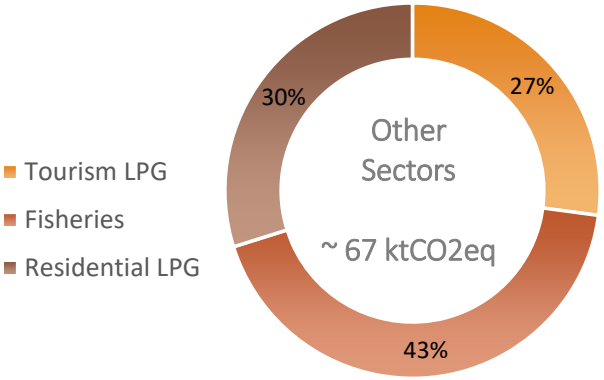
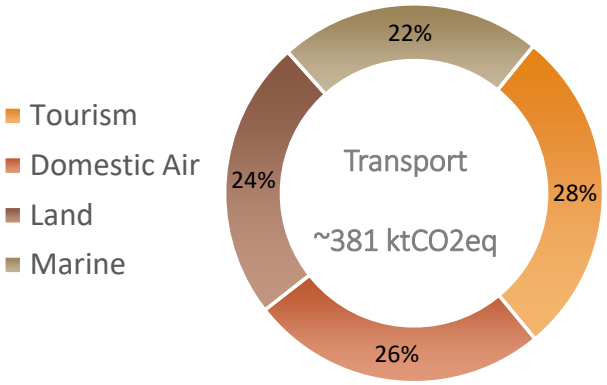
JCM in Maldives

