

## Outcome NCEA advisory services in practice: the Maldives case.

After the tsunami strike of 2004 the Maldivian government extended their “Safe Island Program” to reconstruct preselected islands, upgrade their safety level and socio-economic infrastructure and prepare for climate change. Vilufushi and Villigili were among the selected islands. These islands suffered severe damages from the tsunami and were planned to be extended via land reclamation and land leveling up to 2.4 metres above sea level. The Netherlands Development Bank (FMO) and an international dredging company were requested by the Maldivian government to assist with the execution. The Netherlands Commission for Environmental Assessment (NCEA) got involved after a formal request by FMO for an expert judgment on the various Environmental Impact Assessment (EIA) reports and processes that were published and performed according to the Maldivian Environmental Protection Act. These ‘views and experiences’ give insight in the most significant environmental and socio-economic changes that occurred during and after the two land reclamation projects, how these relate to the EIAs, and to the outcomes and impacts of the NCEA’s contribution.

### Scope of reconstruction activities

The proposed projects aimed at enlargement of existing land, leveling of newly created land and the construction of a bund wall for protection against sea level rise and high waves. This included, after removal of all debris, dredging and reclamation of coral sand from the reef, construction of a revetment in rock around the islands and dredging of a new harbour and construction of breakwaters.



### Project activities, EIA, and NCEA involvement

In March 2005, the dredging firm made an Initial Environmental Assessment for Vilufushi and submitted it to the Maldivian authorities and FMO. FMO requested the NCEA to advise on Terms of Reference (ToR) for an EIA. These were also submitted to the Maldivian Ministry of Environment for approval. By the end of 2005, FMO would take a final decision on funding of dredging and land reclamation activities, based on an approved EIA report and environmental management plan.

FMO again asked the NCEA to perform a review of the EIA report as much as possible in line with Maldivian EIA requirements. Based on the EIA review, the project activities were approved, under two conditions: a socio-economic addendum had to

be made and recommendations from the NCEA’s review advice were included in the contract with the dredging company as conditions for project execution. Also for the socio-economic addendum, the NCEA issued ToR and performed an independent quality check. See box below for summary. For Villigili a similar procedure was followed.

EIA/SEA product	Request FMO	NCEA advice
Initial Environmental Assessment, by dredging company. (March 2005)	EIA needed? (screening)	Advisory report by secretariat: yes, EIA needed. (March 2005)
	Request for advice on ToR. (April 2005)	NCEA site visit to Maldives and advice issued (June 2005)
EIA report ready by dredging company. (Nov. 2005)	Request for quality review. (Nov. 2005)	Review advice published. (Dec. 2005)
	Request ToR Social impact Assessment. (April 2006)	Specifications for Socio-economic addendum. (May 2006)
SIA report ready by Maldivian consultant. (Dec. 2006)	Request for quality review. (Dec. 2006)	Memorandum of secretariat on SIA. (Jan. 2007)

## Apparent changes during and after reclamation works

The most apparent changes that were mentioned by EPA and other key actors in Male and on Vilufushi<sup>1</sup> are listed below. Changes for Villigili are nearly the same.

### Positive and negative changes in the environment

#### Positive

- New reclaimed land and leveling;
- Environmental protection measures (partly) in place;
- Groundwater extracted from the island can be recharged after treatment;
- More space available for vegetation in the Environmental Protection Zone (EPZ);
- No apparent changes in the current and flow patterns;
- Gradual natural recovery of coral reef around borrow area.

#### Negative

- Apparent erosion western side of island;
- Increase sediments and waste in harbour;
- Environmental Protection Zone not fully executed and soil not suitable for re-vegetation;
- More sedimentation southern side along the shoreline;
- Erosion on neighbouring islands;
- Stronger effects of waves on shoreline;
- Lack of a proper waste disposal and management.

### Positive and negative socio-economic changes

#### Positive

- Living standard and conditions increased significantly;
- Economic conditions improved;
- Social infrastructure (housing, sewerage etc.) improved significantly;
- Increased areal of land for various activities, including fish processing;
- Enhanced power house and sewerage system are kept further away from residential area;
- Improved protection key institutions (school, health centre);
- More economies of scale (new facilities on island for more people in future);
- Improved infrastructure, although still of moderate quality;
- Aesthetic improvements (new buildings, more green space.)

