Ministry of Tourism and Environment

Waste Management Infrastructure and Technology Development to End Open Waste Burning in Maldives

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Session 03: Institutional Capacity (Awareness, Finance, Technology)

Open Burning in Maldives

Open burning is practiced mainly due to

- Limited land
- Lack of infrastructure
- High cost of transportation

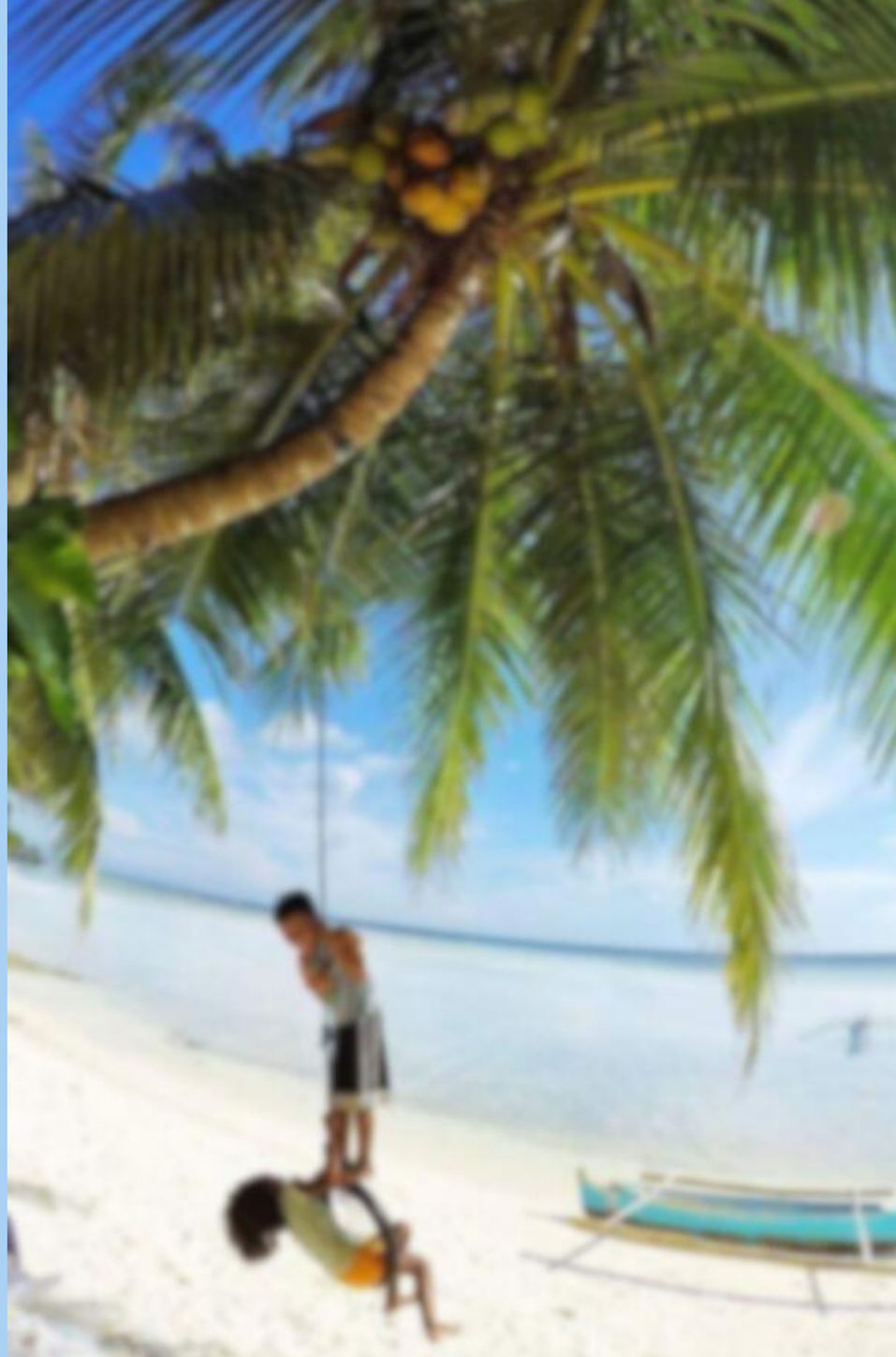
Island Waste and Resource Management Centre

