

TAR: MLD 39129

Technical Assistance to the Republic of the Maldives for Promoting Sound Environmental Management in the Aftermath of the Tsunami Disaster (Financed by the Cooperation Fund for the Water Sector)

July 2005

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 21 June 2005)

Currency Unit	–	rufiyaa (Rf)
Rf1.00	=	\$0.078
\$1.00	=	Rf12.80

ABBREVIATIONS

ADB	–	Asian Development Bank
NERRPO	–	National Economic Recovery and Reconstruction Programme Office
MEC	–	Ministry of Environment and Construction
MOFT	–	Ministry of Finance and Treasury
MPND	–	Ministry of Planning and National Development
MWSA	–	Maldives Water and Sanitation Authority
SWM	–	solid waste management
TEAP	–	Tsunami Emergency Assistance Project
UN	–	United Nations
WSS	–	water supply and sanitation

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Water supply, sanitation, and solid waste management
Subsector	–	Integrated
Themes	–	Environmental sustainability, inclusive social development
Subthemes	–	Natural resources conservation, human development

GLOSSARY

Freshwater lens	–	Groundwater aquifers formed by the accumulation of the recharged rainwater on top of saltwater, which lie 1–1.5 meters below the surface. The thickness of an aquifer is dictated by several factors including net rainfall recharge, size of the island, and permeability of water through the soil column.
Tsunami	–	Large, often destructive, sea wave produced by a submarine earthquake, subsidence, or volcanic eruption

NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

I. INTRODUCTION

1. In the aftermath of the 2004 tsunami disaster, the Asian Development Bank (ADB), with the United Nations (UN) and World Bank, undertook a tsunami damage and needs assessment in the Maldives, which was immediately followed by the formulation of an assistance program in support of the country's recovery efforts. An ADB fact-finding mission from 31 January to 11 February 2005 drew up ADB's assistance program for infrastructure rehabilitation and reconstruction. The present technical assistance (TA),¹ for promoting sound environmental management in the aftermath of the tsunami disaster, complements that earlier program and is part of ADB's efforts to support the Government of the Maldives in reconstruction. The Mission reached an understanding with the Government on the goals, purpose, scope, implementation, cost and financing arrangements, and terms of reference of the TA.²

II. ISSUES

2. The Maldives is a chain of 1,190 small low-lying coral islands grouped into 26 atolls in the Indian Ocean: 198 islands are inhabited and 80 of these house tourist resorts. The islands are mainly coastal entities, and their ecosystems are among the world's most vulnerable. The economic base is a narrow one; it relies on two critical sectors—tourism and fisheries. As most atoll workers are employed in these sectors, protecting the fragile coral reefs and coasts, fisheries, and the marine environment from pollution is central to any poverty strategy. The country's unique geography and vulnerability pose key development challenges. With the population dispersed across the archipelago, economies of scale are difficult to achieve and social service delivery is therefore costly. Living conditions are deteriorating on many inhabited islands where the freshwater lens is at risk because of groundwater pollution and high salinity, as well as increasing pollution of lagoons.

3. The effects of poor infrastructure and social services in the atolls were further heightened by the damage from the Indian Ocean tsunami that hit the Maldives on 26 December 2004 and ravaged infrastructure. The high waves and floods engulfed waste disposal sites and strewn previously collected waste throughout the islands, endangering public health and putting the groundwater lens at risk of contamination from leachate. The freshwater lens is also in danger of contamination from spilled oil, salt intrusion, and sewage from fractured sewerage networks or damaged septic tanks. The natural disaster has led to a number of environmental and public-health concerns: while water supply and basic sanitation services are in urgent need of reconstruction or development, expediting adequate solid waste management practices and structuring of the sector for efficient operation is critical at this stage.

4. A large number of projects in several sectors (water supply and sanitation, health, housing, transport and power, among others) have been formulated amid generous support from the international community. Institutional resources, however, are limited, and to most ministries, projects become more and more difficult to implement as their number increases. The Ministry of Health and the Maldives Water Supply and Sanitation Authority (MWSA) are introducing more than 30 water supply (through desalination) and sanitation schemes; but there is as yet no common strategy defining the steps and actions to be taken. The Ministry of

¹ This TA was formulated to complement the Tsunami Emergency Assistance Project to the Maldives (ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Grant and Loan to the Republic of the Maldives for the Tsunami Emergency Assistance Project*. Manila), after the completion of the 2004 Country Strategy Program Update for the Maldives. It was cleared in concept by the Vice-President (Operations 1) on 14 March 2005.

