent. Result: avoidable accidents. Fishers encounter bad weather, cyclonic storms, tsunamis — often with little warning. Their own indifference to safety at sea has influenced neglect by those who are concerned with the welfare of fisher communities. A safety net for small heavily modified vessels that go offshore is urgent.

The BOBP-IGO, in association with the FAO and the Alaska center of the National Institute of Occupational Health and Safety (NIOSH), USA, recently organised IFISH 3 (the Third International Conference on Fishing Industry Safety and Health Conference) at Mahabalipuram, near Chennai. From 1 to 4 February 2006, participants from 13 countries debated a range of issues concerning the safety and health of fishers. While the conference addressed both commercial and small-scale fisheries, the focus was on small-scale and artisanal fishers, the most vulnerable group.

A two-day workshop on Post-tsunami Revival of the Fisheries Sector and Rehabilitation of Fishing Communities followed IFISH 3 at the same venue. The workshop discussed rehabilitation and livelihoods issues, also the over-supply of poorly designed and constructed FRP fishing boats, the consequent increase in fishing effort, and in some cases the mismatch between boats and engines. Details are recounted elsewhere in this issue of ***Bay of Bengal News.***

The two events synthesized some success stories and experiences from commercial and small-scale fisheries. They also raised the profile of safety and health issues among fishers, especially in the small-scale sector. The box on page 3 outlines some important recommendations.

The FAO's biannual publication, "The State of Fisheries and Aquaculture - 2004" says that about 28 million fishers engaged in fishing operations worldwide in 2002. Asia, where small-scale and artisanal fishers dominate, constitutes about 84 percent of the total fisher population. Data on fishing-related deaths may be relatively accurate for developed countries, but the picture is much less clear for developing countries. Data on accidents and their causes, on fatalities at sea and on shore, and on search and rescue operations are hard to come by. Developing and strengthening mechanisms for data collection, leading to the right management interventions, are a high priority

The FAO publication also estimates about 1.3 million decked vessels and 2.8 million undecked vessels, 65 percent of which are not powered. Of these, about 85 percent of total decked vessels, 50 percent of powered undecked vessels and 83 percent of total non-powered boats are concentrated in Asia. Such large fishing fleets, especially in Asia, operate in an open access regime with little or no fleet management. Regulated access to fisheries and sound fleet management

Some important recommendations for small-scale fisheries

Create awareness and disseminate information using both print and electronic media.

Register all boats and implement monitoring, control and surviellance programmes.

Evolve guidelines for vessels below 12 meter.

Certify boatyards.

Enforce on-board safety inspections.

Provide communication and navigation equipment on-board fishing vessels.

Develop community health models.

Improve data collection, compilation and its dissemination to user groups.

Provide training to fishermen on sea safety measures.

Identify cost-effective communication mechanisms.

Include sea safety as an integral part of fisheries management and development.

programmes will help enhance the safety of fishers, especially in developing countries.

Data on health too is sparse. Example: statistics about AIDS in small-scale fishing communities, especially where fishers migrate seasonally to other areas or work onboard larger fishing vessels. Once affected by AIDS, the workers serve as carriers of the disease.

Health issues also take us to the prevailing labour standards in the fishing industry. The many labour instruments in fisheries address mainly the crew of larger vessels. Small-scale vessels are excluded from their scope. The ILO is in the process of revising and updating some of the older standards, and it would be worthwhile if the revised standards adequately address the needs of the small-scale sector.

Similar global instruments are urgently needed on safety parameters for small-scale fishing vessels too. Such global initiatives will foster and catalyse action at national and regional levels.

The post-tsunami scenario concerning FRP fishing boats is scary. The thrust has been on more and cheaper boats; construction norms have not mattered, nor the quality of materials; neither scientists nor officials have been consulted. Plenty of 'bad' boats have been delivered to gullible fishermen. It is essential to segregate such boats to ensure that they do no harm. Their deployment should be considered only if they can be made sea-worthy.

If governments have neglected the safety and health of fishers, what about fisher groups? They have been engaging governments on fishing rights, access to markets, improved infrastructure for landing and berthing, concessions in fuel and other inputs; but rarely have they discussed safety and health issues, which don't seem to figure on their agenda. The inevitable result: not merely more accidents and fatalities, but heavier government compensation burdens, more widows and destitutes, more migration to urban areas.

That prevention is better than cure certainly applies to fisher health and safety. An improved safety and health environment would mean substantial savings for government (by way of lower expenditure on death/ disability compensation and search and rescue operations). Such savings can be used to strengthen safety and health regimes.

To ensure an effective safety and health environment for fishers, programmes on sea safety should include fisher families, not fishers alone. The most brutal impact of a fisher's death is felt by the family. Wives and children can orient the mindset of fishermen toward safety and impart a safety culture more effectively than governments can. Community-based sea safety and disaster management programmes can be cost-effective and long-lasting. To achieve results quicker, the fisheries administrations must engage the Transport Ministry, the Coast Guard and other institutions.

The safety and health issues highlighted by the conference and the workshop constitute worthy challenges for the future. They have been met in many commercial fisheries. Increase awareness. Strengthen community participation. Make sturdy, reliable and cost-effective communication and navigation equipment available. Impart regular training. Make safety requirements for vessels and crew mandatory, and monitor compliance. More than anything else, lobby for a strong political will to address such issues. Conferences in future may then be able to tick off safety and health among fishers as achievements rather than challenges.

– Y S Yadava

Paintings by school children in India, Maldives and Sri Lanka depicting post-tsunami reconstructuion

Safety and health of fishers:
Experts debate issues at international meet in Mahabalipuram, India

Glimpses – selective, recollective, not exhaustive – into the proceedings of the recent IFISH 3 conference held at Mahabalipuram, India. A fuller report is to be published later.

Fifty two fisheries scientists, researchers, doctors, planners and administrators from 13 countries took part in the Third International Conference on Fishing Industry Safety and Health (IFISH 3) at Mahabalipuram, near Chennai held from February 1 to 4, 2006.

Organised jointly by the BOBP-IGO, the FAO, and the Alaska Centre of the National Institute for Occupational Safety and Health or NIOSH, USA, the conference brought together experts from small-scale and commercial fisheries as well as from government, who debated many aspects of the subject.
Mr P M A Hakeem, Secretary to the Government of India, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, inaugurated the conference. Representatives of the three organising bodies – BOBP- IGO, FAO and NIOSH – spoke at the inaugural session.

Nine technical sessions with 30 presentations spread over three and a half days followed the inaugural session. Health and safety in the fishing industry were discussed in many aspects and dimensions. The sessions were devoted to:

- Worldwide safety challenges facing the fishing industry
- Regional approaches to sea safety
- Safety equipment and training of crew
- Injury prevention and health promotion
- Small-scale vessels (2 sessions)
- Fishing vessel and equipment design, guidelines, constructions
- Responding to the problem
- International standards and status reports

A panel discussion after the nine sessions reviewed the facts, opinions and viewpoints expressed and future action needed.

Mr P M A Hakeem, Secretary to the Government of India, lighting the traditional oil lamp

Inaugural Session

Dr S S Tabrez Nasar, Senior Programme Advisor, BOBP-IGO, welcomed participants. In introductory remarks, Dr Yugraj Singh Yadava, Director, BOBP-IGO. noted the eventful journey of IFISH from Sitka (where IFISH II was held) to Mahabalipuram. IFISH 3 would have materialised earlier, he said, but for the 26 December 2004 Asian tsunami.

Introductory remarks were also made by the Director, Department of Fisheries, Tamil Nadu, Mr D P Yadav. He voiced concern about the safety problems faced by the state's

fisher community following the tsunami. He said that resources for sea safety programmes were limited in Tamil Nadu; the State Government was looking at other possible sources of funds. He urged IFISH 3 participants to share information about search and rescue practices in their countries.

Dr Daniel Gustafson, FAO representative in India and Bhutan, noted the excellent collaborations the FAO had with the Government of Tamil Nadu as well as with the BOBP-IGO. The FAO was also collaborating with the ILO, especially in the wake of the tsunami. Some detailed scientific research effort was needed on the tsunami's impact on health, he said. IFISH 3 afforded an opportunity to discuss sea safety issues in this part of the world. The proliferation of new boats in the post-tsunami period had safety dimensions too. Fisheries management was another major issue, and sea safety had to be examined in this context as well.

Dr George A Conway, Chief, Alaska Field Station of NIOSH, said it was a pleasure to join hands with BOBP-IGO and FAO to put this conference together. He appreciated the BOBP-IGO's efforts in this context. He acknowledged the support of Mr Brandt Wagner of the ILO.

In his inaugural address, Mr Hakeem noted that this was the first conference of its kind in India; safety and health issues are rarely the subject of international conferences. While IFISH 3 would discuss industrial and commercial-scale fishing, its focus would be on small-scale fisheries, which dominated the fisheries of developing countries.

The tsunami had killed a quarter of a million people, and made many more homeless and jobless. The absence of an early warning system and the lack of disaster management were mainly responsible for the scale of devastation. Absence of a proper system for boat registration, and of systematic data, compounded the problem of relief for fishermen. The tsunami had generated several lessons and forced a fresh look at the development agenda in India.

Mr Hakim said that the conference would seek to increase awareness and action on health and safety issues and infuse confidence among fishermen. He hoped it would suggest practical measures to implement safety norms. Emphasis should be on proper design and stability of craft and on cost-effective measures, and on special training for fishermen.

Some other issues that needed to be discussed were the introduction of a monitoring system for larger vessels, search and rescue programmes, and first aid for victims of injuries at sea, he said. IFISH 3 should take into account the Chennai Declaration of 2001 on sea safety for small and artisanal fishing vessels.

Speakers at the conference (L - R):
Top - Dr George A Conway, Mr Ari Gudmundsson.
Middle - Dr Daniel Gustafson, Dr P Paleri, Ms Ingrid Christensen.
Bottom - Dr Vu Van Trieu, Mr Jim Sandkvist, Mr Hans Bage, Mr G Piyasena.








What follows is a brief summary, session by session, of what happened at the conference.

Session 1: Worldwide safety challenges facing the fishing industry

Speaking on "Commercial fishing mortality: a worldwide problem**,"** **Dr George Conway** said the FAO estimated the annual worldwide fishing deaths at 26 500 (estimated workforce: 34.5 million). Better mortality estimates are needed, and causes of deaths and injuries should be better understood. The benefits of satellite weather prediction and of simple devices like floatation vests and hand-held radios should be made available widely to artisanal and subsistence fishermen.

Mr Sebastian Mathew, Programme Adviser to the International Collective in Support of Fishworkers, Chennai, discussed the proposed ILO standards on safety and health in the fishing industry. He said the Work-in-Fishing convention sponsored by the ILO was strict in relation to larger vessels but flexible with small-scale vessels. He pointed out that small-scale fisherfolk in India now fished all over the EEZ and even beyond. Distinct categories of owner-skipper and workers, and an employer-employee relationship, had emerged in some small-scale fishing vessels. So had some problems. Example: Who is to bear the cost of medical treatment of fishermen?

Discussing the ILO's work on the safety and health of fishers, **Ms Ingrid Christensen**, Sr Specialist on Occupational Safety and Health, ILO sub-regional office for South Asia, said that seven instruments on the work of fishers had been adopted by the ILO. These will be consolidated into a single comprehensive standard. The ILO has been collaborating with the FAO in re-establishing livelihoods in tsunami-affected areas. Low-cost improvements are necessary in small-scale fisheries to prevent deaths while fishing.

Session 2: Regional approaches to sea safety

Mr Hans Bage of FAO presented a paper on behalf of Mr Agnar Erlingson, FAO/BOBP-IGO consultant who had done a two-month survey of safety in small fishing vessels in India, Sri Lanka, Maldives and Thailand. (***Bay of Bengal News,*** December 2005).

Some points from the paper: There seems to be a lack of interest in the safety of fishing vessels below 12 metres. Guidelines should be evolved for such vessels too. (The FAO responded that guidelines had just begun for vessels under 30 metres in length.) Some restrictions on fishing should be stipulated for open-access systems. All boats should be registered. A distinction must be made between "disasters" and "personal injuries".

Mr G Piyasena, Director-General in the Department of Fisheries and Aquatic Resources, Sri Lanka, discussed the status of sea safety programmes for small and commercial fishermen. Tsunami relief effort had triggered a big rise in the number of fishing boats, but many of these boats were substandard. Some 500 to 600 canoes lie useless on beaches. The Government is framing regulations on boat construction with assistance from the FAO and the Government of Italy, while stock assessment would be initiated with donor assistance. Sri Lanka lacks an early warning system, also a sound system for vessel monitoring, control and surveillance.

During discussion, it was pointed out that a proper certification system for boats is lacking in Sri Lanka. Vessels are constructed by persons with traditional skills handed down from one generation to another. Some small vessels go deeper in search of fish, though they are not equipped to do so; they run into both safety and legal problems. One participant suggested that Sri Lanka's full fleet strength after the tsunami should be evaluated.

Mr Jim Sandkvist (Sweden) discussed the SSPA's Integrated Coastal Zone Development Programme and SIDA's International Training Programme for small fishing vessels in a presentation on "Small vessel safety – coastal fisheries development". He urged registration of small fishing boats, and better coordination between vessel monitoring and community participation programmes to strengthen safety at sea. He also suggested that safety training be imparted to wives of fishermen.

Session 3: Safety equipment and training of crew

Mr Alan Davis, safety & compliance manager of the American Seafoods Company which has 12 fishing vessels, made a presentation on "Safety eyes" – the effort to make everyone look out for safety hazards.

Mr Davis said that repetitive training, constant re-enforcement, management commitment and safety inspections had together ensured that more people in his company had developed "safety eyes". Just as fishermen are constantly scanning the horizon for signs of bad weather, they should scan surroundings for safety hazards, then take action to overcome them. Use goggles, he urged fishers at sea. It will mean less exposure to harmful rays, smaller incidence of cataracts.

Mr Ken Lawrenson of the US Coast Guard made a presentation on drills and training in the commercial fishing fleet of the Northwest United States. He said monthly drills and training were required by law in US commercial fishing vessels. Crew failure to put their gear to proper use was a major cause of fatalities.

Session 4: Injury prevention and health promotion

Prof Olaf Jensen, senior researcher from the University of Denmark, presented a paper that classified work processes and injuries in fishing vessels, thereby providing insights about injury patterns. The work processes most associated

with injuries: preparing, shooting and hauling gear (44%), moving about the ship (14.7%), cleaning the catch and catch handling (13.9%). Fatalities accounted for 5 percent of all detected injuries.

Mr Grant Tracy, Director of safety of Standfast Corporation based in Brisbane, Australia, presented a paper on controlling the risks of falling overboard from fishing vessels. He said that floatation devices and immersion suits would preserve life while in water; to prevent the risks of falling overboard, a practical and safe working system was needed. This would include a self-locking, self-retracting deck tether attached to a personal floatation device.

Mr Bradley Husberg presented a paper by him and Jennifer Lincoln (both from the Alaska Field Station of NIOSH) on severe injuries that occurred on commercial fishing vessels in Alaska**.** Most of these occurred on deck during the deployment and retrieval of fishing gear. Between 1991 and 2002, 798 severe non-fatal injuries occurred. Falls accounted for 25 percent of these injuries; machinery and fishing equipment for 23 percent.