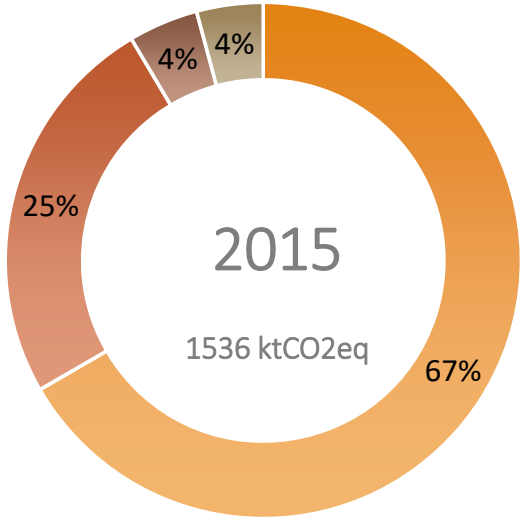
CLIMATE CHANGE DEPARTMENT

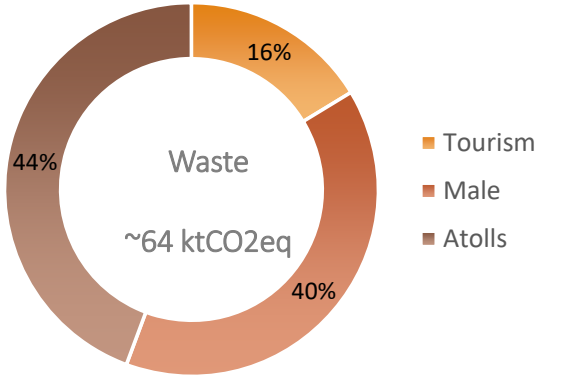
MINISTRY OF ENVIRONMENT

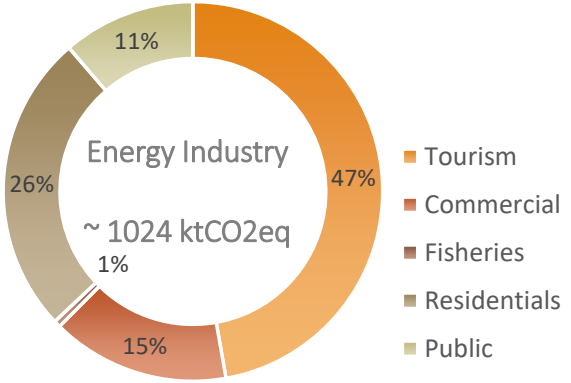
Maldives Emission Status





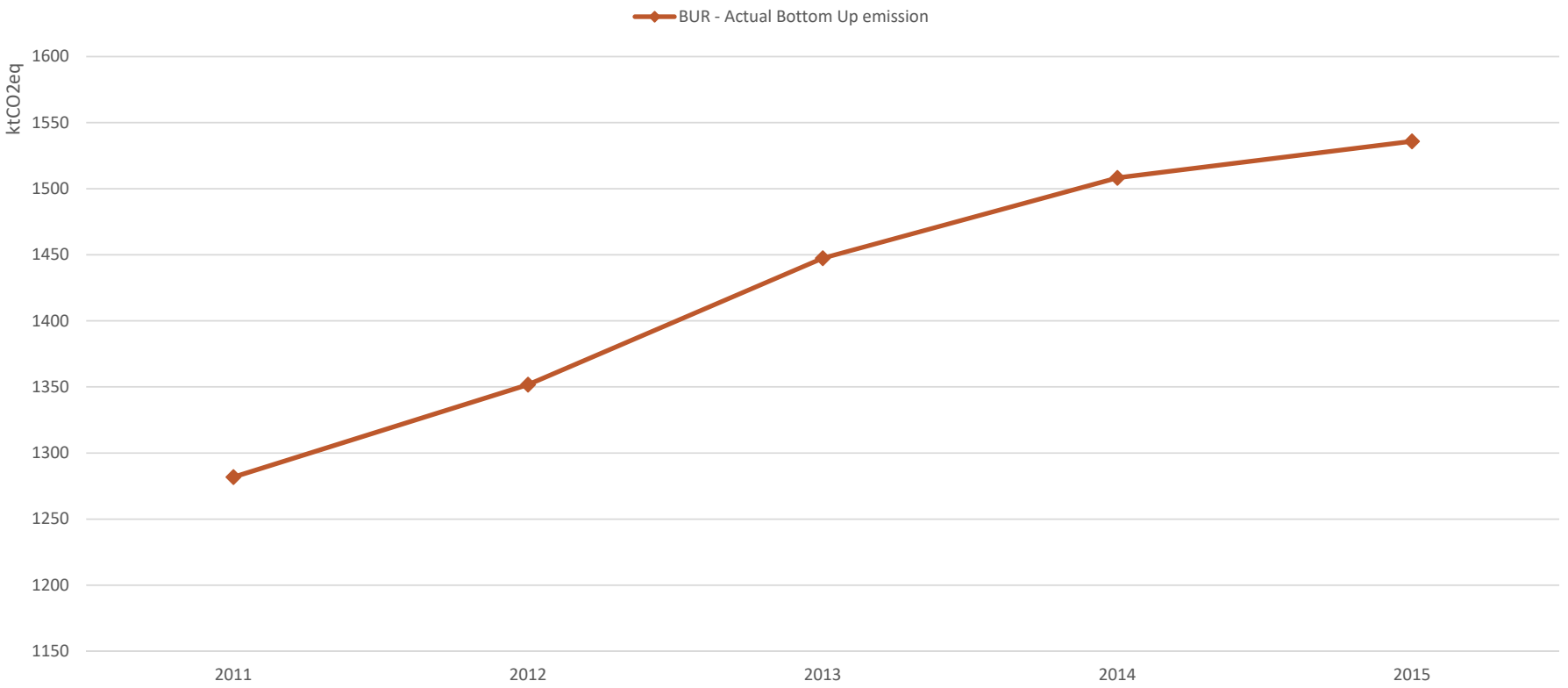






Information Source: Maldives First Biennial Update Report to the UNFCCC (https://unfccc.int/sites/default/files/resource/Maldives%20First%20Biennial%20Update%20Report.pdf)

Maldives Emission Status



Information Source: Maldives First Biennial Update Report to the UNFCCC (https://unfccc.int/sites/default/files/resource/Maldives%20First%20Biennial%20Update%20Report.pdf)

UPDATED

Nationally Determined Contribution

Maldives contribution to achieve the target set-out in Paris Agreement

"…well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels…"

Timeframe: Beginning 2021 to end 2030.

