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After the Tsunami

Hoping for a Better Future

Fisheries and fisherfolk communities of India, Sri Lanka and the Maldives devastated by the December 2004 tsunami provide policy-makers with a massive challenge of rehabilitation – also with the opportunity to help create a brave and bright new world of fisheries. Has this opportunity been seized?

After the Tsunami

Hoping for a better future

The 26 December 2004 tsunami was an unprecedented global phenomenon that lasted for a few minutes but left a trail of destruction that would take years to restore the shattered lives and battered environment.

Fisherfolk communities in India, Sri Lanka, Maldives and Indonesia bore the brunt of the tsunami disaster. Beaches became graveyards. Boats and cars, even a train in Sri Lanka, were lifted and tossed aside like matchsticks. Thousands lost their livelihoods. The Mother Sea, their lifelong provider, had turned destroyer. Fishers who survived were physically, financially and emotionally battered, and disoriented.

The face of the coastline of Southeast Asia was transformed forever. Indonesia and Sri Lanka suffered greater loss of life, but the area enveloped by the tsunami was the highest in India, because of its long coastline and the chain of Andaman and Nicobar Islands. There was a definite impact on flora and fauna; its magnitude will take time to determine.

Although the natural disasters have tormented the coastal communities from time to time, these have never been adequately factored into the planning process. The result: loss of thousands of lives and millions of dollars worth property. The larger approach has been that these events are transient in nature and, therefore, can be addressed as and when they occur. There is an urgent need for an emphatic shift in the strategy for disaster management. Such a strategy should include prevention, mitigation, preparedness and relief as essential elements to cope with such events.

Immediate succour for fisherfolk communities was by and large efficient in India. There may have been exceptions: relief took longer to reach remote areas like the Andamans. And the relief was at times skewed – a few areas were inundated with aid, others got far less. But given the scale of devastation and the suddenness of it all, relief effort was creditable. Sri Lanka was perhaps initially overcome by shock; but the immense aid that flowed in from everywhere gradually trickled down.

The relief work is over in most of the countries affected by the killer waves. The rehabilitation phase has begun throwing more challenges for both the government and the affected communities. It's the long-term issues that matter now – the quality of life of fisher communities, restoration of their homes, their livelihoods, their future and capacity to cope with such events, and the state of resources. Has the opportunity for building a brave new world been seized?

Here are some snapshots from many subject areas of tsunami rehabilitation. If the overall picture

is blurred, it reflects the fact that both in development and disaster management, problems are many but solutions few. And not all questions admit of easy answers.

- Considered synonymous with livelihoods, substantial amount of funds went in for boat building. The result - fisherfolk community has been showered with boats. They have come from all directions: Governments, NGOs and donors big and small. A serious over-capacity has resulted. For non-local NGOs, boats were the easiest way to spend money raised. Local NGOs accepted them to build up their standing among fisherfolk communities. Fishers accepted the boats even when they were not needed: this was an asset that could be sold. For all donors, the boat hulls were convenient to advertise their philanthropy. "Boats donated by" signs were bold and big. NGOs have often built FRP boats where kattumarams would have been appropriate, because "you can't paint your names on kattumarams" (to quote Vivekanandan of the South Indian Federation of Fishermen Societies (SIFFS) from ***Outlook*** magazine).

Boat building has been indiscriminate. One FRP boat yard on Chennai's East Coast Road normally built 30 boats a year. But it has already built more than 360 boats after the tsunami. Some of the new boats built by boatyards have turned out to be defective. They have needed repairs early, some have even capsized. Cases of mismatch between boats and engines are many: a classic example of "too many boats for too many fishermen."

A standard vallam has a 6 hp or 8 hp engine. But 10 hp engines are being fitted on post-tsunami vallams, often at the request of fishers. Result: vibrations on boats and breakdowns. Noble motives don't always lead to the right field actions.

The BOBP-IGO and the Tsunami

The BOBP-IGO took up a few activities to help the cause of fisherfolk rehabilitation following the tsunami. Examples: Fish marketing implements for fisherwomen of Orur and Olcott kuppam near Besant Nagar (pages 11-12). The regional initiative CONSRN, in which BOBP-IGO is a participant (pages 8-10). A Consultation that gave fishers of Tamil Nadu a forum to voice their needs and their views (pages 5-7). Perhaps the most interesting initiative was the art contests for schoolchildren in Tamil Nadu and Maldives (pages 17-20) which gave evocative expression to the kids' creative energy. A similar contest is to be held in Sri Lanka. Damage and needs assessment studies were conducted in Chennai, Cuddalore, Nagapattinam and Kanniyakumari districts in India. Data collected is being analysed.

An analysis of four hamlets in Nagapattinam (by Mr K Thadeus) showed that while boats were being distributed indiscriminately, hardly any supplementary equipment such as nets and engines were being provided. Such is the over supply of boats that many trawler owners don't have enough crew – the former crew have their own motorized boats and are looking for crew themselves!

- The tsunami may have reduced the mechanized fleet, but the motorized sector has shown a phenomenal rise – a factor for strife on sea and land. The many FRP boats in some areas generate competition for the same fish variety, and a consequent drop in prices.
- One positive development was that some trawler owners accepted money to repair them but went in for vallams instead. Their trawlers were proving uneconomical, and the owners used this opportunity for a painless exit. Likewise, there was a reduction in shrimp-based mechanised operations, and an increase in intermediate craft using a wide range of nets, catching different fish and catering to domestic urban markets —this may help make fishing operations viable.
- Repair and renovation of damaged fisheries infrastructure is critical. But it is mainly fishing harbours that have received attention and help so far. Much

Fishermen weaving nets to resume fishing in Nagapattinam, Tamil Nadu.

needs to be done at the many beaches and fish landing centres used by traditional craft. This may tell on the quality of fish being landed.

- The tsunami instilled in fisherfolk communities a sudden and unaccustomed fear of the sea and its mysteries. They wanted their homes to be relatively far from the shore. But time eased this fear, and the communities now prefer the convenience of living close to the shore, despite the hazards. In fact some of them operate in two homes – the new one given by the government or some other source and the damaged one.
- The tsunami also saw one of the largest humanitarian operations ever. It triggered a global outpouring of money – billions of dollars in cash and kind. In India, some 650 NGOs in 13 coastal districts of Tamil Nadu and Pondicherry are flush with funds. There's squandering, misuse and abuse and little regulation. A Tamil Nadu Government order encouraged a "public-private partnership"; NGOs and corporates were expected to shoulder the bulk of the rehabilitation burden. This concept is excellent in theory, even laudable. But there has been little regulation of NGO activity. Some of the temporary shelters

built for fisherfolk by NGOs have been unsatisfactory. Fishers were scorched this year by summer heat, later battered by rains. Water has invaded the shelters. Some temporary shelters caught fire during Diwali, perhaps because of fireworks. The Nagapattinam economy is booming, with all the cash-rich NGOs and their big spending.

- What of the future? A tsunami rehabilitation project in Tamil Nadu assisted by the World Bank and the ADB holds out strong hope. It will enable restoration and improvement of infrastructure including fishing harbours and landing sites, bar mouth dredging, and communication systems. The project also envisages diversification of the coastal economy, with emphasis on mariculture activities including lobster and crab fattening, and seaweed culture.
- Environmental studies are badly needed. Prof S Ramachandran of Anna University says the tsunami's churning of the ocean floor has affected sedimentation and the capacity of coastal wetlands to support marine life. He particularly mentions an impact on the demersal fishery.
- More inputs should be obtained from the scientific community in the task of rehabilitation, including permanent shelters for fisherfolk.
- Community preparedness to meet disasters like the tsunami has to be built up, through education, extension, research and training.
- Insurance schemes for fishing boats are essential. A motor vehicle can't go on the road without insurance; boats in the sea ought to face a similar imperative. Had such insurance schemes been in force, governments need not have spent millions of rupees on replacing fishermen's boats.
- Access to fisheries needs to be regulated, with caps on the number of boats in a particular area. Regulations are also needed on fishing gear, and these should be enforced.
- Fishers must be encouraged to take up other occupations. This is a gradual process, and requires training in other skills and vocations, and constant awareness-raising. Particular attention should be paid to the education of fisher children, so that they develop and pursue other interests – other than the joyous adventure of leaping into boats and setting out to sea.

The "brave new world" of fishers and fisher communities has yet to materialise, but there is no reason why it should not.

– Y S Yadava

Fisherman mending his net, Sri Lanka.

Photo: Agnar Erlingsson

Coping with the Tsunami

Useful Inputs from Fisherfolk at One-Day Consultation

What should be done to help fisher communities and restore fisheries in Tamil Nadu and Pondicherry after the killer tsunami of December 26, 2004? The subject was discussed in depth at a one-day Consultation held on June 11, 2005 in Chennai. It was organised jointly by the BOBP-IGO, the Tamil Nadu Department of Fisheries and the FAO country office in India.

Seventy-four persons took part: representatives of fisher communities as well as NGOs, leading fisheries officials of Tamil Nadu and Pondicherry, of the BOBP-IGO and the FAO.

Dr S S Tabrez Nasar, Senior Programme Advisor, BOBP-IGO, welcomed the participants on behalf of the organisers. Mr S K Prabakar, Director of Fisheries, made introductory remarks.
Ms G Ramalakshmi, Director of Fisheries, Pondicherry, detailed the tsunami's destruction as well as relief measures launched by the Union Territory Government.

A Project Implementation Agency had been set up as an umbrella body to implement assistance given by the World Bank and to undertake related activities.

Dr Daniel Gustafson, FAO Representative for India and Bhutan, said the tsunami could mark a turning point for fisheries, and lead to new ways of managing the resources.

Mr V A Shegaonkar, Secretary, Department of Fisheries and Animal Husbandry, Tamil Nadu, said the State Government's steps to rehabilitate the fisher community included repair and replacement of fishing crafts and engines; release of ex-gratia payment to the injured and the dead; temporary and permanent shelters; opening of orphanages and deposit of funds in the name of orphan children; pension for all destitutes; mobilisation of medicare; dredging of silted fishing harbour basins; improvements in communication systems, etc. The Government has also negotiated with the World Bank and Asian Development Bank, etc for reconstruction assistance.

Dr Y S Yadava, Director, BOBP-IGO, said the Governments of Tamil Nadu and Pondicherry had done much by way of relief and rehabilitation following the tsunami's devastation, but lacked feedback from communities. This one-day Consultation brought different groups of stakeholders together to share experiences and learn from one another. The Consultation would help improve and advance the formidable tasks of rehabilitation.

Dr Yadava suggested that in the wake of the tsunami, a broad vision for fisheries development and management should be adopted. It would encompass exploitation of fish resources within sustainable limits; hygienic handling of fish at sea and on shore; a modern, efficiently managed onshore infrastructure to ensure high-quality fish standards; a programme of institutional and policy reform that

addressed the vulnerability of fisher communities and made fishing practices sustainable; a strategy to improve the ability to assess institutional capacity at all levels, efficiently deliver development inputs and ensure that recipients utilised them well; and a livelihood approach that ensured that natural systems provided a broad and sustainable range of livelihood strategies.

The fisher community representatives articulated their views with conviction and confidence. They demonstrated an impressive grasp of their problems and a determination to better their lot in co-operation with governments and development agencies. Here is a list of what-should-be-done suggestions by the fisher community, classified by subject area.

***Government Schemes and Programmes*:** Explain and make fishermen better aware of existing government schemes for their welfare. Help fishers to undertake deep-sea fishing, give them the equipment and training for sustainable fishing (equipment would include echo sounders, fish finders, two-way radio sets). Implement the Central Government's subsidy schemes for fishing boats. Provide more money for trawler repair, more diesel on subsidised rates. Increase the subsidy on engine cost. Reduce the taxes on iron (needed for boat construction) and on wood (needed to construct wooden boats). Help them pay their high insurance premiums on boats. Provide life jackets for FRP boats. On the other hand, discontinue loans provided by the National Cooperative Development Corporation, help settle conflicts in fishing grounds resulting from the surfeit of FRP boats provided by NGOs to fishermen.

Infrastructure: Establish mini harbours or fish landing centres on fishing sites, which do not have proper landing and berthing facilities. Repair and renovate damaged harbours and landing centres. Set up link roads to connect harbours and markets, and improve basic facilities, such as clean water, at harbours. Fishermen should be given the opportunity to manage fishing harbours and landing centres. Reduce the congestion at Chinnamuttam fishing harbour (in Tamil Nadu), where some 300 boats now operate, against the designed capacity of 150 boats. Carry out dredging wherever necessary at harbour basins.

Mr S K Prabakar delivering the introductory remarks (top) and participants at the Consultation (bottom).

Institutional Finance: Reduce the heavy burden of taxes on poor fishermen. Implement the Government's Action Plan, particularly the announcement of no sales tax for one year announced by the Chief Minister. Give women's self-help groups and women fish vendors loans to set up processing facilities and do retail marketing.