² The TA first appeared in the *ADB Business Opportunities* (internet edition) on 18 March 2003.

Environment and Construction (MEC) is also facing severe difficulties in dealing with all the issues associated with reconstruction and ensuring that adequate environmental measures are undertaken; attending to so many projects would require a large increase in staff capacity.

5. For the projects to succeed, the communities must participate actively throughout the rehabilitation and reconstruction process. To make them more capable of assuming new responsibilities, the communities must be organized and their awareness raised. In the past, capacity-building activities in the Maldives concentrated mostly on hygiene education³ rather than on an inclusive environmental health and management program taking into account local livelihoods and practices within the overall cultural context. Such an inclusive program is needed to develop widespread understanding of the interdependence and fragility of ecological systems and the natural resource base on which people depend for their well-being. Environmental education could give rise to the adoption of new behaviors in protecting the water and natural resources that are essential to human development on the islands. Education and increased knowledge would also equip the communities to cope better and be more self-reliant in the face of new disasters, thus providing mechanisms to reduce their vulnerability.

6. The strong community fabric on the islands has become more evident in the aftermath of the tsunami disaster, as communities confront island reconstruction in a way that is consistent with their self-identified needs and development plans. For a number of years, the Government has promoted community participation in the delivery of public services to empower atoll communities, thus increasing accountability and ownership. Community groups often provide public or collective services on distant islands. However, capacity difficulties are generally encountered at the start. Organization and management assistance through cooperatives could help them overcome these difficulties.

7. Moreover, other projects implemented after natural disasters have brought out the need (i) to integrate recovery and long-term development planning, (ii) to identify development outputs that are sustainable, and (iii) to link infrastructure development with capacity building and institutional development. Thus, there is an emerging need to develop the community's capacity to participate in design and implementation, and to manage environmental infrastructure and services,⁴ thus speeding up the recovery of the affected islands.

8. In support of the country's recovery efforts, ADB formulated the Tsunami Emergency Assistance Project (TEAP) which included assistance to the water supply and sanitation and solid waste management sectors. The TEAP, however, concentrated exclusively on providing and rehabilitating infrastructure; a complementary sound environmental management program was deemed critical to the long-term sustainability of outputs. In a first stage, the TA will support infrastructure development activities under the TEAP. Activities piloted and pioneered under this assistance may be replicated under the Regional Development Project, Phase II – Environmental Infrastructure and Management, which will make further use of community organization and training and education materials. The TA should provide the Government with the operating framework needed to replicate such activities and devolve operation and maintenance (O&M) activities to island communities. The TA will also (i) promote good governance by devolving responsibilities to the island communities, (ii) reduce poverty through regional human development, and (iii) provide opportunities for cooperative and private sector development, as highlighted in the Country Strategy Program for 2004–2006 and its updates.

³ This refers to the Participatory Hygiene and Sanitation Transformation (PHAST) program, which was jointly developed by MWSA and the United Nations Children's Fund (UNICEF).

⁴ The United Nations Environment Programme is developing a strategy for solid waste management.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

9. The goal of the TA is to improve environmental sustainability in the Maldives, helping achieve the desired Millennium Development Goals (MDG) targets. More immediately, it will develop and test on tsunami-affected islands an environmental management program that focuses predominantly but not solely on environmental health and awareness. Efforts to readdress the extensive achievements made before the tsunami will be supported in every possible way. The design and monitoring framework is in Appendix 1.

B. Methodology and Key Activities

10. The TA will achieve the stated goal and outcome by (i) formulating a strategy for rehabilitating and reconstructing the water and sanitation sector; (ii) building capacity for environmental assessment; (iii) testing and promoting innovative environmental education and public awareness programs in environmental health and environmental management; and (iv) promoting community mobilization and organization for community-based management and O&M of sanitation and solid waste management systems.

