

**INTEGRATED SAFEGUARDS DATASHEET  
APPRAISAL STAGE**

**I. Basic Information**

Date prepared/updated: 03/10/2008

Report No.: AC3412

**1. Basic Project Data**

Country: Maldives	Project ID: P108078	
Project Name: Maldives Environmental Management Project		
Task Team Leader: Richard Damania		
Estimated Appraisal Date: March 10, 2008	Estimated Board Date: June 10, 2008	
Managing Unit: SASDN	Lending Instrument: Specific Investment Loan	
Sector: Solid waste management (50%);Central government administration (50%)		
Theme: Environmental policies and institutions (P);Biodiversity (S);Climate change (S);Vulnerability assessment and monitoring (S)		
IBRD Amount (US\$m.):	0.00	
IDA Amount (US\$m.):	12.50	
GEF Amount (US\$m.):	0.00	
PCF Amount (US\$m.):	0.00	
Other financing amounts by source:		
	BORROWER/RECIPIENT	1.24
	<u>Financing Gap</u>	<u>1.50</u>
		2.74
Environmental Category: A - Full Assessment		
Simplified Processing	Simple <input type="checkbox"/>	Repeater <input type="checkbox"/>
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**2. Project Objectives**

This project has two development objectives. The first Project Development Objective is that a solid waste management system is established and that inhabitants on selected islands use solid waste management facilities, reducing the risks of contamination associated with accumulated wastes and sea dumping. The second Project Development Objective is to build human and technical capacity for environmental management so that the environmental dimension is integrated in the planning process using information and expertise developed in the Project.

**3. Project Description**

The proposed project would have four components: (1) a regional solid waste management program for the North Central Region; (2) capacity building for environmental management; (3) Technical Assistance for Strengthened Environmental Management and a pilot Regional Strategic Environmental Assessment (RSEA) and (4) project management and communications.

Component 1: Regional Solid Waste Management Program.

Recognizing the Maldives' uniquely dispersed geography and its fragile ecology, the program will operate at multiple levels. First, the construction of Island Waste Management Centers (IWMCs) would provide facilities for island communities to reduce the volume of waste requiring final disposal by sorting, recycling, and composting. Communities would be consulted and determine the level of sorting that would occur on each island. The residual waste would be temporarily stored in a safe and environmentally responsible manner in the IWMC. Second, a Regional Waste Management Facility (RWMF) built on an uninhabited island or an island with compatible land uses (e.g. an industrial island), would serve as the destination for residual waste from the IWMCs and participating resorts. Third, these would be supported by allied services such as community programs, waste transfer and transportation facilities, technical assistance and financial systems, all of which would be subject to government regulation and guided by stringent environmental criteria. The facilities would be designed and built to the highest appropriate standards that are economically viable to reduce the risk of contamination from solid wastes. Special attention would be paid to medical wastes and toxic wastes that would require special handling and management.

#### Component 2: Capacity Building for Environmental Management.

The environmental agencies and regulators in the Maldives have a broad mandate, but their capacity to manage growing environmental pressures does not match the needs of a fragile environment on which the economy depends. The proposed project is designed to at least partly fill the staffing gaps and capacity needs in the environment sector. Priority would be given to developing: (i) a core of competent generalists and specialists in the Ministry of Environment, Energy and Water (MEEW), other relevant ministries (Planning, Fisheries, Tourism, and Construction) and in the private sector (particularly NGOs and the tourism sector) to guide the environmental assessment and decision-making process; (ii) a cadre of service providers to carry out monitoring and field surveillance activities making full use of modern technology; and (iii) a network of private citizens and stakeholders (e.g. fishermen, hotel and dive operators, boat operators and others) with the training needed to serve as the "eyes" and "ears" of the Ministry and also provide inputs for monitoring activities in the Project. The emphasis would be on training existing government staff and others for whom there is a reasonable expectation that their skills could be utilized in the near or medium term.