Session 5: Small-scale vessels-I

Mr Bundit Chokesanguan of SEAFDEC's training department described the status of sea safety programs for small-scale and commercial fishermen in Thailand. He said the responsibility for fishing vessel safety is shared by many government departments; this makes for ambiguity. A clear definition is needed about small fishing boats and their operational range. Radios carried by fishers in mechanised boats, storm warnings on radio and television, community programs carried out by fishermen's co-operatives – all these promote safety at sea. Poor equipment in commercial vessels was what most endangered safety at sea. In 2003, SEAFDEC organised a regional workshop on safety at sea for small fishing boats. Guidelines are being planned.

An IFISH 3 session in progress

Discussing sea safety awareness in small crafts**, Mr Mats Rosander-Liew** of the Swedish Maritime Administration said Sweden had 30 years of experience in making small craft better aware of safety. Television and other mass media played an important part in the process. Family members including women and children had to be approached for long-term success with adoption of safety measures. "They often constitute a powerful pressure group for behavioural change."

The speaker said a large number of small boats were active along a 2 700-km coast in Sweden. Sometimes the boat traffic was very heavy. The Swedish Government wished to reduce the casualty figures at least by half. This had been done in the Navy. Awareness programs are being disseminated to schools as well.

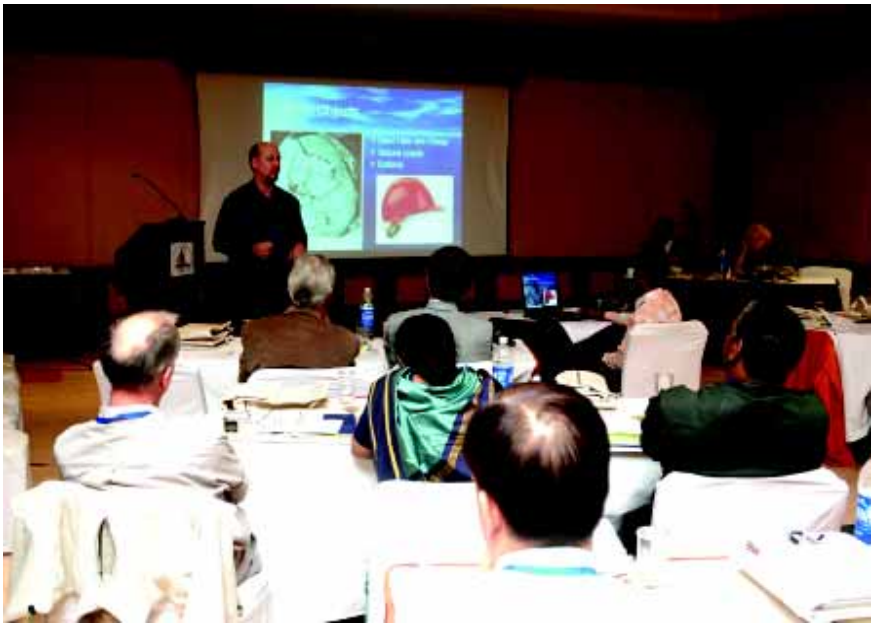
Mr D P Yadav, Tamil Nadu Director of Fisheries, described sea safety programmes for fishermen in his state. (See pages 30 - 32). In discussion following his paper, it was pointed out that 12 to 15 percent of fishermen go beyond 12 nautical miles from the shore. The Coast Guard is better geared for search and rescue operations than the state government. Efforts are being made to improve insurance coverage for boats.

Session 6: Small-scale vessels-II

Commandant N V Rama Rao of the Indian Coast Guard (ICG) described the economic dimensions of search and rescue operations. He said that SOLAS (Safety of life at sea) and GMDSS (Global maritime distress and safety system) regulations did not apply to small-scale fishing vessels. The ICG is responsible for protecting fishermen and assisting them at sea. The Indian region for search and rescue (SAR) comprises 4.6 million sq km. SAR entails an annual expenditure of approximately Rs 42 million. There is presently no SAR agreement with Sri Lanka, but SAR operations are carried out ad hoc by agreement. ICG is a lean and thin organisation; at present, 90 percent of its efforts are directed at fishermen. He felt the need for a low cost EPIRB, costing around Rs 10 000; right now, it costs five times as much. He urged fishermen to use the Coast Guard's toll-free number (1718) during emergencies at sea.

Dr Jonathan Dickson of the Bureau of Fisheries and Aquatic Resources in the Philippines described sea safety programs for fishermen in his country.

Commandant S D Sonak of the ICG made a presentation on "Issues associated with small-scale



Mr Alan Davis, American Seafoods Company, speaking on "Safety Eyes"

fishermen at sea". Making the point that small-scale boats vary in size and shape in each coastal state of India, he urged that identity cards should be issued to fishermen.

Dr Vu Van Trieu, Acting Director-General in the Department of International Cooperation, Viet Nam, described commercial fishing in his country. He said that fishing engages more than four million people; marine stocks in Vietnam are estimated at 4.2 million tonnes; small-scale fishing vessels are low-powered, equipment is rudimentary. Fishing vessels of horsepower greater than 90 H P are registered. He suggested regional cooperation in sea safety. Training-of-trainers is the *modus operandi* for training programs.

Session 7: Fishing vessel and equipment design, guidelines, construction, etc.

Mr Robert W McKibbin, mining engineer at NIOSH, Spokane, Washington, discussed the development of devices such as an emergency-stop system for a hydraulic deck winch. The instrument would cost about US $ 2 200 inclusive of fitting and welding charges, but the cost could go down if it is produced on a mass scale.

Dr B Meenakumari, Principal Scientist of the Central Institute of Fisheries Technology (CIFT), Kochi, India presented a paper on "Alternate material for small-scale vessel construction" co-authored with Mr M V Baiju and Ms Leela Edwin. The high cost and scarcity of conventional wood species are making alternatives necessary, and the CIFT is looking at them. The paper described an aluminium canoe, the process of constructing a rubber wood canoe, and the sheathing of a wooden canoe with FRP, and evaluated their techno-economic feasibility.

Dr V S Somvanshi, Director-General, Fisheriy Survey of India (FSI), described his organisation's vessel monitoring system (VMS). In co-operation with the Indian Space Research Organisation, a reporting system has been developed that gives FSI information from fishing vessels at sea about their position, depth, catch effort and species. Safety signals can be transmitted. It is proposed to extend the VMS to deep-sea fishing vessels and later to mechanised boats.

Dr Henri Pinon of the Institut Maritime de Prevention, France, presented a paper on sea safety studies conducted by his non-profit institute. It collects and analyses report forms that fishermen must complete in the event of injury. These provide data about the injured person, the ship and the type of fishing being done, the circumstances (date and hour, meteorological conditions, position of the ship, location of the worker, what he was doing when accident occurred) and the injury. The annual rate of occupational injury was 143 per 1 000 fishermen in sea fishing, as compared to just 44 injuries per 1 000 workers in other sectors.

Session 8: Responding to the problem

Dr Y S Yadava, Director of the BOBP-IGO, described the efforts of the IGO in co-operation with member-countries to improve safety at sea for small-scale fishermen. The Chennai Declaration of 2001 recommended a regional sea safety programme. During discussion, it was pointed out that lack of data on accidents and injuries was a major drawback. A data collection mechanism ought to be developed for use by member-countries of the BOBP-IGO.

Mr Than Oo Wai, Deputy Director, Department of Fisheries, Myanmar, discussed the status of sea safety programmes for fishermen in his country. He said that artisanal fishermen account for most of the catch. There is a registration system for fishing boats. Most fishermen use home-made life rafts such as plastic containers and drums, and traditional medicines. Most fishing boats operate in remote areas; communication with them is poor. Co-operation with regional and international organisations is needed to solve existing problems.

Discussing the role of gender in sea safety programmes, **Ms Chandrika Sharma** of the International Collective in Support of Fishworkers, Chennai, urged a comprehensive approach to reducing the vulnerability of coastal fishing communities to natural disasters on sea and land. It is women who have often taken the lead in highlighting problems of sea safety and in work conditions. During discussion on the paper, Dr George Conway said fisher groups in Chennai had told him that HIV/

AIDS was a major health concern. A community health model should be adopted to tackle this concern. He also lauded the micro-credit programmes of south Asia which were spearheaded by women and improved the quality of life of the community.

Session 9: International standards and status reports

Mr Ari Gudmundsson, Fishery Industry Officer, FAO Rome, described the evolution of international instruments on the safety of fishing vessels and fishermen, and the status of implementation. The FAO has prepared the FAO/ILO/IMO Code of Safety for Fishermen and Fishing Vessels (Parts A and B) as well as the FAO/ILO/IMO Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels. These documents have been revised recently and will be published soon. Mr Gudmundsson's paper also highlighted concern for small fishing vessels which are not covered by any standards. He said that a website had been set up for the purpose, and invited suggestions.

Replying to questions, Mr Gudmundsson said that one problem with safety standards for developing countries was absence of data. He urged participants to help in improving the status of data collection. Sri Lanka is being helped with documentation of sea safety programmes. He admitted that women and families have not been specifically addressed in any guidelines prepared so far. Safety instruments can be useful only if they are implemented and enforced; this is mainly the responsibility of governments. Political will is essential.

Mr Ali Majid from the Ministry of Fisheries, Agriculture and Marine Resources, Maldives, discussed sea safety programmes in his country. (Paper co-authored with Mr Ahmed Hassan.) He said that his government is presently working on developing vessel construction and standards and on providing technical support by introducing optimally designed and efficient fishing vessels.

Mr Hans Bage of the FAO mentioned the possibility of the Swedish International Development Agency (SIDA) funding a regional programme on sea safety in the Bay of Bengal region. It will be part of a global programme on sea safety.

Mr Dennis Hansford of the US Department of Commerce discussed "Safety standards for observer deployment in commercial fishing vessels". He said the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service trains hundred of fisheries observers annually. These observers are deployed on commercial fishing vessels. Safety training is provided to all the observers.

In the discussion at the end of this session, it was suggested that India's Planning Commission should address the question of safety of fishers in its 11th Five-Year Plan, something that had not been taken up in the past.

A participant suggested that representatives of the fisher community should also be invited in future IFISH. Another suggested a regional conference supported by the government that looked at specific regional issues.

Panel Discussions

A few of the many points made during a lively panel discussion that followed the nine technical sessions:

- In future, more stakeholders should participate in conferences of this kind.
- Awareness on sea safety issues should be promoted at all levels, starting from that of policy-makers. Language in such literature should be simple and clear to all.
- Knowledge on safety issues should become a part of the university curriculum. When government agencies give fishers a loan, they should exact a commitment from them about using safety equipment.
- The FAO requested participants to make available national regulations on sea safety.
- The conference did well in discussing both small-scale and larger fishing vessels. Many fishers today are going deeper or increasing their range, without the right know-how. Result: more accidents. All countries must make an effort to study what kinds of fishing activities are going on. Best practices should be documented and shared widely. A good balance is needed between 'hardware' and software'.
- Communication gadgets and equipment need to be modernized to improve sea safety. More group discussion needed among participants at such conferences, since the state of fisheries differs from one country to another.
- Short films can be very effective to promote sea safety. BOBP used to produce posters, these should be distributed and disseminated more widely and displayed.
- Such conferences are very useful for Europe, which used to be underrepresented in the past. Support from ILO and FAO has made this possible.
- US Coast Guard: Two important issues are insurance arrangements for fishers and use of weather-proof equipment. For a local fishermen here, GPS equipment would be most useful.
- Fishers need life jackets. The government should address this issue in its next Plan.
- Fishery Survey of India: FSI conducts several workshops for fishers – about new technologies, about diversifying and limiting the pressures on fishing grounds. A workshop was conducted in Goa in 2000 under FISHCODE. We would like to conduct more such workshops.
- NABARD: We would like a list of the many kinds of sea safety

equipment relevant to this region, and the cost. Also, is there any development strategy with multi-stakeholder participation to upgrade the knowledge of fishers?

- Denmark: No focus at this conference on injury prevention in fishing related activities. No precise or comprehensive data was available on fatal and non-fatal injuries. This can be obtained only by involving fishers, their families, politicians and epidemiologists.
- The Code of Conduct for safety of fishing vessels should be implemented. The Government of India's thrust in fisheries has been only on production, safety and management of fisheries has not been given priority.
- SEAFDEC: We need to obtain the views of fishermen. How can international instruments be implemented without their involvement?
- FAO: The cost of SAR operations must be lowered. Savings from such reduction could be used to subsidise sea safety measures. The FAO is working with Swedish authorities on sea safety interventions. Important components are data collection, regulation and community participation. Future IFISH meets should be so designed that the fisher community is involved. We must move IFISH from rhetoric to action.
- Sweden: This is our first IFISH meeting, and it will not be the last. There was so much to learn, and there were many issues. "We must endeavor to reach the local fishermen, this will be a big step for IFISH. At the next IFISH, results of activities carried out after IFISH 3 should be presented."
- Vietnam: Sea safety information should be disseminated through popular literature and TV. Fishers should be given the right knowledge in the right way. They will never react to a term like "Torremolinos".
- CIFT: No safety equipment in small-scale fishing vessels, no data on fatalities. We need to promote awareness, training and extension, with support from ILO and FAO. CIFE and CIFT should make sea safety a part of their curriculum. R & D Institutes should take up projects on safety equipment. Safety aspects should be made mandatory when bank loans are given.
- US Coast Guard: Future challenges concerning sea safety relate to government regulation, awareness, outreach programmes and data organisation and collection.
- CIFE: Mechanisms needed to collect data on sea safety. The CIFE website contains a compendium of all marine fisheries regulations in India. Social issues should also be looked at — such as the monsoon ban on fishing and keeping fishermen productive during this period. We can conduct training programmes for fishermen on sea safety.
- FAO: The CIFE compendium on maritime regulations, if made available to FAO, can help us prepare a global compendium on marine fishing regulations.
- The organisers should be congratulated for bringing IFISH 3 to the heart of fisheries, as Asia is the hub of small-scale fisheries.
- ICSF: (a) Sea safety and resource management are two sides of the same coin. Our mindset is attuned to near-shore fisheries. So even if small-scale fishers move offshore, we still talk about near-shore fisheries. (b) Sea safety depends largely on awareness, prevention and mitigation. We must document some of the best practices. Visual documents can be excellent awareness instruments. (c) We must define sea safety. Presently, many interpretations are given to sea safety. (d) We must follow the debate on sea safety in the WTO. It is generally negative about all subsidies, but does not question the subsidies given for sea safety. This development can be used to promote sea safety. We must also maintain a balance between hardware and software.
- SEAFDEC: We invite co-operation with BOBP-IGO, FAO and NIOSH in Southeast Asia. The media should be tapped to promote sea safety. SEAFDEC has competency in VCD production, we can help produce documentaries on sea safety. During the last 2 years, 20 VCDs have been produced on shrimp fisheries and other subjects.
- Maldives: Special monitoring centers are needed to monitor the

US and Indian Government officials at the conference

safety of small boats. Fishermen may be provided with VHF sets on an installment basis. Study tours and practicals should be a part of the programme for IFISH 4.