Construction of Island Waste Management Centers under Special Projects

Under a Presidential Pledge

Estimated Project Value : 300 Million MVR

• SOE	• No of islands	• New Centers	• Upgrading
• MTCC	• 26	• 0	• 26
• RDC	• 24	• 5	• 19
• FENAKA	• 25	• 3	• 22
• WAMCO	• 34	• 21	• 13
• Total		• 29	• 80



Waste Collection Vehicles, Vessels and Dustbins

TREATMENT AND PROCESSING AT ISLAND LEVEL

Composting of Organic Waste

Glass Crushing

Baling Plastic bottles and cans

Equipment

WASTE MANAGEMENT PROCESS

Generation

Segregated at household level

Collection

Waste is collected and transferred to Island Waste and Resource Management Centers

Volume reduction / material recovery

Islands supplied with WM equipment (Balers, Glass crushers, woodchippers, shredders etc.) to help reduce the volume.

Transport / Transfer

Waste is transferred to the Regional Waste Management Facility by specially designed vehicles / vessels

Treatment

Waste processed at RWMF. Heat is recovered using a boiler and steam turbine

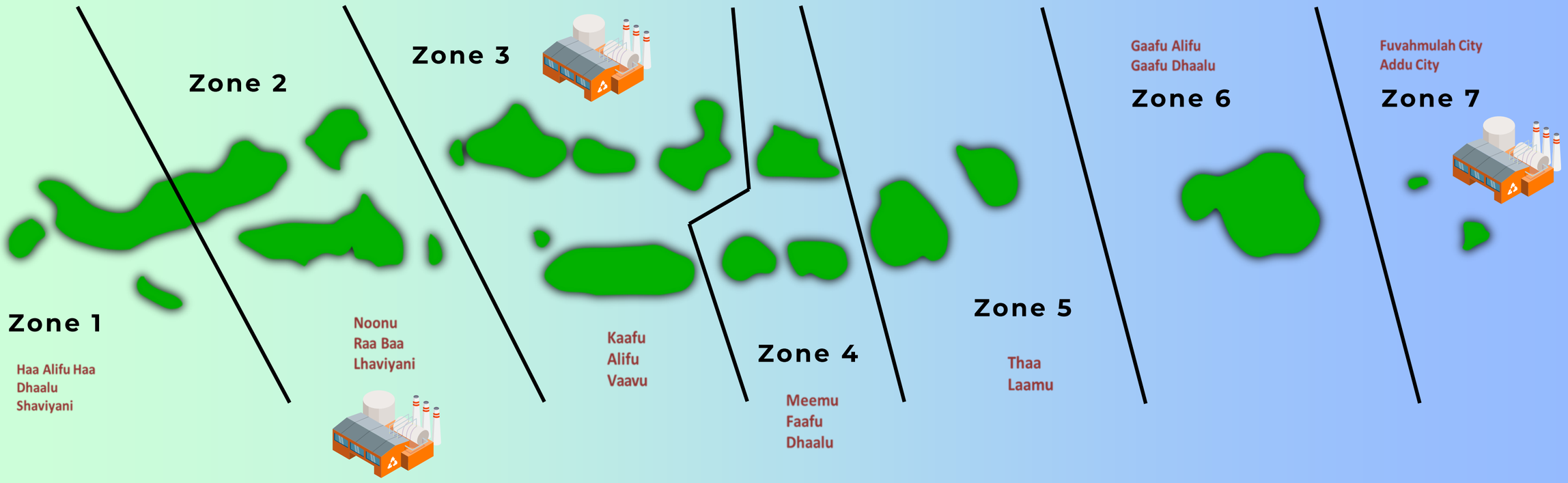
Power Production

Steam turbine Generates electricity to power the RWMF and excess power to be fed to the Grid