Post-harvest: Start some innovative schemes for hygienic marketing of fish. Help women fish vendors with transport assistance, so that they can carry the fish to markets (right now, buses are reluctant to let in women with their fish baskets). Improve and strengthen cold chain facilities to reduce post-harvest losses.

Community Development: Ensure that tsunami relief is extended everywhere (it has yet to reach certain places). Provide land and build proper houses for fishermen who lost their dwellings due to the tsunami. (They live right now in temporary shelters that get too hot during the day.) Further, make sure that these houses are not squeezed against one another in congested settlements, but distributed wider. Ensure that new houses are constructed 200 m away from the shore and five feet above the ground level. Implement a literacy programme targeted exclusively at fishers. Provide free education to fisher -children in English-medium schools.

In Kanniyakumari, where literacy levels are high, start a college to take care of higher education needs. Increase the quota for the fisher community in Tamil Nadu's only fisheries college from five seats to ten. Set up special banks for fishermen on the lines of banks for farmers. Provide special finance and bear the responsibility for bringing up children orphaned by the tsunami. Allot fishers quotas for both education and jobs, treating them on par with Scheduled Castes and Tribes. Assist fishermen in accessing and obtaining alternative livelihoods. Make electricity available to them at subsidized rates.

Help the rehabilitation of tsunami-hit fishermen through special counseling efforts. Help the families of fishermen who went missing after the tsunami, and have to wait for seven years before any compensation can be paid to them. Organise pensions for Tamil Nadu fishermen on the lines of pensions that Kerala fishermen enjoy. (It was suggested that fishermen avail of the pension schemes of insurance agencies.)

General Issues: Study the phenomenon of sea erosion, which has worsened after the tsunami. Construct sea walls or groynes in all villages close to the sea. Encourage mangrove plantations to save coastal areas from erosion. Clear river mouths to facilitate movement of boats. Ensure that the Sethusamudram project does not damage fisheries in the area. Bring back boats washed away to the Sri Lankan shores. Stop the sand mining now being done in some low-lying areas of the coast.

At the concluding session of the Consultation, fisheries officials from Tamil Nadu and Pondicherry replied to the queries of fisher groups. Ms Mary Chinna Rani, Deputy Director, Government of Pondicherry, said that so far Rs. 38 crores had been spent to repair 1 200 boats. A Fishery Cooperative Society is being planned, a shore-to-vessel communication tower has been installed and scholarships have been provided for senior school students — @ Rs 200 for boys and Rs 300 for girls. As regards the future, community halls and information centres would be set up, communication equipment, fish finders and echo sounders would be provided at subsidised rates, a cold chain programme would be implemented. Two fish markets with modern facilities would also be set up in Pondicherry.

Mr Mohanasundaram, Joint Director (Fisheries), Nagapattinam, said that more information was required about the after-effects of tsunami on the ecology of the coastal waters and fisheries resources. He said that the statistical database (number of fishing boats, horsepower of engines used in mechanised boats, the effort put in by such boats) should be strengthened. Trawling operations should be gradually stopped. Fishing harbours should be modernised to reduce post-harvest losses in fisheries.

Mr Md. Lingaraja, Joint Director (Fisheries), Tuticorin, suggested that sea ranching should be undertaken to replenish stocks. He suggested activities like cultivation of ornamental fishes to give fishers alternative livelihood options.

Fishers at the meeting felt that the Consultation was very useful and would lead to more effective rehabilitation programmes. They suggested that the beginning made through this Consultation should continue and more such Consultations should be organised.

Participants at the Consultation.

CONSRN: A Consortium for a Cause

The December 2004 tsunami not merely shocked and devastated coastal economies and populations of several countries, it also spurred several co-operation initiatives. One of these is CONSRN, the Consortium to Restore Shattered Livelihoods in Tsunami-Devastated Nations.

Partners of the Consortium are the FAO, through its regional office for Asia and the Pacific in Bangkok; the BOBP-IGO, based in Chennai; NACA, the Network of Aquaculture Centres in Asia-Pacific, based in Bangkok; SEAFDEC, the South East Asian Fisheries Development Centre, based in Bangkok; and the World Fish Centre (WFC), based in Penang, Malaysia. Interested NGOs include the Asian Disaster Preparedness Center (APDC), the Sustainable Development Foundation (SDF), and the International Collective in Support of Fish Workers (ICSF).

CONSRN was conceived on December 31, 2004, and initiated at a meeting on 11 January, 2005. It is a forum for sharing information, assessing needs, developing strategies, coordinating assistance, supporting governments in enabling rehabilitation.

Why a consortium? Won't it merely generate more talk and more reports when what people want is more action? What can a consortium without infrastructure, staff or funds do that governments and large established international and national entities cannot?

The rationale for agencies like CONSRN is that governments and local authorities are often more effective at immediate relief than long-term rehabilitation. Relief calls for instant assessments and instant action, something akin to fire-fighting. But what after the fire has been put out? Rebuilding and rehabilitation require strategising and planning based on a clear vision, long-term principles and sound policies. The opportunity for building a new order that's better than the old must be seized.

CONSRN has a role here, because of the experience and expertise of its member-partners. At a 3-day Workshop in Bangkok (28 February-1 March, 2005), the Consortium formulated a vision for fisheries and aquaculture. It should help alleviate poverty; it should ensure sustainable livelihoods and food security; it should be based on sound regulation and good governance, it should use appropriate technologies; it should enable holistic management; it should put in place a well-integrated supply chain from harvest to consumer.

The Workshop also set out guiding principles toward the vision: Put people first, with a livelihood-focused approach; rehabilitate the whole production and marketing chain; let rehabilitation effort be consistent with international agreements and guidelines.

Specific policy guidelines are to be drawn up for several aspects of post-tsunami fisheries and aquaculture development by various Consortium partners on the basis of their expertise. Examples:

1. **Boats vs livelihoods.** Coastal communities and small-scale fishers have been hit badly by the tsunami. Is providing boats the best way of easing the hardships of these fishers? The World Fish Center has already

Fishermen with their damaged boats in Nagapattinam, India.

drawn up a set of guidelines on addressing livelihoods concerns.

2. **Optimal fishing capacity:** We must ensure a fishing capacity commensurate with the resource; and a balance between artisanal and industrial fisheries. We must understand the dynamics of both the resource and those who tap it. Guidelines will be formulated by the FAO.
3. **Safety at sea:** Much needs to be done in this critical area. For marine fisherfolk, the sea (***kadalamma*** or the Sea Mother in Tamil language) is their provider and saviour, but they must not take it for granted, they must follow the right norms and practices, use the right equipment. The BOBP-IGO will draw up guidelines.
4. **Non-destructive fishing gear:** Gear provided to fisherfolk during relief and rehabilitation ought to be non-destructive, else it will accentuate the problems of everyone who taps the marine resource.
5. **Co-management of resources:** All stakeholders must be involved in policy formulation and decision-making. Management should be based on full participation, the right representation, and the best scientific information available.
6. **Aquaculture and the environment:** Guidelines are needed on how aquaculture can pursue environmentally sound management practices that do not pollute, do not damage habitats or cause irreversible harm.
7. **Sustainable aquaculture technologies:** The aquaculture industry should adopt technologies and farm management practices appropriate for rural populations

From top to bottom: Repair and restoration of fishing boats in Maldives, India and Sri Lanka.

with limited resources. It should support farmer organisations, follow fair trade practices, develop regional and international partnerships, facilitate dialogue and experience-sharing. NACA will develop guidelines on aquaculture development.

8. **Markets and trade for aquaculture practices:** Fish handling practices at sea and infrastructure on shore must ensure high food quality and safety. Practices in post-harvest processing and marketing must ensure food safety, add value and minimise wastage and loss. Policies must be informed by sound understanding of markets and production chains and ensure access to small-scale producers.
9. **Disaster preparedness:** We must reduce the risks coastal communities face from natural disasters. Efficient design and location of infrastructure and protection of the coastal zone environment are two of the issues.
10. **Reduction in livelihood vulnerability of coastal communities:** Guidelines are needed to identify coastal communities (or sections among them) who are most vulnerable, understand their livelihoods, address their key risks and devise coping strategies through social safety nets or empowering mechanisms.
11. **Putting people first:** A favourite buzzword! But how do we ensure that we put people first? Stakeholder consultations to ascertain their problems and viewpoints, respect for their access rights, ensuring adequate labour standards, ensuring access to land, equitable distribution of benefits, assistance that is dictated by need rather than by legal status – these are some of the principles and practices to follow.
12. **Coastal zone management:** Rehabilitation measures should conform strictly to coastal zone management norms. Decisions should be based on scientific merit and people's need. What is in their best interest, and the best national interest, should be the overriding criteria for development.
13. **Alternative livelihoods for fishers:** This has been proposed by many tsunami rehabilitation agencies. But what and where are the alternatives? Experts at national and local levels should study and identify livelihood options for coastal communities, including those that do not depend on natural resources. The support needed from national governments and local institutions should be spelled out.

Six key strategic elements will form the basis for CONSRN activities.

- Improve policies, institutions and processes,
- Provide physical assets,
- Restore the natural environment,
- Provide appropriate financial mechanisms,
- Build human capacity to improve community livelihoods and responsible coastal resource management, and
- Rebuild and enhance the social assets resources and networks in affected fishing and aquaculture communities.

Details are provided in two publications – FAO/RAP publications 2005/05 and 2005/09.

CONSRN's assistance for tsunami rehabilitation has thus been in the realm of ideas, plans and strategies so far. The Consortium needs money to provide more direct and substantive help. Donors, please note!

A BOBP-IGO video film captures the destruction caused by the Tsunami and the on-going reconstruction processes

A 20-minute video film shot by the BOBP-IGO captures the unprecedented destruction to life and property caused by the 26 December 2004 tsunami and the reconstruction processes initiated by the government and non-governmental agencies. The film will be released during December 2005.

Fisherwomen get marketing assistance from BOBP-IGO

Some 40 women fish vendors of two fishing villages near Besant Nagar in south Chennai reeling from the tsunami have received some vital assistance from the BOBP — fish marketing equipment to enable them to resume their livelihood and feed their families. The equipment consists of an ice box, a weighing balance, an aluminium container, and an aluminium bucket.

"Battered by the tsunamis, they are up for the challenge" reported the Indian Express in its 8 February 2005 edition. For women fish vendor of the Besant Nagar fish market who had lost all their equipment during the tsunamis, the new materials provided by the Bay of Bengal Programme were nothing less than a fresh lease of life".

Six hundred families live in the two villages — Orur Kuppam and Orur Olcott Kuppam. Nearly a third of the houses and almost all of the craft and the gear in the villages were destroyed by the tsunami. With fishing craft from the beach nearby unable to go out to sea, the fisherwomen could earn some money only by buying fish from distant markets at Royapuram or Saidapet. The BOBP package, decided on after a team from the Programme visited the villages, facilitated such fish purchase.

Said Anjalai, president of the co-operative society of women fish vendors, the Orur-Olcott Kuppam Meenavar Mahalir Sangam, "We lost our all because of the tsunami. Fishing has stopped at our villages. We have to travel far to buy and market fish. We did'nt have the most

basic implements to buy fish. This equipment was a boon, and very timely."

Jeeva, another fish vendor, said, "It's natural that we approached BOBP for assistance. We have known this project for a long time. We got a fish market from the Corporation at Besant Nagar with their help."

The BOBP has been active in the two villages since the mid-1980s. It carried out fishing boat and gear trials with the fishermen; it coordinated with the Corporation of Madras and the Department of Fisheries on the proposal for a fish market at Besant Nagar near the fishing villages, after the women said that such a market was their dream, what they most wanted.

The market came into being in August 1990, some two years after BOBP engaged a social worker to help the women think through their problems. It encouraged them to meet the Commissioner of the Chennai Corporation to request a fish market, provided a design for the market through a consultant, trained the women in financial management and in the basics of setting up, running and maintaining a co-operative society, and mobilized co-operation from several stakeholders.


Fisherwomen get a helping hand

By Our Staff Reporter

CHENNAI, FEB. 7. Women selling fish at the Besant Nagar fish market were happy for today; they received a set of vessels, a weighing balance and a 50-litre ice box, from the Bay of Bengal Programme (BOBP), an inter-governmental organisation.

M. Anjalai, president, Orur Olcott Kuppam Meenavar Magalir Munnetra Mandram, one of the beneficiaries, said that after the tsunami they did not open the shop and found it difficult to feed the family.

So they approached the BOBP, which provided materials worth Rs. 3,200 to each member of the Mandram.

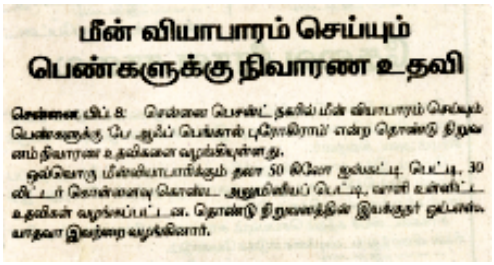
The women plan to visit the fish markets in Chintadripet and Royapuram area to buy fish. Most of their customers preferred the fresh catch and the fishermen in Besant Nagar area had not ventured into the sea after the tsunami, she said.