- FAO: SAR has become very expensive. VHF devices are the cheapest sea safety tool. Their range is up to 25 nautical miles, and it can be extended to 50-60 nautical miles. A cost-benefit study should be undertaken on available communication mechanisms for small-scale fisheries. For creating awareness on safety issues, travelling seminars or road shows would be useful.
- Indian Coast Guard: We have moved to the GMDSS system, and coastal radio station networks should be established. A common coastal radio network will be more useful than a network only for fishermen.
- US Coast Guard: Insurance and training should be important components of fishing safety. "If I were a local fishermen, I would use a 406 EPIRB that would give me weather warnings and GPS and also allow me to communicate with the family.
- Fishery Survey of India: The FSI has seven zonal bases, which conduct a dozen workshops every year for marine fishermen. These workshops focus mainly on resource management and demonstration of new equipment. But henceforth, such workshops could also cover sea safety and the health of fishers. FSI would like to conduct workshops on MCS in association with BOBP-IGO.
- NABARD: The skills of small-scale fishers should be upgraded, and support should be provided for the purpose. NABARD can fund entrepreneurship development programmes. We can include sea sea safety equipment in bank loan schemes if a list of such equipment along with cost is made available to NABARD.

Closing Session

"Agreement is nice but action is better," said Dr George Conway at the closing ceremony of the conference. He said that improvements are needed in the areas of communication, equipment & materials, training, community health approach, data collection and surveillance mechanisms.

Mr Ari Gudmundsson said case studies on safety improvement must be documented. Political will is essential to improve the safety of fishers worldwide.

Dr Prabhakaran Paleri (Coast Guard Director-General, New Delhi) said the Indian Coast Guard would be very happy to support measures to enhance the safety of small-scale fishers. He said that health, security and environment are correlated; so is the relationship between fishermen, boats and the environment. In conclusion he raised a few questions: Will the fishermen population increase or decrease? He also made the point that the SAR mechanism is oriented to merchant vessels and cannot really meet the requirements of fishermen. Can a different approach be designed for fishermen, a community approach?
(For more details on IFISH3 visit www.ifish3.org)

Participants at IFISH 3

Reviving Fisheries after the Tsunami

What has been done to restore and rehabilitate fisheries and fisherfolk communities hit by the tsunami? What are the priorities now? Report of what was said and discussed at a workshop in Mahabalipuram, held on 6-7 February 2006.

The workshop on Post-tsunami Revival of Fisheries Sector and Rehabilitation of Fishing Communities was held in Mahabalipuram on February 6 and 7, 2006, at the same venue as the IFISH 3 conference. Some 46 persons took part, including representatives of fisher communities.

The tsunami was one of the worst tragedies in recent history and left fisher communities shattered, said Dr Yugraj Singh Yadava, Director, BOBP-IGO, in introductory remarks. While the immediate tasks of relief are over, the status of rehabilitation differs in various locales and countries. Livelihood restoration and rebuilding community confidence are two of the major challenges faced by governments and the civil society. He hoped that the workshop, being held in co-operation with the FAO and NIOSH, would prove useful.

Dr George A Conway of the National Institute of Occupational Safety and Health (NIOSH), USA, welcomed representatives of fishing villages near Mahabalipuram to the workshop. He said their first hand experience – both with tsunami devastation and with rehabilitation work — would be valuable. He hailed the success of local governments in preventing the outbreak of disease following the tsunami. There was room for improvement in tackling the psychological trauma of fisher communities after the tsunami. Sanitation and communication were other important issues.

Mr Ari Gudmundsson of the FAO expressed appreciation of the massive post-tsunami relief work undertaken by governments and others. The FAO too had contributed to relief work. The sheer scale of the tragedy was unprecedented, so more needed to be done. He hoped that the workshop would enable constructive debate on major issues.

Mr Ari Gudmundsson speaking at the inaugural session of the Workshop

Mr D P Yadav, Director, Department of Fisheries, Government of Tamil Nadu, said millions of people, mostly fishers, were displaced by the tsunami. The global community had responded splendidly with succour. In Tamil Nadu, local communities themselves coordinated and managed relief materials. He said we are almost back to normal today, but ought to deliberate on major issues raised by the tsunami and formulate new plans. The fishing community is quite amenable to joint planning and implementation. He said that the government has coped with the massive challenges of the tsunami, but the capacities and capabilities of the Department of Fisheries need to be strengthened.

Fisher community representatives present at the workshop were invited to the dais. One of them (P Vasu from the fishermen village, Mammalapuram) spoke about the tsunami and its impact (damaged infrastructure, boats and nets, repairs, health issues both physical and mental, livelihoods), and said the community needed further help.

A seven-minute silent video of tsunami clips, shot and put together by the BOBP-IGO, was shown. The inaugural session ended with a vote of thanks by Dr SS Tabrez Nasar.

Sessions 1 & 2: Post-tsunami revival of the fisheries sector and rehabilitation of fishing communities.

Mr Ari Gudmundsson moderated the first session, which featured three speakers – from Sri Lanka, Thailand and the Maldives.

In a comprehensive presentation, **Mr H S G Fernando,** Director (Ocean Resources) in the Ministry of Fisheries and Aquatic Resources,

detailed the damage of the tsunami: it had affected 12 of the 14 coastal districts in Sri Lanka, killed 4 870 fishers and damaged nearly 17 000 houses. Ten out of 12 harbours, 37 anchorages and 200 fish landing centers were badly damaged.

The reconstruction policy aimed at "building back better," at rehabilitating fishing communities and restoring the fishing industry so that they were better than they were before the tsunami. Major projects under implementation were fisheries harbours at Panadura, Beruwala and Kudawella (with Chinese assistance), Tangalle and Galle (Japan), Mirissa, Puranwella and Hikkaduwa (USAID), ice plants, fish transport vehicles and cold storages (Japan). Selected anchorages would be improved with UNDP assistance funded by Japan, the Tangalle fisheries training center would be helped by Italy, and coast protection structures would come up with ADB assistance.

An FAO fisheries programme for recovery and rehabilitation, with funding support from several countries, covered many areas – fishing fleet, regulations on safety standards, infrastructure development plans, livelihood support. IFAD, GEF and ADB were assisting three major projects – relating to coastal rehabilitation, livelihoods, coastal zone restoration in the Eastern Province, and two fishery harbours.

Mr Bundit Chokesanguan of SEAFDEC's training department said the tsunami had affected six provinces of Thailand, killed nearly 5 400 persons, destroyed nearly 7 000 housing units, and inflicted damage on agriculture, coral reefs, mangroves and aquaculture. A government relief fund with a budget of 1.3 billion baht had been set up to provide compensation and to help fisheries and fisher communities. Under a proposed fisheries rehabilitation plan, fishing surveys would be carried out in several villages and a livelihoods workshop would be organised.

Mr Ali Majid from the Ministry of Fisheries, Agriculture and Marine Resources in the Maldives said the tsunami had killed 82 people in his country, deprived 1 600 people of livelihoods, and inflicted damage worth about US $ 25 million. The government's long-term policy was to leave everyone better off than they were before the tsunami. Support and technical assistance were being provided by Japan, the FAO, UNDP, World Bank, IFAD and Australia.

Under various elements of a fishing vessel replacement programme, damaged vessels would be repaired, new long-range vessels would be introduced, fishing gear, engine and equipment would be repaired or replaced. Through other programmes, boatsheds would be rehabilitated, fish processors would be provided with micro-credit, a Fish Aggregating Device Centre would be repaired, a mariculture station would be restored. Support would be provided for infrastructure (fish markets, chill containers, ice plants). Reef and marine resources would be assessed.

Some of the issues that confronted the authorities were lack of coordination between different agencies, delays in finalising implementation, with different donors expecting different arrangements, problems in finalising beneficiaries.

Mr D P Yadav, Director of Fisheries, Tamil Nadu, described relief and rehabilitation in his state. (See article on pages 30-32) Among policy interventions for tsunami rehabilitation, he cited the development of advanced warning systems for natural calamities, insurance coverage, setting up of shelterbelt plantations, modernisation of infrastructure, conversion of wooden kattumarams to FRP, training coastal communities in alternative livelihoods, diversification of the coastal economy.

Speakers, clock-wise from left: Mr D P Yadav, Dr Chandrika Sharma, Mr R Devan, Mr Ali Majid

He mentioned some key issues to be addressed: community-based fishery resource management, strengthening of co-operative institutions in fisheries, enhancing the capacities of the Department of Fisheries, strengthening of its engineering wing, development of a domestic market for fishery products, improvement of market intelligence.

Dr N K Kittusamy of the Spokane Research Laboratory in NIOSH, described a rapid needs assessment of health care facilities in Banda Aceh, Indonesia, the country worst hit by the tsunami. Dr Kittusamy was part of an 11-member team that conducted two surveys to assess the damage to six hospitals and a health office. The type of damage varied. One hospital was under four feet of water, mud and debris. Most of the equipment had been destroyed; some buildings needed extensive repairs. The police was running another hospital with some support from Australia. There was no water service. The health office had come under eight feet of water and the buildings needed major repair. The main general finding of the survey was that most of the facilities were suitable for occupancy after clean up and repair.

Ms Chandrika Sharma of the International Cooperative in Support of Fishworkers (ICSF) presented a list of rehabilitation priorities "from a small-scale fisheries perspective" on the basis of ICSF studies in Indonesia, Sri Lanka, Thailand and India. Some of these priorities:

- A broad coastal development approach should be adopted to improve the quality of life of coastal communities.
- Mechanisms should be set up to maintain and assess public utilities provided by donors and NGOs as part of tsunami relief. Transparent mechanisms should be set up to register complaints about the quality of tsunami rehabilitation assistance. Coordination mechanisms should be strengthened.
- Issues hindering completion of permanent housing should be resolved. If communities relocate, the rights to vacated lands should remain with them. Housing sites for fishery-dependent communities should be located at a convenient distance from areas where they store fishing equipment, access fishing grounds or dry fish.
- Coastal habitats and biodiversity should be protected and restored, and these should not be confined to tsunami-affected areas.
- Further construction of small-scale vessels must be undertaken only after clear evidence of a shortfall in replacing vessels in a particular region.
- Only fishing gear that's appropriate and selective and compatible with the status of fishery resources should be distributed under tsunami rehabilitation.
- Brackishwater aquaculture and mariculture should be promoted as employment alternatives in tsunami-affected areas only after addressing environmental and sustainability concerns.
- Systems for effective registration of craft, gear and engines should be established to streamline post-tsunami rehabilitation. Participatory programmes should be taken up to strengthen management regimes to conserve fishery resources.
- Fishers should be imparted training in basic safety in accordance with revised FAO/IMO/ILO guidelines.

Tsunami workshop in progress

A tsunami memorial in Sri Lanka

- Post-harvest programmes should promote labour-intensive low-cost and locally appropriate technologies. Any cold chains ought to benefit and not displace small-scale processors and traders.
- Vessel and crew insurance should be made mandatory at affordable premia.
- A periodic census of men and women engaged in fishing should be undertaken to facilitate remedial action during natural calamities.
- Women engaged in fisheries operations should be recognised as workers in their own right. Tsunami rehabilitation programmes should aim at improving women's livelihoods, work conditions, resource access and social security.

Group discussions followed the two presentation sessions. A sampling of comments and viewpoints:

- In Sri Lanka, resource assessment for marine fish stocks is being planned in co-operation with Norway. Right now fishers who go deep-sea fishing run into problems with their boats.
- In Tamil Nadu, the heavy rains during the monsoon of 2005 aggravated the problems of tsunami rehabilitation.
- The National Bank for Agriculture and Rural Development (NABARD) has extended loans to fishermen at a very low rate of 4.5 percent. It is imperative that these loans get repaid, so that banks can extend loans to others in need. Where fisheries infrastructure is being created, a fee should be collected from fishermen who benefit.
- More boats do not automatically mean over-exploitation, because they also lead to crew shortage, and the boats may lie idle. Boat registration is a problem in small-scale fisheries. Non-registration hampers proper damage assessment.
- On regulations for boat construction Mr Ari Gudmundsson said that the FAO has helped with fishing craft technology in three countries. But small-scale craft are being built here on the basis of price rather than standards. Regulations for FRP construction are not being followed. Mr Mats Rosander-Liew said regulations for boat construction in Sweden are accepted and followed. But a lot of work was done before regulations came to be accepted.
- For FRP boats in Sri Lanka skilled labour is unavailable. Regulations for construction and equipment exist only on paper. Training and skill upgradation of workers is needed.
- In the Maldives, the government is engaging to some extent in vessel construction as well (besides financial and technical support) as part of tsunami rehabilitation effort.
- Database formats should be locality-specific or at least region-specific. Simple procedures of data collection should be designed, since cost is a factor. Data was not available when tsunami relief work started. Now that it has been created, there are issues of ownership and access. Data should be decentralized.
- Information sharing on calamities is vital not merely within countries but between countries as well.

Workshop participants made a field trip to a fishing village in Mahabalipuram

The workshop participants then divided themselves into three groups to discuss three aspects of tsunami rehabilitation. Each group presented its findings.

Group 1 (fishing boat construction norms and guidelines):

The issue of FRP boat construction was discussed at length. The group made a field trip to a landing center nearby and observed many FRP boats anchored at the beach. It was suggested that the FAO's guidelines for FRP boat construction and repair in the Maldives be disseminated online, so that India and other countries could use them. The FAO can strengthen the process of dissemination if funds are made available.

Just as vehicles must conform to certain standards before they are considered roadworthy, boats must not take to the water or go beyond a certain range unless they are seaworthy.

In Sri Lanka, the NGO Secretariat of the Department of Fisheries meets every month, and would be the right forum for field progress on this subject. Some NGOs are buying back defective boats. It was pointed out that fewer accidents would take place at sea if vacant space in boats was not filled with foam.

In Tamil Nadu, concern has been expressed by many about the quality of boats constructed and distributed after the tsunami. It was suggested that the tsunami reconstruction center in Tamil Nadu – which coordinates with NGOs, some of which are active in remote areas as well – should get across the vital message of seaworthiness. So should the Department of Fisheries.

Group II dealt with fishing capacity. Some of the suggestions made:

Fishers should include spare fuel in their boats, learn how to carry out basic repairs for simple accidents at sea, use appropriate fishing gear, develop a proper life jacket (manufacturers could make life jackets on the basis of what fishermen wanted), clean the boat after every operation.

Group III dealt with policies and regulations. It discussed three issues – strengthening the information base, regulating fishing capacity, and improving the disaster preparedness of fishing communities.

Group members agreed on the paucity of the right data. Sometimes it is available but not accessible. Information needs to be developed on fisheries resources, fishing craft, infrastructure and stakeholders. A time frame must be set for collection and compilation of data. Information access should be streamlined as well, and a mechanism for information sharing on a regional basis worked out.