11. **Formulating a Rehabilitation and Reconstruction Strategy for the Water and Sanitation Sector.** The TA will give institutional support to MWSA in establishing a framework within which the water and sanitation sector can operate throughout the reconstruction process. Activities will comprise (i) developing an information base on the drinking water supply and sanitation sector, before and after the tsunami; (ii) making a comprehensive analysis of practices, activities, and stakeholders in the sector, and its institutional regulatory setup; (iii) developing a methodology for participatory planning in the sector; (iv) developing strategic options for nationwide application (including criteria and planning principles for selecting and designing water and sanitation schemes); (v) preparing an institutional framework that defines the responsibilities of all stakeholders in the sector; and (vi) formulating a water supply and sanitation (WSS) strategy for tsunami-affected islands based, among others, on needs identified by the communities themselves.

12. **Building Capacity for Environmental Assessment.** MEC is mandated to provide guidance and to review and assess all environmental documents associated with the implementation of development activities. The TA will assist MEC by (i) reviewing the legal and institutional framework and practices used in environmental assessments and recommending improvements in quality and effectiveness, (ii) developing training materials for environmental assessment reflecting issues encountered in tsunami-related reconstruction as well as typical development activities in the Maldives, and (iii) conducting training in the formulation and review of environmental impact assessments.

13. **Testing and Promoting Innovative Environmental Education and Public Awareness.** To succeed, the Government's reconstruction and rehabilitation strategy must be closely associated with a specially designed environmental awareness program that will increase understanding at the central level, and especially in the island communities. For this purpose the technical assistance will (i) carry out a rapid perceptions assessment in selected communities; (ii) select and develop adequate methodologies and tools for promoting environmental education and awareness; (iii) develop materials for an environmental awareness, education, and outreach program; (iv) test the education awareness program by conducting training in communities on the three to five islands expected to be selected for

support under the TEAP; (v) prepare outline guidelines for teachers or community trainers and conduct a train-the-trainers program; and (vi) develop indicators for evaluating the program after 6 months. Methods for raising awareness will make use of local and indigenous knowledge, allowing the learners to draw scientific principles and social insights from their immediate environment and increasing the connection between school and community, exogenous and endogenous knowledge.

14. Although the environmental education program is expected to have a strong focus on environmental health and hygiene, the component must be integrated with long-term sustainable environmental management, natural resource conservation practices, and elements of education for disaster risk reduction. Thus, proposed modules will include topics such as (i) rain and island groundwater resources; (ii) vegetation and groundwater; (iii) salinity, water resources management, and appropriate groundwater extraction systems; (iv) point pollution sources; (v) community solid waste management (including collection, segregation, and composting); (vi) lagoon and reef pollution and conservation; (vii) coastal zone management and beach erosion; (viii) community-driven natural resource management; and (ix) disaster awareness, preparedness, and management.

15. **Organizing for Community-Based Environmental Management.** The TA will review approaches to community organization for environmental management⁵ in the Maldives and refine a preferred approach, which includes initial environmental management activities for community organizations.⁶ Specifically, the TA will (i) develop a procedural framework for community participation in community-based management; (ii) identify key stakeholders and assess issues in consultation with island development committees and women's development committees; (iii) conduct preliminary technical and organizational workshops in all aspects of WSS and SWM, to develop a good understanding and reach agreement on outstanding issues; (iv) identify community "mobilizers" on the three to five islands selected for the TEAP; (v) develop community organization and mobilization guidelines; and (vi) transfer community development skills to selected island "mobilizers" and the TEAP PMU in preparation for the transfer of the sanitation and solid waste management schemes.

C. Cost and Financing

16. The technical assistance will cost an estimated \$500,000 equivalent, comprising \$279,000 in foreign exchange costs and \$221,000 equivalent in local currency costs. ADB will finance \$400,000 equivalent, which will cover the entire foreign exchange cost and \$121,000 equivalent of the local currency costs. The remaining \$100,000 equivalent will be contributed by the Government and will cover office accommodation, transportation, salaries of counterpart staff, background reports and studies, and workshop facilitation. The technical assistance will be financed on a grant basis by the Cooperation Fund for the Water Sector and administered by ADB. The detailed cost estimates and financing plan are in Appendix 2.

D. Implementation Arrangements

17. The Ministry of Finance and Treasury (MOFT) will be the Executing Agency and the National Economic Recovery and Reconstruction Programme Office (NERRPO) will be the Implementing Agency. NERRPO will appoint a TA focal point with a supportive, coordinating,

⁵ The TA will preferentially focus on developing the capacity of traditional community organizations in the islands such as the Women's Development Committees, which provide basic solid waste collection services, and the mosque-based programs for community water collection.