Kalaiselvi, another member of the Mandram, said: "We want to be on our own and buy fish from the wholesale market. We need some initial help. We approached BOBP because they helped us with a fish market many years ago."

In 1987, BOBP conducted technical trials of its beach landing craft at Orur and Olcott Kuppam. Fishers-folk of the two hamlets took part in the trial and sought the BOBP's advice in solving their problems. A women's group was set up here with women who wanted a fish market of their own, said Yagaraj Sadasivam, Director, BOBP.

T. S. Yadava, Director, Bay of Bengal Programme (right), hands over an aid package to a tsunami-affected fish vendor on Monday. — Photo: K. V. Srinivasan

The market had a difficult birth but was well received by the public – it was a regular and reliable source of fish in a hygienic environment. Some 40 fisherwomen, members of the society, sold fish at the market when it was launched, but the market gradually ran into problems, caused partly by divisions among fisherwomen. That the market still continues is a tribute to the doughty spirit of the women. BOBP-IGO plans to revitalise the market with the support of the Government of Tamil Nadu


மீன் வியாபாரம் செய்யும் பெண்களுக்கு நிவாரண உதவி

Chennai, பிப். 8: சென்னை கொண்ட் நகரில் மீன் வியாபாரம் செய்யும் பெண்களுக்கு பே ஆஃப் பெங்கால் புரோகிராம் என்ற தொண்டு நிறுவனம் நிவாரண உதவிகளை வழங்கியுள்ளது.

ஒவ்வொரு மீன்வியாபாரிக்கும் தலா 50 லிட்டர் ஐஸ்பெட்டி, பெட்டி, 30 கிலோ கொள்ளளவு கொண்ட அளவிடும் தட்டு, எடை உள்ளிட்ட உதவிகள் வழங்கப்பட்டன. தொண்டு நிறுவனத்தின் இயக்குநர் ஒட்டுமொத்த யாதவா இவற்றை வழங்கினார்.

Some 15 women sell fish in the market now. But nearly all the original 40 members have received fish marketing equipment from the BOBP-IGO. "It gave us hope and help at a difficult time," says Krishnaveni, one of the members of the society.

Ex-BOBP Staffer Helps Women Fish Vendors

The women fish vendors of Orur and Olcott Kuppam received some financial help this year from a former staffer of the BOBP- Mr Arne Andreasson, who was Development Adviser with the Programme in Chennai, and is now the Coordinator of the World Bank-funded Fourth Fisheries Project, Bangladesh.

Shocked by the tsunami and its impact on fisheries, Mr Andreasson paid a private two-day visit to Tamil Nadu in March 2005. He visited fishing communities and landing centers in Cuddalore, near the Marina in Chennai and at Royapuram. He also visited the fish market at Besant Nagar and met the women fish vendors there.

Mr Andreasson made a donation of US $ 1,000 to the Orur-Olcott Meenava Mahalir Munnetra Sangam through the Rotary Club of Madras South. The money was handed over on behalf of the club to Anjalai and Krishna Veni, members of the sangam, at its meeting on March 22. The money, like the fish marketing equipment by BOBP-IGO, enabled purchase of fish by the women vendors from whole markets at Chintadripet and Royapuram.

Mr Andreasson wrote an article in a Swedish newspaper on the impact of the tsunami on fisherfolk communities in Tamil Nadu. The article provoked discussion among readers, particularly members of the Swedish Fisheries Union.

BOBP-IGO Technical Advisory Committee Meets in Maldives

The BOBP-IGO held the first meeting of its Technical Advisory Committee (TAC) at the Marine Research Center, Malé, Maldives, on September 4 and 5, 2005. Representatives of the four member countries (Bangladesh, India, Maldives and Sri Lanka) took part. Dr Shiham Adam, Executive Director of the Marine Research Centre (MRC), Government of Maldives chaired the meeting.

The Technical Advisory Committee is the body that discusses and makes recommendations for the BOBP-IGO's work. Those that are approved by the BOBP-IGO's Governing Council become a part of the organisation's work plan.

In his welcome address, Dr Adam complimented the BOBP-IGO on the remarkable quality of its publications, some of which had been prepared in collaboration with the MRC. He said that all the four major programme areas of the BOBP-IGO were very relevant to the Maldives. He cited in particular Maldives's concern about the sustainability of export-oriented reef fishery resources. He hoped that BOBP-IGO would work closely with MRC, which faced limitations in human resources and in institutional mechanisms.

In his inaugural address, the Chief Guest, Mr Abdullah Kamaaludheen, Minister of Agriculture, Fisheries and Marine Resources, remarked that BOBP-IGO had a significant role to play in the area of marine fisheries management.

Summarising the BOBP-IGO's work in 2004-2005, Dr Y S Yadava referred to the IGO's co-operation with CONSRN (see pages 8-10), the one-day Consultation on tsunami rehabilitation with fisher communities of Tamil Nadu and Pondicherry (pages 5-7), a translation of seven Technical Guidelines prepared by the FAO Rome on the Code of Conduct for Responsible Fisheries, a comprehensive post-tsunami survey of Tamil Nadu and Pondicherry, the on-the-spot art contests for school children from tsunami-affected countries, and the preparations for IFISH 3 (page 36). The BOBP's emphasis on Information Services continued – an example was the website developed for IFISH 3 (www.ifish3.org), updating of the BOBP-IGO website, and digitization of the huge photo resource. The TAC appreciated the children's art contests, which represented a unique approach to awareness-building.

Member countries described their proposals and priorities. Dr Md. Khalilur Rahman, representative of Bangladesh, said that constraints impeding the sustainable development of marine fisheries in Bangladesh are pollution, illegal fishing both by nationals and by the foreign fishing fleet, under-exploitation of commercially important species, lack of infrastructure and facilities, lack of trained manpower, and lack of knowledge on stock assessment of commercially important species.

Some of the urgent national priorities for Bangladesh: stock assessment of commercially important species, maintaining the ecological balance, conserving biodiversity, prevention of habitat destruction, mariculture of commercially important species, control and prevention of shrimp diseases, improving research capabilities, developing trained manpower needed to addressed urgently.

The Bangladesh delegate proposed that a networking system should be established among member-countries. Development of a directory of scientists of member countries working on fisheries could be a first step towards coordination and co-operation among scientists of member countries.

The TAC urged the Secretariat to develop a directory of scientists and organisations in member countries. Such a directory could begin with the four member countries. It would help strengthen networking activities.

Participants at the Technical Advisory Committee Meeting.

The TAC felt that the BOBP-IGO should focus on issues under the mandate of the IGO and avoid duplicating the work of other IGOs such as NACA.

Following a presentation by India's representative, Mr K N V Nair, the TAC noted that fisheries management is one of India's priorities. This included a review of the ban on fishing during monsoon months, regulation of fishing effort and access, a ban on destructive fishing gear, identification of fish stocks that need rejuvenation, stock assessment of selected demersal resources. Overexploitation of coastal fisheries and its open-access nature; inadequate mechanisms for monitoring, control and surveillance (MCS); operation of destructive fishing gear; weak linkages between research and development institutions –these were also major issues. As regards welfare measures, rehabilitation of fisherfolk during calamities, alternative vocations when a fishing ban was imposed, and training of fisherwomen in handling crisis like the tsunami were some priority areas.

Dr Adam from the Maldives said that tuna and coastal fisheries (particularly the bait fishery) were the most important in the Maldives. The bait fishery generates a catch of 15 000 -20 000 tonnes per year but is difficult to monitor; the actual catch is possibly higher.

The TAC noted that suggestions from the Maldives included taking the Code of Conduct for Responsible Fisheries to the grassroots level, assistance in implementing the management plan for grouper species, and activities to initiate co-management practices in fisheries.

Mr H S G Fernando, the delegate from Sri Lanka, said that exploitation of offshore and deep-sea fisheries in the Island had crossed sustainable limits. Most coastal resources too have been over-exploited; the stocks of some species are on the decline. Of the other major fishery resources in Sri Lanka, lobsters have been highly exploited, leading to decline in production.

Sri Lanka's national fisheries priorities relate to access to rights and resources, fishing technology improvements, fisheries management, stock assessment and enhancements. The TAC noted the need to improve labour relations and conditions of employment, capacity development in areas such as MCS, and training for fisherwomen. Tsunami rehabilitation was of course a prime concern.

After listening to presentations by country representatives, the Secretariat of BOBP-IGO presented an overview of some of the thrust areas for consideration by the TAC. These included:

- Capacity building for long-term interventions and strategies for safety at sea of artisanal and small-scale fishermen;
- Capacity building for implementation of MCS programmes;
- Joint assessment of fish stocks through collaborative and participatory arrangements among member countries. (Major fisheries institutions of member countries could be tapped for this programme.)
- Developing management plans for important fisheries of member countries.

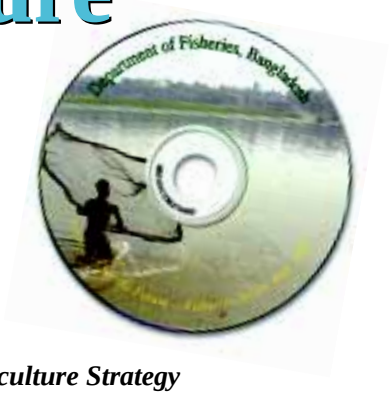
The Secretariat informed the Committee about its approach to Information and Networking: a) Assess and strengthen as necessary the present technical networking capacity in BOBP-IGO member countries; b) Build and expand the capacity of member countries to integrate the use of electronic media into their day-to-day operations; c) Develop networks between and among BOBP-IGO stakeholders at the regional level for sharing knowledge, experiences, and best practices; d) Help coordinate and mobilise appropriate resources from the international community, as well as those available nationally and regionally and e)Support capacity- building required for this.

The TAC also noted the broad components of the programme, which includes maintenance of the website (www.bobpigo.org) and initiation of discussion platforms on subjects of topical concern in the region. The Secretariat will continue to produce easy-to-use manuals, leaflets, brochures, pamphlets, flipcharts, calendars, periodicals, newsletters, videos, posters and books.

- The TAC appreciated the Secretariat's initiative to organise IFISH 3 and the deployment of a FAO/ BOBP-IGO Consultant to member countries to prepare a report on the status of safety measures in the fishing boats and implementation of standards and regulations to safeguard the safety and health of small-scale fishermen.
- The TAC advised the Secretariat to organise the first Regional workshop on Monitoring, Control and Surveillance during the middle of 2006, preferably in conjunction with some other activity to optimise on the costs.
- The TAC agreed to the suggestion of the Secretariat that the translation of CCRF guidelines into the local languages of all member countries should be given priority. The Committee also urged a review on the status of fisherwomen in member countries. The findings of such a review could lead to specific gender-related activities.
- The TAC welcomed the Secretariat's proposal that member countries second suitable professionals to work with the BOBP-IGO Secretariat for a specified time-period.
- The Committee agreed to convene the second meeting of the TAC during mid- 2006 in Dhaka, Bangladesh, subject to the concurrence of the Government of Bangladesh. A regional workshop on MCS would also be held along with this meeting.

Bangladesh Spells Out Strategies for the Future in Fisheries and Aquaculture

The Department of Fisheries, Bangladesh, with assistance from the Fourth Fisheries Project and the co-operation of many stakeholders, has spelled out strategies for the future in various areas of fisheries and aquaculture. **Bay of Bengal News** ***takes a look at these strategies.***



Bangladesh had formulated a National Fisheries Policy in 1998. It spelled out the country's objectives in fisheries: to increase fish production, alleviate poverty, improve the conditions of fishers, provide animal protein, strengthen foreign currency earnings through export, and promote ecology, biodiversity and public health.

How are these objectives to be achieved? A pathway to the objectives has now been clearly laid out by the Department of Fisheries, particularly by its Fourth Fisheries Project. The "pathway" is in the form of a National Fisheries Strategy and several sub-strategies. The strategies outline management approaches to implementing the National Fisheries Policy, taking into account likely changes in the fisheries scenario over the next 10 years.

The National Fisheries Strategy evolved through a series of studies, papers, discussions and meetings represent one of the largest, widest and most significant consultative exercises of its kind ever undertaken in Bangladesh fisheries. The National Fisheries Strategy includes strategies and action plans for eight sub-sectors.

Common to the National Fisheries Strategy and the sub-strategies is a core of central principles and themes – such as decentralization, people's participation, poverty alleviation, gender equity. The National Fisheries Strategy was also guided by the Government's Poverty Reduction Strategy Paper, and by a number of international agreements signed by the government.

Here are summaries of the sub-sector strategies.