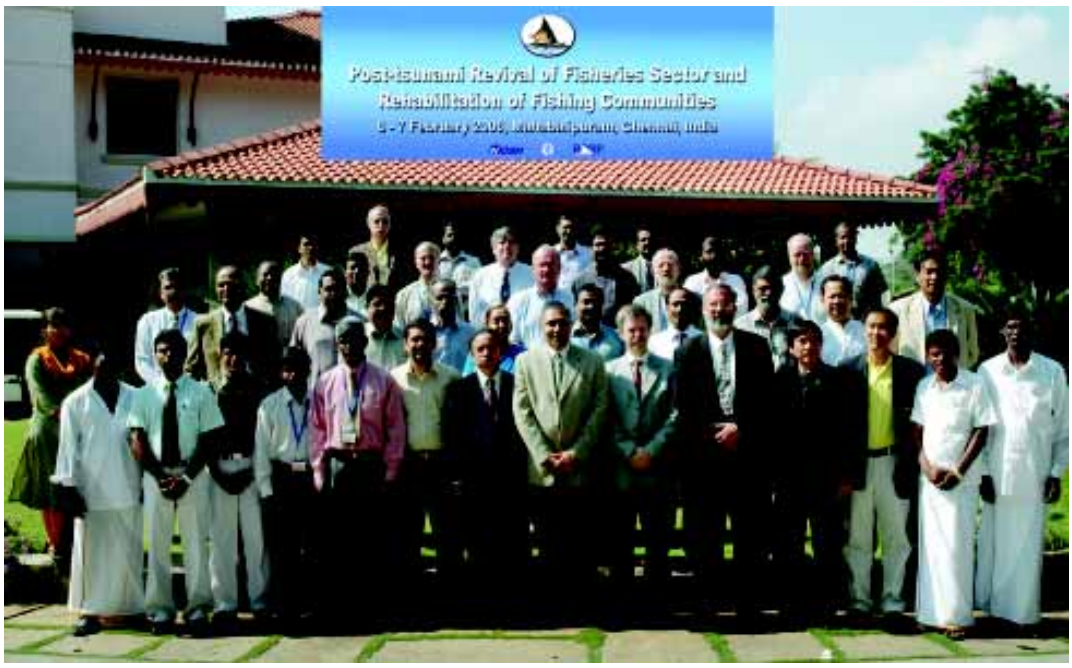
On regulation of fishing capacity, a clear picture on resource availability must be obtained, particularly in coastal waters. But as a precautionary approach, access to small-scale fisheries must be regulated right away, with the participation of fishermen. Fishing capacity must be frozen at the present level.

On community disaster preparedness, a reliable early-warning system against storms and cyclones is vital. So are education and training of fishers on disaster preparedness. Various options for communication equipment at sea were discussed, and a proper cost-benefit analysis was suggested. Low-cost waterproof mobile phones could be very useful, they could be used to communicate with other fishermen as well, but the Maldives representative said these are not reliable. He advocated VHF sets which can reach fishermen in the deep sea.

Dr V S Sadamate, Advisor (Agriculture), Planning Commission, Government of India, congratulated the organisers of the Tsunami workshop. The Planning Commission would look closely at the conclusions of the workshop and IFISH 3, which concluded a couple of days earlier, he said. The 11th Five-Year Plan will commerce soon, and inputs from these two events will help the Government.

Mr Ari Gudmandsson said the tsunami must have been one of the most debated topics of 2005. It had grabbed global attention in a way that had never happened in recent memory. The Mahabalipuram workshop took up issues not discussed in detail at other workshops, and had therefore proved useful. Dr Yadava hailed the inputs generated at the workshop, which he described as most rewarding.

Participants at the Tsunami workshop



International Instruments on the Safety of Fishing Vessels and Fishermen*

Ari Gudmundsson,
Fishery Industry Officer (Vessels), FAO, Rome

The question of safety of fishing vessels has engaged the FAO since its inception in 1945. The FAO has cooperated with the ILO and the IMO in developing safety standards.

FAO estimates that the global fishing fleet currently consists of some 1.3 million decked vessels and 2.8 million undecked vessels. Of the latter, 65 percent are not fitted with mechanical propulsion systems. Figures 1 and 2 show the distribution of powered decked- and undecked fishing vessels by continent. As for undecked/non-motorised vessels, Asia accounts for about 83 percent of them.

According to FAO records, some 36 million people are employed in primary capture fisheries and aquaculture. This figure includes full-time, part-time and occasional workers. Some 15 million people work full-time in marine fisheries.

Figure 3 shows the distribution of fishermen by continent. About two-thirds of these fishermen work on board fishing vessels of less than 12 metres in length, both decked and undecked.

Commercial fishing is the most dangerous occupation in the world, with more than 24 000 fatalities every year. Enhancing the health and safety of fishermen is one of the main challenges for international organisations dealing with the issue. One way of addressing the challenge is to establish principles for international safety agreements and other legal instruments and to provide guidance for their formulation and implementation.

Fig. 1 Distribution of decked fishing vessels by continent in 1998

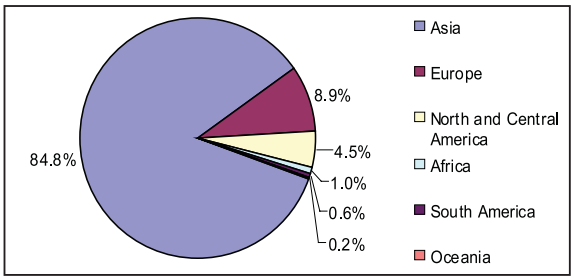


Fig. 2 Distribution of undecked fishing vessels by continent in 1998

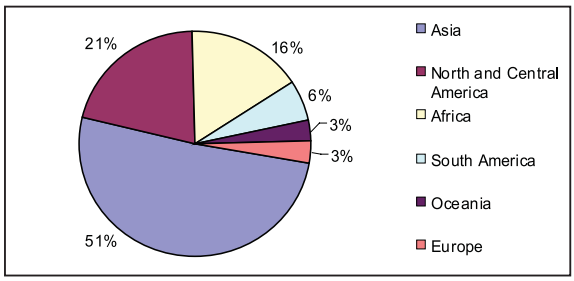
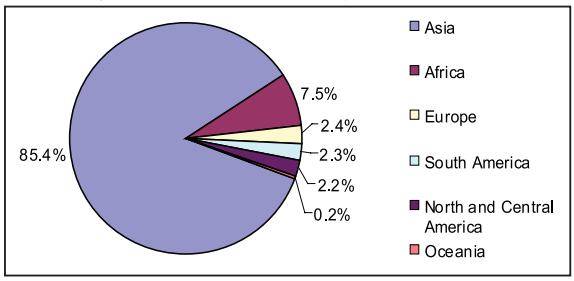


Fig. 3 Distribution of fishermen by continent in 1998



International standards for fishing vessels and fishermen.

International safety standards for fishing vessels already in place are:

- **The 1993 Torremolinos Protocol** relates to the Torremolinos International Convention for the Safety of Fishing Vessels (1977). The Protocol applies to decked fishing vessels of 24 metres in length and over, but certain chapters do not apply to vessels of less than 45 m in length. To apply uniform standards to all vessels, the following regional standards have been developed and communicated to IMO:
- **The FAO/ILO/IMO Code of Safety for Fishermen and Fishing Vessels, 2005**. The Code is divided into two parts. Part A deals with safety and health practices and applies to all fishing vessels. Part B addresses safety and health requirements for the construction and equipment of fishing vessels and applies to decked fishing vessels of 24 m in length and over.
- **The FAO/ILO/IMO Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels, 2005**. The Guidelines apply to decked fishing vessels of 12 m in length and over but less than 24 m in length.

International standards relating to the safety of fishermen are:

* *This article is based on the keynote presentation made by Mr Ari Gudmundsson at the Third International Conference on Fishing Industry Safety and Health, Mahabalipuram, Chennai, 1-4 February 2006. It outlines the history of international safety standards, describes their current status and how they are being implemented. The article draws extensively on the websites of the FAO, the ILO and the IMO.*

Wooden boats under construction in India

- **International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F), 1995.** This Convention applies to crews of seagoing fishing vessels generally of 24 m in length and above.
- **FAO/ILO/IMO Document for Guidance on Training and Certification of Fishing Vessel Personnel**, published on behalf of the three organisations by IMO in 2001.

ILO conventions and recommendations that relate specifically to the fishing sector include:

- Hours of Work (Fishing) Recommendation, 1920 (No. 7).
- Minimum Age (Fishermen) Convention, 1959 (No. 112).
- Medical Examination (Fishermen) Convention, 1959 (No. 113).
- Fishermen's Articles of Agreement Convention, 1959 (No. 114).
- Fishermen's Competency Certificates Convention, 1966 (No. 125).
- Accommodation of Crews (Fishermen) Convention, 1966 (No. 126).
- Vocational Training (Fishermen) Recommendation, 1966 (No. 126).

None of the above-mentioned conventions, *i.e.*– the 1993 Torremolinos Protocol, the 1995 STCW-F Convention and the ILO Conventions – have yet entered into force.

The 1960s – the first steps.

The first attempt to address the safety of fishing vessels and fishermen at an international level was made in the early 1960s. International instruments on the issue did not exist and the principal maritime convention in place needed to be updated.

In 1960, shortly after the creation of the IMO, a conference was held in order to adopt a new International Convention for the Safety of Life at Sea, known as SOLAS. This Convention is generally regarded as the most important of all international treaties concerning maritime safety.

At the 1960 SOLAS Conference, it was proposed that the SOLAS 60 Convention should apply to fishing vessels in addition to merchant ships; however this proposal was eventually dropped. The reason cited was insufficient information on fishing vessels. But the need for international guidance and standards on the safety of fishermen and fishing vessels was recognised, and the Conference asked governments to give the IMO their opinion on extending the provisions of the SOLAS Convention to fishing vessels.

In 1963, the first IMO resolution concerning safety of fishing vessels was adopted by the IMO Assembly. It dealt with "Intact stability of fishing vessels." The Assembly decided that IMO should continue its studies on the stability of fishing vessels "with all possible speed."

Establishment of the Sub-Committee on Safety of Fishing Vessels.

After this resolution, it was decided to form a Panel of Experts on Stability of Fishing Vessels within the Sub-Committee on Stability. In 1964, this panel became a separate Sub-Committee on Safety of Fishing Vessels. The Sub-Committee prepared multiple recommendations concerning the safety of fishing vessels and fishermen, as well as the draft text of the 1977 Torremolinos Convention.

IMO Assembly resolutions concerning the safety of fishing vessels and fishermen during the 1960s and the 1970s.

During the 1960s and 1970s, the IMO Assembly adopted several resolutions prepared by the Sub-Committee on Safety of Fishing Vessels. Most of their content became the basis of the FAO/ILO/IMO Code of Safety for Fishermen

and Fishing Vessels as well as the Torremolinos Convention. These resolutions included:

September 1965: "Intact stability of fishing vessels".

October 1967: "Recommendation on pilot ladders on fishing vessels and vessels of less than 500 Tons Gross".

November 1968: "Recommendation on Intact Stability of Fishing Vessels".

October 1971: "Recommendation for an Interim Simplified Stability Criterion for Decked Fishing Vessels under 30 m in Length".

October 1971: "Recommendation on Construction of Fishing Vessels Affecting the Vessel's Stability and Crew Safety".

November 1973: "Code of Practice concerning the Accuracy of Stability Information for Fishing Vessels".

Cooperation between FAO, ILO and IMO.

The October 1963 resolution marked the beginning of IMO's work on safety of fishing vessels and fishermen. Less than a year earlier, the Committee on Conditions of Work in the Fishing Industry convened by the ILO had recommended a practical international code dealing with navigational, operational and occupational aspects of safety of fishing vessels and fishermen. The ILO was urged to examine the possibility of establishing a suitable body to prepare such a code, in collaboration with FAO and the IMO.

The three organisations subsequently entered into an agreement relating to fishing vessels and fishermen. FAO would deal with fisheries in general; ILO with labour in fishing industries; and IMO with safety of life, vessels and equipment at sea.

Following this agreement, draft contributions to the Code of Safety for Fishermen and Fishing Vessels were prepared by FAO, ILO and IMO. It was agreed that the Code should be divided into two parts – Part A, to be addressed to skippers and crews, and Part B, to be addressed to shipbuilders and owners.

Code of Safety of Fishermen and Fishing Vessels (Part A, 1968; Part B, 1974).

The contributions of the three organisations to Part A of the Code were consolidated into a single draft at a 1968 meeting at IMO Headquarters in London. The final text of Part A of the Code of Safety for Fishermen and Fishing Vessels was adopted by a joint FAO/ILO/IMO Meeting of Consultants on Safety on Board Fishing Vessels held later the same year.

After Part A was adopted, Part B was prepared by the IMO Sub-Committee on Safety of Fishing Vessels in co-operation with FAO and the ILO. The final text was agreed upon at the second joint FAO/ILO/IMO Meeting of Consultants on Safety on Board Fishing Vessels in 1974.

The purpose of Part B of the Code was to provide information on design, construction and equipment of new decked fishing vessels of 24 m in length and above. It dealt with stability requirements for fishing vessels as well as hull and equipment; machinery and electrical installations; fire protection; protection of the crew; life-saving appliances; radiotelegraphy and radiotelephony etc.

The Torremolinos International Convention for the Safety of Fishing Vessels, 1977.

The 1977 Torremolinos Convention was adopted at a conference held in Torremolinos, Spain from 7 March to 2 April 1977.

In the 1980s, it became clear, mainly because of technical difficulties, that the Torremolinos Convention was unlikely to enter into force. The IMO decided to prepare a replacement in the form of a Protocol.

FAO/ILO/IMO Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels.

The International Conference on Safety of Fishing Vessels (1977), conscious that the vast majority of fishing vessels throughout the world were less than 24 m in length, urged the IMO to develop safety standards for the design, construction and equipment of such fishing vessels.

The FAO/ILO/IMO Voluntary Guidelines were approved by the Maritime Safety Committee in October 1979 and by FAO in November 1979 for circulation to governments.

FRP boatyard in Kakinada, Andhra Pradesh

Some observers pointed out, however, that parts of the Guidelines were in need of further development. These mainly concerned stability criteria. The International Conference on Safety of Fishing Vessels (1977) adopted a resolution recommending that the IMO continue studies with the aim of formulating detailed stability standards for fishing vessels.

A new generation tuna fishing vessel in the Maldives

October 1989 – Resolution on Safety of Fishermen at Sea – setting the tone for the 1990s.

In 1989 (12 years after the adoption of the Torremolinos Convention) the IMO Assembly adopted a resolution on the safety of fishermen at sea. Through the resolution, the Assembly urged the Maritime Safety Committee to consider and approve a protocol to the Torremolinos Convention. The resolution also dealt with casualty statistics for fishing vessels and fishermen and the training and certification of crews on fishing vessels, two issues that the Assembly had requested the IMO to address.

A working group finalised the draft text of the Protocol in June 1992 for consideration by the Conference the following year.

The 1993 Torremolinos Protocol.

The 1993 Torremolinos Protocol was adopted at a conference held in Torremolinos, Spain, from 22 March to 2 April 1993, exactly 16 years after the adoption of the Torremolinos Convention.

The Protocol applies to fishing vessels of 24 m in length and over, including vessels that process their catch. Safety provisions addressed by the Protocol (contained in a 10-chapter annex) include improved life-saving appliances, satellite communication systems and other components of the global maritime distress and safety system (GMDSS). The Protocol updates the 1977 Convention, taking into account technological evolutions of the intervening years.

Regional standards.

To ensure uniform standards, the Protocol encourages governments to establish uniform standards for fishing vessels operating in the same region. Such regional agreements currently in operation include:

- Guidelines for the safety of fishing vessels of 24 m and over but less than 45 m in length operating in the East and South-East Asia region, adopted at a conference in Tokyo in February 1997.
- European regional agreement applicable from 1 January 1999. It introduced a harmonised safety regime for fishing vessels of 24 m in length. Adopted in December 1997, it is based entirely upon the 1993 Torremolinos Protocol.