Training will be delivered through five modalities, namely: (a) community training and awareness raising; (b) specialized training leading to a certificate for roles not requiring academic credentials; (c) specialized training for technical tasks leading to an award such as a diploma or certificate; (d) undergraduate training of a new course in Environmental Management delivered by the Maldives College of Higher Education; and (e) scholarships for degree programs abroad (undergraduate and post-graduate).

All training modalities with the exception of modality (e) would be carried out in-country. Limited support will be provided for study abroad under modality (e) in universities in non-OECD countries, in areas that are of strategic environmental importance.

Component 3: Technical Assistance for Strengthening Environmental Management and Monitoring and a pilot Regional Strategic Environmental Assessment. Sparse

information and the absence of baseline data remain one of the key impediments to improved environmental management in the Maldives. The primary objective of this component is to expand the knowledge base regarding critical natural resources on which the Maldives ecosystem and economy depend. In addition to filling major data gaps this component will also promote activities designed to stimulate discussions and policy deliberations that would lead to greater community awareness and better decision making. It will support activities of strategic significance; the problem of erosion that is projected to worsen with climate change, promoting natural adaptive capacity to climate change through improved stewardship and sustainability of the bait fishery, which is also linked to reef health. The modalities through which this would be achieved include monitoring and assessments of terrestrial resources (i.e., mangroves and coastal erosion), marine resources (i.e., coral reef status and bait fisheries) by communities and professional scientists and support for satellite imagery with the aim of integrating the environmental dimension in planning. Community monitoring is supported since it is an effective way of creating awareness and also of collecting basic data in a systematic fashion from a large number of sites. The capacity to monitor and acquire data would be enhanced by the acquisition of a research vessel appropriately outfitted with and other necessary research instruments. To bring together these activities and generate community awareness, this component would support a pilot Regional Strategic Environmental Assessment (RSEA) to (i) integrate and synthesize the assessments in ways that would inform policy and (ii) demonstrate the utility of incorporating environmental parameters in development decisions.

Component 4: Project Management and Communications. This pertains to the day-to-day operations of the project including project management, liaising and coordinating with other agencies and programs, financial management, procurement, monitoring and evaluation and project communications. The effective design and management of the latter aspect would be key to achieving the desired project outcomes, particularly in what regards to the solid waste management and the RSEA components.

#### **4. Project Location and salient physical characteristics relevant to the safeguard analysis**

The Project would focus primarily on the North Central Region of the Republic of Maldives comprised of the following atolls: Baa, Raa, Noonu and Lhaviyani. The atolls are considered a marine fragile ecosystem.

#### **5. Environmental and Social Safeguards Specialists**

Mr Daniel R. Gross (ENV)

Mr Sumith Pilapitiya (SASDN)

<b>6. Safeguard Policies Triggered</b>	<b>Yes</b>	<b>No</b>
<b>Environmental Assessment (OP/BP 4.01)</b>	<b>X</b>	
<b>Natural Habitats (OP/BP 4.04)</b>	<b>X</b>	
<b>Forests (OP/BP 4.36)</b>		<b>X</b>
<b>Pest Management (OP 4.09)</b>		<b>X</b>
<b>Physical Cultural Resources (OP/BP 4.11)</b>		<b>X</b>
<b>Indigenous Peoples (OP/BP 4.10)</b>		<b>X</b>
<b>Involuntary Resettlement (OP/BP 4.12)</b>		<b>X</b>
<b>Safety of Dams (OP/BP 4.37)</b>		<b>X</b>
<b>Projects on International Waterways (OP/BP 7.50)</b>		<b>X</b>
<b>Projects in Disputed Areas (OP/BP 7.60)</b>		<b>X</b>

## **II. Key Safeguard Policy Issues and Their Management**

### ***A. Summary of Key Safeguard Issues***

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts: Overall, the proposed project activities would result in improved environmental management in the Maldives. The project is classified under Safeguards Category "A", primarily to reflect the risks involved in the Regional Solid Waste Management (RSWM) component. Current systems of waste disposal in the Atolls of the North Central Region are highly unsanitary with open burning and ad-hoc dumping of wastes on the shorelines a common practice on many islands. This is environmentally damaging and especially destructive to coral reefs with growing quantities of plastics and lubricants in the waste stream that often end up contaminating the sensitive reef floor.