Inland Capture Fisheries Strategy

Aim : Sustainable management of inland capture fisheries for fishing communities and users.

Inland fisheries has over the years been replaced as top fish producer by aquaculture, due mainly to decline and degradation of inland resources. The first priority now is improved biological management that will arrest decline in production.

A few key components of the strategy are: Leasing policy for the resource should be based primarily on resource-user access rather than on revenue generation. Access restrictions are needed to ensure management control over the resource and prevent over-fishing. Community planning and management interventions such as sanctuaries, control of fishing effort, habitat restoration or stocking should be encouraged to ensure sustainability.

Community participation is essential for the success of the strategies.

Aquaculture Strategy

Aim: To support the continued development of aquaculture as a key supplier of animal protein by (a) providing a regulatory structure to ensure quality inputs, and (b) by providing services to enhance knowledge to promote production.

The aquaculture sector expanded rapidly from the 1970s; many problems have arisen, perhaps because of uncontrolled expansion. The main problems relate to the quality of inputs, especially fingerlings. What's needed is a regulatory framework to ensure supply of quality inputs; a registration scheme for all hatcheries that produce fingerlings; a certification scheme for hatchery-produced fingerlings; and regulations for other input suppliers, such as feed producers.

Aquaculture Extension Strategy

Aim: An efficient, effective need-based extension service provided to all categories of farmers, to help them increase aquaculture production to an optimum sustainable level.

The Aquaculture Extension Strategy was first drafted in 2002, an Action Plan for its implementation was drawn up a year later. In fact, this was the first strategy to be ready. The key principles recognised for the strategy (collaboration, participation, decentralization, etc.) became key principles also for the other strategies. The Aquaculture Extension Strategy focuses on pond aquaculture, but also covers other forms of culture fisheries.

The new extension service strategy will foster collaboration with other extension providers to ensure maximum coverage by the target audience. It is designed to move extension away from dependence on short-term development projects.

Planning, Monitoring and Evaluation Strategy

Aim: To develop systems in the Department of Fisheries capable of monitoring progress towards the objectives of the National Fisheries Policy, and evaluating activities directed at these objectives.

The objectives of the National Fisheries Policy are many and diverse. A system to monitor progress towards these objectives would be complex, and would require many different types of expertise. The Department of Fisheries should play a leading role in establishing and managing the system. It should develop its own capacity for monitoring and evaluation in several areas of fisheries production and development. The Department should also be able to develop and enforce protocols for fisheries data collection sponsored by external organisations. It should establish networks with other departments and agencies.

To develop its own capacity, the Department may have to set up an integrated Planning, Monitoring and Evaluation wing that will translate findings into improved design of new projects and programmes.

Marine Strategy

Aim: Ensure the sustainable management of marine fisheries by allocating fishing rights to communities and fishing groups, and by providing the regulatory framework for this management.

Industrial fishing boats, mechanisation of traditional boats, more and more people in artisanal and shore-based fishery – all this has dramatically increased in marine fishing effort. Development has been largely uncontrolled, with neither management nor sound knowledge emerging on how the industry is coping. Ownership of the resource has moved out of the hands of fishermen into the hands of wealthy businessmen and traders.

Some of the actions needed: Ensure resource access on a priority basis to poor shore-based fishermen, then to offshore fishermen, then to commercial fishermen. Establish a register of fishermen. Identify and allocate resources to be fished by the poor, formulate management plans, get local institutions to support resource management. Grant access rights to registered fishers to control fishing effort.

Shrimp Strategy

Aim: A shrimp sector recognised internationally for high-quality shrimp. It should be produced using socially responsible and environmentally sustainable production methods.

The shrimp sector has tremendous potential for the national economy and for private sector stakeholders. It needs a regulatory framework, with participation and recognition by all stakeholders. It will bring about standards and regulations fostering sound management of shrimp production. It will deal with all areas of shrimp sector development – production, quality control, marketing and export, environment and social aspects. The regulatory framework will ensure sustainable increases in the supply and value of shrimp, enhance farmer earnings, improve the socio-economic conditions of local communities and increase foreign exchange earnings. It will ensure that shrimp production does not harm the environment.

Quality Control Strategy

Aim : Ensure that all fish and fishery products marketed either for export or domestic consumption satisfy quality requirements cited in HACCP (Hazard Analysis and Critical Control Point) and other protocols – including traceability and social accountability.

The quality control strategy aims at guiding quality control in fisheries over the next 10 to 20 years. The first priority is to ensure that food safety requirements for export are met. The concerns of consumers and importing countries (relating to safety, social equity, the environment) must be met. The product must be traceable from source, to identify any deliberate attempts at contamination.

Human Resources Development Strategy

Aim: To strengthen the human resource capacity of the Department of Fisheries, its partners and primary stakeholders, to ensure that personnel at all levels have the knowledge, skills and techniques to enable them to make productive use of their potential.

The capacity of the Department to plan, organise, implement and monitor staff development is weak, because of the reliance on short-term development projects. Some elements of a human resources strategy to strengthen the DOF: The capacity within the Department of Fisheries, particularly its Training Wing, will be developed to coordinate all aspects of Human Resources Development in fisheries. All training will be coordinated by the Training Wing. A systematic Human Resources Development process will be developed and implemented so that DOF staff, clients and partners are able to meet the sector's challenges.

Two award winning young artists - above and below.

The Tsunami Inspires Child Art

The trauma of the tsunami has inspired some remarkable child art. Some 230 children from 70 schools of coastal Tamil Nadu and Maldives took part in five on-the-spot art contests organised by BOBP-IGO on the theme "Life after the tsunami". This photo essay describes the contests in words and pictures. The best paintings won certificates and cash awards and will also figure in a 2006 BOBP-IGO calendar.

How do children react to a catastrophe like the tsunami? What is its impact on youngsters with artistic sensibilities? How do they view their immediate environment and the world after the tsunami?

To find out, the BOBP-IGO organised on-the-spot art contests in August 2005 for school children in four cities of coastal Tamil Nadu — Chennai, Cuddalore, Nagapattinam and Kanniyakumari – and another in Malé, Maldives during early September 2005. The theme: Life after the tsunami.

Each of the schools (12 in Chennai, nine in Cuddalore, 17 in Nagapattinam, 16 in Kanniyakumari, 15 in Malé) deputed their 3-4 best art students to take part in the contest. Here's some basic who-when-where data about the contests.

Chennai	Contest held on August 20, 2005, at the Chettinad Vidyashram, R A Puram, Chennai 600 028. 43 children from 12 schools took part – 21 children aged 11 to 13, 22 children aged 14-17.
Cuddalore	Contest held on August 27, 2005. 39 children from nine schools took part. 21 children aged 11 to 13, 18 children aged 14 to 17. Contest held at the Government Girls Higher Secondary School, Cuddalore Port.
Nagapattinam	Contest held on August 27, 2005. Sixty children from 17 schools took part. 28 children aged 11 to 13, 32 children aged 14 to 17. Held at the Adarsh Matric Higher Secondary School, Nagapattinam.
Kanniyakumari	Contest held on August 28, 2005. 48 children from 16 schools took part. 25 children aged 11 to 13, 23 children aged 14 to 17. Venue: Government Higher Secondary School, Vadasery.
Malé	Contest held on September 3, 2005, at the Malé English School. 32 Children from 15 schools took part. Three age categories here (12 children aged 11 to 12, 12 children aged 13 to 15, 8 children aged 16 to 17.)

Each on-the-spot art contest took about two hours. BOBP made available to every artist a drawing sheet and either a crayon pencil box (for the smaller age group) or a box of water-colour paintings (for the larger age group). The kids were free to bring their own equipment as well.

When the BOBP-IGO invited select schools to take part in the contest, they responded with alacrity. Parents of Tamil Nadu schools visited the BOBP to collect information about drawing sheets and art materials. Others browsed the BOBP-IGO website and asked about fishery resources.

Right: Snapshots of the young artists and the judges at work.

1 & 2. Maldives
3. Chennai
4. Judges and BOBP-IGO officials in the Maldives
5. Judges in Chennai.
6. Young artists with officials from Maldives and BOBP-IGO.
7. Chennai
8. Cuddalore
9. Kanniyakumari

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The contest had the artists engrossed for 120 minutes – heads down, eyes afire with concentration, painting tools racing away. "A tsunami would not have disturbed me," one of them wisecracked later.

BOBP's artist S Jayaraj vetted the paintings and selected 15 from each center for final scrutiny by a panel of judges. For Tamil Nadu schools, the panel consisted of Dr George Conway (Chief of the Alaska Field Station of the National Institute for Occupational Safety and Health, USA), Principal of Chennai's College of Arts K Swamikannu, and art critic Chitra Mahesh from Chennai.

For the Maldives contest, the three judges were Mr Hussain Afeef (Senior Illustrator, Centre for Continuing Education), Mr Ahmed Naeem (Project Officer Trainee, National Art Gallery, Malé) and artist S Jayaraj.

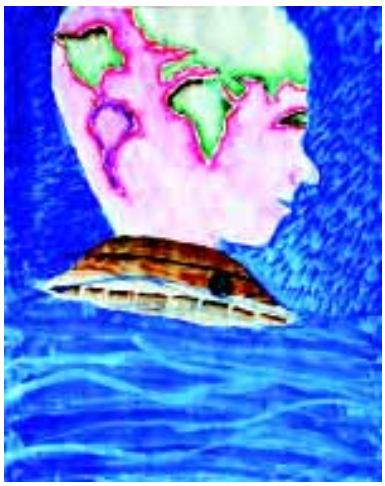
Cash prizes were awarded to winners in all the three categories. Prize-winners also received a printed certificate with a citation on one side and (to their surprise) their painting on the reverse, beautifully laminated.

The paintings

Under the theme "Life after the tsunami," the young artists came up with a slew of subjects, used ideas and symbols from nature, history and literature, and came up with poignant captions. Creativity unleashed!

One painting showed a child looking at the sea through the openings of a broken slate. Caption: "An affected mind is looking through a broken slate at the place where she lost her papa, mama, Barbie doll and school bag." One painting of a mass of corpses says "All it took was a few minutes. But it took all." Another painting depicted a vulture as the tsunami. It threatens "I'll come again." Caption: "A warning to marine resource poachers and exploiters".

Painting by Anjali Chandrashekar, Padma Seshadri Bala Bhavan School, Chennai.



Painting by S Janani, Chettinad Vidyashram, Chennai.

Some other telling captions: "With courage in their minds and smiles on their faces". "Tsunami, a destroyer and creator", "He lost everything but didn't lose heart," "People at sea can see the light, people on land are yet to see the light," "An earthquake not only at sea, but also in my life." One intriguing painting showed a fisherman's head. His neck is an inverted boat. The transparent head shows maps of Africa and Asia! Caption: "The world of hope."

Hope is also held out in a painting of rehabilitation — fishing activity, kids studying, houses being built. Caption: "With the tsunami past, our net's cast, let our joy last." Another positive portrayal" "Arise and awake to make a new world."

Several artists referred to the mother, either literally or metaphorically. "After the tsunami – he got everything except his lovable mummy." "A thousand helping hands – but who will give back my mother?" and "Mother sea! It's injustice!"

The feedback

The art contests truly captured the imagination of the young artists, also of the school principals and staff. Sample comment from an artist's mother "I have accompanied my daughter to some 100 art contests in different parts of India, but there was nothing more exciting than this one, none so well organised." A drawing master from Nagercoil requested the BOBP to conduct an art contest for drawing masters of Nagercoil and Kanniyakumari during the tsunami's anniversary day, December 26. Several principals urged repeat contests.

Most heartening was the imagination, the creative energy and the artistic talent displayed by the young artists. The BOBP-IGO's calendar of 2006 will reproduce the best of these paintings. Demand for it is zooming!

– Text by S R Madhu
Photographs by S Jayaraj

Focus on implementing existing international fisheries instruments, advises COFI meeting in Rome

A summary of important outcomes from the 26th Committee of Fisheries meeting held in Rome early this year, also from the Fourth Meeting of Regional Fishery Bodies that succeeded it.

The Committee on Fisheries (COFI), the FAO's top policy-making body in fisheries, did a wide-ranging review of fisheries and aquaculture issues and of the FAO's programmes at its 26th Session in Rome from 7 to 11 March 2005.

The Session was attended by 117 Members of COFI, by observers from three other FAO Member Nations, the Holy See, and one non-Member Nation of FAO, by representatives from six specialized agencies of the United Nations and by observers from 51 inter-governmental (IGOs) and international non-governmental organizations (NGOs). BOBP-IGO was also represented in the COFI.

The Committee commended the FAO on its fourth report on implementation of the Code of Conduct for Responsible Fisheries and associated instruments. It noted that the Code provided the basic framework for promoting sustainable fisheries and aquaculture. Member country representatives explained measures to implement the Code, including legislative enactments. The Committee urged further promotion of the Code's implementation, and additional guidelines in support of the Code, including one to implement the International Plan of Action for the Management of Fishing Capacity.