Entry-into-force criteria of the 1993 Torremolinos Protocol and the 1995 STCW-F Convention.

The Torremolinos Protocol will enter into force one year after 15 States with at an aggregate fleet of at least 14 000 vessels (in 1993 deemed to be approximately 50 percent of the world's fishing fleet of vessels of 24 m in length and over) ratify the Protocol. Currently only 12 States, with approximately 10 percent of the world's tonnage, have ratified it.

The STCW-F Convention will enter into force one year after 15 States have ratified the Convention. Currently only six States, representing approximately 3 percent of the world's tonnage, have ratified it.

Resolution on the entry-into-force and implementation of instruments.

Concern has been expressed by some States that since the adoption of the 1993 Torremolinos Protocol and the 1995 STCW-F Convention only a few States have ratified these instruments. At the 22nd IMO Assembly, held in November 2001, the opinion was expressed that IMO should become more proactive about the safety of fishing vessels and fishermen given that 24 000 fishermen's lives are lost at sea every year.

On 29 November 2001, the Assembly adopted Resolution A.925(22), "Entry into force and implementation of the 1993 Torremolinos Protocol and the 1995 STCW-F Convention".

This resolution urges Governments to consider accepting the 1993 Torremolinos Protocol and the 1995 STCW-F Convention at the earliest possible opportunity.

Regional seminars on the implementation of the 1993 Torremolinos Protocol and the STCW-F Convention.

Implementation of the Torremolinos Protocol: the first seminar was held in Beijing, China in September 2004.

Implementation of the STCW-F Convention: the first seminar was held in Busan, Republic of Korea, December 2002.

A new initiative to bring the 1993 Torremolinos Protocol into force.

In 2004, the IMO took a new initiative to bring the 1993 Torremolinos Protocol into force. The Secretary-General of IMO invited member governments to provide the IMO with information on the number of fishing vessels of 24 m in length and over flying their flags and to enumerate their reasons for not ratifying the Protocol. Forty-two IMO member states responded to the request. Among the reasons for their reluctance to ratify the Protocol provided by the IMO Member States as well as FAO were the following:

- exposure of fishing vessels to port State control is a major factor;
- the entry-into-force of the Protocol entails a large administrative and financial burden;
- a significant change in fishermen's attitudes is needed for a change in fishing vessel safety;
- ratification and subsequent implementation of the Protocol would place a financial burden on the industry, which some States believe they could not shoulder; this problem cannot be solved by the IMO alone, so it should consider contacting other relevant UN organisations;
- some States believe that the safety of their fishing vessel fleets is already adequately covered by national regulations; and
- some States do not have the legislative authority to inspect and certify fishing vessels flying their flags.

Other international instruments on the safety of fishing vessels and fishermen.

The other international instruments on the safety of fishing vessels and fishermen that are already in place are:

- SOLAS 74. Chapter V of the Convention applies to fishing vessels. It is, however, up to flag state governments to determine to what extent the provisions of certain regulations of that chapter shall not apply. These regulations contain, *inter alia*, requirements on ship-borne navigational equipment.
- The Convention on the International Regulations for Preventing Collisions at Sea (1972, COLREGs). This Convention applies to all vessels, including fishing vessels, operating on the high seas and all waters connected to the high seas and navigable by seagoing vessels.
- FAO/ILO/IMO Document for Guidance on Training and Certification of Fishing Vessel Personnel is the first international maritime training guide for fishermen. This document was prepared by a joint FAO/ILO/IMO working group and published by IMO in 1985. It covered training and certification of small-scale and industrial fishermen. A revised document, entitled Document for Guidance on Training and Certification of Fishing Vessel Personnel, was approved by FAO, ILO and IMO in 2000.

The Code of Conduct for Responsible Fisheries and the role of FAO.

The 1995 FAO Code of Conduct for Responsible Fisheries provides a framework for national and international efforts to ensure sustainable exploitation of aquatic living resources in harmony with the environment. A part of the Code addresses safety and health in the fishing sector, in particular the following three articles:

6.17: States should ensure that fishing facilities and equipment as well as all fisheries activities allow for safe, healthy and fair working and living conditions and meet internationally agreed standards adopted by relevant international organisations.

8.1.5: States should ensure that health and safety standards are adopted for everyone employed in fishing operations. Such standards should be not less than the minimum requirements of relevant international agreements on conditions of work and service.

8.2.5: Flag States should ensure compliance with appropriate safety requirements for fishing vessels and fishers in accordance with international conventions, internationally agreed codes of practice and voluntary guidelines. States should adopt appropriate safety requirements for all small vessels not covered by such international conventions, codes of practice or voluntary guidelines.

The 2000s - Development of new international safety standards for small fishing vessels.

Currently, there are no international safety standards in place for decked fishing vessels of less than 12 m in length and undecked fishing vessels of any size. Standards need to be developed, as the large majority of fishing fatalities occur aboard precisely such vessels. In December 2004, the IMO Maritime Safety Committee (MSC) agreed to include in the work programme of its Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety a new high priority item dealing with 'Safety of small fishing vessels,' with a target completion date of 2009. FAO intends to participate actively in the development of these new standards.

Needed: Political Will.

Commercial fishing is one of the most dangerous occupations in the world. Enhancing health and safety in the fishing industry is a major challenge for international organisations dealing with the issue. One way of addressing the matter is to establish principles and to provide guidance which may be used to formulate and implement international agreements and other legal instruments. But ultimately the instruments need to be implemented and enforced, and this is mainly the responsibility of governments. It is a task that calls for political will and commitment.

Role of Indian Coast Guard in Search and Rescue of Fishers at Sea*

Prabhakaran Paleri, *Director-General, Coast Guard, New Delhi*

The Coast Guard was set up only in 1978. But an umbilical chord already seems to bind the Coast Guard and the marine fisheries community.

The Coast Guard has multiple responsibilities, and strengthening the safety of fishers is only one of them. It needs to develop its capabilities in this respect.

Fishers are vulnerable to disasters of several kinds – accidents, casualties, abductions, alien interventions. The fisher community must ensure that its vessels meet safety requirements and are able to provide essential information in times of disaster. The Indian Coast Guard cannot assist fishers exclusively, but concern for fishers is central to its aims.

The Indian Coast Guard was formally inaugurated on 18 Aug 1978 as an independent armed force of the Indian Union, through an act of Parliament. It is the fourth armed force under the Ministry of Defence – the first three being the Army, the Navy and the Air Force. It has a specific charter for non-military security; but it addresses issues related to national defence. Its motto is Vayam Rakshamah ("We protect").

The world's coast guards normally deal with marine safety, maritime security, life saving, law enforcement, marine environmental security and fisheries. These call for monitoring, control, surveillance and response (MCSR) at sea. Coast Guards all over the maritime world are country-specific, and to that extent asymmetrical in their duties and functions, though they have some common traits.

The Indian Coast Guard too has its exclusive characteristics. The Coast Guard's duties and functions, as spelled out in the Coast Guard Act, 1978, include:

- safety and protection of islands and offshore structures;
- protection and preservation of maritime environment and endangered species;
- prevention and control of pollution in the maritime zones;
- assistance to the Customs in anti-smuggling operations;
- assistance to fishermen in distress at sea;
- safeguarding life and property at sea;
- preventing poaching in Indian waters;
- assisting in ocean research-related activities;
- enforcing maritime law;
- carrying out other duties as assigned by the Government of India without duplication of effort.

The Coast Guard is led by a Director-General, from headquarters in New Delhi. It has three regional commands at Mumbai, Chennai and Port Blair, and 11 district commands – one in each coastal State, two in the Andaman and Nicobar Islands.

Thus the Coast Guard is a multi-mission public service provider with short-term as well as long-term strategic goals. Most of its duties are relevant either directly or indirectly to fishers and their livelihoods. But it can be deployed for law and treaty enforcement, as well as for humanitarian, diplomatic, environmental and military goals.

The strategic role of the Coast Guard is to protect the maritime zones from illegal activities including infiltration through maritime routes, and environmental damage, and provide humanitarian and scientific assistance within the maritime domain.

Mission Statements of the Indian Coast Guard

The "mission statements" of the Coast Guard, which derive from its Charter and its functions, are:

1. Offshore security
2. Marine environmental security
3. Maritime zone security
4. Marine safety
5. Scientific assistance
6. National defence

To carry out its missions, the Coast Guard needs sufficient forces,

* *This article is based on a presentation made by Dr Prabhakaran Paleri at the Third International Conference on Fishing Industry Safety and Health, Mahabalipuram, Chennai, 1-4 February 2006.*

personnel, expertise, authority, infrastructure and enforcement-friendly laws.

Maritime Search and Rescue

Maritime search and rescue entails searching for persons, ships or other craft that are feared to be in distress or imminent danger, and rescuing or helping them. It is one of the operational tasks covered under the mission statement "marine safety." The mission statement reads:

"Prevent death, injuries, fatalities and property loss associated with maritime activities at sea, and reach out to those in distress and traumatic situations at all times in all weather conditions and ensure safety and security from natural or human induced disaster."

The Coast Guard has prepared a National Maritime Search and Rescue Manual. The Coast Guard is the coordinating authority in a mission of search and rescue which is terrain-specific, not victim-specific. The terrain comprises a whopping 4.6 million sq km in the maritime domain around India. The mission is carried out with the help of three maritime rescue coordination centres (MRCC) based at Mumbai, Chennai and Port Blair. There are also rescue sub-centres functioning from Coast Guard district headquarters at Porbandar, Marmagoa, New Mangalore, Kochi, Vishakhapatnam, Paradeep, Haldia, Diglipur and Campbell Bay. These centres function round the clock.

Communication for search and rescue is provided through fixed communication networks such as GMDSS (global maritime distress safety system), ATS (air traffic services) channels, DSC (digital selective calling) and through INMARSAT (the international maritime satellite earth station);.

The Coast Guard has been operating the ship reporting system INDSAR (Indian M-SAR computerised ship reporting system) since 1 February 2003. It is a voluntary toll-free reporting system that will assist the MRCCs to divert the most suitable

A search operation in progress

ship to the scene of distress, and also keep track of a ship that is overdue or may need urgent assistance. Participation in INDSAR is voluntary and free of cost.

In addition to INDSAR, the Coast Guard plans to introduce ISLEREP, a system that may allow communication with ships within 25 miles of island territories. It is a VHF radio network system and seeks to provide additional navigational safety for ships as they pass through or close to the islands.

The Indian Coast Guard and Marine Fishers.

The relationship of the Coast Guard with the fisheries community is defined by the mission statements.

- Offshore security: Fishers who stray into high-security offshore exploration areas will face problems and subsequent loss of catch.
- Marine environmental security: relates to the effects of pollution on fisheries resources and subsequent loss of fish catch. It also relates to the interaction of fishers with marine ecosystems.
- Maritime zone security: relates to law enforcement. Fishers could be direct or indirect victims, or participants.
- Marine safety: covers the entire spectrum of safety of life and property at sea. Fishers are a community that will require protection and assistance.

Bringing a fishing boat to safety

- Scientific assistance: to provide scientific support to ocean research activities including fisheries research.

Different types of fishers operate in territorial and close-to-territorial waters. A few of them are slowly venturing into deeper waters. Safety is the paramount objective for a fisher at sea. Record books of the Indian Coast Guard show that the problems experienced by fishers with respect to safety at sea are:

(a) Individual vessel distress
  - Accident-breakdown, capsizing, sinking, collision.
  - Cross border incident-accidents, seizures, attacks.
  - Navigational errors.
  - Pirate attacks.
  - Abductions.
  - Tribal attacks.
  - Medical problems.

(b) Mass distress
  - Cyclones.
  - Tsunami.
  - Seizures and attacks in alien waters.
  - Internal clashes.

Each of these situations has to be handled separately. Action takes varied forms.

Violations of the law by fishers can't be ruled out. They have been involved in illegal fishing across borders, clashes, pirate attacks on merchant ships, smuggling, trafficking, etc.

The Indian Coast Guard has conducted 935 search and rescue missions since its inception. It has saved 3 549 lives at sea, including those of 914 fishers, through 590 missions. There have been 368 incidents of alien firing at Indian fishers since 1983. 100 fishers were killed and 365 injured in the alien attacks recorded so far. This is besides random apprehensions of Indian fishers by bordering states while fishing across international boundaries.

Interaction with the Fisheries Community.

The Coast Guard introduced community interaction programmes in August 1999 specifically to interact with coastal communities including fishers. These programmes have been only partially successful, because of the limitations imposed on the Coast Guard by other mandated duties. The interaction with fishers aims at inducing safety awareness among them, warning them when weather conditions deteriorate, making friendly contacts related to public safety, and providing distress relief services including medical relief. These programmes have been appreciated by the community in various coastal states and islands.

Conclusion

Though the Coast Guard has been able to strike a chord with the fisheries community on safety matters, much more needs to be done. Fishers in India are either traditional or follow a traditional safety mindset even when they operate larger vessels. Mechanisation ensures speed through engines or outboard motors in place of traditional oars which necessitated longer stay at sea, thereby increasing the probability of distress. But on other aspects of safety – inspection of vessels, communication equipment, weather information through radio, life saving appliances, safety training, organised search and rescue efforts, coordination with the Coast Guard – awareness and action are low. A more proactive approach to safety by the Coast Guard, by fisheries administrations and by fisher communities will improve safety at sea.

To sum up, the Coast Guard plays a definite role in safety of life and property of fishers in India. The limitations lie in the disorganised state of fishers in India with respect to safety – low awareness, poor compliance with safety procedures – and also in the modest personnel size of the Indian Coast Guard relative to the tasks. But the Coast Guard has the will and determination to effectively carry out its missions, including that of enhancing the safety of fishers.

Patrolling the high seas

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Sea safety programmes for small-scale and commercial fishermen in Sri Lanka*

G Piyasena, *Director-General, Department of Fisheries and Aquatic Resources, Sri Lanka*

Marine fisheries is socially and economically significant around the entire 1 770 km coastline of Sri Lanka. The Exclusive Economic Zone of the country extends to 517 000 km^2, of which some 2 800 km^2 form the continental shelf. The marine area from the shore to the edge of the continental shelf is the coastal sub-sector. Annual sustainable yields from the coastal sub-sector have been estimated at 250 000 metric tonnes (mt) (170 000 mt of pelagic species and 80 000 mt of demersal species).

Some 610 species of coastal fish have been reported in Sri Lanka. The more common species caught are ***Sardinella sp., Amyblygaster sp., Rastrelliger sp, Auxis thazard, Anchova commersoni and Hirundichthys coromandelensis***. Most of these species live near the surface of the water. These small pelagics account for about 40 percent of the coastal fish production. Species such as ***Lethrinus sp.,Trichurus sp., Caranx sp***., species of skates and rays, ***Cynoglossus sp***. and ***Jojnius*** *and* ***Tolithus sp***. live at the bottom of the coastal region (demersal). Many species of fish live between the surface and the bottom.