Project-supported IWMCs are not expected to generate significant and/or irreversible adverse environmental or social impacts. Community-level waste recycling and resource recovery as well as composting of the organic fraction of the waste may take place at the IWMC level. Recyclable material would be separated and stored in IWMCs for transport to the regional waste management facility (RWMF) for subsequent sale. Medical and toxic wastes generated in the islands would be stored securely for transport and disposal at the RWMF. The largest component in the waste stream is the organic fraction, which can be composted at the household level or at the IWMC. The residue to be sent to the RWMF would be non-recyclable and non-degradable waste and would be transported to the RWMF on a periodic basis so that there would be no significant waste accumulation in the IWMCs. There is potential for adverse environmental impacts at the RWMF, especially during the construction and operation period, although the net environmental impact of this component would be strongly positive.

The type of regional waste management facilities, including the technology choices, can be decided only after communities develop their Island Waste Management Plans that would serve as the basis for identifying the amount and nature of the waste being transported to the RWMF(s). The level of engineering required for containment of contamination would depend on the pollution potential of the waste arriving at the site. The possibility of incineration or waste-to-energy through steam recovery would similarly depend on the calorific value of the residual waste transported to the RWMF(s). The fragile ecosystem in the Maldives poses a challenge for the selection of appropriate

locations for siting the RWMF (s). These problems are unique to the Maldives - a country where land is scarce, the population is highly dispersed and islands are invariably surrounded by coral reefs that serve as a protective barrier against erosion and storms.

Selection of an island for the proposed RWMF(s) is highly constrained by social and environmental factors (see below).

It is highly probable that OP/BP 4.04, Natural Habitats may be triggered depending on the final site selection, facility design, and the specific activities that would be carried out at the facility. During the operation phase, poor design or improper management could result in leakage of wastes or leachate into the immediate habitat.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

Since the project would result in an effective solid waste management system for the Atolls in the North Central Region of the Maldives, the long term impacts of this intervention would be environmentally beneficial. The Government has awarded leases for several new resorts in the North Central Region and the improved regional solid waste management system would reduce sea dumping of waste and contamination of reef ecosystems, which are the main tourist attraction in the Maldives. The reef monitoring and other environmental monitoring programs supported under this project would guide the land use planning process to help ensure better management of the environment and natural resources in the Maldives. The RWMF could have indirect and/or long term impacts depending on the location of the site. Currently there is insufficient information on the environmental dimension to generate a short list of potential sites for a RWMF. This will be done during project implementation making extensive use of data generated from Component 3 (Technical Assistance for monitoring and RSEA) and other sources. As there is inadequate baseline information on key environmental and geographical parameters, the site for the RWMF cannot be identified at this stage, hence the environmental impacts cannot be anticipated. However, a full environmental assessment (EA) would be conducted as per OP/BP 4.01 once a shortlist of potential sites has been identified. The EA would identify any potential and/or indirect impacts due to future activities in the location.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The following alternatives have been considered for locating the RWMF:

- a. Using an inhabited island to locate the RWMF: This is highly constrained by social and environmental factors. Public opposition would likely preclude the selection of an inhabited island as a site for the RWMF. The high population density on most inhabited islands would further detract from siting a RWMF on an inhabited island.
- b. Using an uninhabited island: Siting the RWMF on one of the 180 uninhabited islands in the North Central Region is also problematic. Most uninhabited islands are densely vegetated and surrounded by contiguous reef systems, both likely to contain biodiversity. Furthermore, location of an RWMF in the North Central Region could require excavation of a navigation channel to provide access for waste transfer barges or

landing craft with potential impacts on the reef, the lagoon and possibly also on beach erosion. Such a decision would need to be based on a careful environmental assessment.

c. Using an inhabited island with compatible land uses: There are prospects for using islands with more compatible land uses such as industrial islands site for a RWMF, but this is uncertain since data on land availability and use patterns is sparse.

d. Using more than one island: While conventional wisdom argues for economies of scale, where one site is better than several, in this instance the ecological costs would need to be given precedence over financial considerations.