Critical to the sustained implementation of the Code was the need for institutional strengthening and human resources development in developing countries, especially in small-island developing states. Many members informed the Committee about their particular needs concerning assistance. The FAO was thanked for the training it provided on implementing the Code and the IPOAs.

Some Members suggested that FishCode might focus greater attention on human resource development and awareness building about the Code, especially at the "grass roots" level.

Some members said they faced a heavy reporting burden on the Code. A proposal was made that detailed in-depth analysis be undertaken every four years, alternating with a general overview report on implementation every two years. This decision is to be finalised at the next session of COFI.

The Committee expressed the view that many international fisheries instruments have been concluded since the 1992 United Nations Conference on Environment and Development (UNCED). Effort should now focus on implementing these instruments rather than on concluding new instruments. The Committee called for a "Decade of Implementation" for these instruments. Member countries were called upon to accept, ratify or accede to these instruments.

Many members said the ecosystem approach to fisheries management should be widely adopted, since fishing impacts not only the target resources but the ecosystem itself. However, others pointed out that while everyone agrees about the value of this approach, more understanding is needed on applying this approach practically.

Some members expressed concern at the slow rate of implementation of IPOA-Sharks. Many members provided information about illegal, unreported and unregulated (IUU) fishing in their countries and regions.

Participants at the COFI Meeting in Rome.

Some Members pointed out that there were linkages between IUU fishing and fishing overcapacity and that the management of overcapacity should be addressed on a global basis.

It was said that fishing vessels flying "flags of convenience" continued to undermine efforts to promote sustainable fisheries. In this connection, the Committee noted the positive comments about the 2003 FAO Expert Consultation on Fishing Vessels Operating under Open Registries and their Impact on Illegal, Unreported and Unregulated Fishing, and urged members operating open registries to implement the Consultation's recommendations as a matter of priority. Many members stressed the importance of effective fisheries monitoring, control and surveillance tools as primary defences against IUU fishing.

Many members referred to FAO's work on fisheries subsidies. A distinction was made between two types of subsidies. Those that supported fleet expansion, leading to stock degradation and unsustainable fishing, should be phased out. But subsidies that improved scientific information or benefited small-scale fishers and contributed to food security, poverty alleviation and sustainable utilisation should be continued. Members urged the FAO to undertake studies to determine the impact of subsidies on fishing capacity, IUU fishing and fisheries management generally.

The Committee expressed condolences to countries and families hit by the December 2004 tsunami and observed a minute of silence in memory of the victims of the tsunami. The Secretariat provided an overview of the impact of the tsunami that killed an estimated 300 000 people and caused damage of approximately US$ 7 billion. It was pointed out that the tsunami had its greatest impact on poor coastal fishing communities, many of which lost all or most of their livelihood assets.

Mr A Bhattacharya, Joint Secretary (Fisheries), India at the COFI Meeting.

The Secretariat expressed concern that rehabilitation could re-institutionalise factors leading to vulnerability and unsustainability. The Committee endorsed the FAO's medium-to-long term rehabilitation strategy for fisheries and aquaculture in the affected countries.

The Committee thanked India for offering to host the third session of the Sub-Committee on Aquaculture in 2006 despite the difficulties posed by the tsunami.

The Committee expressed concern at the proliferation of international fora addressing fisheries matters, some of which lacked a sound technical and scientific bases for discussion.

The Committee commended the COFI Secretariat for a document on enabling responsible small-scale fisheries. It noted that a range of issues should be addressed so that small-scale fisheries made a greater contribution to rural development,

Mr G Piyasena, Director General, Department of Fisheries and Aquatic Resources, Sri Lanka at the COFI Meeting.

sustainable livelihoods, poverty alleviation and food security. Some Members recommended that small-scale fisheries be given greater consideration in the Code of Conduct for Responsible Fisheries through a specific Article or Appendix or through elaboration of additional Guidelines.

The attention of the Committee was drawn to the revised Code of Safety for Fishermen and Fishing Vessels and the Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels that had been prepared by FAO, the International Labour Organization (ILO) and the International Maritime Organization (IMO). The Committee welcomed the revised Code and Voluntary Guidelines and recommended the early publication by IMO of these documents.

The Committee stressed that COFI and FAO should continue to provide leadership and maintain an assertive role in fisheries.

Ministers who attended a Ministerial meeting on Fisheries on 12 March 2005 made a declaration about the tsunami. They urged donors and international financial institutions to "fulfil pledges they had made" about assistance to meet the effects of the tsunami.

The Ministers emphasised the need for fisheries and aquaculture rehabilitation to focus on rebuilding the livelihoods of fishers and fish farmers, providing adequate protection from this and other environmental threats, and improving sectoral efficiency, sustainability and governance.

The Ministers emphasised the need to "protect the rights of fishers and fishworkers, particularly those involved in subsistence and small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access to fishing grounds and resources of affected areas."

The Ministers emphasised the need "to rebuild and strengthen the capacity of affected fisheries sectors" in fishing abilities, data

collection, scientific analysis, assessments of fisheries resources, and effective fisheries management. They said the capacity of communities and stakeholders to engage in this process should be enhanced.

The Fourth Meeting of Regional Fishery Bodies, 14-15 March 2005

Representatives from 29 Regional Fisheries Bodies (including the BOBP-IGO) took part in the Fourth Meeting of Regional Fishery Bodies (RFBs) in Rome on 14 and 15 March, 2005.

The meeting focused mainly on information exchange, administration and enhanced co-operation among RFBs.

Opening the meeting, Mr Ichiro Nomura, FAO Assistant Director-General of Fisheries, said that demands placed on RFBs had become heavier in recent years since the productivity of fish stocks had dwindled and fishing pressure increased. He recalled that the June 2004 Technical Consultation relating to IUU (illegal, unreported and unregulated) fishing had noted the key role of RFBs in combating IUU.

The meeting reviewed the decisions of the earlier COFI meeting (the 26th) that were relevant to RFBs.

- The FAO was requested to assist RFBs in issues concerning the biodiversity of the high seas.
- There was a COFI proposal to review the performance of RFBs in meeting the objectives of international instruments. COFI suggested that RFBs could be invited to take part in a meeting to develop parameters for such a performance review. There could perhaps be an expert consultation followed by a technical consultation.
- The COFI meeting recognised that there are many deficiencies in fisheries governance at a global level – for example in areas related to overcapacity, IUU fishing, catch allocaton, and the behaviour of non-contracting parties. RFBs may require capacity-building to deal with such issues.

Mr Jean-Francis Pulvenis, Director of the Fishery Policy and Planning Division of FAO described the perceived role of RFBs. Ms Judith Swan mentioned several fisheries circulars concerning RFBs. She said that recent international instruments had enhanced the role of RFBs in fisheries management.

The meeting noted the major role of RFBs in implementing the four International Plans of Action and the FAO strategy for improving action on the status and trends of capture fisheries.

The question of raising the public profile of RFBs was discussed. Some suggestions: Special events, use of electronic media, promotion of linkages between and among RFBs, websites.

Discussing IUU fishing, the meeting described it as a large and complex problem unlikely to be solved in the near future. “It has multiple drivers ranging from criminal greed to ignorance. It is global in effect and will require global as well as multiple solutions.” The Meeting recognised that IUU fishing undermines the management efforts of RFBs. Additional information was therefore needed to make management effective.

Mr Kevern Cochrane, Senior Fisheries Resource Officer of FAO delivered a presentation on ecosystem approaches to fisheries management (EAFM). The meeting discussed individual RFB activities and challenges relating to EAFM. The following suggestions were made to incorporate EAFM principles into RFB initatives:

- Building awareness on EAFM among RFB member countries
- Evaluating existing management initiatives which may have embedded EAFM concerns
- Identifying weaknesses in existing management initiatives and practices, and strategies to strengthen the initiatives.

Mr Ellik Adler (UNEP Regional Seas Programme Coordinator) said that his programme worked with partner organisations. He discussed the question of stronger ties between UNEP and RFBs, and proposed seven areas for positive co-operation.

The meeting discussed the structure for the next meeting of RFBs. It was agreed that it should take up fewer topics with more in-depth discussion.

BOBP-IGO exhibits on the Tsunami, at the COFI Meeting.

The State of World Fisheries and Aquaculture 2004

"The State of World Fisheries and Aquaculture" is the FAO's authoritative biennial summation of what's happening to the world in these two disciplines. The latest document, for 2004 sums up global trends for 2002 and gives an idea of preliminary trends for 2003. Here are glimpses into this document.

This 153-page report, and a complimentary CD that contains an atlas on world fisheries and aquaculture, is in four parts.

Part 1 is a review of world fisheries and aquaculture. Part 2 discusses selected issues facing fishers and aquaculturists. Part 3 highlights special FAO studies. Part 4, an "outlook" for the future, has been summarized and presented elsewhere in this issue of ***Bay of Bengal News.***

The report was a co-operative effort of FAO Fisheries Department staff and some external contributors. A three-member team led the effort, FAO management staff provided direction.

Introducing the report, FAO's Assistant Director-General for Fisheries Ichiro Nomura says that trends observed at the end of the 1990s are continuing. While capture fisheries production is stagnating, aquaculture output is expanding. Concerns are growing about the livelihoods of fishers, also about the sustainability of commercial catches and aquatic ecosystems.

Part I: Review of World Fisheries and Aquaculture

This wide-ranging review covers the entire gamut of fisheries and aquaculture. It examines past history, recent trends, current status and future prospects.

World fishery production in 2003 decreased slightly from that in 2002 – from 133 million tonnes to 132.2 million tonnes. However, the amount of fish for human consumption increased from 100.7 million tonnes to 103 million tonnes; the per capita supply was maintained. There was a slight decrease in capture fisheries; but other food fisheries and aquaculture made up for this decrease.

China was by far the largest producer, with a reported fisheries production of 44.3 million tonnes in 2002 (16.6 and 27.7 million tonnes from capture fisheries and aquaculture, respectively). But it is believed that the production statistics for China is an overestimate; this problem has existed since the early 1990s. Because of the importance of China and the uncertainty about its production statistics, China is discussed in the report separately from the rest of the world (a practice also adopted in previous issues of the report).

Information available confirms that despite local differences, the global potential for marine capture fisheries has been reached. More

rigorous plans are needed to rebuild depleted stocks and prevent the decline of those being exploited at their maximum potential or close to it.

By contrast, global production from aquaculture continues to grow, in terms of both quantity and its relative contribution to the world's supply of fish for direct human consumption. Production in 2002 (51.4 million tonnes, with China accounting for 71 percent) was 6.1 percent higher than in 2000.

Aquaculture production of food fish continues to be mainly (57.7 percent) from freshwater. Developing countries accounted for 90.7 percent of production in 2002, consisting of predominantly herbivorous/omnivorous or filter-feeding species.

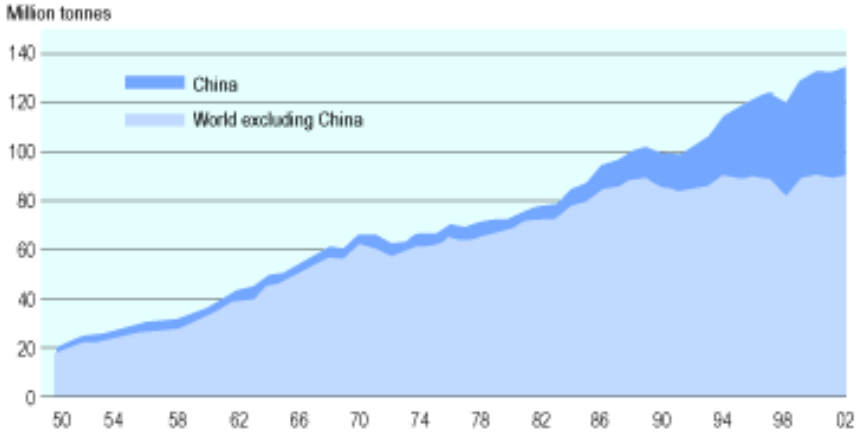
In 2002, about 76 percent (100.7 million tonnes) of estimated world fisheries production was used for direct human consumption. The remaining 24 percent was used for non-food products, in particular the manufacture of fishmeal and oil.

Total capture fisheries production

In 2002, total capture fisheries production amounted to 93.2 million tonnes, slightly above production in 2001. Preliminary estimates indicate that global marine catches decreased in 2003 by about 3 million tonnes compared with 2002.

The list of top 10 capture fishery countries has not changed since 1992. In 2002, their cumulative catches represented 60 percent of the world total, with China and Peru still leading the ranking in both 2001 and 2002.

Marine capture fisheries production in 2002 was 84.5 million tonnes, representing a decline of 2.6 percent with respect to 2000. The Northwest and Southeast Pacific are still the most productive marine fishing areas, although total catches in these two areas decreased by 1.8 and 2.0 million tonnes in 2002 compared with 2000 levels. Catches decreased substantially from 2000 levels in the Eastern Central and Southwest Atlantic. By contrast, catches were still growing in the tropical regions of the Indian and Pacific Oceans, where catches of large (mainly tuna) and small pelagic species continued to increase.