Some 90 species of oceanic pelagic varieties of fish have been reported to live in Sri Lankan offshore and deep sea waters. ***Katsuwonus pelamis*** and ***Thunnus albacares*** dominate the large pelagic catches. These are migratory fish species and are therefore classified as stocks shared with other countries. Moreover, some 60 species of sharks and about 215 demersal fin and shellfish species have been reported in oceanic waters around Sri Lanka. The commercially important larger species are ***L. lentjan, L. nebulosis*** *and* ***Lutjanus sp., Pristipomoids sp.*** *and* ***Epinephelus sp.***

Production trends.

Total fish production in 2004 increased marginally by 0.5 percent over the previous year (Table 1). Marine fish production accounted for nearly 90 percent of the total fish catch, of which the coastal fish catch was 60 percent. The actual coastal fish production in 2004 was 154 470 mt, and actual offshore production 98 720 mt.

Generally, some 285 000 tonnes of fish are landed annually; 90 percent of it is consumed locally, the remaining 10 percent is exported. The export of fish and fishery products in 2004 was 13 680 mt, valued at Rs. 9 435 million (US $ 94.3 million), while imports of fish products (mostly dried and canned supplies) amounted to 67 284 mt at a cost of Rs. 5 944 million (US $ 59.4 million).

Fishing activities take place around the entire coast of the country. Landings prior to the tsunami were made at 12 fishery harbours, several large and small anchorages and as many as 700 village-level landing sites.

Marine fish production has recorded a ten-fold increase since 1950, thanks to various development programmes carried out by the government. Marine sector fish production data is collected and analysed on the basis of 15 fisheries districts. Figure 1 summarises details by district.

Safety and health of fishers receive inadequate attention

This article is based on the presentation made by Mr G Piyasena in the Third International Conference on Fishing Industry Safety and Health, Mahabalipuram, 1-4 February 2006.

Profile of the artisanal, small-scale, commercial fishing sectors and the fishing fleet.

The marine fishing fleet consists mainly of small to medium size craft, owned and operated by private individuals. The total fishing fleet in 2004 consisted of 31 663 boats (Table 2) and diverse types of traditional and large-scale fishing crafts. The broader categorisation of fishing crafts is as follows:

Type of craft	Length
Non-motorized traditional craft	up to 21 feet
Motorized traditional craft	up to 45 feet
FRP day boats with OBM	17 - 23 feet
3½ ton day boats	28 - 32 feet
Offshore multi-day boats	34 - 60 feet
Beach seine craft	up to 30 feet

Prior to the tsunami, most traditional fishermen landed their fish catch at the estimated 700 village-level landing sites at beaches. Some landed in river creeks (estimated at 150). Multi-day boats and some of the day boats used the 12 fishery harbours, most of which were established in the 1970s. Major landing sites are located in the districts most affected by the tsunami.

Fish landed at fishery harbours, anchorages and fish landing centres is either transported to major urban centres such as Colombo, Kandy or Galle or sold locally. Fish retailing is done through municipal fish markets in urban centres, through private sector fish stalls and fish retailing outlets, or through motorcycle and bicycle vendors. Over the last few years, fish sections in supermarkets have become very popular among urban consumers.

Colombo has the main wholesale fish market in the island, St. John's Fish Market. Fish received is either sold to retailers, institutional buyers, caterers or consumers, and redirected to various parts of the island.

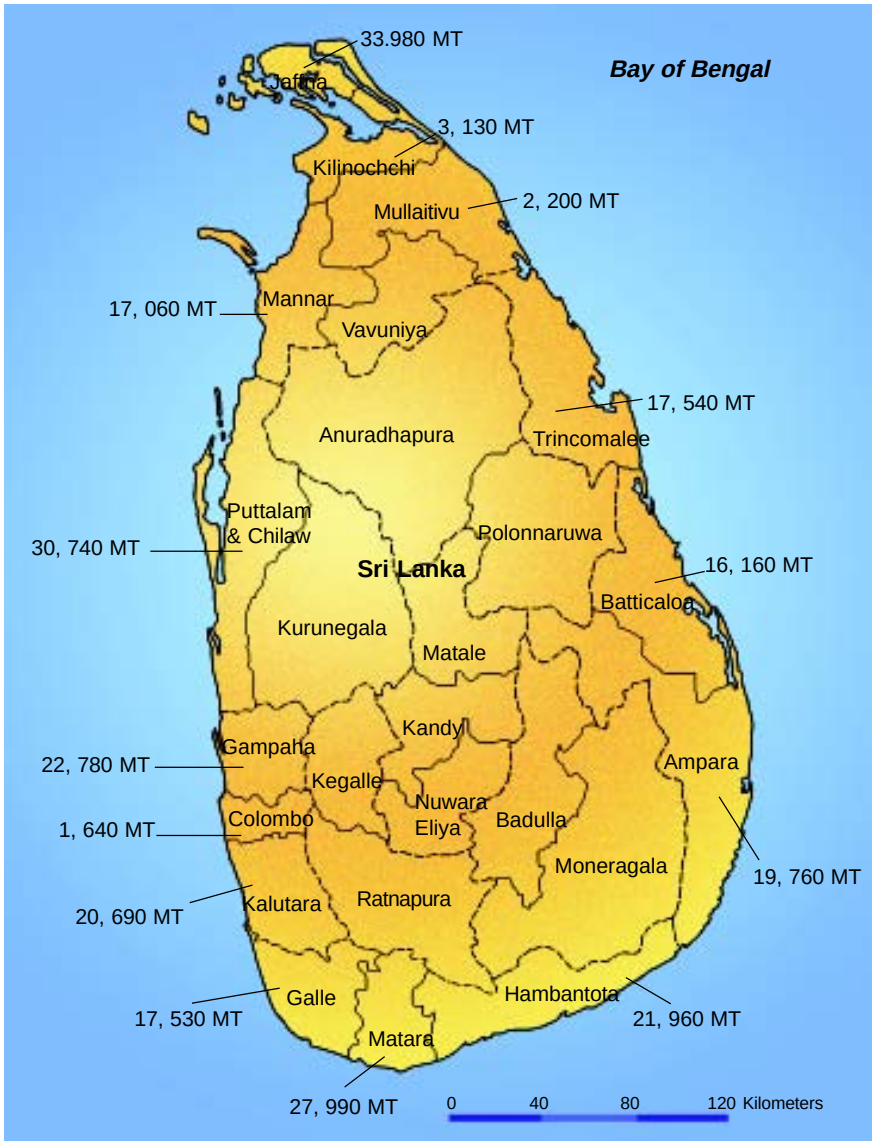

Figure 1: District-wise marine fish landings in Sri Lanka

Marine fisheries supports several associated industries and activities such as:

- manufacture of boats, nets and gear;
- fish processing, value addition, transport and marketing;
- production of ice; and
- curing / drying of fish.

Impact of the tsunami on the fishing fleet.

The Sri Lankan coast was heavily impacted by the tsunami of

Table 1: Annual fish production in Sri Lanka (*in metric tonnes*)

Year	Marine Fish Catch		Total Marine Catch	Inland and Aquaculture	Total Fish Catch
	Coastal	Offshore			
1950	-	-	25 124	-	25 124
1980	165 264	2 148	167 412	20 266	187 678
1985	140 270	2 400	142 670	32 740	175 410
1990	134 130	11 670	145 800	38 190	183 990
1995	157 500	60 000	217 500	18 250	235 750
2000	175 280	84 400	259 680	36 700	296 380
2001	167 530	87 360	254 890	29 870	284 760
2002	176 250	98 510	274 760	28 130	302 890
2003	163 850	90 830	254 680	30 280	284 960
2004	154 470	98 720	253 190	33 180	286 370

December 26 2004. Table 3 shows the damage caused by the tsunami and the status of recovery of the fishing fleet as at the end of December 2005.

Traditional fishing has been done inshore using simple canoes with outriggers. Despite development efforts spanning over 50 years, this type of boat still makes up nearly half of the fleet. Some 2 percent of fishing boats are canoes powered by outboard motors; a further 3 percent are beach seine craft without motors. Large motorised 'day boats' were introduced in the mid-1950s and consist of two types of crafts: 17-23 ft flat-bottomed fiberglass reinforced plastic boats (FRP) with outboard motors (37%) and 3.5 ton/ 28 ft FRP motorised boats (5%). In the 1980s, 59 ft motorised multi-day boats were introduced (5%).

Table 2 indicates trends in the development of the country's marine fishing fleet during the last five years.

76 percent of the total fishing fleet was affected by the tsunami. But 94 percent of the damaged fleet was either repaired or replaced within a year of the tsunami (by December 2005).

Sea safety issues

Sri Lankan fishers, both small-scale and commercial, have learned through long years of experience to fish almost round the year facing a number of major sea current systems and monsoons – northeast (November-January) and southwest (May-August). Fortunately, only a few lives and vessels are lost due to these sea conditions.

However, the number of multi-day boats drifting in the open sea due to engine failure, navigational difficulties, rudder damage and fuel shortage remains high. Boat manufacturers have improved the construction of boats in terms of construction materials, the size and shape of the hull and deck layout, but the attention paid to internationally accepted safety standards and construction norms is inadequate. Necessary action is therefore being taken to introduce new legal provisions concerning the safety of fishing vessels, to ensure required fishing facilities, equipment and health, and fair working and living conditions.

Table 2: Marine fishing fleet in Sri Lanka (2000 - 2004)

Boat type	2000	2001	2002	2003	2004
Offshore multi-day boats	1430	1572	1614	1530	1581
3 1/2 ton day boats (28 ft)	1470	993	1029	1486	1493
6-7m FRP boats (17-21 ft)	8690	8744	9033	11020	11559
Motorized traditional crafts	1404	639	776	618	674
Non-motorized traditional crafts	15109	15000	15600	15040	15260
Beach seine crafts	900	900	900	953	1096
Total	**29003**	**27848**	**28952**	**30647**	**31663**

The following are the main factors behind accidents in small-scale fisheries in Sri Lanka:

- Inadequate knowledge of safety measures
- Lack of safety equipment
- Inadequate maintenance of crafts
- Engine failures
- Unfavourable weather conditions
- Insufficient fuel capacity
- Construction defects

Multi-day boats generally encounter the following problems**:**

- Drifting to foreign seas
- Inadequacies concerning seaworthiness of boats
- Inadequate knowledge on navigational equipment & reading navigational charts
- Engine failure
- Insufficient communication & naval equipment
- Lack of awareness of legal requirements on distant fishing cruises
- Unfavourable weather conditions

The major issue at present is the increasing number of incidents of drifting of multi-day boats at sea. Not enough care is taken to ensure the seaworthiness of multi-day boats. Some of them are recovered by air and sea surveillance or rescued by larger ocean-going vessels sailing through the same area or by coast guard vessels of neighbouring countries. Several cases of loss of life are reported when a boat is detected at sea and rescued or found after drifting to other states. It is imperative to ensure that the design of the craft is appropriate for the voyages and the sea conditions.

Traditional canoes dominate the coastal waters

Table 3: Fishing fleet recovery status (end December 2005)

Boat Type	2004 fleet	Damaged	Destroyed	Repaired	Replaced
Multi-day	1581	676	187	780	0
One day	1493	783	276	904	29
FRP boats	11559	3211	4480	4258	4321
Traditional crafts	15934	2435	11158	3479	8636

There are nearly 30 boatyards in Sri Lanka, of which 14 are capable of constructing multi-day boats. Other boat yards produce FRP day boats and traditional crafts. Existing regulations are inadequate to control construction quality and ensure the safety of the boat and crew.

International guidelines and safety standards laid down by various agreements and protocols such as the 1993 Torremolinos Protocol, the 2005 FAO/ILO/IMO Code of Safety for Fishermen and Fishing Vessels and the FAO/ILO/IMO Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels, etc. have not been incorporated into local legislation so far. However, the Ministry of Fisheries and Aquatic Resources has taken action to introduce new regulations under the Fisheries and Aquatic Resources Act in collaboration with the FAO and the Government of Italy.

Multi-day boats at the anchorage

Recommendations

In order to ensure that the sea safety standards are incorporated in the construction of boats and safety of crew, the following steps have to be taken.

- Strengthen the law and introduce international safety standards in boat construction in line with FAO/ILO/IMO Voluntary Guidelines both for small fishing vessels and commercial fishing vessels.
- Tighten legal provisions concerning the safety of fishing vessel crews in line with FAO/ ILO/IMO guidelines to ensure the compulsory use of sufficient communication & navigation equipment.
- Raise awareness among multi-day fishers about:
  - Legal requirements concerning sea cruises.
  - Operating equipment & reading charts.
  - FAO/ILO/IMO Code of Safety for Fishermen & Vessels.
  - Strengthen surveillance and rescue operations.
- Improve and regularise weather forecasts so that fishers are better aware of them and can regularly receive them.

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Post-tsunami revival of fisheries sector and rehabilitation of fishing communities in Tamil Nadu*

D P Yadav, *Director, Department of Fisheries, Tamil Nadu, India*

The Tamil Nadu Director of Fisheries made a comprehensive presentation on the havoc wrought by the tsunami in Tamil Nadu and the way the Department of Fisheries met the challenges of relief and rehabilitation.

Next to Andaman-Nicobar islands, Tamil Nadu, with its 1 076 km coastline, was the state worst hit by the tsunami. Nearly 420 fishing hamlets in all the 13 coastal districts of the state were affected, about 8 000 persons lost their lives and more than 55 000 homes were destroyed (Figure 1). Fishing and related activities ground to a halt. The initial assessment of damage caused to fishing implements is given in Table 1.

The fishing infrastructure – fishing harbours, jetties and fish landing centers – sustained damage worth Rs 650 million. The bar mouths of rivers were totally closed at many places.

Government relief measures

The Government of Tamil Nadu responded with alacrity to the tragedy, and came up with an action plan. The District administrations immediately mounted search, rescue, evacuation, relief and infrastructure-restoration work. The immediate relief packages provided by the government included:

- Rs. 4 000, 60 kg of rice, a dhoti-saree set, two bedsheets and three litres of kerosene to those whose houses had been damaged. This relief assistance was extended to more than 118 000 families.
- Rs. 2 000, 60 kg of rice, a dhoti-saree set, two bedsheets and three litres of kerosene were distributed to those who had lost their livelihoods. Nearly 176 500 families were covered.
- Temporary shelters for fishers who had lost their homes.
- An ex-gratia payment of Rs.100 000 per deceased person from the Chief Minister's Public Relief Fund.
- A special package for fisheries to repair and replace fishing equipment damaged by the tsunami. Fishers who lost wooden catamarans and nets were fully compensated. As regards FRP boats and vallams: those who suffered partial losses were compensated in full.

Table 2 summarizes relief packages announced by the government to repair and replace fishing crafts and gear.

Long-term measures

To facilitate long-term recovery, the government obtained assistance from the World Bank (US $ 423 million), the ADB (US $ 143.75 million) and IFAD (US $ 30 million). Besides, a UNDP project aims at restoring livelihoods, upgrading infrastructure, and providing policy support.

Figure 1: Map of Tamil Nadu showing the affected coastal areas

Under a rehabilitation phase, the government plans to construct nearly 90 000 permanent houses across the State, at a cost of Rs 150 000 each. The houses will be constructed in a modern environment with access to roads, street lights, drinking water supply, community hall, etc.

