

# Fisheries Rehabilitation in Post-Tsunami Aceh: Issues and Recommendations from a National Consultative Workshop<sup>1</sup>

## Abstract

The fisheries sector in Indonesia was heavily affected by the 26 December 2004 tsunami. About 9083 fishers were killed in the 18 districts affected, along with more than 45 government fisheries staff. Fisheries and aquaculture have been the sectors most severely hit by the disaster with large numbers of boats, fishing gear, ponds and support installations either lost or damaged. The response to the tsunami disaster has been diverse, with both private and donor contributions to the relief effort. There have been a variety of interventions in the fisheries sector, ranging from the repair of boats and replacement of lost equipment, to reconstruction of aquaculture ponds. This article reports on the results of the national stakeholder consultation workshop organized as part of the WorldFish Project, Fisheries Rehabilitation in Tsunami-Affected Indonesia: Community needs Assessment and Resource Status, detailed in the previous article.

## Introduction

The tsunami of 26 December 2004 killed more than 200 000 people and devastated the livelihoods of many more. Most of those affected were poor fishers, fish farmers and their families. Fisheries and aquaculture have been the sectors most severely hit by the disaster with large numbers of lost and damaged boats, fishing gear, ponds and support installations.

In Indonesia, the fisheries sector was heavily affected by the disaster. About 9083 fishers were killed in the 18 districts affected, along with more than 45 government fisheries staff (CONSRN 2005). It is also estimated that 10 039 fishing boats with gear, many with engines, were totally or partially destroyed, and 55 per cent of the fishing harbours and ports were damaged. The direct damage to the capture fisheries sector is estimated at US\$105 million (about half of the total assets in the affected area), with a further US\$410 million of indirect damage from lack of fishing



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(BAPPENAS 2005). Estimates also suggest that at least 20 000 ha of *tambaks* (fish ponds) were damaged and another 5000 ha put out of production due to damaged water supplies (MMAF 2006).

The response to the tsunami disaster has been diverse, with both private and donor contributions to the relief effort. There have been a variety of interventions in the fisheries sector,

ranging from the repair of boats and replacement of lost equipment to reconstruction of aquaculture ponds. This has been undertaken by donor supported bilateral projects, NGO groups, UN agencies such as FAO and private well-wishers. The Ministry of Marine Affairs and Fisheries (MMAF) has also developed the Indonesian *Strategy for Fisheries Rehabilitation and Reconstruction*.

<sup>1</sup> Based on the outcomes of the National Consultative workshop on "Fisheries Rehabilitation in Tsunami-Affected Indonesia: community needs assessment and resources status" organized by MMAF, FAO and the WorldFish Center on 26-27 June 2006, Jakarta, Indonesia.



To promote better coordination, a consortium approach was adopted by a group of key regional agencies with a mandate to support livelihoods of coastal communities involved in fisheries and aquaculture (i.e., Consortium to Restore Shattered Livelihoods in Tsunami Devastated Nations - CONSRN). Key CONSRN partners include the Bay of Bengal Programme – Intergovernmental Organization (BOBP-IGO), the Food and Agriculture Organization of the UN through its Regional Office for Asia and the Pacific (FAO RAP) and Asia Pacific Fisheries Commission (APFIC), the Network of Aquaculture Centers in Asia-Pacific (NACA), the South East Asia Fisheries Development Centers (SEAFDEC) and The WorldFish Center (WorldFish). The consortium provides a forum for the sharing of information and views and development of strategies. To facilitate a cooperative and multidisciplinary approach, CONSRN has developed this Regional Strategic Framework for rehabilitation.

A key issue (reported to the FAO Members in the 26th Session of the FAO Committee on Fisheries, COFI,

on 7-11 March 2005) to consider during the tsunami rehabilitation was the potential to create fishing over-capacity through the provision of too many fishing vessels. This would negatively impact fishery resources and the livelihoods of vulnerable communities in the future.

However, without reliable information on the status of the natural resource it is difficult to manage the fishery and decide on an optimum number of vessels and type of gear. Even before the tsunami, some areas had

fishing capacity that may have been too great to ensure sustainability. To increase capacity in these areas to greater than pre-tsunami levels would clearly be undesirable as it would negatively impact longer term sustainability of the fishery and the livelihoods of fishers rather than help to rehabilitate them. Therefore, the FAO and WorldFish support the government of Indonesia in its long term goals of implementation of the Code of Conduct for Responsible Fishing.

In addition to knowledge of the fishing effort, an important step in the post-tsunami management of the fishery resources is an understanding of the status of the resources themselves and recent trends in their exploitation. In order to improve understanding of the fisheries resources and their management, and in support of rehabilitation, the government of Indonesia (through MMAF with FAO and the WorldFish Center) have initiated two projects to provide advisory support in carrying out assessments of the status of the fishery:

- Fisheries Rehabilitation in Tsunami Affected Indonesia: Community Needs Assessment and Resource Status (The



WorldFish Center, MMAF with support from Australian Centre for International Agricultural Research - ACIAR); and

- A Rapid Assessment of the Status of the Fisheries in Tsunami Affected Areas of Indonesia and Sri Lanka (FAO and MMAF with support from the Government and people of Lao PDR).