⁶ Activities will include community participation in water testing, utilities, and solid waste management O&M.

and facilitating role. Overall guidance will be provided by the TEAP's project coordinating committee, co-chaired by the Minister of Finance and Treasury and the Minister of Planning and National Development (MPND) or their designated representatives and with representatives from MWSA, MEC, the Ministry of Atolls Development, and MPND as members.

18. The consultants will be selected and engaged by ADB under the direct selection method in accordance with the *Guidelines on the Use of Consultants by Asian Development Bank and Its Borrowers* and other arrangements satisfactory to ADB for the engagement of domestic consultants. The direct selection method will be applied based on (i) the emergency nature of the work required and (ii) the experts' distinctive qualifications for implementing this assignment. *Live and Learn Environmental Education* will be engaged directly by ADB to deliver the necessary outputs. *Live and Learn Environmental Education* is the most qualified and competent implementing organization to provide the services required based on its experience, capacity, and commitment.⁷ Direct engagement The TA will be implemented over 10 months, served intermittently, commencing in August 2005 and ending in May 2006. The team of international and domestic experts will provide about 30 person-months of consulting services—14 person-months' international and 16 person-months' domestic. The international experts will include experts in environmental assessment, environmental education, community participation, SWM, and WSS. The domestic consultants will include experts in community participation and social development, environmental awareness, and educational media. The methodology and terms of reference for the TA are specific and clearly defined (see Appendix 3). Hence, the contract with *Live and Learn Environmental Education* will be negotiated on the basis of ADB's procedures for simplified technical proposals.

19. Live and Learn Environmental Education will produce four major reports: (i) an inception report no later than 6 weeks after the start of the services; (ii) a midterm report by the end of the fifth month; (iii) a draft final report by the end of the ninth month; and (iv) a final report 3 weeks after the receipt of comments from the Government and ADB on the draft final report. Each month the consultants will submit short progress notes summarizing project activities, issues, and constraints. The consultants will translate the key deliverables of this TA into Dhivehi to facilitate review by the Government and other stakeholders. Once approved, the WSS strategy will be disseminated through official publication channels and through the print and electronic media.

IV. THE PRESIDENT'S DECISION

20. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of \$400,000 to the Government of the Maldives to be financed on a grant basis by the Cooperation Fund for the Water Sector for Promoting Sound Environmental Management in the Aftermath of the Tsunami Disaster, and hereby reports this action to the Board.

⁷ Live and Learn Environmental Education has a good record in implementing community environmental education projects, including the ADB-supported pilot demonstration activities under RETA-6123 (ADB, Year 2003. Technical Assistance for Promoting Effective Water Management Policies and Practices Phase 3. Manila: 'Education for Sustainable River and Water Conservation in Solomon Islands for Vanuatu', and 'Testing Environmental Education and Awareness Methodologies and Tools for the Tonle Sap'.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators/Targets	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>1. Improved environmental sustainability in the Maldives</p>	<p>a. Reversed loss of environmental resources within the country</p> <p>b. Increased community participation in delivery of environmental and utility O&M programs</p>	<p>a. Reports on the state of the environment</p> <p>b. ADB CEAs and CSP updates</p> <p>c. Central and provincial government statistics</p>	
<p>Outcome</p> <p>1. Developed and tested environmental management program for tsunami disaster reconstruction</p>	<p>a. Proportion of people with access to safe water restored to pre-tsunami levels</p> <p>b. Environmentally safe coordinated development and construction of sanitation and solid waste management systems in TEAP islands</p> <p>c. Stakeholder participation promoted in decision making and operations on all TEAP-supported islands</p>	<p>a. Technical assistance framework</p> <p>b. Technical assistance completion report prepared by the Implementing Agency</p> <p>c. Central Government and island/atoll statistics</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Well-coordinated activities with ongoing ADB assistance • Appropriate mechanisms for redistributing development benefits
<p>Outputs</p> <p>1. Rehabilitation and reconstruction strategy for the water and sanitation sector formulated</p> <p>2. Capacity for environmental assessment enhanced</p> <p>3. Innovative environmental education and public awareness program tested and promoted</p> <p>4. Community organized for environmental management</p>	<p>a. Participatory strategy for WSS completed</p> <p>b. Number of MEC staff trained to meet the country's reconstruction needs (expected 10–20 individuals)</p> <p>c. Number of environmental education and methodology tools developed (3–5) and individuals trained on all TEAP-supported islands</p> <p>d. Number of communities organized and trained in community-based O&M of WSS and SWM services (all TEAP-supported islands)</p>	<p>a. Technical assistance framework</p> <p>b. Technical assistance completion report</p> <p>c. Technical assistance reports and review missions</p> <p>d. Tripartite meetings</p> <p>e. Workshop findings and recommendations</p> <p>f. Steering committee meetings</p>	<p>Risks</p> <ul style="list-style-type: none"> • Insufficient data available • Delayed staff recruitment <p>Assumptions</p> <ul style="list-style-type: none"> • Government commitment to community-based participation • Collaborative, consultative, and transparent development of strategic options • Community acceptance of responsibility for SWM and WSS • Active involvement of key stakeholders • Demand for TA output is catalyzed