Minimum target:
"**26% reduction of emissions in 2030 (under a BAU)** in a conditional manner, in the context of sustainable development, supported and enabled by availability of financial resources, technology transfer and capacity building."

Maximum Target:
"and aims to reach **net-zero by 2030** provided on condition that it gets the **extensive support and assistance** from the international community."

Information Source: Maldives Updated Nationally Determined Contribution (https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx)

UPDATED

Nationally Determined Contribution

- The main actions identified are from electricity consumption and generation sector
  - Expand deployment of solar PV and battery energy systems
  - Increase energy efficiency in supply side and demand side
  - Explore other mitigation technologies for deployment
  - Transport emission reduction
  - Waste emission reduction
  - Creation of enabling environment through policies, awareness and institutional strengthening

"The Maldives intends to participate in the mechanisms under the Article 6 of the Paris Agreement. However, due to lack of agreed rules at the time of this submission, the level of participation for achievement of the NDC target is not determined."

Challenges in mitigation

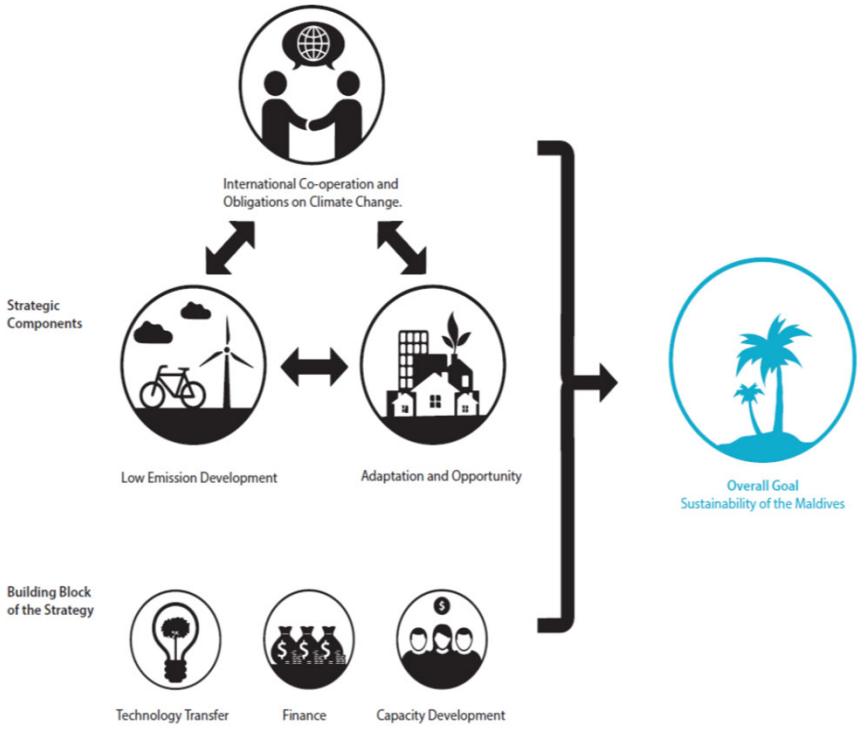
- The introduction of alternative energy options in the Maldives is constrained by the limited land area and the separation of these small islands by sea
- limited land area and cheaper alternative diesel based power generation systems poses a major challenge to the introduction of solar PV systems to the country.
- low wind speeds make it difficult to harness wind as an alternative energy option.
- High cost of ocean technology
- Individual standalone grids makes it difficult to introduce a higher capacity and higher efficiency energy production systems

