

Impacts of the Tsunami on Fisheries and Aquaculture Livelihoods¹

- Maldives –

(As of 6th February 2005)

Affected areas

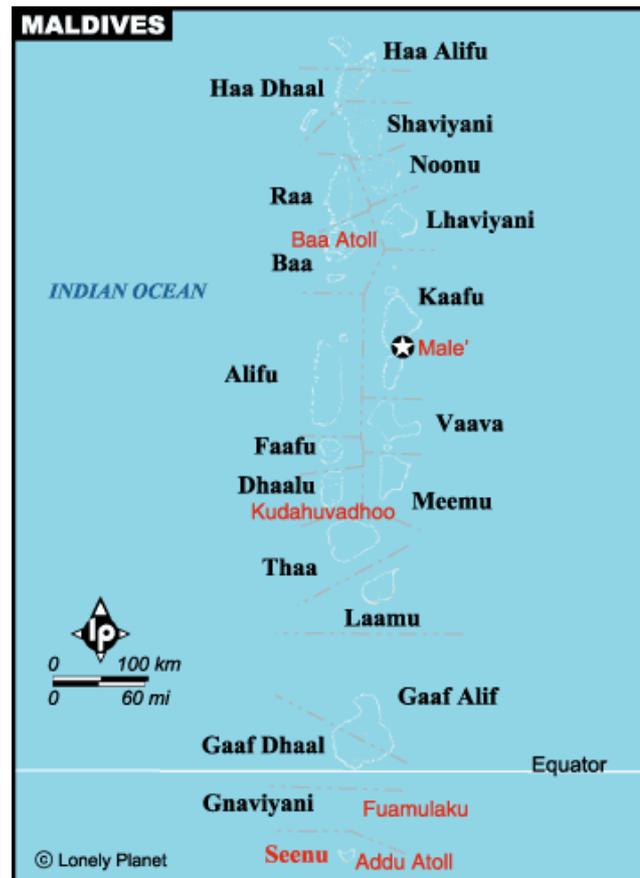
The Maldives is a chain of Indian Ocean islands spread over a distance of 900 kilometres, and located between northern latitude 4 to slightly south of the equator. The land area, which covers about 26 geographic atolls, is grouped into 20 administrative atolls. The country has 1,190 islands, of which 199 are inhabited. Of these islands, only 28 have a land area greater than one square kilometre.

The Indian Ocean Tsunami of December 26th 2004 reached Maldives at 9:20am. Tidal waves ranging from 4 to 14 feet were reported in all parts of the country, but the eastern coastlines of the islands/atolls in the central and southern half of the country were especially badly affected. The force of the waves caused widespread infrastructure devastation in the atolls. Nearly a third of Maldives' 290,000 people were affected through the loss of, or damage to, homes, livelihoods and local infrastructure. Initially 29,577 people were either displaced or homeless accounting for over 10% of the population.

Fisheries pre-tsunami

The fisheries sector, has experienced strong growth in recent years and contributed about 9.3% to the Gross Domestic Product (GDP) in 2004.² The sector is primarily rurally based and therefore fundamentally integrated with rural livelihoods and income. It has evolved from a traditional

Figure 1: Map of Maldives



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² Based on Statistical Yearbook of Maldives (2004), this figure includes fish processing. Excluding fish processing of 2.7%, the contribution of the fisheries sector to the GDP in 2003 is 6.6%.

subsistence-based pole and line tuna fishery to more commercial operations, but pole and line fishing still accounts for 90% of all production (by tonnage). A large proportion of catch is sold to the Maldives Industrial Fishing Company which has tuna canning and freezing facilities, as well as a fleet of collector vessels, based strategically throughout the country. The remainder is sold to small processing operations on the islands.

The fishing industry is the second major source of foreign exchange after tourism. Although about a third of the annual catch (164,348 in 2002 tonnes) is consumed domestically, fish exports currently account for almost half of the country's exports. Fish exports in 2003 amounted to \$75.6 million (equivalent to \$250 per capita). The sector is based almost exclusively on tuna (90% of landed weight), and is a major provider of employment in the Maldivian economy, particularly in outlying atolls with few other income-earning opportunities. The fisheries sector employs 14,355 fishermen, representing around 11% of the country's labour force, and about 20% of the total population in the country is dependent on fisheries as the major income earning activity.³ In 2002 there were 1,687 mechanised masdhonis⁴, 111 sailing masdhonis, 367 mechanised vadhu, 1168 sailing vadhu, and around 1,000 rowboats in the country as a whole.

Fisheries post-tsunami and damage assessment

Within the fisheries sector, the pole and line tuna harvesting sub-sector and the small-scale fish processing sub-sector were the ones most affected by the tsunami. Several fishing communities were displaced from their islands. Over 100 fishing vessels in the medium size range (50+ft) and 20 artisanal fishing vessels are reported lost or seriously damaged. An additional 22 vessels are out of commission due to damage to engine and fishing gear. With an average of 10 crew per vessel, this represents a direct loss of income earning opportunity for about 1,200 fishermen and their households. Fisheries infrastructure such as fishery island harbours and safe anchorage, and boat sheds have been damaged in several islands. Traditional fish processors, mainly women, in the most affected atolls in the central region lost many of their productive assets and stocks of processed products. Those most seriously affected will lose the high fishing season (January – April), but it should be noted that a WFP mission⁵ reported (27th January 2005) that fishing has generally resumed for all fishermen, except those whose vessels were lost or damaged.