In the fisheries sector, four fishing harbours will be reconstructed and modernised. Permanent openings will be provided at four river bar mouths to help fishermen venturing

* *This article is based on a presentation made by Mr D P Yadav in the Workshop on Post-Tsunami Revival of Fisheries Sector and Rehabilitation of Fishing Communities, Mahabalipuram, 6-7 February 2006.*

Table 1: Initial assessment of damage to fisheries sector in Tamil Nadu, India

Districts	Catamarans		Vallams		Mechanised fishing boats		Nets (metric tonnes)	Engines
	Partly damaged	Fully damaged	Partly damaged	Fully damaged	Partly damaged	Fully damaged		
Chennai	1 300	1 085	4	13	520	570	116.9	313
Kancheepuram	145	2 622	0	135	0	0	73.53	0
Thiruvallur	0	2 880	0	19	0	8	88.00	0
Villupuram	0	3 248	0	27	0	29	504.35	0
Cuddalore	565	3 700	78	668	361	364	548.31	580
Thiruvarur	7	0	12	0	0	0	6.54	3
Thanjavur	47	0	232	0	127	127	52.10	17
Nagapattinam	341	6 582	239	4 405	353	983	576.85	341
Pudukottai	192	89	402	188	59	59	35.32	19
Ramanatha Puram	0	0	260	2	9	10	0.31	0
Thoothukudi	666	3	698	1	0	0	77.85	63
Tirunelveli	620	767	196	254	0	0	50.36	134
Kanniyakumari	264	10 407	857	2 428	346	505	69.65	90
Total	**4 147**	**31383**	**2 978**	**8 140**	**1 775**	**2 655**	**2 200.07**	**1 560**

out to sea. Fishing harbours and jetties will be repaired, river channels will be dredged. A sum of Rs. 50 million has been provided for a communication network for fishermen venturing out to sea from Tamil Nadu. A sum of Rs. 650 million has been provided for restoring and upgrading the fishery infrastructure.

The government has undertaken to restore the Cuddalore and Nagapattinam sea ports. Mangrove forests and sand dunes serve as natural barriers against natural disasters. Shelterbelt plantations are therefore planned in all the 13 coastal districts of Tamil Nadu.

The government has drawn up a comprehensive plan to develop coastal areas with such initiatives as strengthening connectivity in coastal areas, constructing link roads and bridges, increasing disaster preparedness and human resource development through training.

Role of NGOs and the private sector.

An outpouring of relief from everywhere led to problems of organisation and co-ordination.

A fishing port in Tamil Nadu - Back to work

NGO co-ordination centres were therefore set up in all the affected districts. The outcome was a great partnership between NGOs, corporates and the Government.

NGOs and corporates constructed some 18 000 temporary shelters and over 32 000 permanent shelters. They donated a substantial number of FRP fishing crafts, engines and nets to fishermen. Some 4 000 FRP crafts were supplied to fishermen in Tamil Nadu.

Many corporates have set up desalination plants to provide drinking water to the affected communities. A few corporates and NGOs have come forward to construct fish markets and fish auction halls. Another initiative of great significance is the setting up of village knowledge centres in tsunami-affected areas.

Policy interventions to restore the livelihoods of fisher communities.

1. Advance warning systems to be developed and established by the Central Government.
2. Tamil Nadu government to provide fishers with a communication network. It will enable them to send out distress calls, and hear advance weather warnings.
3. Policy decision: no house will be reconstructed within 200 metres of the High Tide Line (HTL) in the Coastal Regulation Zone (CRZ). New houses will be located beyond 200 meters of the HTL. Families will get insurance coverage for 10 years.
4. Shelterbelt plantations across the coast of Tamil Nadu to be set up to protect coastal communities from future natural calamities.
5. The government will encourage conversion of all traditional wooden catamarans into FRP catamarans through a 50 percent subsidy subject to a maximum of Rs.75 000. Low-interest bank loans will be available for the remainder.
6. Better roads and connecting bridges will improve connectivity with coastal areas.
7. A major impetus has been given for the development and modernisation of the fishery infrastructure in Tamil Nadu.
8. Coastal communities will be trained in alternative livelihood options.
9. The World Bank has proposed to establish a fund of US $ 2.5 million to study policy issues relating to fisheries in Tamil Nadu and Pondicherry.
10. Diversification of the coastal economy. As a first step, a sum of approximately Rs. 280 million has been received under a centrally sponsored scheme to promote mariculture activities – such as the culture of finfish, mussel and oyster, seaweeds, ornamental fish, crab and lobster fattening. Fisherfolk will be trained in post-harvest operations and in value addition.

Table 2: Relief package for repair/ replacement of fishing craft, gear and equipment

Details	Partly damaged craft	Fully damaged
Catamarans Wooden / FRP	Rs. 10 000 or the assessed damage value, which ever is lower.	Rs. 32 000/- (inclusive of Net)
Vallam Wooden / FRP	Rs. 15 000 or the assessed damage value, which ever is lower.	Rs. 75 000/- as subsidy and Rs. 75 000 as loan (inclusive of engine & net)
Mechanised Boat	60% of the damage value as subsidy subject to a maximum of Rs. 300 000 and remaining 40% of the damaged value as loan.	35% of the current replacement value of the craft as subsidy subject to maximum of Rs. 500 000 and the remaining 65% of the replacement value as bank loan.
Engines	Repair / Replacement Rs. 5 000/-	
Nets	For catamarans – Rs. 10 000/- For vallams – Rs. 20 000/-	

Key Issues to be Addressed.

The Tamil Nadu government proposes to address some key issues through the following implementations.

1. **Initiate co-management of coastal resources.**
2. **Enhance the capacity of the Department of Fisheries.** In particular, the regulatory role of the Department of Fisheries must be improved. Currently, almost 90 percent of the Department's effort goes into welfare. Development must become the pre-eminent role. This requires substantial investment in machinery, equipment and manpower, and a new emphasis on human resource development.
3. **Diversification of coastal economy** by promoting budget tourism, eco-tourism, watersports, leisure tourism and industrialisation. Culture fishery must be stimulated. Private initiatives are needed to develop cold chains and value addition centres in coastal areas.
4. **Development of domestic fisheries market**. This includes development of on-line auctioning of fish, and access of fishing hamlets to market intelligence so that they market fish profitably.

Said Mr Yadav: "We have gone far in the journey to a better future, but there's still a long way to go."

CONSRN meets to review the rehabilitation of fisheries sector in tsunami-affected countries in Asia

The FAO Regional Office for Asia and the Pacific (RAP) in collaboration with the Consortium to Restore Shattered Livelihoods in Tsunami-Devastated Nations (CONSRN) organised a two-day Regional Workshop in Bangkok, Thailand from 30 to 31 March 2006 to re-assess needs and help coordinate the long-term rehabilitation that is now needed in the affected countries. The partners of CONSRN are APFIC, BOBP-IGO, FAO, NACA, SEAFDEC and WorldFish Centre.

CONSRN had first met earlier (28 February – 01 March 2005) and finalised the Regional Strategic Framework (RSF) for assisting the tsunami-affected countries (*Bay of Bengal News*, September 2005, pp. 8-10).

The goals and objectives of this second Workshop were to review the progress against the regional strategy, review and discuss national strategies and plan how CONSRN/ donors can further assist the affected countries.

Forty participants representing the seven tsunami –affected countries (India, Indonesia, Maldives, Malaysia, Myanmar, Sri Lanka, Thailand), representatives of donor agencies, Inter-Governmental Agency/ Association, NGOs, CONSRN partners, FAO Chief Technical Officers and Consultants, and FAO technical staff attended the two-day Workshop. Dr Y S Yadava, Director, and Dr S S Tabrez Nasar, Senior Programme Officer, represented BOBP-IGO in the Workshop.

Presiding over the opening session of the Workshop, Dr He Changchui, FAO Assistant Director-General and Regional Representative for Asia and the Pacific said "Turning crisis into opportunities, the 2004 tsunami has raised awareness of and mobilized world solidarity for poverty in coastal areas – a topic previously not high on the international agenda". "In restoring the livelihoods of coastal communities, we must ensure sustainable development of the fisheries and aquaculture sectors and sound management of the natural resource base such as land, coral reefs, mangrove forests and associated fisheries".

Representatives of the seven tsunami–affected countries made detailed presentations on the status of the relief and rehabilitation work carried out in their countries. The relief work was almost over in most of the tsunami-affected countries and the focus was now on rehabilitation. These presentations included detailed assessments of damage to the fisheries sector and its impact on the communities and the national economies, rehabilitation strategies and the achievements so far, fund mobilization from donors and internal sources, gaps and constraints, the challenges ahead and the long-term strategies to build back better. The representatives also outlined the mechanisms set up for implementing long-term rehabilitation programmes in their countries, which included constitution of high-level Ministerial Committees, Core Groups and Task Forces.

The Workshop expressed concern on things that went wrong in the process of rehabilitation such as excess quantity of boats and fishing gear supplied by governments and donors, poor quality of boats in many areas, perceived inequities in distribution of fishery and aquaculture inputs and

Participants at the CONSRN Workshop

lack of consideration of other important aspects such as post-harvest and markets. Many boats were not sea-worthy, and this raised the issue of safety of fishermen at sea. Concern was also expressed on the slow process of rehabilitation in some countries and the lack of evaluation of the asset distribution done so far. The participants felt the need to shift from simple asset replacement to programmes that serve the needs of the whole community with focus on vulnerable groups such as women and the elderly.

The Workshop discussed critical outstanding issues and possible solutions against the RSF agreed to by CONSRN consortium partners and governments from affected countries. The RSF included improving policy and institutions, providing appropriate physical assets, restoring the environment while ensuring equitable access, providing appropriate financial support, improving capacity in support of community livelihoods, and responsible coastal resource management, and the rebuilding of social assets.

The Workshop participants, divided into three working groups, brainstormed the outstanding issues under the six strategic elements of the RSF and each country presented the top five issues in the plenary session. These issues broadly included development of infrastructure facilities with focus on post-harvest collection and supply chain, improvements in the database and sharing of information, formulation and implementation of management plans, capacity building, establishment of early warning systems, scientific studies on post-tsunami environmental changes, mobilization of funds for ensuring long-term rehabilitation and better coordination between agencies engaged in the rehabilitation works.

The primary output of the Workshop will be a report which will include a review of progress towards achieving the goals set out in the RSF, a summary of country strategies and recommendations for future work for CONSRN partners.

CONSRN and post-tsunami rehabilitation activities

CONSRN members have been actively assisting the governments and the fisher-communities of tsunami-affected countries in the rehabilitation process. A large number of interventions have been undertaken, many of them successfully completed. Here's a sampling of the activities of CONSRN members:

BOBP-IGO **www.bobpigo.org**

Organised a Stakeholder Consultation in June 2005 to discuss the rehabilitation programmes for fisher communities in Tamil Nadu and Pondicherry, India.

Conducted a detailed damage and needs assessment of tsunami-affected fisher-communities in Tamil Nadu, India.

Organised the Third International Conference on Fishing Industry Safety and Health (IFISH 3) in association with FAO and NIOSH, USA, and a Regional Workshop to discuss the Post-tsunami Revival of Fisheries Sector and Rehabilitation of Fishing Communities.

FAO **www.fao.org**

Assisting governments efforts to re-establish sustainable fisheries activities, rehabilitate affected / damaged areas and restore fisheries-based livelihoods.

Helping fishing communities to resume their livelihoods through distribution of fishing gear and boat engines. Assisting in construction of boats and development of suitable designs to meet local needs.

Providing technical experts to help the tsunami-affected countries in rebuilding their fisheries and aquaculture sectors.

NACA **www.enaca.org**

Participated in technical assessments of the damage to the fisheries and aquaculture sectors in both Thailand and Indonesia.

Established a *Special Program in Response to Impacts of the Tsunami* (SPIRIT) as a vehicle to focus the Network's contribution to the recovery. The first SPIRIT activities have got underway with initiation of field projects in several island communities in southern Thailand and in Aceh, Indonesia.

Awarded a 2-year contract by ADB to manage a project aimed at rehabilitating the aquaculture and fisheries sector of Aceh.

Assisting the FAO Emergency Coordination Unit in Colombo to organise and implement livelihoods analysis activities with communities in the tsunami affected districts of Hambantota, Ampara and Batticaloa.

SEAFDEC **www.seafdec.org**

Conducted a National Workshop on Tsunami Rehabilitation in Phuket in February 2005 in collaboration with CHARM.

Conducted an Informal Regional Consultation on SEAFDEC Support to Fisheries Relief Program for the Tsunami -Affected Countries of ASEAN in April 2005. Formulated the ASEAN-SEAFDEC Strategies on Rehabilitation of Fisheries of Coastal Community for the Tsunami Affected Areas.

Worldfish Center **www.worldfishcenter.org**

Introduced and developed models for GO-NGO cooperation in fisheries and aquaculture.

Conducted studies on coral reefs, which included **c**ollation of assessment data; guidelines for monitoring impact assessment in Myanmar and Langkawi.

Developed two series of policy briefs in association with CONSRN to assist rehabilitation efforts.

Fisheries Cooperative Societies of Sri Lanka discuss fisheries business and resource management

The International Cooperative Fisheries Organization (ICFO) of the International Cooperative Alliance (ICA) and the Sri Lanka National Federation of Fishing Cooperative Societies Ltd. organised a four-day (20 – 23 March 2006) seminar on "Development of Fisheries Cooperative Societies in Sri Lanka in relation to Fisheries Business and Resources Management". The seminar was held in Negombo, Sri Lanka.

Eighty-seven delegates took part. They represented 40 fisheries cooperative societies; the Ministry of Fisheries and Aquatic Resources and the Department of Cooperative Development, Government of Sri Lanka; and fisheries experts from Sri Lanka and abroad. Dr Y S Yadava, Director, BOBP-IGO participated as a resource person.

Mr Felix Perera, Minister of Fisheries and Aquatic Resources, Sri Lanka, in his inaugural address said that the fisheries sector contributes immensely to the Sri Lankan economy. It is the main source of income of about 200 000 people living in 2 637 fishing villages in the

International Cooperative Alliance

Founded in 1895, the International Cooperative Alliance (ICA) has 222 members representing national and international cooperative organisations in all sectors of activity including agriculture, banking, fisheries, health, housing, industry, insurance, tourism and consumer cooperatives. These represent approximately 800 million individuals worldwide. ICA's activities focus on promoting and defending the cooperative identity, raising awareness about cooperatives, ensuring that the right policy environment exists to enable cooperatives to grow and prosper, providing its members with key information, best practices and contacts and providing technical assistance to cooperatives through development programmes. The ICA head office is located in Geneva, Switzerland, with four regional offices at Nairobi, Kenya (for Africa); San Jose, Costa Rica (for the Americas); New Delhi, India (for Asia and the Pacific) and Brussels, Belgium (for Europe). For more details visit **www.ica.coop** or email **ica@ica.coop**

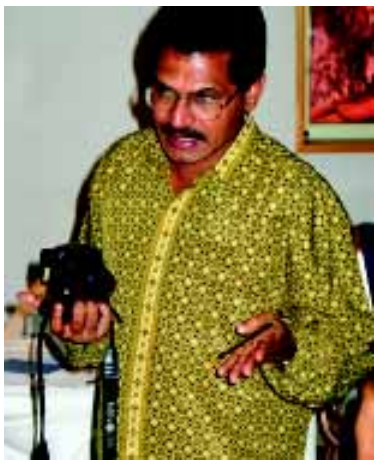
International Co-operative Fisheries Organisation (ICFO)

The ICFO is a specialised organisation of the ICA. It was originally founded in 1966, as a sub-committee of the ICA's Agricultural Committee. It became an independent body in 1976. Today, ICFO has 27 member organisations from 23 countries. ICFO objectives include creation of new co-operative fisheries organisations; promotion of co-operative training and education, including the production of educational material; exchange of technical information movements on a global basis; and promotion of trade. The headquarters of ICFO are located in Tokyo, Japan. For more details visit **www.ica.coop/icfo** or email **kokusai-sato@r6.dion.ne.jp**

country. Another 60 000 people derive their livelihoods from fisheries related industries. Mr Perera said that his Ministry together with the Ministry of Cooperatives has decided to re-organise the fisheries cooperatives in Sri Lanka. Other speakers in the inaugural session included Mr Jude Tissera, President of Sri Lanka National Federation of Fisheries Cooperative Societies; Mr Masaaki Sato, Secretary, ICFO; Mr Hideo Ishida, Senior Official for International Cooperation Division, International Affairs Department, Ministry of Agriculture, Forestry and Fisheries, Government of Japan; and Mr Yasuhiro Watanabe, Second Secretary (Economic Cooperation), Embassy of Japan in Sri Lanka.