Key Sectoral Policies and Regulations

- Policy decision to meet majority of daytime demand with PV or renewables
- New regulations for private sector investment on RE
  - Independent Power Producer regulation
  - Feed-in tariff regulation
  - Net-metering regulation
- Push for an alternative to HFC (refrigerant with high GWP) for cooling
- Codes, regulations, standards, guidelines and recommendations for Energy Efficiency in pipeline
  - Standard Labeling Programme
  - Building energy efficiency guideline
- Including renewable energy in criteria for awarding new resort leases

Maldives Climate Change Policy Framework

- Vision
  - "To protect Maldivian National status as a nation from the adverse impacts of climate change and to build its capacity to ensure a safe, sustainable, resilient and prosperous future."
- Objectives:
  - Foster and guide a national plan of action to address climate change
  - Promotes a coordinated approach to strengthen the capacity of Maldives
  - Set out the strategic priorities for scaling up the commitments
  - Build and strengthen on existing policies, plans and institutional structures



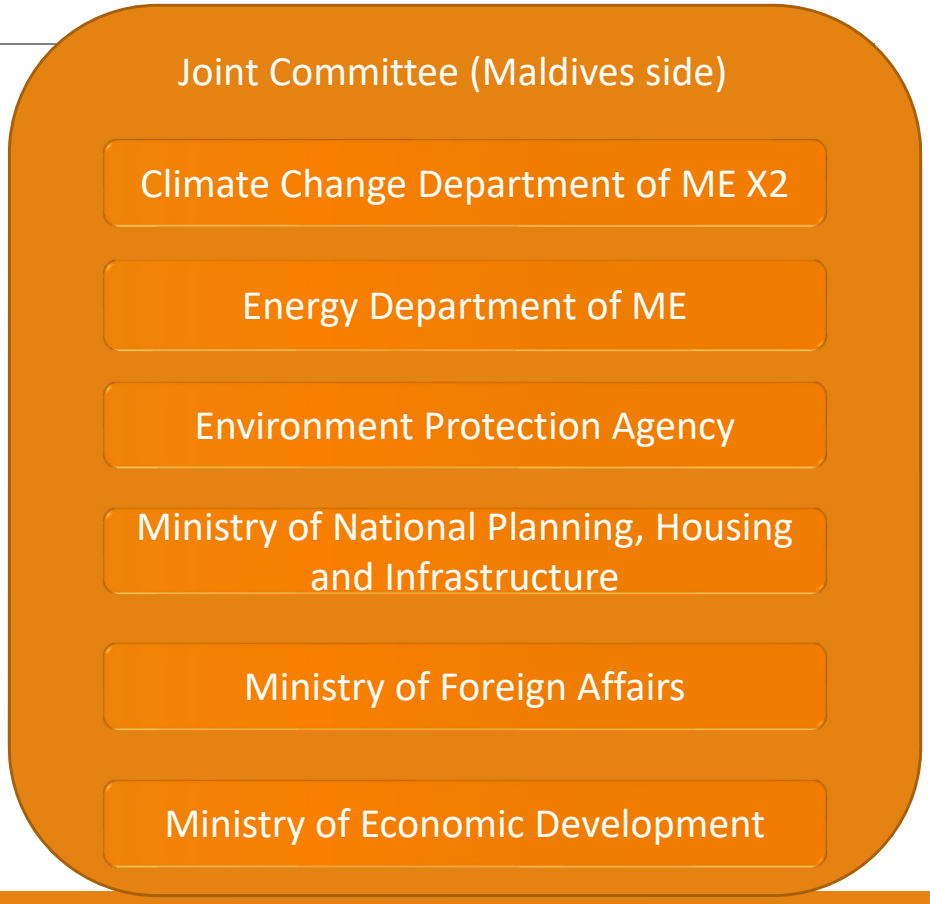
Source: https://www.environment.gov.mv/v2/en/download/4594