According to the estimates prepared by the MFAMR, the total cost for repair and rehabilitation of the damages to fisheries industry will amount to about Rf321 million (\$25.00 million). These damage assessments and cost estimates cover repair and/or replacement of fishing vessels, engines, fishing gear and accessories, fish processing equipment and infrastructure. A summary of the losses is given in Table 1. Each atoll office has assessed the tsunami damage and reported to MFAMR. While there is a need for a more detailed survey to verify the cost estimates, there was agreement from the recent World Bank/Asian Development Bank/UN system joint assessment mission about the broad extent of damages. The details of damage are as follows:

(i) The direct losses in the sector are estimated at Rf168 million (\$13.13 million equivalent). The losses include 120 fully damaged and lost fishing vessels; 27 partially damaged fishing vessels; lost equipment of 337 cottage fish processors and 37 commercial processors; lost equipment in 5 reef fishery harvesting boats, including loss of 16 ocean cages used for the export sector; damage to 8 boatsheds; and finally, damage to the Mariculture Research Station and the FAD (Fish Aggregation Device) Centre.

³ Ministry of Planning and National Development, January 2005, Statistical Yearbook of Maldives (2004), Male, Maldives.

⁴ Masdhonis are a type of vessel design usually in excess of 35ft, vadhu are smaller vessels.

⁵ Allan Kute, Scott Ronchini

(ii) Indirect losses in the sector are estimated at Rf152 million (\$23.61 million equivalent) as fishers will lose fishing business and a large number of the fishers have been displaced from their home islands, particularly in the central atolls. In addition, a large number of island communities in the atolls base their livelihoods on cottage-based processing of Maldives fish (a dried tuna product, principally for export to Sri Lanka).

Table 1: Damage Assessment

| No. | Type of Facility | Unit | Damage to Infrastructure ¹ | | Total Damage to Infrastructure | |
|--------------|------------------------------|------|---------------------------------------|------|--------------------------------|-------------------------|
| | | | Full | Part | Rf Million | \$ Million ² |
| 1 | Fishing vessels | No. | 120 | 320 | 147.50 | 11.48 |
| 2 | Fish processors ³ | No. | 374 | 0 | 17.80 | 1.38 |
| 3 | Reef fishery ⁴ | No. | 0 | 5 | 1.88 | 0.14 |
| 4 | Infrastructure ⁵ | No. | 8 | 2 | 1.55 | 0.12 |
| 5 | Business loss ⁶ | | | | 152.57 | 11.87 |
| Total | | | | | 321.32 | 25.00 |

¹ Damage estimate is based on MFARM's revised estimate, received on 13 January 2005.

² \$1.0 = Rf12.85

³ 337 Cottage fish processors and 37 commercial processors lost equipment and materials.

⁴ Reef fishery damages include lost equipment and materials of the harvesting fleet and lost ocean cages.

⁵ Infrastructure includes fully damaged 8 boatsheds, Mariculture Research Station, and FAD centre

⁶ Direct income losses from fishing and other businesses estimated here. MFAMR estimate of Rf405.04 million as business losses also include financial costs for vessels and loss in GDP.

Needs assessment and rehabilitation strategy

MFARM plans are to complete the rehabilitation works in two phases a) over the short-term and b) over the mid-term. Estimates for the two phases are provided in and the rehabilitation strategies are as follows:

Phase I: Short-term (6 months/June 2005): Based on the MFARM estimates for damages, the immediate repair works in the fisheries industry are now estimated to cost Rf66.43 million (\$5.17 million equivalent). The repair works include building 10 new medium range vessels, repairs to partially damaged fishing vessels, replacement of lost/damaged fishing gear and engines, replace of equipment in reef fishery, replacement of damaged equipment and facilities for Maldivian fish production. The short-term need also include microcredit arrangement for the tsunami affected cottage processors for their operational capital. Some initiatives have already been taken to build new vessels and replace equipment at a cost of Rf15.50 million (\$1.21 million equivalent) through Government financing. Phase I also includes an assessment of impact on reefs and marine resources. The community development approach will be applied to microcredit operations through informal fisher groups.

Phase II: Mid-term (2.5 years/ December 2007): According to MFARM, mid-term rehabilitation works are estimated to cost Rf130.53 million (\$10.16 million equivalent). These works include replacing damaged fishing vessels and fishing gears.

Table 2: Needs Assessment

| Activities | Phase I Short-term | Phase II Mid-term | Total Amount | |
|--|-----------------------------------|-------------------------------------|-----------------|--------------|
| | Rf Million | Rf Million | Rf Million | \$ Million |
| Replace damages fishing vessels (inclusive of engine, gear, etc.) | 11.47 | 126.67 | 138.14 | 10.75 |
| Replace fishing gear/engines etc. in partially damaged boats | 9.38 | | 9.38 | 0.73 |
| Replace equipment/material lost in reef fishery | 1.88 | | 1.88 | 0.15 |
| Replace damaged equipment and facilities for Maldivé fish production | 17.00 | | 17.00 | 1.32 |
| Replace damaged /destroyed boatsheds | 0.67 | | 0.67 | 0.05 |
| Repair mariculture station and FAD Centre | 0.89 | | 0.89 | 0.07 |
| Assess and monitor impact on reefs and marine resources | 5.14 | 3.86 | 9.00 | 0.70 |
| Micro credit arrangements | 20.00 | | 20.00 | 1.56 |
| Total | 66.43 (\$5.17 M) | 130.53 (\$10.16 M) | 196.96 | 15.33 |

Ongoing activities

The Government has started to build 10 new vessels, and is planning to use MFARMS revolving fund of Rf 9.50 million to support rehabilitation activities in the affected atolls. In addition, MFARM has asked the Government for additional financial resources of Rf24.39 million. The Government is seeking assistance from various development partners, including multilateral and bilateral donors, United Nations agencies, and international NGOs in order to assist the tsunami-affected fishers. Based on the joint donors' assessment of the tsunami damage and needs, the Government will seek assistance from the potential development partners through a Donor Conference which is tentatively scheduled for March 2005.