

RESILIENCE LEARNING MONTH EVENT

Focus Group Discussion (FGD) on Climate Finance Tracking and Paris Agreement Alignment

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Maldives: Greater Malé Waste-to-Energy Project

Issues and Problems. Current garbage disposal practices cause severe environmental pollution and deteriorating livability, and impact tourism and fishery economy:

- i. plumes of smoke from dumpsite compromise air quality and pose a daily nuisance to residents and tourists;
- ii. toxic leachate contaminates soil and compromises ocean health
- iii. Green house gases emissions from open dumping

Solution the project will establish a sustainable regional solid waste treatment system in the Greater Malé capital region by:

- i. developing **treatment** (proven waste-to-energy [WTE] technology – 500 tons per day with energy recovery), **recycling and disposal infrastructure**;
- ii. strengthening **institutional capacities** for sustainable solid waste services delivery and environmental monitoring; and
- iii. improving **public awareness** on WTE and reduce-reuse-recycle (3R).



TOTAL MITIGATION FINANCE:
\$109.39 million
 \$34.65 million Concessional OCR loan
 \$25.24 million ADF grant
 \$40 million AIIB loan
 \$9.50 million JFJCM grant

TOTAL ADAPTATION FINANCE:
\$7.11 million
 \$3.555 million Concessional OCR loan
 \$3.555 million ADF grant

Approval	:	August 2020
Completion Date	:	2026
Modality	:	Project grant/loan
Total	:	\$151 million
ADB	:	\$73 million (\$10 million JFJCM)
AIIB	:	\$40 million
TA (TASF-6)	:	\$500,000

Climate finance: Mitigation

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- The whole investment for WTE facility considered as mitigation *
- Best Available Technology following waste hierarchy
- Mitigation from averted methane and averted fossil fuel (diesel) use for energy generation
- Bidding documents incorporate incentives for highest plant efficiency (following EU BREF)

Net Greenhouse gases emission reduction **40,000 tCO₂eq/year**

- Calculated (and reviewed) following international (UNCCCF and JFJCM methodology) to access to JFJCM finance.
- GHG reduction will be further refined during operation and audited



*Subcategory 5.1 of the Mitigation Typology and per the list of eligible mitigation activities under the Guidance Note on Counting Climate Finance in Energy – Appendix 1. [ADB \(Sustainable Development and Climate Change Department; Strategy and Policy Department\). 2017. Guidance Note on Counting Climate Finance in Energy. Memorandum.](#)

Climate finance: Adaptation

Adaptation Activity	Target Climate Risk	Costs (\$ million)	Justification
Elevate base floor to 2.2 m of critical structures and facilities	Sea water rise and increasing precipitation intensity can result in flooding.	\$0.9	The plot of land reclaimed has a current height of 1.7 m. Ground floor base elevation for critical structures and facilities (6 ha) to be elevated by 0.5 m (to 2.2 m) and a higher inclination of the plot to be established
Enhance capacity of drainage system	Increasing precipitation intensity, especially when coinciding with high tide and storm surge, can result in extreme flooding.	\$0.5	Larger pipes and retention ducts and ponds to cope with flooding from more intense and extreme rainfall/weather events
Enhance stability and impermeability of landfill (WTE residues) berms	Higher soil erosion due to more intense precipitation events.	\$0.4	Stabilization measures for landfill berms, including also enhanced vegetation, to ensure their structural soundness
Protect critical mechanical and electrical systems and establish redundancy	Increasing precipitation intensity, especially when coinciding with high tide and storm surge, can result in extreme flooding.	\$1.4	Electrical equipment (transformer, emergency genset module) to be either installed waterproof or at an elevated level to keep it operational any time. Provide higher insulation classes for electrical equipment due to potential storm surges or protect equipment
Protect stormwater throughout pumps and backflow inverters	Sea water intrusion, due to sea level rise, reduces availability of equipment	\$1.7	Up to four large stormwater pumps to be installed in watertight pump stations, to prevent sea water to intrude and to reduce the water pressure in the outfalls back-flow inverters need to be installed
Protect key civil structures against buoyancy	Increasing buoyancy from expected mean sea water level rise	\$1.2	Foundations of waste bunker to be strengthened or weight of bunker to be increased to reduce effects of buoyancy that would be due to increased sea water (i.e. ground water) level if bunker floor and the lower part of it were built as waterproof subsurface elements
Strengthen critical and elevated structures to withstand Category 2 cyclone and intensity V MMI earthquake scale	Higher intensity storms and enhanced wind speeds damage critical civil structures	\$1.0	Elevated structures of the machinery hall (> 30 m) and the stack (45 m) need to be reinforced and their foundations to be strengthened to meet the tensile stress due to elevated wind speeds and to reduce vulnerabilities of the buildings due to earthquake impact.

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Based on:

- DCRVA conclusions at PCP
- CCA