- *Negative*
- Economic development (investors reluctant to base on Vilufushi);
- New designed residential area forces changes in social structures;
- Effective use of new harbour is threatened;
- Decreasing size of local fish market and no boatyard facilities;
- Too little space for commercial activities;
- Health centre and school cannot provide state of the art practices;
- No organic waste disposal mechanism.



## EIA performance

The general conviction among Maldivian experts is that both EIAs are regarded as satisfactory and well written. To date, the EIA reports and NCEA advisory report are used as examples of international best practice. Maldivian Environmental Protection Agency (EPA) members are using NCEA comments in their framework for Generic ToR for EIA. Baseline data in the EIAs has been used for several other development projects in the Maldives. The National Disaster Management Centre (NDMC) uses the EIAs as a reference for their Disaster Risk Mitigation Program.

## EIA follow-up

Authorities acknowledge that EIA follow-up needs improvement. Apart from the dredging company, no agency monitored compliance to EIA conditions by the contractor(s) during the Vilufushi and Villigili project progressions. This was caused by weak inspection and monitoring capacity in the Maldives. The existence of monitoring reports of the contractor (dredger) is unknown to the current EPA and NDMC, and this is very likely due to the major changes in government that took place in 2008.

The need for sound monitoring and follow up is demonstrated in the box on the next page.

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<sup>1</sup> On July 8th, 2010 a meeting was held with the key actors within the Vilufushi community: Island chiefs (3), Fishermen chiefs (3), Boat owners (2), Women Development Committee (2), Youth representative (1), Contractor co-worker (1), Representative of retail trade (1), Representative of the health sector (1), Representative of the utility company (power) (1), Fish processor (1), Representative of the island education system (1).

### Most important concerns expressed by key actors:

- What are the changes in the currents along the islands, and their effects in the long term?
- What are the exact levels of erosion (now only photographic material as rough indication) and what levels can be predicted due to a lacking enclosure on both sides of the harbour (Vilufushi) or on the non-reclaimed side of the island (Villigili)?
- What are the exact levels and effects of the sedimentation and waste in the harbour and on the southern shore line of the island? (only Vilufushi)
- Is the borrow area susceptible to erosion, and what are the consequences?
- What is the recovery time for the (yet salty) groundwater? (only Vilufushi)
- What about the drainage systems: a lacking drainage canal between the original and reclaimed land possibly causes flooding in the centre of the island (Vilufushi).
- What are the socio-economic consequences of a harbour where the water level is becoming shallower due to sedimentation and how can the harbour be designed and reconstructed to increase functionality in the long term (effectiveness and efficiency)?
- What are the long-term effects of increased wave power on the shore line (issue of coastal protection)?
- What measures can be taken for proper waste disposal and waste management. The disposal problem is currently affecting nature on and along the island (a problem affecting almost all inhabited islands in the Maldives)?
- What are the options with regard to more economic activities and job creation for the island community, something they desperately need?
- How can the agriculture on the island be improved?

### NCEA advisory assistance and general learning effects

For Vilufushi the ToR drafted by the NCEA was leading, while for Villigili the ToR drawn up by the Maldivian Ministry of Environment was leading. The latter was almost an exact copy of the ToR for Vilufushi. Moreover, the EIA reports of both projects resemble to a great extent the recommended ToRs.



Based on these observations and affirmative statements during interviews with key stakeholders, it appears that the NCEA influenced the focus of the EIAs to a great extent. FMO and the Maldivian Environment Ministry, partly based their decisions on the comments of the NCEA, through priority-based attention for environmental and socio-economic issues: e.g. the environmentally friendly dredging method used in Vilufushi, was imposed as

a condition for Villigili by Maldivian authorities. Leading authorities to date refer to the two cases as standards for best practice. They state that projects without comparable international attention, and without NCEA advisory assistance, perform lower in terms of environmental care and in many cases deliver poor quality EIAs, due to limited interests, (financial) resources and knowledge of contractors.