Activities and Milestones	Inputs	
<p>1.1 Develop information base (including community development aspirations) on drinking WSS sector, before and after the tsunami</p> <p>1.2 Help the PCC and IA develop a methodology for prioritized strategic planning through consensus</p> <p>1.3 Develop strategic options for nationwide application for WSS sector rehabilitation after the tsunami</p> <ul style="list-style-type: none"> - Structure the problem - Establish criteria and planning principles - Develop an institutional framework for an efficient and responsive organizational structure for the island communities - Establish sector performance indicators, analyze shortfalls, and distinguish factors underpinning performance <p>1.4 Formulate a WSS rehabilitation strategy based on assessment and national policy, and define testing grounds</p>	<p>a. Documents (produced previously) reviewed and recommended actions specified (end of month 1)</p> <p>b. Verification and gap surveys conducted and reviewed (end of month 2)</p> <p>c. At least 70% of total key stakeholders identified and engaged (end of month 2)</p> <p>d. Methodology for strategic planning through consensus developed and applied (end of month 2)</p> <p>e. Technical and organizational workshops conducted with stakeholders and issues identified jointly (end of month 3)</p> <p>f. Summary profiles prepared for the WSS sector (end of month 3)</p> <p>g. Disaster management strategy for WSS formulated (end of month 3)</p>	<ul style="list-style-type: none"> • ADB (\$400,000) • Government (\$100,000)
<p>2.1 Review the legal and institutional framework and practices for environmental assessment and review the process</p> <p>2.2 Develop training materials with specific case studies based on both:</p> <ul style="list-style-type: none"> - Development projects typically encountered in the country, and - Tsunami-related reconstruction activities <p>2.3 Formulate environmental impact assessment and review training for government staff</p>	<p>a. Documents (produced previously) reviewed and recommended actions specified (end of month 1)</p> <p>b. Key stakeholders to be trained identified and engaged (end of month 1)</p> <p>c. Training materials prepared and printed (end of month 2)</p> <p>d. Technical and organizational workshops conducted with stakeholders and issues identified jointly (end of month 2)</p>	

Activities and Milestones	Inputs
<p>3.1 Carry out rapid perceptions assessment in selected communities</p> <p>3.2 Select and develop methodologies and tools for promoting environmental education and awareness</p> <p>3.3. Develop training materials and implement an environmental awareness, education, and outreach program</p> <p>3.4 Conduct training and education awareness program for communities selected for support under ADB's TEAP</p> <p>3.5 Prepare guidelines for teachers or community trainers</p> <p>3.6 Develop indicators and evaluate program after 6 months</p>	<p>a. 50% of teachers, IDCs, WDCs, community leaders interviewed in selected five islands (minimum) (end of month 3)</p> <p>b. —Three to five methodologies and tools selected and conceptually developed (end of month 4)</p> <p>c. Training materials prepared and printed (end of month 5)</p> <p>d. 50%–75% of teachers, IDCs, WDCs, community leaders trained in planning, monitoring, and evaluating sanitation and hygiene improvements in three to five islands (end of month 7)</p> <p>e. Teaching guidelines prepared (end of month 7)</p> <p>f. Methodologies tested and tools developed in three to five islands (end of month 8)</p>
<p>4.1 Refine approach to community organization</p> <p>4.2 Organize and mobilize communities For cooperative management</p> <p>4.3 Optimize opportunities for women's groups in community-based O&M</p> <p>4.4 Prepare packages and test/provide O&M training to communities selected for support under ADB assistance</p>	<p>a. Guidelines for community organization finalized and documented (end of month 6)</p> <p>b. Selected government staff trained for community mobilization (end of month 8)</p> <p>c. Community intervention and mobilization packages prepared (end of month 8)</p> <p>d. Communities mobilized in up to five selected islands (end month 9)</p> <p>e. Technical training packages for O&M of sanitation and SWM schemes prepared and delivered (end of month 10)</p>