World capture and aquaculture production.

Anchoveta ranks as the most caught marine species (9.7 million tonnes in 2002). Total catches of tuna and tuna-like species exceeded 6 million tonnes for the first time in 2002, accounting for 11 percent of the total value of landings for consumption. Increased catches were also realized from tropical species such as skipjack (the third global species in 2002) and yellowfin tunas. Catches of oceanic species occurring principally in high seas waters continued to increase.

Total catch production of both marine crustaceans and molluscs declined slightly from their 2000 peak over the following two years.

Fishers and Fish Farmers

In 2002, fishery and aquaculture production activities directly employed an estimated 38 million people, a marginal increase over the previous year's figure. Of these, more than one-third were employed full-time and the rest were part-time and occasional workers. Fishing in marine and inland waters accounted for 75 percent of the total number of workers, while aquaculture employed the remaining 25 percent. The highest numbers of fishers and aquaculture workers is in Asia (87 percent of the world total).
It is apparent that, in most fishing nations, capture fisheries is losing ground to aquaculture as an employer. Since 2000, however, employment in aquaculture has started to level off in some countries.

In many industrialized countries, notably Japan and Europe, employment in fishing and in related land-based professions has been declining for several years. Reasons: lower catches, programmes to reduce fishing capacity and higher productivity resulting from technological progress.
The fishing workforce in most developed economies is advancing in age, mainly because of the profession's decreasing attractiveness to younger generations.

But fishing is still an attractive profession for many people in some areas. In China, an estimated 25 million people work in various fisheries occupations. Part-time fishers might work seasonally in fishing and return to their village during the summer, or undertake a mix of agriculture and fish farming. The average earnings from fishing can be higher than those from agricultural farming, although jobs in manufacturing and other economic sectors are generally more rewarding than those in agriculture and fishing.

World inland capture fisheries production

Total catches from inland waters remained stable at around 8.7 million tonnes in the 2000–02 period. Africa and Asia contributed about 90 percent of global production in 2002.

The bulk of world inland fisheries production (68.1 percent) came from developing countries other than China and only 6.1 percent from developed countries. In 2002, not one developed country was among the top 10 world producers.

Reporting of inland catch by species group remains very poor for many countries and does not permit detailed analysis of trends in catch composition. China accounts for the great majority of reported world catches of freshwater crustaceans (94 percent) and molluscs (87 percent).

Aquaculture Production

The contribution of aquaculture to global supplies of fish, crustaceans and molluscs continues to grow. It increased from 3.9 percent of total production by weight in 1970 to 29.9 percent in 2002**.** Worldwide, the sector has grown at an average rate of 8.9 percent per year since 1970 (against 1.2 percent for capture fisheries).

Production from aquaculture has greatly outpaced population growth, with the world average per capita supply from aquaculture increasing from 0.7 kg in 1970 to 6.4 kg in 2002.

In 2002, total world aquaculture production (including aquatic plants) was reported to be 51.4 million tonnes by quantity and US$ 60.0 billion by value. In 2002, Asian countries accounted for 91.2 percent of the production quantity and 82 percent of the value. Of the world total, China is reported to produce 71.2 percent of the total quantity and 54.7 percent of the total value of aquaculture production.

Most aquaculture production of fish, crustaceans and molluscs continues to come from the freshwater environment (57.7 percent by quantity and 48.4 percent by value). Mariculture contributes 36.5 percent of production and 35.7 percent of the total value. Although brackishwater production represented only 5.8 percent of the aquaculture production quantity in 2002, it contributed 15.9 percent of the total value, reflecting the prominence of high-value crustaceans and finfish.

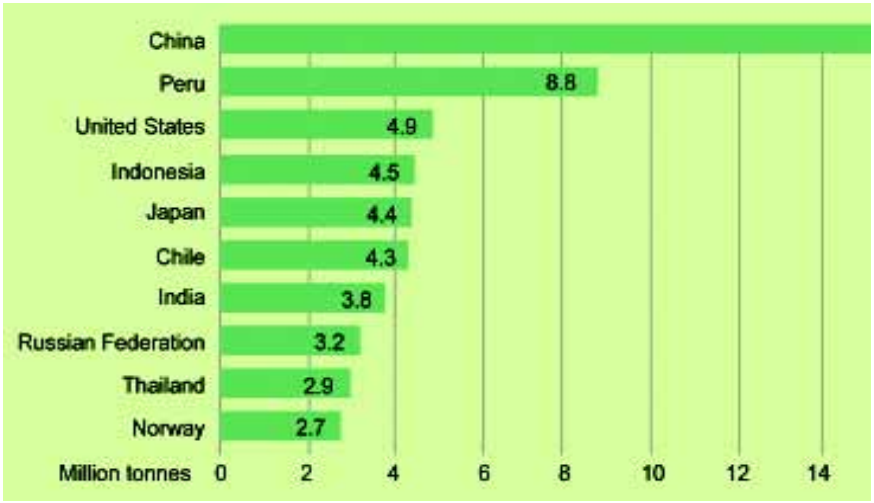
During this period, China's fresh water aquaculture production reportedly increased at an average annual rate of 11.1 percent, compared with 6.9 percent for the rest of the world. Similarly, reported Chinese aquaculture production in marine areas increased at an average annual rate of 10.9 percent compared with 5.5 percent for rest of the world.

Unlike terrestrial farming systems, where the bulk of global production is based on a limited number of animal and plant species, over 220 different farmed aquatic animal and plant species were reported in 2002.

Aquaculture production of fish, crustaceans and molluscs in developing countries has proceeded at an average annual rate of 10.4 percent since 1970, as against 4 percent per year in developed countries. In developing countries other than China, production has grown at an annual rate of 7.8 percent.

The Fishing Fleet

The vast majority of the world fishing fleet is concentrated in Asia



Marine and inland capture fisheries: top ten producer countries in 2002.

Freshwater carp farming in Bangladesh.

(about 85 percent of total decked vessels, 50 percent of powered undecked vessels and 83 percent of total non-powered boats). After years of expansion of the world fishing fleet until the late 1980s and early 1990s, the number of decked vessels worldwide has remained fairly stable around 1.3 million. In addition, the world fleet engaged in fishing in marine and inland waters comprised about 2.8 million undecked vessels.

The average age of the larger marine fishing vessel fleet segment has continued to increase. The number of "young" vessels (less than 10 years old) has fallen in 2003 to 13 per cent from 30 per cent the previous year.

Fishing is considered to be one of the most dangerous occupations. The aging fishing fleet raises concerns over the safety of both vessels and crew. Standards of accommodation and crew conditions on board very old vessels do not conform to current minimum requirements for newly built vessels.

It is expected that the construction of larger fishing vessels will increase over the next ten years. FAO, the ILO and the International Maritime Organization (IMO) are finalizing major revisions of the Code of Safety for Fishermen and Fishing Vessels and of the Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels.

Fishery resources

Of the top 10 species that account for about 30 percent of the world capture fisheries production, seven belong to stocks that are fully exploited or overexploited. Major increases in catches cannot therefore be expected from these. Two species that could probably support higher fishing pressure in some areas are skipjack tuna and chub mackerel.

All information available tends to confirm old FAO estimates that the global potential for marine capture fisheries is about 100 million tonnes, of which only 80 million tonnes are exploitable. It also confirms that overall, this limit has been reached. More rigorous stock recovery plans are needed to rebuild stocks that have been depleted by overfishing and to prevent the decline of those being exploited close to their maximum potential.

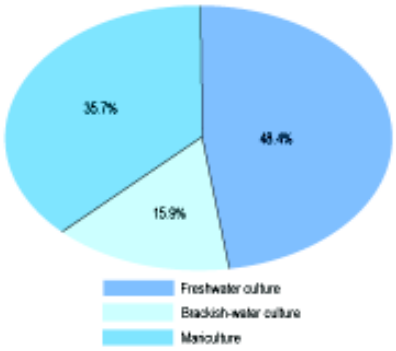
Some of the most important management concerns today are the effects of fisheries on habitats, on marine communities, and ecological interactions (such as predator - prey relationships), as well as those of land-based activities and climatic changes on fisheries.

The precautionary approach to fisheries, recommended by UNCED, the United Nations Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries, needs to be implemented in practice.

Inland fisheries

Unlike the major marine fish stocks, inland fish stocks are less well defined and occur over much smaller geographical areas, such as individual lakes, rice fields or rivers, or over vast areas such as transboundary watersheds in areas that are difficult to access. These factors make it costly to monitor the exploitation and status of fish stocks. In fact, very few countries can afford to do so. Result: a majority of countries report only a small fraction of their catch of

Aquaculture Environments



inland fisheries by species. Thus FAO is not in a position to make global statements on the status of these resources. The threat to inland fishery resources from habitat alteration, degradation and unsustainable fishing, reported earlier, continues.

But the status of some inland fishery resources has been enhanced in many areas through stocking programmes, the introduction of alien species, habitat engineering and habitat improvement. In many developing areas, especially in Asia, rice fields and irrigated areas are being enhanced to increase the production of aquatic biodiversity other than rice, and to improve the nutritional status of rural households.

Fish utilization

Utilization of fish production shows marked continental, regional and national differences. In 2002, more than two-thirds of fish used for

Ribbon fish catch at a landing centre in India.

human consumption in Europe and North America was in frozen or canned form. In Africa and Asia on the other hand, the share of fish marketed live or fresh was high. The sale of live fish to consumers and restaurants is especially strong in Southeast Asia and the Far East.

Fish Consumption

In 2002, average apparent per capita consumption of fish, crustaceans and molluscs worldwide was estimated to be about 16.2 kg, 21 percent higher than in 1992 (13.1 kg). This growth is largely attributable to China, whose estimated share of world fish production increased from 16 per cent in 1992 to 33 percent in 2002. Per capita fish supply in China in 2002 was about 27.7 kg.

Overall, fish provides more than 2.6 billion people with at least 20 percent of their average per capita intake of animal protein.

Fish consumption is distributed unevenly around the globe; there are significant differences among countries, with per capita apparent consumption ranging from less than 1 kg per capita to more than 100 kg. Geographical differences are also evident within countries, with consumption usually being higher in coastal areas.

Fish Trade

In 2002, total world trade of fish and fish products increased to US$ 58.2 billion (export value), a 5 percent increase over figures for 2000 and a 45 percent increase since 1992. In terms of quantity, exports were reported to be 50 million tonnes in 2002, a slight decrease (1 percent) from the 2000 level. The quantity of fish traded has remained stagnant over the last few years, following decades of strong increases. Many of the economic factors responsible for the high growth in world fishery trade in the previous decade have now diminished in importance.

In 2002, China overtook Thailand for the first time to become the world's main exporter of fish and fish products, with exports valued at an estimated US$ 4.5 billion. Thailand ranked second as exporter of fish and fish products (US$ 3.7 billion), Norway was the third largest exporter (US$ 3.6 billion), followed by the United States (US$ 3.3 billion), Canada (US$ 3.0 billion), Denmark (US$ 2.9 billion) and Viet Nam (US$ 2.0 billion).

Mainstreaming fisheries into national development and poverty reduction strategies.

The report highlights the important role of fisheries in the alleviation of poverty and the achievement of food security in many parts of the world. Fishery products contribute towards 15-16 percent of global animal protein intake and more than 38 million people are directly engaged in fishing and fish farming as a full time or part time occupation. Therefore, efforts should be made to ensure the effective integrations of fisheries into key national policy documents relating to poverty reduction and rural development.

World fish imports touched a record US$ 61 billion in 2002. Developed countries accounted for about 82 percent of the total value of imports of fish products. Japan was once again the largest importer of fish and fish products (US$ 13.6 billion), with a 22 percent share of the world import value in 2002. The United States was the second largest importer (US$ 10 billion). Spain (US$ 3.9 billion), was the third largest importer, followed by France (US$ 3.2 billion), Italy (US$ 2.9 billion), Germany (US$ 2.4 billion) and the United Kingdom (US$ 2.3 billion).

Exports from developing countries (28 million tonnes) were around one-quarter of their combined production. The share of developing countries in total fishery exports was 49 percent by value and 55 percent by quantity.

Although there is a strong trade in fish and fishery products among the more developed economies (mostly demersal species, herring, mackerel and salmon), trade tends to flow from the less-developed to the more-developed countries (mainly tuna, small pelagics, shrimps and prawns, rock lobsters and cephalopods). In 2002, about 74 percent of the import value was concentrated in three main areas: the EU, Japan and the United States.

Despite a slight decline in exports, shrimp continues to be the main fish commodity traded in value terms, accounting for about 18 percent of the total value of internationally traded fish products in 2002.