These projects have been implemented with the participation of tsunami affected communities using rapid appraisal techniques and aimed at developing strategies for managing the resources in a sustainable way. These assessments will greatly assist the longer term planning of rehabilitation efforts and will support initiatives to improve resource management. Both projects will provide technical advice to support assessments and planning for future rehabilitation to ensure these do not lead to overexploitation of the natural resource base and overcapacity in fishing.

The National Consultative Workshop on Fisheries Rehabilitation in Tsunami Affected Indonesia: Community Needs Assessment and Resources Status was organized by the Center for Marine and Fisheries Socio-economic Research and the Research Center for Capture Fisheries of the Ministry of Marine Affairs and Fisheries (MMAF) on 26th and 27th June 2006. The WorldFish Center and FAO jointly co-sponsored the workshop and hosted it at the Center for Marine and Fisheries Socioeconomic Research in Jakarta.

This two-day workshop was attended by 36 representatives from the Ministry of Marine Affairs and Fisheries, *Dinas Perikanan dan Kelautan* (Provincial Fisheries Office), ADB-ETESP, USAID-ESP, FAO and the WorldFish Center. The workshop was divided into three sessions, as well as sessions for discussion. Session I was on fisheries rehabilitation activities



in tsunami affected Indonesia. The results of the WorldFish and FAO project based on the rapid appraisals were presented. Session II was a discussion on strategies and options for the rehabilitation and sustainability of fisheries. The final session was on follow-up and future activities.

The workshop: (1) brought together key stakeholders (e.g., BRR, MMAF, *Dinas perikanan*, NGOs) involved in Fisheries Rehabilitation in Aceh province; (2) presented and reviewed the appraisal results from the FAO and WorldFish studies; and (3) discussed the recommendations and strategies to ensure that the Indonesian *Strategy for Fisheries Rehabilitation and Reconstruction* results in improved and sustainable fisheries livelihoods for coastal communities and improved fisheries management.

The list of recommended priorities, interventions and actions resulting from the workshop discussions are given in Table 1. The issues and recommendations were grouped into five categories, namely: (1) resource status; (2) livelihoods; (3) governance,

conflicts and conflict resolutions; (4) capacity building; and (5) new dynamics, i.e., other issues related to the tsunami. The following guiding principles need to be considered in addressing rehabilitation of livelihoods in Aceh province:

- Develop strategies and policies to reduce vulnerability and improve resilience (economic, social and environmental).
- Ensure a consultative and participatory process with local communities and adoption of best practices.
- Rehabilitate livelihoods based on local needs and a better understanding of the enabling conditions (economic, social, and environmental).
- Adopt a holistic and multi-sectoral approach.
- Link local and regional initiatives (e.g., infrastructure projects) and bridge short-term and long-term investment plans.
- Ensure that consideration is given to non-tsunami affected areas and communities.
- Ensure that consideration is given to the post-conflict political situation.



Table 1. Issues, problems and recommendations for rehabilitation of livelihoods and improved management of fisheries in tsunami affected communities in Aceh province.