Although disposal of residual waste in an engineered, controlled landfill with organic matter being removed from the waste stream for composting, may be the most viable solution for solid waste management in South Asia, the unique characteristics of the Maldives ecosystem calls for the inclusion of a wider variety of waste management options such as incineration and waste to energy systems to be considered. While the calorific value and quantity of waste available for such applications is a concern, removal of the biodegradable fraction of the waste for composting could result in making the residue more combustible with higher calorific values than mixed waste. Although incineration and waste-to-energy technologies are often associated with adverse environmental impacts, the use of fragile island ecosystems with potential damage to coral reefs could result in environmental and ecological damage of even greater significance. This calls for all available waste management options to be carefully assessed in the context of the unique constraints in the Maldives.

An Environmental and Social Assessment Framework has been prepared by the Government of Maldives, it has been publicly disclosed on February 17, 2008 in the Maldives and has been sent to the INFOSHOP. The selection of the preferred regional waste management option would be based on a detailed analysis, guided by the Framework, which would be undertaken during project implementation. The analysis would include potentially suitable technology, selection of which would be influenced significantly by the characteristics of the site. These attributes would be evaluated through a weighted process known as the Best Practical Environmental Option (BPEO) that would select both the most appropriate waste management technology and the most appropriate site. The analysis would be conducted in two phases. The first phase would (i) consider potentially suitable waste management system options (including sensitivity analysis);(ii) conduct a scoping investigation of short listed islands on which the proposed Regional Waste Management Facility (-ies) may be located and (iii) identify the most appropriate technology for each shortlisted site. The second phase would involve undertaking (i) selection process for the preferred regional waste management system option; and (ii) a detailed technical and financial feasibility study for the preferred regional waste management option at the finally selected site.

If the BPEO for the RWMF points to an uninhabited island, where establishment of the facility would result in adverse impacts to the island ecosystem such as loss or damage to terrestrial and marine biodiversity, the project would specify measures to offset the loss of biodiversity and island habitat, should this occur. In keeping with the Bank's OP 4.04 on Natural Habitats, biodiversity offsets could be a part of the regional solid waste

management component. In case where damage is unavoidable, an area with an unspoiled coral reef and marine environment could be identified based on the work undertaken in the Technical Assistance component, and protected under the project. This would be done through the creation of a program for focal island ecosystems for community based environmental management.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described. Given that the location of RWMFs, the catchment area, participating islands and technology for the RWMF cannot be determined without thorough investigations, detailed assessments and studies, the environmental assessment cannot be carried out during project preparation. Therefore, an Environmental and Social Assessment Framework has been prepared by the Government, in lieu of a project-specific EA. This would serve as a template for undertaking project specific EAs once the specific works have been identified. The Framework is: (i) comprehensive, (ii) highly detailed and (iii) contains precise time-bound action plans to assure compliance. Compliance with the Framework requirements of EAs for the RWMFs and EMPs for the IWMCs to the satisfaction of IDA would be a disbursement condition for these activities.

The Maldives has a reasonably sound track record of implementing the Environmental Impact Assessment process. The proponent of a project requiring EIA under Maldives regulations is required to prepare a project brief, based on which a scoping meeting would be held by Ministry of Environment, Energy and Water (MEEW)/ERC and Terms of Reference (TOR) for the EIA. Two independent reviewers (anonymous to the proponent) who are considered experts in the field of the relevant project are invited to submit a report with comments on the quality of the EIA prepared in accordance with the TOR issued by ERC. The review comments of the independent experts form the basis of the EIA evaluation and consent is granted (or declined) with environmental mitigation conditions by the Minister of MEEW.