During 2003, shrimp imports in several key markets reached new highs. Sales to the world's largest shrimp market, the United States, exceeded 500 000 tonnes for the first time – 17 percent higher than imports in 2002. But annual imports of shrimp into Japan during 2003 declined by 6 percent compared with the previous year. In Europe, shrimp imports increased in 2003, as a result of a strong euro and competitive international prices. Brazil, China, Ecuador, India, Thailand and Viet Nam are to pay higher duties for dumping in the United States, which will create some problems for their sales there in the short-term. Prices remained low during most of 2003, and there are no indications of an increase in 2004.

Products derived from aquaculture production accounted for an increasing share of the total international trade in fishery commodities, with an estimated 22 percent of the export quantity.

For many economies, and in particular for developing nations, trade in fish represents a significant source of foreign currency earnings, in addition to the sector's important role in income generation, employment and food security.

Some major issues concerning international trade in fish products in recent years include changes in quality and safety control measures, the introduction of new labelling requirements, chemical residues in aquaculture products; the general public's concern about overexploitation of certain fish stocks, the sustainable development of aquaculture, international trade negotiations in the WTO.

With the entry of China into the WTO in 2001, all major fishery countries other than the Russian Federation and Viet Nam (which have started negotiations to become members) are now members of the organization.

Part II: Selected issues facing fishers and aquaculturists

The report discusses some select issues in fisheries and aquaculture — problems in capture-based aquaculture; labour standards in the fishing sector; fisheries management and CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), trade implications of fish species and fish product identification; recovery of depleted stocks; governance and management of deep-water fisheries.

For each issue, the report summarises the issue, possible solutions or action required, action taken so far and future perspectives.

Example: On capture-based aquaculture (CBA), the report points out that it accounts for about one-fifth of the total food production through aquaculture. CBA is an interface between capture fisheries and true aquaculture, and provides local coastal communities with an alternative livelihood. CBA provides opportunities for developing low-hazard good-quality products that satisfy codes of conduct and practice. But certain environmentally questionable management practices need to be tackled, such as the use of wild seed, the use of raw fish as feed, devising cost-effective environmental assessment systems to ensure good site selection, a practical method for monitoring aquaculture production.

Tuna landings in Malé fishing harbour.

Positive developments include hatchery-reared seed which limits the ecological impact of wild seed, and the partial substitution of raw fish by manufactured diets. The report says it is critical for the future to develop fry production in hatcheries on an economically viable commercial-scale; and to refine environmentally sound grow-out technologies. "Failure to address these could have severe consequences for the future of both aquaculture and some capture fisheries."

Part III: Highlights of special FAO studies

The report throws light on some special studies carried out by the FAO on significant issues in fisheries and aquaculture. These constitute useful reading for planners and decision-makers. The studies are

- Scope of the seaweed industry
- Global aquaculture outook: an analysis of production forecasts to 2030
- Impacts of trawling on benthic habitats and communities
- Measurement of fishing capacity
- Re-estimating discards in the world's marine capture fisheries
- Fisheries subsidies
- Small-scale fisheries in African freshwaters

In its study on "Global aquaculture outlook," the report says the aquaculture sector could replicate the expansion of agriculture. "Much will depend on the realism of assumptions used to support projected targets." The report urges policy-makers formulating development plans for aquaculture to place a stronger emphasis on the rationale supporting their production forecasts. Such an emphasis will enable better sector development planning and progress monitoring."

The Fisheries Outlook for the Future

What is the future for fisheries and aquaculture? In the short-term and the long-term? Here's some sophisticated crystal-ball gazing. It is based on the last chapter "Outlook" from the FAO's report "The State of World Fisheries and Aquaculture 2004".

Will capture fisheries suffer from an implosion? Will aquaculture be stopped in its tracks? Will experts remedy the adverse impacts of aquaculture and ensure smooth and rapid growth?

The authors of the final chapter (cryptically titled "Outlook") of the FAO report "The State of World Fisheries and Aquaculture 2004" point out, "No one has the exact answers. No one can predict with precision what will happen to capture fisheries or aquaculture, particularly when the question is projected several decades into the future. But … reasonable predictions can be made – at least for the short-term."

To predict the short-term, the authors review global changes in attitudes to production and consumption of fish. How will these impinge on the state of marine resources as well as on growth in population and income?

As for the medium-to-long term, the authors take up two computer-based simulations of the future for global fisheries and aquaculture towards the years 2010, 2015 and 2020.

The Short-term (The Coming Decade): Constraints and Opportunities

Analysing the outlook for the coming decade, the authors say that how capture fisheries and aquaculture develop depends on how fishers and fish farmers react to evolving commercial and technical opportunities on the one hand, and to legal and environmental constraints on the other. Some observations:

- Demand for fish will expand as populations and incomes grow. But this increase will be relatively slow in developed countries (because populations here will grow slowly), and faster in developing countries (where populations will grow quickly).
- Market liberalization will add to pressure on wild fish stocks of developing countries, particularly for species much in demand in international markets.
- Access to natural resources is being reduced for fishers in capture fisheries. Limitations (such as licensing requirements and environmental impact assessments for new facilities) are spreading to aquaculture as well.
- Marine fish landings of conventional species are likely to remain at the current figure of 80 to 90 million tonnes.
- In advanced countries, old fishers are leaving the profession more quickly than they are being replaced. This decline in fishers may help the economic viability of capture fisheries and enable an inflow of new vessels and younger fishers.
- In developed countries, fisheries policies will become less lenient. Subsidies directly linked to fisheries capacity and effort will be curtailed, and fishers may be asked to pay for government services and for the right to fish. This will increase the costs of fishing and eliminate marginal fishing enterprises, increase fish prices and stimulate aquaculture production.
- In developing countries, artisanal and small-scale fishers may find opportunities in economic growth to graduate from subsistence

Fish spread for auction, Bangladesh.

mode to entrepreneurial mode. Economic growth may also draw some part-time fishers away from fisheries into urban employment. This factor may help to make fisheries more sustainable by reducing over-exploitation.

- As real wages increase in China, south and southeast Asia (which together account for 90% of world aquaculture output today), aquaculture production, capital and know-how may spread to Africa and Latin America, where costs of production overall may be lower.
- The search for new and high-value culture species will continue. Some success will no doubt be achieved by 2015.

2015 and beyond: future scenarios for world fisheries and aquaculture

Two studies undertaken by the FAO and the International Food Policy Research Institute (IFPRI) use quantitative computer-based simulations to project the future in 2015 and 2020. (The IFPRI study was summarised in ***Bay of Bengal News,*** September 2004).

According to the **FAO study** ("Future prospects of fish and fish products: medium-term projections to the years 2010 and 2015"), total world fish production will increase from 129 million tonnes in 1999-2001 to 172 million tonnes in 2015. Capture fishery production will stagnate, while aquaculture production will increase substantially, though at a lower rate than at present. Of the expected increase of 43 million tonnes (between 1999-2001 and 2015), 73 percent will come from aquaculture. In 2015, aquaculture will account for 39 percent of global fish production (up from 27.5 percent in 1999-2001.)

- Developing countries will increase their share of world fish production from 75 per cent in 1999-2001 to 81 percent by 2015. The share of developed countries will fall from about 25 per cent to 19 percent by 2015. Capture fisheries production in developed countries is expected to stagnate or even decline in absolute terms during the projection period.
- Developing countries will increase their net export of fish and fishery products from 7.2 million tonnes in 1999-2001 to 10.6 million tones by 2010. This figure will go down slightly in 2015 to 10.3 million tonnes, because of increased domestic demand.
- Developed countries will reduce current net imports of fish and fishery products from 11.3 million tonnes in 1999-2001 to 10.6 million tonnes by 2010 and 10.3 million tonnes by 2015.
- There will be a global shortage of supply of fish in future. The overall effect will be a rise in the price of fish. Prices for all types of fish will increase in real terms by 3.0 and 3.2 per cent by 2010 and 2015 respectively.
- On average, people will be consuming more fish in 2015, but increases henceforth are likely to accrue more slowly than in the past two decades.

The IFPRI study ("Fish to 2020: supply and demand in changing global markets") projects supply, demand and trade of fish from 1997 to 2020 in response to different policy and environmental scenarios for the fish sector. The study draws on FAO statistical databases, uses an IFPRI model modified to deal with food fish, and discusses six scenarios.

The study highlights five major structural shifts now under way, which will become more pervasive between now and 2020.

1. Developing countries (particularly those from Asia) will dominate food fish production from both capture fisheries and aquaculture. Stocks that are not fully exploited will be fished more heavily.
2. Consumption will increase in developing countries by 1.9 percent annually, or by 2.0 percent if China is included. It

Comparisons of simulation results

	Simulation target year					
	2000	2010	2015	2020		2030
Information source	FAO statistics [a]	SOFIA 2002 [b]	FAO study [c]	SOFIA 2002 [b]	IFPRI Study [c]	SOFIA 2002 [b]
Marine capture	86	87		87	-	87
Inland capture	9	6		6	-	6
Total capture	95	93	105	93	116 [2]	93
Aquaculture	36	53	74	70	54	83
Total production	131	146	179	163	170 [3]	176
Food fish production [1]	96	120		138	130	150
Percentage used for food	73 %	82 %		85%	77%[4]	85%
Non-food use	35	26		26	40 [5]	26

Note: All figures - other than percentages - are in million tonnes and rounded.

[1] *Aquatic animals other than reptiles or mammals, excluding quantities reduced in fishmeal and oil.*

[2] *Calculated by the authors from total production minus aquaculture.*

[3] *Calculated by the authors by adding food fish to fishmeal production*

[4] *Calculated by the authors by comparing food and non-food use.*

[5] *Calculated by the authors by multiplying fishmeal production forecasts by five.*

Sources:

[a] *Based on latest statistics of the FAO Fishery Information, Data and Statistics Unit.*

[b] *FAO. 2002. The State of World Fisheries and Aquaculture 2002. Rome.*

[c] *Op. Cit., footnote 90, p.146, The State of World Fisheries and Aquaculture, 2004.*

will remain static in developed countries (0.2 percent) and sub-Saharan Africa.

3. South-south trade will increase with the emergence of urban middle classes. Domestic producers in developed countries will gradually leave the sector. Fish will increasingly become a high-value commodity. The shift in traded products from frozen low-grade whole fish to value-added products will continue.
4. Environmental controversies will continue. Sustainability concerns will increase. These will spur environmental regulations and institutions, initially in developed countries, later in developing countries. Overfishing will remain a major concern.
5. Fisheries and aquaculture technology will address new challenges in both the north and the south — such as reducing fish meal and fish oil requirements in aquaculture; reducing the environmental impacts of intensive aquaculture; and utilizing information technology for improved fishery management.
6. Institutional development in the sector will be necessary – for reducing poverty through fisheries and aquaculture development, as well as for improving environmental sustainability and food safety

Comparing the FAO and IFPRI projections

The two studies point to similar futures, but there are some significant differences. These relate to the total volume produced and consumed, to the relative roles of capture fisheries production and aquaculture, and to trends in real prices for fish.

- The FAO study is more optimistic in terms of fish supplies and consumption. It envisages a total production of 179 million tonnes in 2115, while the IFPRI study (base scenario) foresees a production of only 170 million tonnes by 2020.
- The IFPRI study expects capture fisheries landings to expand significantly (to 116 million tonnes in 2020), the FAO study foresees a contribution of only 105 million tonnes in 2015.
- The most dramatic difference is in aquaculture production. IFPRI expects only about half the growth foreseen in the FAO study (74 million tonnes by 2015 – FAO; 54 million tonnes by 2020 – IFPRI).

The FAO and IFPRI models to simulate future scenarios have important similarities. They both use international trade as the mechanism to equalize world supply and demand of fish. They both consider developments in industries that produce substitutes. The reasons for the differences in results spring from basic assumptions – such as sensitivity to prices, the physical possibilities of increasing capture fisheries production, the "reactivity" of aquaculture to developing opportunities.

The FAO study assumes that consumers will not have to sharply reduce fish consumption following fall in fish production and higher prices, because aquaculture will meet the gap in supply.

The IFPRI study is less optimistic than the FAO study about aquaculture increasing production rapidly. It does not expect the fisheries sector as a whole to expand output as rapidly as the FAO study indicates.

A common denominator of both studies is that **during the next three decades,** the world will not have to face any fish shortages; prices will be relatively stable.

The authors of "Outlook" say that the FAO and IPPRI simulations seem to indicate gradual and uniform evolution of the fisheries sector. But the world of reality is likely to differ from the world of simulations. Though globalization tends to lead to uniformity, the world of fisheries in future will remain diversified, thus:

1. The picture will be positive in countries with "sufficient economic and institutional capacity". Fishing capacity will be significantly reduced, stocks will rebuild, environmental impacts will be reduced. A number of fishers will find other forms of livelihood.
2. The picture will be one of stagnation or "controlled degradation" in countries where reform is too little, too late. Rebuilding will be uncertain, overcapacity will be rampant. Catches will stagnate or drop. Fishers will face hardships because of livelihoods becoming unsustainable.
3. The picture will be one of crisis in countries where governance is poor. Developments such as droughts and war will escalate pressure on resources, pushing more fisheries toward decline. Catches will fall in quality and value. Fishing communities will face hard times.