Issues/problems	Recommendations
<b>1. Resource status</b>	
<ul style="list-style-type: none"> <li>• Long term trend for some species/fisheries has been lacking (in terms of CPUE)</li> <li>• Over fishing is recognized as a problem by communities (and a concern for the future) (e.g., Malacca Straits)</li> <li>• Change in catch, in terms of volume and type of species, due to changes in fishing areas (i.e., from Malacca Strait to Indian Ocean)</li> <li>• Mangrove conversion (in some areas)</li> <li>• Pollution (in some locations)</li> </ul>	<ul style="list-style-type: none"> <li>• Improving conservation and rehabilitation of natural habitats (coral/ mangrove)</li> <li>• Establishment of ecological and fish stock assessment and monitoring</li> <li>• Creation of 'pre-fisheries management plan' before stock assessment is completely done, with particular emphasis on regulation to control access to fishery resources, strong coordination and regulation of aid distribution with respect to resource status</li> <li>• Promotion/implementation of the FAO code of conduct for responsible fisheries</li> </ul>
<b>2. Livelihoods</b>	
<ul style="list-style-type: none"> <li>• Quality of aid: how to ensure good aid? (beneficiary and adequacy of the aid)</li> <li>• Change in number of fishers or nets or fishing ground (related to resource status)</li> <li>• Increased fishing capacity (boats/gear) – but varied (Aceh Besar, west vs. east coast.</li> <li>• Money lender (<i>tauke banko</i>) – their role in fisheries</li> <li>• Land transportation problem (Aceh Jaya) i.e., damaged roads and other transport infrastructure.</li> </ul>	<p><b>Rehabilitation of fisheries livelihoods:</b></p> <ul style="list-style-type: none"> <li>• Improving post harvest facilities e.g., cold storage/ice making plants/ processing</li> <li>• Improving fishing methods and handling on vessels, capacity building, and safety at sea</li> <li>• Providing fishing boats and gear in less exploited fishing areas</li> <li>• Promotion of alternative livelihoods (aquaculture, seaweed culture, promotion of agriculture and land-based economic activities, etc)</li> <li>• Development of irrigation networks for ponds</li> <li>• Improving land transportation facilities (e.g., farm to market roads)</li> <li>• Evaluation of livelihood opportunities in fisheries with respect to type of fisheries</li> </ul> <p><b>Aid process:</b></p> <ul style="list-style-type: none"> <li>• Identification and introduction of process for alternative livelihood options (site specific)</li> <li>• Identification of vulnerable community and strengthening coordination and targeting of aids (to ensure aid gaps are filled and priority areas are also reached, for example, the impacted areas of Pulo Aceh sub district in Aceh Jaya)</li> <li>• Development of standard procedures for aid quality (to ensure the appropriateness and fair distribution of aid/support)</li> </ul> <p><b>General principles:</b></p> <ul style="list-style-type: none"> <li>• Developing strategies and policies to reduce vulnerability and improve resilience (economic, sociological and environmental)</li> <li>• Ensuring consultative and participatory process with local communities, and adoption of best practices</li> <li>• Rehabilitation of livelihoods should be based on local needs and better understanding of the enabling conditions (social, environmental, etc.)</li> </ul>
<b>3. Governance, conflicts and conflict resolution</b>	
<ul style="list-style-type: none"> <li>• Weak institutions/enforcement</li> <li>• Unenforceable management arrangements create division in industry and conflict with management agency and industry</li> <li>• Lack of boat registration system</li> <li>• Who comes first? Potential social conflicts</li> <li>• Fishery conflict (local fishermen vs. foreign fishermen, conflict between local fishermen, conflicts related to the post-tsunami reconstruction /rehabilitation)</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct institutional review (formal and informal institutions) and analysis of intervention on cooperative management</li> <li>• Development for practical solution for Illegal, Unreported and Unregulated (IUU) fishing and cross-scale management issues</li> <li>• Development management plan including enforcement, community and stakeholder involvement, capacity building</li> <li>• Facilitate legislation to empower authorities to monitor compliance and facilitate surveillance</li> <li>• Establishment of enforcement process that are clear, unambiguous and fair</li> </ul>
<b>4. Capacity building</b>	
<ul style="list-style-type: none"> <li>• Need an improvement and establishment of fishery data management in order to produce better fishery statistics that can be used for stock assessment (lack of accurate data, insufficient human resource, lack of funding and facilities)</li> <li>• Need for training/capacity-building – for new fishers and fisheries officers (<i>Dinas</i>)</li> <li>• Weak institutions/enforcement</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening local institutions</li> <li>• Improving human resource development including training (i.e., aquaculture, boat building, processing techniques, fishing technique and gear, etc.)</li> <li>• Improving data collection, management skills and system</li> <li>• Conduct training for the <i>Dinas perikanan</i> officials at all levels on participatory resource planning and management</li> </ul>

Table 1. Issues, problems and recommendations for rehabilitation of livelihoods and improved management of fisheries in tsunami affected communities in Aceh province. (contd).

Issues/problems	Recommendations
5. New dynamics (other issues related to tsunami)	
<ul style="list-style-type: none"> <li>• Change in number of fishers or nets or fishing ground (related to resource status)</li> <li>• Increased fishing capacity (boats/gear) – but varied (Aceh Besar, west vs. east coast.</li> <li>• Money lender (“tauke banko”) – their role</li> <li>• Land transportation problem (Aceh Jaya)</li> <li>• Increased fuel price, shorter trips</li> <li>• Illegal fishing by foreign vessels affect the fishery (has it changed since the tsunami?)</li> <li>• Problems of coordination (in the rehabilitation and reconstruction related activities) and slow first year implementation</li> <li>• Quantity of aid: danger of oversupply and depletion of resources</li> <li>• Cashing in on social responsibilities</li> <li>• Need for a regulatory framework and compliance</li> <li>• Need to balance local and export markets</li> </ul>	<p><b>Research areas:</b></p> <ul style="list-style-type: none"> <li>• Better understanding on post tsunami fishery dynamics (interrelation between stakeholders, stakeholder strategies, fishermen social environment</li> <li>• Census of livelihood activities being provided or created within the fishery sector</li> <li>• Better understanding/evaluation of rehabilitation and reconstruction activities and lessons learning</li> </ul> <p><b>Infrastructure and support services:</b></p> <ul style="list-style-type: none"> <li>• Rehabilitation of fish landing centers, markets</li> <li>• Community level early warning system</li> </ul> <p><b>General principles:</b></p> <ul style="list-style-type: none"> <li>• Adoption of a holistic approach to interventions</li> <li>• Linking local initiatives and regional infrastructure projects</li> <li>• Bridging short-term and long-term investment plans</li> <li>• Ensuring that considerations are given to non-tsunami affected areas/communities</li> <li>• Ensuring that considerations are given to the post-conflict situation</li> </ul>

## References

BAPPENAS (National Planning Indonesia Development Agency) 2005. Indonesia: Preliminary damage and loss assessment, The December 26, 2004 natural disaster. A Technical Report by BAPPENAS and International Donor Community. January 2005.

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