To date, learning effects can be witnessed for four other land reclamation projects. Maldivian EIA professionals state that especially the capacity to mitigate environmental damages –e.g. start with a bund wall before reclamation, perform coral studies and dredge only in the deep sea areas– has grown after NCEA involvement. In addition, authorities declared that NCEA comments now can be recognised in the ToRs and in EPA review comments of these new projects as well.

### Outcomes in practice

#### Outcomes at project level (reconstruction)

- EIA was integrated in decision statement and construction approval;
- EIA determined parts of the project design and execution;
- EIA partly safeguarded negative consequences;
- EPA and inhabitants felt increased insight in and control over activities of contractor;
- Environmental considerations were taken into land-use plan;
- EIA identified project bottlenecks and future challenges;
- There has been more extensive monitoring compared to other projects;
- There was/is extensive attention for social issues;
- There was/is extensive attention and awareness on environmental issues, also post-EIA / project-project;
- Mitigation and environmental protection measures were implemented.

#### Outcomes at system level (rules, regulations and capacities of key actors)

- There is enhanced awareness and capacity for EIA;
- There is enhanced awareness on Social Impact Assessment;
- There is enhanced awareness on environmental problems in general;
- There is enhanced attention for EA integration in planning (Strategic Environmental Assessment);
- System bottlenecks are identified;
- Regulatory framework for EIA is in development;
- Local government is empowered;
- EPA is empowered;
- There is increased knowledge about public consultations;
- There is increased knowledge about monitoring.



## Impacts in practice

Based on the description of the most apparent changes and the analysis of the outcomes on the project and the system levels (previous page), the *impacts* and *challenges* can be identified as well.

### Positive impacts

#### Environment

The EIA and the NCEA's quality reviews and advisory comments, as stated by EPA members to date, raised awareness among authorities and participating experts. It determined to a large extent the sound environmental performance of the reclamation and reconstruction projects: most post-tsunami damage (flooding, salt, low vegetation, debris) was cleared and new land, also for green areas, was made available.

The terrestrial environment was improved but still needs attention. Upon request of the NCEA several mitigation measures (e.g. bund wall, silt screen) and protection measures (e.g. revetment) were planned and to a great extent implemented. The local environment, including coral reef, was safeguarded from further damage and deterioration.

#### Social conditions

The NCEA underlined important socio-economic conditions which resulted in more awareness about these conditions as a part of an EIA. This was often mentioned by both experts on the Male capital island and inhabitants of Vilufushi.

The Social Impact Assessment for Vilufushi as addendum to the EIA report that was performed upon NCEA request, supports this conclusion as well. More awareness triggered the experts to seriously take social issues into account during the planning and execution stages, with the result that the living standard of the residents increased significantly after the project was finished, compared to the pre-tsunami levels.

#### Environmental governance

The EIAs and the contributions of the NCEA, especially the comments on participation, inclusion and priorities for decisions based on sustainability issues, generated awareness for environmental governance. This awareness accelerated the establishment of generic frameworks, rules and regulations, and authority for EIA (more powerful role of EPA, a formal authority for the environment). Environmental considerations have a greater role in planning and approval.

## Remaining challenges

The EIA and the NCEA contributions did not achieve to influence the projects to the fullest extent. There are remaining challenges for the Maldivian actors.

### Challenges

#### Environment

- *Structurally* monitor programmes and reports;
- Compliance inspections and enforcement;
- Detailed expert knowledge, especially for developments within the environment;
- Generation and availability of long term data;
- Insight in the cumulative effects, in particular due to current changes, the shape of the islands and the effects on neighbouring islands (need for SEA).

#### Social conditions

- *Structural* attention for and execution of Social Impact Assessment;
- Community level *discussions* (instead of presentations) in local vernacular without technical details;
- *Structural* inclusion of community.

#### Environmental Governance

- *More* integration of environmental assessment in planning and design (SEA);
- *Better* communication and information dissemination;
- *More* cooperation with local leaders and authorities (decentralisation).



#### Contact and references

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This key sheet is part of a series, presenting experiences gained by the NCEA, working on Environmental Assessment in its partner countries. Please contact the NCEA for tailor-made support on EIA and SEA in your country: [www.eia.nl](http://www.eia.nl) or [helpdesk@eia.nl](mailto:helpdesk@eia.nl)