

Tsunami Recovery and Restoration in the Maldives – Lessons Learned

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Introduction

- Tsunami left devastating effects on the low lying islands of the Maldives [Map.ppt](#)
- Severely affected a third of the population
- Reconstruction and repair of nearly 5000 houses are underway with some of them completed
- Fisheries sector has rebounded and the tourism sector has fully recovered

Environmental Impacts

- beach erosion was among the most serious of environmental issues
- changes to coastal morphology were most evident on the islands on the eastern rim
- large areas of *heylyhi* or coastal vegetation was reported to have been destroyed
- Impacts on coastal vegetation
- Impacts on the freshwater lens
- Impacts from tsunami waste – demolition waste plus already existing household waste
- undisturbed areas of mangroves proved very resilient to direct impacts of the tsunami

Case studies

- The ARC/ CRC Waste Management Program
- Shelter projects
 - Thaa Vilufushi
 - Raa Dhuvaafaru



ARC/CRC Waste Management Programme

- ARC and CRC jointly carried out waste management projects on 77 of the affected islands
- There were 3 components to the program;
 - To clean up and remove tsunami debris and other waste
 - Construct waste management centres (WMC) at island level
 - To carry out an awareness program for waste management and training of community representatives



Project duration and budget

- Initiated on the 26th of December 2005
- Completed in May 2007
- USD 6.6 million
 - USD 4.4 million for tsunami cleanup
 - USD 2.2 million for construction of centres and awareness



Tsunami clean-up project

- More than 37,000 m³ of potentially dangerous waste was removed from the islands
- Some of the waste was moved within the island to assist with erosion control



Construction of IWMCs

- 79 centres built in 76 communities
- Capacity to segregate and store waste
- Composting area
- Lockable area for hazardous waste
- All IWMCs handed over to communities



Training and Awareness Project

- 1470 representatives from the communities were trained
- Waste education sessions run at school level – 2027 students participated
- Atoll level workshops held during post-completion monitoring





Gaps and Problems

- Delays due to contractor
- Novelty of the concept of waste management
- Lack of willingness to pay by community
- Garbage washing up on beaches
- Final disposal site
- Lack of financial and human resources
- Lack of sufficient stakeholder consultations

Gaps and Problemscontinued

- Most important impact on the coastal vegetation – clean up operations
- Lack of awareness among workers
- Low importance given to environment





Gender aspects

- No specific outputs related to gender
- A “Gender Equality Strategy” was developed as part of project
- Traditionally, women have taken responsibility for waste management on the islands
- Dominant role of men at stakeholder meetings
- Program would have benefited both men and women

Thaa Vilufushi Shelter Project

- One of the worst hit by 2004 tsunami
- All inhabitants moved to Th. Buruni
- Vilufushi was included in the “Safe Islands Programme”
- Reconstructed to 3 times it’s original size [Photo.ppt](#)
- Infrastructure includes 309 houses plus facilities such as health centre, island office, mosque etc
- Budget – Over USD 23,000,000
- Environmental monitoring was part of project
- British Red Cross, GOM, German Red Cross

Difficulties faced

- If regular community consultation sessions were not carried out – setbacks in decision making
- Lack of companies with appropriate profiles



Weaknesses

- No significant weaknesses or information gaps
- Environmental Impact Assessment (EIA) – provided anticipated impacts and provided mitigation measures
- Separate EIA for sewerage system
- Minor weaknesses to be addressed in future
 - Encouragement of single livelihood
 - Criteria used for awarding grants were confusing

Gender aspects

- Domination of men during consultation
- Fish processing grants – benefited both men and women





Raa Dhuvaafaru Shelter Project

- Uninhabited island developed for R. Kandholhudhoo community
- IFRC, USAid and GOM – initiated mid 2005
- 600 houses plus other infrastructure
- Pledge – IFRC USD 32 million
- Estimated total cost of appx USD 45 million



Difficulties faced

- Dealing with the community – dependency created during the project
- Government delays
- Delays in importing construction material
- Delays in getting contractors
- Severe shortages of local staff
- Changes in plan during relocation

Gender aspects

- Focus was to ensure gender equality
- Women focus group meetings held



Environmental aspects

- EIA carried out before commencement of works
- Separate EIAs for sewerage system and road works
- Main impacts highlighted as well as mitigation measures
- Environmental monitoring not implemented

Overall conclusions

- One of the major challenges – lack of proactive behaviour
- Lack of leadership from government institutions
- Changes in the disaster management system
- Confusion of responsibilities – nature of project implementation



Overall Conclusions.....cont

- Insufficient use of existing needs assessment studies
- Lack of financial capacity and human resources
- Government and contractor delays
- EIAs undertaken for shelter projects
- Monitoring not implemented





Recommendations

- Efforts need to be made to minimise dependency
- Community consultation should commence at onset of project
- Transparency of roles and responsibilities
- Capacity building of staff at NDMC and other relevant agencies
- Encourage EIAs and other environmental tools

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Thank you