The seminar included presentations by 15 experts and group discussions on topics such as coastal environment and fisheries resources management, institutional strengthening, marketing, gender participation, business planning and entrepreneurship development and post-harvest technology. The groups agreed on important recommendations, such as community participation in decision-making processes on resource management; strengthening mechanisms for effective communication between the community and the institutions; modernisation of fish landing centres to reduce post-harvest losses; development of business and business processes etc. Participants visited the Negombo Multi-Purpose Cooperative Society, and the Negombo Fishing Harbour and did boat-rides to see fishing activities in the Negombo lagoon.

Mr H L Tissera, Commissioner of Cooperative Development & Registrar of Cooperative Societies, Sri Lanka, presided over the concluding session. Mr Sato thanked the participants and said the recommendations adopted by the seminar were most useful.



Top: Mr Masaaki Sato (left) and Mr Shanta Bhandara (right)
Below: Group discussion in progress

BOBP-IGO Regional Workshop to discuss setting up of monitoring, control and surveillance programmes in the member-countries

The contribution of marine fisheries to the national economies of the BOBP-IGO member-countries is significant. Large numbers of small-scale and artisanal fishers are engaged in the sector. For many coastal communities, fishing is the chief source of livelihood. However, with the rapid increase in effort and an open access regime, fishing in coastal areas has become difficult with low catches and fishing rights conflicts. A large proportion of marine fish stocks are fully exploited, over-exploited, depleted or in need of recovery.

The BOBP-IGO member-countries have a strong commitment towards implementation of the Code of Conduct for Responsible Fisheries. The countries have also recognised that reducing fish stocks to biologically and ecologically harmful levels will result in loss of potential benefits as food, income, or employment, both immediate and in the long-term.

To address the above issues, a three-day Regional Workshop on Monitoring, Control and Surveillance (MCS) is proposed to be held in Bangladesh (Chittagong/ Cox's Bazar) during early June 2006. The objective of the Regional Workshop is to develop knowledge to establish an effective and implementable monitoring, control and surveillance regime for management and conservation of the marine fisheries resources in the member-countries. The Workshop participants will include representatives of the Ministries/ Departments of Fisheries, Transport (Mercantile Marine Wings), Coast Guard, Master Fishermen and Experts/ Resource persons from within and outside the region.

The saga of India's salt workers*

The BOBP-IGO recently completed a one-year study of India's salt workers. The study was commissioned by the Salt Commissioner's Office, Government of India and the results were presented at a National Workshop held in Ahmedabad on 17 February 2006. This article provides glimpses into the study.

Salt sustains all life on earth – that of humans, animals, plants. Centuries ago, Roman soldiers were paid their salary in salt. And ancient Greeks used to buy slaves with salt to sustain their sybaritic lifestyle.

Salt has some 14 000 uses in industry. Salt was the unlikely weapon used by Mahatma Gandhi to galvanise India's freedom struggle.

Despite this impressive history and its tremendous everyday utility, "common salt" is usually taken for granted. And salt workers – those who extract this substance from the seas, lakes or the earth – are hardly the heroes of history or mythology, ballad or legend. If anything, they are unsung beasts of burden.

Not many know that salt works begin where civilization ends; that salt pans lie in coastal and desert areas under a pitiless scorching sun; that some 150 000 salt workers in India and their families (perhaps half a million people in all) live for eight months a year in this harsh environment that's often devoid of basic amenities such as drinking water, schools, hospitals or markets; that they do the toughest of manual jobs, risking blindness, blood pressure, skin lesions, knee injury, back pain and exhaustion, and epidemics such as malaria; that most salt worker children are school drop-outs, and are vulnerable to chronic cough and tuberculosis; that despite such living conditions, salt workers are paid low wages, and suffer vile exploitation at the hands of the many intermediaries in the salt business, including money-lenders. Little wonder that they seek to drown their sorrows in alcohol or blow them away with smoke – further aggravating their problems.

Perhaps the cruel landscape of the Little Rann of Kutch in Gujarat best exemplifies the plight of India's salt workers. This area has a lot of underground saline water. Extracting salt from it is a business opportunity tapped by some 1 500 small and large salt pans, mainly in Surendranagar and Patan districts. Some 15 000 families – merchants, *agarias* (salt workers-cum-entrepreneurs) labourers – farm salt here during the September-March season. Many of them live here for eight months, setting up small grass-roofed shacks. Little children grow up playing in salty water under the blazing sun, sometimes helping out their parents in the salt pans with sundry jobs.

The sea and the subsoil brine are the main sources of salt in India. Solar evaporation of brine (from either source) is the main technology for salt production; vacuum evaporation is the mechanisation method used by the industrialised west and by large companies in India. Subsoil brine is tapped mainly in the Rann of Kutch in Gujarat and in parts of Rajasthan. Rocks (found in Himachal Pradesh) and lakes (such as the Sambar lake near Jaipur, Rajasthan) are other sources of salt.

The salt workers of the Little Rann of Kutch make salt by digging wells and evaporation ponds, and

Women in the salt industry bear a heavy burden

* *This article has been condensed from the BOBP-IGO report on 'Socio-Economic Status of Workers in the Salt Industry' by Mr S R Madhu.*

transferring subsoil brine from the wells to the ponds. This translates into a series of chores that have basically remained unchanged for years. Selection of sites; well-digging; preparation of the land nearby for a series of evaporation ponds; construction of ponds by bunding the land, and setting up channels for movement of brine; hardening and evening out earth on the ponds by trampling it repeatedly with bare feet; use of diesel pumps to flood the evaporation ponds with brine from the wells; use of heavy wooden rakes on the salt bed to obtain large-grain crystals of salt.

These crystals are heaped up in pans, loaded into trucks and transported out. Collection, storage and transport of salt is a highly labour-intensive task. The entire cycle – from well-digging to salt harvesting – takes three or four months.

For marine salt production, sea water is admitted at high tide by sluice gates through creeks or man-made canals to low-level reservoirs or small creeks. The production process is similar to that of inland salt. But salt collection from marine pans is even more tedious than from inland pans. Salt layers are broken up with metal hoes and shoves. Disintegrated salt is collected in small heaps, washed of impurities and loaded into trucks.

Despite their back-breaking work, salt workers at many places lack access to protective gear such as eye goggles or gum boots. Amenities for first aid and for rest and recreation are inadequate, at places non-existent.

Following a spate of reports and complaints on the plight of salt workers, especially in the Rann of Kutch, the Salt Commissioner's Office decided to organise an in-depth study. The BOBP-IGO was assigned the responsibility, in view of the many studies it has carried out on similarly under-privileged fisherfolk communities in countries around the Bay of Bengal.

The BOBP-IGO, conducted a socio-economic survey of salt workers in the major salt-producing states (Rajasthan, Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal) from September 2004 to August 2005. More than a thousand salt workers from the seven states filled up a structured questionnaire; a detailed interaction was carried out with a sampling of salt workers in these states, using the tool of PRA (participatory rural appraisal). Discussions were held with ministries, salt associations and NGOs.

A report and a video film have been prepared on the basis of the study and its conclusions. The report contains useful statistical information. The video film that accompanies the report shows some lively interviews with salt workers.

A few basic facts: Some 120 countries produce salt today. Total salt production is about 210 million tonnes. The USA is the top producer; China ranks second; India, with 17 million tonnes, is third. The salt industry is governed by the Salt Cess Act of 1953, which is implemented through the Salt Commissioner's Office, headquartered in Jaipur. Gujarat accounts for about 70 percent of India's salt production, followed by Tamil Nadu with 14 percent and Rajasthan with 11 percent (Figure 1).

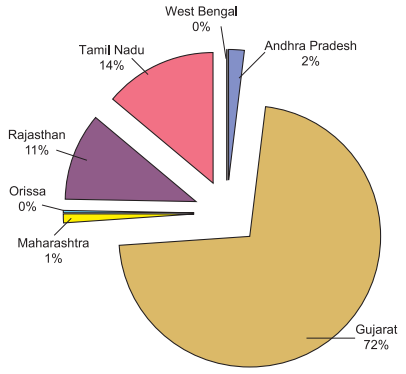


Figure 1: State-wise contribution in salt production in India (2004)

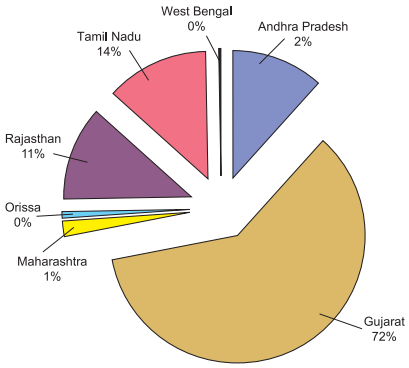


Figure 2: State-wise average daily employment (2004)

Historically speaking, India's salt industry is many centuries old. Its growth was hobbled by the British who imposed heavy taxes on it, forcing import of salt from Britain. It's after independence that domestic salt production was encouraged once more. The industry was de-licensed in 1996. Today, some 2.25 million tonnes of salt is exported annually.

Drawing sub-soil brine in Santhalpur

Some 10 347 units in India produce salt. About half a million acres of land have been allocated to salt production, of which 300 000 have been developed. The 10 347 units have been classified into four categories ranging from more than a hundred acres (Category 1) to "unrecognised units" of less than 10 acres (Category IV).

India's salt industry is labour-intensive. It engages some 150 000 workers on an average per day. Gujarat provides the maximum daily employment (Figure 2). Most of them (except a few who are employed by large companies) operate on a no-work-no-pay contract for eight months a year. Several thousands depend indirectly on the salt industry for their income.

There are three kinds of salt workers in India, depending on the type of location and the pattern of entrepreneurship. The worker may be hired by a land leaseholder who owns a salt pan, or by a manager or a labour contractor on behalf of the leaseholder or sub-leased out to the salt worker with a buy-back system.

Salt workers in small salt pans are the worst sufferers. Muthumani of Rajapandinagar village near Tuticorin breaks down as she describes the plight of her 45-year-old husband. He is paralysed and moves about in a wheelchair, because of his work in salt pans. "I have spent a lot of money on his treatment that I can ill-afford, but he has not recovered. We have six daughters. What is to happen to us?"

Says an ***Agaria*** of Patan district in the Rann of Kutch: "Life is very tough, though I was born here. There's no provisions market close by. Essentials for day-to-day living are hardly available. Take drinking water. We have to buy it from a tanker, though I can hardly afford

Trampling the salt pan

it. Medical facilities, even for first aid, are poor. If we fall ill or get hurt, there's no transport even to take us to the hospital, which is 25 km away. I would like to educate my children, but there's no school here. We can't leave them alone back home, we bring them along to the Rann, they grow up here playing and helping us out in the desert."

Salt workers in the organised sector are relatively better off. Mr Bharat C Rawal, Deputy General Manager of Solaris, Jamnagar, says "We provide all basic amenities to our workers – such as drinking water, education, health. A teacher lives here. There's a dispensary. Major ailments like TB and night blindness are treated. In the field, we provide workers with eye goggles and gum boots. We take particular care about safety. Electricity is available round the clock. There's a rest shed, a crèche to take care of little children. We provide decent wages. The benefit of provident fund is available even to a person who has worked for just one day. There are insurance schemes."

Mr Rawal suggested that the government could use some of the substantial revenue from big salt producers to help small-scale producers and workers, such as those in the Little Rann of Kutch.

Women workers loading salt in Tuticorin

Salt Commissioner
Mr S Sundaresan said in an interview that the industry has made tremendous progress since independence. The importer of the British era is today an exporter. “Workers have problems because salt manufacturing is confined to remote, backward, drought-prone areas. The working environment here is harsh. Further, salt manufacturing is a seasonal activity. Labour is mainly on a contract basis.” On the other hand, the salt industry provided succour to thousands who had no other job option.

He said the Central Government has under the Tenth Plan introduced the Namak Mazdoor Awas Yojana, for the construction of 5 000 houses for salt workers. Pilot plants were being planned through Bharat Heavy Electricals to supply potable drinking water, using the reverse osmosis process. Next year, five reverse osmosis plants would be set up in each salt producing state. Mr Sundaresan agrees that “more welfare schemes are needed for salt workers”.

A major problem of the salt industry is that of timely transport of harvested salt from Gujarat or Tamil Nadu, the main producing states, to other areas. Tractors and trucks move salt over short distances, Railway wagons over long distances. During the peak salt season, the Railways are unable to provide enough rakes. The freight charges are very high, small producers say. This affects their revenues, and indirectly impacts on the salt workers as well.

Loading of salt in Hindustan Salt Works, Sambhar, Rajasthan

The BOBP-IGO study team has made a number of recommendations concerning salt workers (box below). Implementing most of these recommendations would be the best way of recognising and rewarding salt workers for their contribution to the Indian economy.

Recommendations of BOBP-IGO on salt workers:

- Create a data base on salt workers. Undertake a full census. Register all salt workers.
- Guarantee employment, fix minimum wages.
- Improve workplace amenities, such as access to potable drinking water, mobile clinics, protective gear, sanitation, rest sheds. Strengthen awareness on family planning. Recruit health workers from the salt workers’ community.
- Set up a group insurance scheme. Improve and widen credit access.
- Set up child crèches and schools. Mobilise NGOs for the purpose.
- Modernise the industry without marginalizing small-scale salt units. Standardise production techniques. Improve power supply. Set up salt parks in select locations.
- Strengthen infrastructure for storage and transport of salt, with jetties, and efficient rail rakes.

Bay of Bengal News is a quarterly publication of the Bay of Bengal Programme Inter-Governmental Organisation(BOBP-IGO).The BOBP-IGO is a regional fisheries body, which presently covers four countries around the Bay of Bengal – Bangladesh, India, Maldives and Sri Lanka. The BOBP-IGO plays a catalytic and consultative role in developing coastal fisheries management in the Bay of Bengal to help improve the conditions of small-scale fisherfolk in the member-countries.

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