ADB = Asian Development Bank, CEA = Country Environmental Analysis, CSP = Country Strategy and Program, IDCs = Island Development Committees, O&M = operation and maintenance, PCC = project coordination committee, SWM = solid waste management, TA = technical assistance, TEAP = Tsunami Emergency Assistance Project, WDC = Women Development Committee, WSS = water supply and sanitation.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Cooperation Fund for the Water Sector Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	236.0	0.0	236.0
ii. Domestic Consultants	0.0	48.0	48.0
b. International and Local Travel	12.0	10.0	22.0
c. Reports and Communications	0.0	10.0	10.0
d. Translation	0.0	5.0	5.0
2. Workshops			
a. Facilitators	0.0	3.0	3.0
b. Workshops	0.0	10.0	10.0
3. Surveys	0.0	5.0	5.0
4. Training Materials	0.0	15.0	15.0
5. Miscellaneous Administration, Communications, and Support Costs	0.0	3.0	3.0
6. Contingencies	31.0	12.0	43.0
Subtotal (A)	279.0	121.0	400.0
B. Government Financing^a			
1. Office Accommodation	0.0	20.0	20.0
2. Remuneration and Per Diem of Counterpart Staff	0.0	30.0	30.0
3. Others	0.0	50.0	50.0
Subtotal (B)	0.0	100.0	100.0
Total	279.0	221.0	500.0

^a Administered by the Asian Development Bank.

^b In-kind.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Introduction

1. The Ministry of Finance and Treasury (MOFT) will be the Executing Agency for the technical assistance (TA) and the National Economic Recovery and Reconstruction Programme Office (NERRPO) will be the Implementing Agency. NERRPO will assign counterpart staff to implement the TA. These counterpart staff will be supported by international and national resource specialists from Live and Learn Environmental Education, who will provide 14 person-months of services. Aside from the counterpart staff, domestic resource specialists will be engaged to provide 16 person-months of specialized services, as needed. The experts will work closely with the Government on the various outputs of the TA, including the framework, guidelines, and strategy, seeking at all stages to support the Government in these activities.

B. Terms of Reference for International Resource Specialists

2. The **community water supply and sanitation specialist** (3 person-months) will have proven experience in designing and implementing community water supply and sanitation schemes, preferably on small-island countries. The specialist will

- (i) collect, review, and analyze data on water supply and sanitation infrastructure and services, technology, and practice in the Maldives before the tsunami, with the Maldives Water Supply and Sanitation Authority and other responsible agencies, and prepare a list of data and information sources;
- (ii) review relevant sector surveys undertaken after the tsunami by various agencies and by atoll and island offices, and establish the coverage and extent of recovery needs;
- (iii) review the institutional framework, associated policies, planning and budgeting requirements, implementation and operation and maintenance (O&M) arrangements, and monitoring and evaluation;
- (iv) evaluate appropriate and affordable technology options;
- (v) formulate a disaster management strategy for the water supply and sanitation sector based on assessment and national policy, and identify opportunities for implementation; and
- (vi) develop technical training materials to support water and sanitation O&M.

3. The **environmental assessment specialist** (2 person-months) will have proven experience in formulating, assessing, and reviewing environmental compliance documents. The specialist will

- (i) review environmental documents produced previously, identify needed improvements, and recommend actions;
- (ii) identify key stakeholders to be trained;

- (iii) develop course outlines (to include [a] principles of environmental assessment; [b] approaches to document review and environmental scoping; [c] review of purpose, need, alternatives, environmental setting, potential environmental impact, mitigation measures, and monitoring; [d] communication of reviewer's comments on draft environmental assessments; [e] review of final environmental assessments in response to comments; [f] preparation and supporting of a record of decisions on the mitigation and monitoring plan) and prepare training materials;
- (iv) conduct technical and organizational workshops; and
- (v) provide overall practical guidance on the review mechanism for environmental impact assessments.