Bottom Ash recycle & Final Disposal

residue from the combusted waste to be disposed to an engineered landfill

Regional Waste Management Concept



Southern Regional Waste Management Facility - Addu City

Sector: Urban Solid Waste Management (Waste to Energy)

Catchment Area: Zone 6 & 7 (GA, GDh, Addu City and Fuvahmulah City)

Project Budget: USD 28 Mil

Sources of Funding:
50% Abu Dhabi Fund for Development (ADFD)
50% Government of Maldives

Duration:
The project is expected to be Completed by the end of 2027

Implementing Agency:
Ministry of Tourism and Environment.

IRENA
International Renewable Energy Agency

ADFD
صندوق أبوظبي للتنمية
ABU DHABI FUND FOR DEVELOPMENT

Central Regional Waste Management Facility - Thilafushi

Sector: Urban Solid Waste Management (Waste to Energy)

Catchment Area: Zone 3 (Greater Male' region, K, AA, ADh and V atolls), Zone 4&5 (M, F, Dh, Th & L Atolls)

Project Budget:
USD 191.13 Mil

Sources of Funding:
ADB, JFPR, JFCM, AIIB, ISDB, Government of Maldives

Duration:
The project is expected to be Completed by the end of 2027

Implementing Agency:
Ministry of Tourism and Environment.

My Home, My Future
Greater Male' Environmental Improvement And Waste Management Project

ADB ASIAN DEVELOPMENT BANK

Northern Regional Waste Management Facility - R. Vandhoo

Sector: Urban Solid Waste Management (Waste to Energy)

Catchment Area: Zone 2 (N, R, B and Lh atoll), Zone 1 (Ha, HDh & Sh Atolls)

Project Budget: USD 17 Mil

Sources of Funding:
World Bank
Abu Dhabi Fund for Development (ADFD)
Government of Maldives

Duration:
The project is expected to be Completed by the June 2026

Implementing Agency:
Ministry of Tourism and Environment.

THE WORLD BANK

IRENA
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Why Waste to Energy?

Limited Land Availability:
Traditional landfilling is unsustainable in the Maldives due to scarce land resources, Waste to Energy significantly reduce waste volume

Environmental Protection:
WtE helps eliminate environmentally damaging practices such as open dumping and burning, which have historically posed significant environmental and health hazards.

Scattered Islands:
The dispersed nature of the Maldivian islands makes waste collection and transportation costly. Regional WtE Facilities allow for localised waste disposal and treatment

Energy Co-Benefits:
The Maldives heavily depends on diesel generators for electricity. WtE provides stable, renewable base-load power, reducing reliance on expensive diesel imports and contributing to energy security.

How was Waste to Energy Technology selected?

Option Studies were done to evaluated multiple waste management options:

Landfilling

Composting

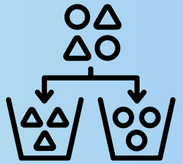
Waste to Energy

Recycling

Incineration

Based on the studies experts identified that the Waste to Energy Technology is the most suitable for the Waste Management in Maldives