FAO's International Plans of Action

A summary of four International Plans of Action which are "voluntary instruments" within the framework of the Code of Conduct for Responsible Fisheries. A booklet that spells out rules and measures is available for each IPOA.

The Code of Conduct for Responsible Fisheries (CCRF) was adopted in 1995 by more than 170 members of the FAO. The Code is a collection of principles, goals and action elements, designed to help conserve and manage the world's fisheries. It represents a global consensus or agreement on a wide range of fisheries and aquaculture issues.

Four International Plans of Action (IPOAs) have since been elaborated within the framework of the CCRF. They are "voluntary instruments" which apply to all States and entities and to all fishers. Here's a summary of the four IPOAs.

International Plan of Action for the Conservation and Management of Sharks

This IPOA highlights the pressures faced by shark populations and aims to ensure their conservation and management. The plan applies to States in whose waters sharks are caught by domestic or foreign vessels, or States whose vessels catch sharks on the high seas. Such states should adopt a national plan of action to assess threats to shark populations, and implement strategies for sustainable catches. The Plan includes guidelines for a shark plan, and sets out an outline for a shark assessment report.

The IPOA Sharks came into being in 1998, following a Technical Working Group meeting held in Tokyo in April 1998, and a final meeting in Rome held in October 26-30, 1998. IPOA Sharks describes the nature and scope of the problem, sets out the Plan's objective, and outlines principles and procedures for implementation.

The IPOA points out that for centuries, artisanal fishermen have sustainably fished coastal waters for sharks. But during recent decades, modern technology has increased effort and yield, and expanded the areas fished as well. Shark populations are therefore under tremendous pressure. Further, sharks take a long time to recover from overfishing (the reasons being low biological productivity because of late sexual maturity and few offsprings). The wide distribution of sharks and migration over a long area makes international co-operation in shark interventions imperative.

IPOA Sharks urges States that directly or indirectly facilitate shark fishing to evolve a shark plan in consultation with experienced regional fisheries organisations. Each State would be responsible for developing, implementing and monitoring its own plan. A typical shark plan should aim to

- ensure sustainable shark catch for direct and non-directed fisheries;
- assess threats, protect habits and ecosystems and introduce sustainable strategies;
- pay special attention to vulnerable and threatened shark stocks;
- involve all stakeholders in research, management and education; and
- enable species-specific collection of biological, trade and catch data.

Every four years the Shark Plan must be evaluated to determine efficient and cost-effective strategies. States that do not have a Shark Plan should periodically check their fisheries for changes in catch and landing data.

IPOA Sharks provides the outlines of a sample Shark Plan and a sample Shark Assessment Report to help member-States.

International Plan of Action for the Management of Fishing Capacity

This IPOA highlights issues related to excess fishing capacity in world fisheries, an increasing concern in the context of the CCRF. Excess fishing capacity contributes substantially to overfishing, the degradation of marine fisheries resources, decline of food production potential and significant economic waste.

The IPOA on management of fishing capacity aims to eliminate excess fishing capacity and ensure sustainable use of fishery resources. This IPOA was initiated by the Committee on Fisheries (COFI), implemented through a Technical Working Group organised by the FAO, and finalised in Rome at a meeting held from October 26 to 30, 1998.

Some of the guidelines for managing fishing capacity, based on the CCRF.

- States should implement the IPOA on management of fishing capacity directly or in co-operation with other States, regional fisheries/inter-governmental organisations. They should inform the FAO about action taken. FAO will provide regular updates about IPOA implementation.
- Plans should be implemented in three phases – assessment and diagnosis; adoption; and adjustment.
- Plans should consider all factors affecting capacity in national and international waters.
- The plans should promote conservation of marine ecosystems and sustainable use of fish stocks. They should focus on areas where overfishing is an established fact, and use only technologies that are environmentally sound. They should encourage efficient use of fishing capacity.
- The IPOA should be implemented in a transparent manner, in accordance with Article 6.13 of the CCRF.

Urgent Actions: Four sections cover items that need immediate action.

Section I deals with assessment and monitoring of fishing capacity. States should support effort and research at national, regional and global levels to improve under-standing of this aspect. They should systematically identify fleets and fisheries that require urgent management. They should support the FAO in developing and maintaining compatible records of fishing vessels.

Section II deals with national plans of action for managing fisheries capacity. Plans should be developed, implemented and monitored, taking into account the effect of different resource management systems on fishing capacity. States should develop the means to monitor fishing capacity systematically and accurately, they should consider socio-economic requirements, including alternative sources of employment and livelihood for fishing communities. States should review implementation of national plans at least every four years. States should co-operate regionally or internationally in research, training and information to ensure management of fishing capacity.

Section III: States should consider taking part in international agreements on management of fishing capacity. These could relate for example to the Law of the Sea, overfishing of high seas stocks, data collection on catches in the high seas and in coastal areas, or dealing with problem States that do not fulfil their responsibilities under international law.

Section IV: This relates to immediate actions for major international fisheries requiring urgent measures – priority being given to those harvesting transboundary, straddling, highly migratory and high seas stocks that are significantly overfished.

States should act to reduce fleet capacity applied to these resources.

International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries:

Seabirds are being caught incidentally in various commercial longline fisheries (such as those for tuna, swordfish and billfish). Incidental catch of seabirds may impact negatively on fishing productivity and profitability. A number of commissions, as well as countries such as Australia, Japan, New Zealand and the U.S. have studied and adopted seabird mitigation measures. The International Plan of Action for reducing incidental catch of seabirds in longline fisheries (IPOA Seabirds) was developed in 1998 through a meeting in Tokyo (March 1998) and a meeting in Rome (October 1998). IPOA Seabirds urges assessment of the problem; mitigation measures; research and development; education, training and publicity; data collection programmes; and a variety of technical and operational measures.

International Plan of Action to stop illegal, unreported and unregulated fishing.

Illegal, unreported and unregulated fishing (IUU fishing) occurs in virtually all fisheries. It can cause an entire fishery to collapse. Examples of IUU fishing – violations of rules concerning fishing gear and fishing areas; misreporting or non-reporting of catches; reflagging of vessels (changing the flags of vessels to exploit countries that can't control fishing activity) What's the magnitude of IUU fishing? No one knows precisely, but it is believed that it accounts for a high percentage of total catches.

The IPOA-IUU was elaborated in draft at an expert consultation in Sydney in May 2000, adopted by consensus following further meetings at the 24th Session of COFI in March 2001, and endorsed by the FAO Council in Rome in June 2001.

The IPOA-IUU offers many tools for countries to combat IUU fishing – some designed for use by all, some to be used specifically by flag countries, coastal countries or port countries. It urges the adoption of national plans of action, co-operation between States, and research effort. It outlines internationally agreed market-related measures, and those to be carried out by regional organisations. The special requirements of developing countries are considered, reporting requirements are spelled out, the role of the FAO is explained.

BOBP-IGO to Organise National Workshop on the Code of Conduct for Responsible Fisheries (CCRF) in Sri Lanka

A two-day National Workshop on the Code of Conduct for Responsible Fisheries (CCRF) is being organised jointly by the Ministry of Fisheries and Aquatic Resources, Sri Lanka and the BOBP-IGO in Colombo on December 9 and 10, 2005.

More than 60 fisheries and aquaculture officials and NGO representatives will take part, representing organisations such as the Ceylon Fisheries Harbour Corporation, the Ceylon Fisheries Corporation, the Marine Pollution and Prevention Agency, the National Institute of Fisheries Nautical Engineering, the National Aquatic Resources Research & Development Agency and the National Aquaculture Development Authority.

Simply put, the CCRF is meant to ensure that everyone concerned with fisheries helps to develop and manage fisheries in a responsible way. In the long run, such responsible behaviour will mean more fish stocks, stronger food security, and better income-generating opportunities for all.

The Workshop will familiarise participants with the Code, its guidelines and instruments such as the International Plans of Action (see pages 33-34). It will discuss implementation of the Code in several areas: marine fisheries (coastal and deep sea), inland fisheries, aquaculture, post-harvest practices (infrastructure and quality control), trade and related matters (labelling/certification), information networking and dissemination, gender issues, safety-related programmes.

Similar National Workshops were held in India (29-30 September 2000), Bangladesh (23-24 April 2002) and Maldives (18-19 January 2004). They have been documented in BOBP/REP/90, BOBP/REP/93 and BOBP/REP/96. They enabled the preparation of action plans and road maps for implementing the Code in the three countries. A similar outcome is expected from the Colombo Workshop.

The BOBP has functioned as a catalyst, facilitator and coordinator for promoting and popularising the Code. Apart from organising national workshops, it has translated simplified versions of the Code into Bengali, Sinhala and Dhivehi, also into several Indian languages.

The Colombo Workshop has two distinctive features: it will discuss the impact of the tsunami on Sri Lanka's marine fisheries; and 2005 marks the completion of a decade of the CCRF.

"The fullest and most effective implementation of the Code can only be through a viable partnership between the government, industry and society," said a former Indian Secretary for Agriculture. This is also true of Sri Lanka.

What is the Code of Conduct for Responsible Fisheries?

The Code of Conduct for Responsible Fisheries was adopted on 31 October 1995 at the FAO Conference of that year by more than 170 countries. It took more than two years to elaborate. Experts from many countries and many fisheries disciplines worked long and hard to bring it about. It has been described as "one of the most important international instruments devised for management of our planet's aquatic resources".

The Code consists of a collection of principles, goals and elements of action. It sets out principles and standards of behaviour for responsible practices in fisheries. The Code is voluntary in nature, global in scope. It is directed at members and non-members of FAO, fishing entities, organisations of all kinds, fishers, people engaged in the processing and marketing of fish and fishery products – in short, everyone concerned with management and development of fisheries.

The Code reflects the spirit, substance and effort of a number of FAO and United Nations initiatives, conventions and conferences. The workshops being held by BOBP-IGO will further awareness and action on all these important global initiatives. The Code will also promote sustainable and responsible fisheries and help achieve the goals of national and global food security.

The Third International Fishing Industry Safety and Health Conference (IFISH 3)

The Third International Fishing Industry Safety and Health Conference (IFISH 3) will be held in Mahabalipuram (at the Temple Bay Resort) near Chennai, India, from February 1 to 4, 2006. Jointly organised by the BOBP-IGO, the FAO and the National Institute for Occupational Safety and Health or NIOSH, Alaska, USA, the Conference will bring together researchers and experts on both small-scale and commercial fisheries.

IFISH I was held in October 23 –25, 2000 in Woods Hole, Massachusetts, USA, where more than 100 fishermen and safety professionals from 13 countries gathered to discuss fishing vessel safety. **IFISH II** was held in Sitka, Alaska, September 22-24, 2003. This Conference was built upon the foundation of IFISH I and served to bring together colleagues interested in all aspects of fishing safety from around the world, in order to raise consciousness, build coalitions, disseminate information, and encourage action to prevent injury in the commercial fishing industry. **IFISH 3,** the third Conference in the series will build upon the earlier works of the two Conferences and place special emphasis on the issues confronting the small-scale fishermen.

The Conference will be followed by a 2-day Workshop (February 6-7, 2006) to review the long-term efforts by various agencies to rehabilitate communities affected by the December 2004 tsunami, and restore their productivity. The Workshop will also assess regional fishing and safety.

Some of the important topics to be discussed in the Conference include the following:

- Model programmes for fishing injury prevention, Health promotion and interventions.
- Strategies to improve safety – Innovative Approaches.
- Cost effective safety equipment relevant to small - scale fisheries sector.
- Relationship between fishery management and safety.
- Hazards associated with small fishing vessels and survival and rescue strategies for small-scale fishermen.
- Improving surveillance and understanding of fishing hazards.
- Community enterprise and participation.
- Community preparedness for disaster management.
- Strengthening technical and policy-related capacities of Government and non-government institutions related to small-scale fishing.
- Revival after Tsunami.

IFISH 3 should be of interest to professionals concerned with safety promotion, occupational health, injury prevention or public safety in small-scale or commercial fisheries. The stimulating programme will include keynote presentations, scientific papers and posters, a vendor display and social events.

For more information, visit the website www.ifish3.org or contact any of the following organisations:

1. Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), Chennai, India. Yugraj.Yadava@bobpigo.org or Tabrez.Nasar@bobpigo.org
2. Food and Agriculture Organization of the United Nations, FAO, Rome, Italy. Jeremy.Turner@fao.org Ari.Gudmondsson@fao.org
3. National Institute for Occupational Safety and Health (NIOSH), Alaska Field Station, Anchorage, Alaska, USA. Dr George Conway goc1@cdc.gov

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