4. The **environmental education specialist** (5 person-months) will have a background in environmental education and environmental management related to water supply, sanitation, solid waste management, and coastal zone management, and experience in environmental issues related to island ecosystems. The specialist will

- (i) review environmental education materials, assess their distribution and use, identify the need to print or reprint the materials or prepare additional materials, and propose a plan for developing formal and non-formal education activities;
- (ii) formulate surveys and a methodology for carrying out rapid perceptions assessments with selected communities, train agency staff, and jointly conduct the appraisal and analyze the data;
- (iii) review the status of the formal education program;
- (iv) develop a mini-strategy for environmental education and awareness, and select and develop environmental education and awareness methodologies and tools (these may include flyers, posters, videos, booklets, and radio/TV messages);
- (v) develop course outlines for the project health, sanitation-related, and environmental training modules and train counterpart staff;
- (vi) develop training materials and implement an environmental awareness, education, and outreach program;
- (vii) conduct a training and education awareness program for communities selected for support under the ADB assistance;
- (viii) prepare guidelines for teachers or community trainers;
- (ix) develop indicators for evaluating the program; and
- (x) produce a final report on environmental education in a form suitable for publication as an ADB document.

5. The **community mobilization specialist** (4 person-months) will provide high-level guidance as communities are organized for environmental management. The specialist's asks will include

- (i) gaining deeper insight into emerging concepts and strategies for local development and management (structures of communities, their needs, how they are governed);
- (ii) reviewing current organizational approaches to community management;
- (iii) designing and supervising socioeconomic surveys to establish baseline information on communities;
- (iv) conducting needs assessment for community organization and preparing community action plans for the selected sites;
- (v) developing suitable course materials for community organization training;
- (vi) leading communities in the formulation of community management plans for environmental management and specifically for the O&M of water, waste, and sanitation utilities, identifying immediate and medium-term management requirements;
- (vii) Training the domestic consultant and counterpart staff in participatory approaches to community management; and
- (viii) producing a final report on community organization for environmental management in a form suitable for publication as an ADB document.

C. Terms of Reference for National Resource Specialists

6. The **environmental awareness and communication specialist** (8 person-months) will have a proven record in the environment, as well as media and communication experience. Specific tasks will include, among others,

- (i) supporting the international consultant in the formulation of surveys and a methodology for carrying out rapid perceptions assessments with selected communities, and translating the information into Dhivehi as required;
- (ii) assisting the Government in identifying the needed improvements and formulating the guidelines and strategy for making the improvements;
- (iii) assisting in reviewing the results of assessments;
- (iv) supporting the development of training materials, course outlines, and community trainer guidelines, and translating the documents into Dhivehi;
- (v) contacting the partners to be involved in the environmental awareness campaign and jointly defining their roles; coordinating with relevant agencies (these may include other ministries such as education and communications) for their endorsement and the dissemination of outcomes;

- (vi) building links with the media,(television, radio, and press), advising on the design of television spots, radio broadcasts, or other awareness tools, and contributing, as appropriate, to their realization;
- (vii) supporting the international consultant in the delivery of the training program, and conducting the training on other islands;
- (viii) evaluating the program after 6 months; and
- (ix) performing other reasonable tasks identified by the Environmental Education Specialist during the Project.

7. The **social development specialist** (8 person-months) will have extensive experience working with communities in the Maldives. Specific tasks include

- (i) assisting the international consultant in reviewing current organizational approaches;
- (ii) assisting the Government in identifying needed improvements and formulating guidelines and strategy for community organization;
- (iii) collecting data and developing and monitoring information for community organization;
- (iv) translating the survey into Dhivehi, with the international consultant, conducting the survey, and supporting the international consultant in evaluating the results;
- (v) supporting the preparation and translation of training materials in community organization;
- (vi) supporting the delivery of training in community organization to communities on focus islands;
- (vii) providing assistance in implementing and monitoring action plans for community organization;
- (viii) conducting monitoring and evaluation activities after the TA; and
- (ix) performing other reasonable tasks required by the international specialists during the Project.