While technical capacity at ERC is reasonably good, the proposed project would provide training to improve this capability further. The EIA review process appears to be adequate at this stage because independent reviewers used to review the EIA appear to have the required technical expertise to evaluate the EIA satisfactorily. ERC has the responsibility of monitoring implementation of the EIA clearance conditions. In addition to supporting strengthening monitoring of EIA clearance conditions in the Project, there would be rigorous compliance scrutiny and monitoring. The project would support two independent environmental compliance reviews in the first two years of operation of the regional waste management facility and one in the final year during project closure.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people. The main stakeholders for the regional solid waste management program are the island communities in the North Central Atolls of Raa, Baa, Noonu and Lahviyani. The primary social issues to be dealt are related to the strong need for community participation and ownership in the Project. Public participation in waste management issues is critical,

especially on less populated islands where participation by the local population in the separation, collection, management and disposition of wastes is essential. Previous experiences in the Maldives have shown that participation is crucial to the success of SWM on outlying islands with small populations. This would depend not only on effective communication but also on getting the incentives right, which is a focus of this project. In addition, the resorts are key stakeholders as they would benefit from improved solid waste management. Other stakeholders are the Island officials, Atoll administrations, and MEEW.

The project would be based on a strong participatory approach. Therefore, the RWMF Operator, Atolls Office and ERC would make all reasonable efforts to consult relevant stakeholders in the preparation and implementation of the RWMF activities prior to the finalization of the project design, during construction and throughout the life of operations. The consultations would be carried out in a way that is appropriate for cultural, gender based and other differences among stakeholders. These consultations would be initiated as early as possible, and provide relevant material in a timely manner prior to consultation. The views and needs of the vulnerable groups would be given due consideration. The public consultation process would be a continuous process throughout the life of the project.

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***B. Disclosure Requirements Date***

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**Environmental Assessment/Audit/Management Plan/Other:**

Was the document disclosed <b>prior to appraisal?</b>	Yes
Date of receipt by the Bank	02/16/2008
Date of "in-country" disclosure	03/17/2008
Date of submission to InfoShop	03/20/2008
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	02/25/2008

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**Resettlement Action Plan/Framework/Policy Process:**

Was the document disclosed <b>prior to appraisal?</b>
Date of receipt by the Bank
Date of "in-country" disclosure
Date of submission to InfoShop

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**Indigenous Peoples Plan/Planning Framework:**

Was the document disclosed <b>prior to appraisal?</b>
Date of receipt by the Bank
Date of "in-country" disclosure
Date of submission to InfoShop

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**Pest Management Plan:**

Was the document disclosed <b>prior to appraisal?</b>
Date of receipt by the Bank
Date of "in-country" disclosure
Date of submission to InfoShop

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**\* If the project triggers the Pest Management and/or Physical Cultural Resources, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.**

**If in-country disclosure of any of the above documents is not expected, please explain why:**

There is no need for a Resettlement Action Plan, because there would be no resettlement under the Project.

***C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)***

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?	Yes
If yes, then did the Regional Environment Unit or Sector Manager (SM) review and approve the EA report?	No
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes

**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?	No
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes

**All Safeguard Policies**

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes
Have costs related to safeguard policy measures been included in the project cost?	Yes
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes

***D. Approvals***

<b><i>Signed and submitted by:</i></b>	<b><i>Name</i></b>	<b><i>Date</i></b>
Task Team Leader:	Mr Richard Damania	02/26/2008
Environmental Specialist:	Mr Sumith Pilapitiya	02/28/2008
Social Development Specialist	Mr Daniel R. Gross	02/28/2008
Additional Environmental and/or Social Development Specialist(s):		
<b><i>Approved by:</i></b>		
Regional Safeguards Coordinator:	Mr Frederick Edmund Brusberg	03/06/2008
Comments:		
Sector Manager:	Ms Karin Erika Kemper	03/10/2008
Comments:		