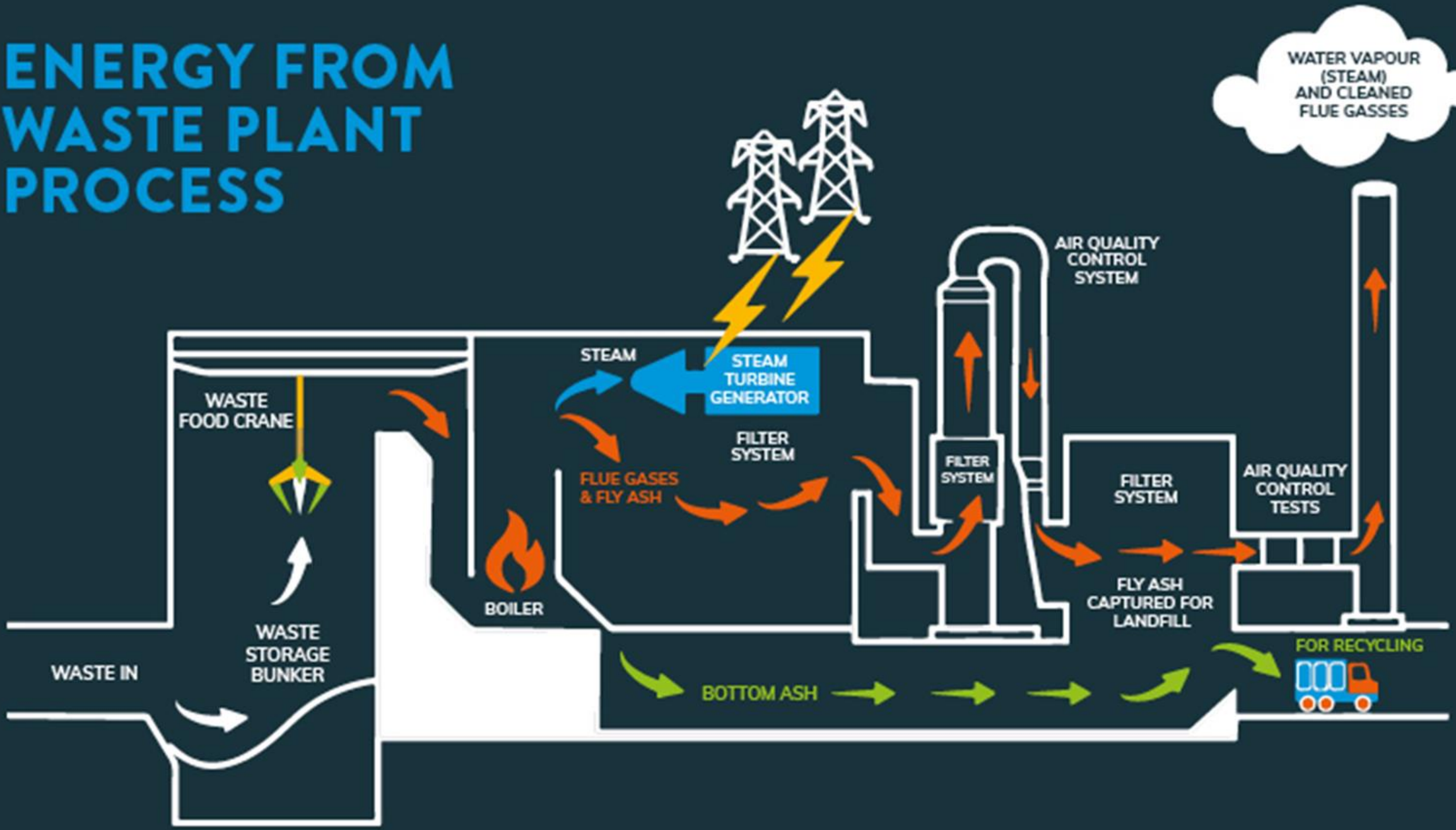
Geography Scattered Islands, small land areas



Waste Composition High Organic content, mixed with other residuals

Energy Security 98% of electricity come from diesel

ENERGY FROM WASTE PLANT PROCESS



Challenges in Operation

The implementation and operation of waste management systems in the Maldives face significant challenges that must be addressed for long-term sustainability

Manpower Shortages

Notable lack of technical and skilled staff within the waste management sector, impacting the operation and maintenance of complex facilities.

High O&M Costs

Substantial operation and maintenance costs for WtE facilities, despite energy recovery benefits, remain a significant challenge for this small island nation.

Technical Expertise Gap

Local deficit in engineers and technicians specifically trained in WtE technology, leading to reliance on external expertise.

Financial Sustainability

Long-term financial viability beyond initial project grants remains a challenge. Sustainable funding models and user fee structures are needed.

THANK YOU