JCM in Maldives

- Maldives signed the bilateral agreement with the Government of Japan for the introduction of the Joint Crediting Mechanism (JCM) on 29 June 2013.
- Agreement modified and extended in 2018

Joint Committee

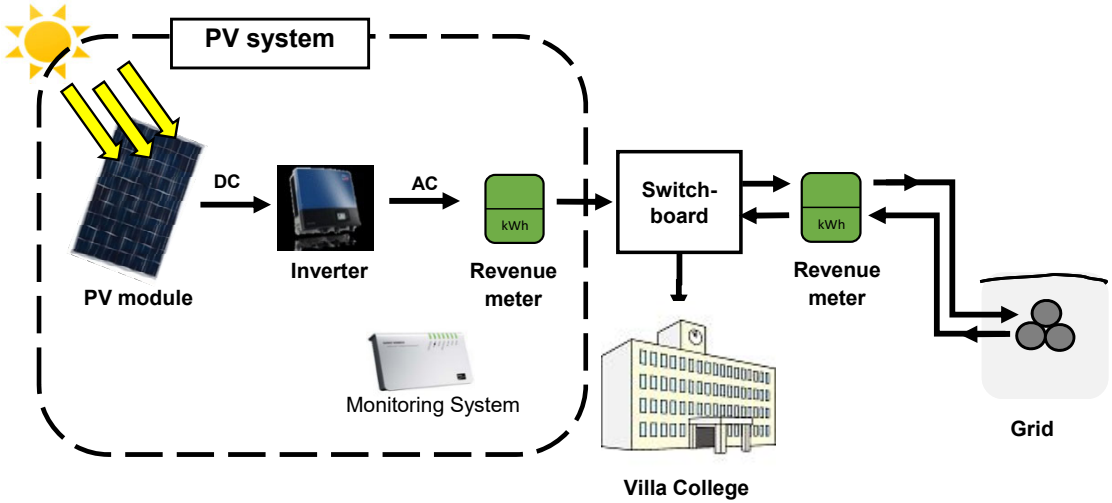
- Held the first Joint Committee meeting on 20 March 2014
  - Approved basic rules and guidelines for JCM
- Approved methodologies for JCM project - https://www.jcm.go.jp/mv-jp/methodologies/approved
  - Displacement of Grid and Captive Genset Electricity by Solar PV System (2015)
  - Installation of Energy Management System, Battery Energy Storage System (EMS-BESS) and Solar PV System (2020)
- Registered for JCM project
  - School Building Rooftop Solar Power Plant Project(2018) - https://www.jcm.go.jp/mv-jp/projects/47
- Issued first JCM credits in Maldives in 2019



JCM in Maldives – Registered projects

School Building Rooftop Solar Power Plant Project - https://www.jcm.go.jp/mv-jp/projects/47

- Subsidized via MOEJ financing scheme
- Install **186kW** grid-connected roof top solar PV system
- Private sector partners (Pacific Consultants CO., LTD. / Villa Educational Services Private Limited,)
- Credits for period of 02 Sep 17 - 30 Nov 18 issued for the project: 155 Credits
- Shared among;
  - Government of Japan (50%): 78 JCM credits
  - Government of Maldives (10%) : 15 JCM credits
  - VES Pvt Ltd (40%) : 62 JCM credits



JCM in Maldives – Feasibility studies

Deep Sea Cooling project for a proposed new airport terminal – by Hitachi

- Found ideal natural conditions for such a project
- There was potential demand and contingencies plan

Interconnecting grids between community island and a resort island – by PCKK

- Potentially feasible
- However the there were incompatibilities with the rule set applied on those two types of islands

Wind feasibility - Koei

- Feasible to an extent in North Central region

JCM in Maldives – On going Projects

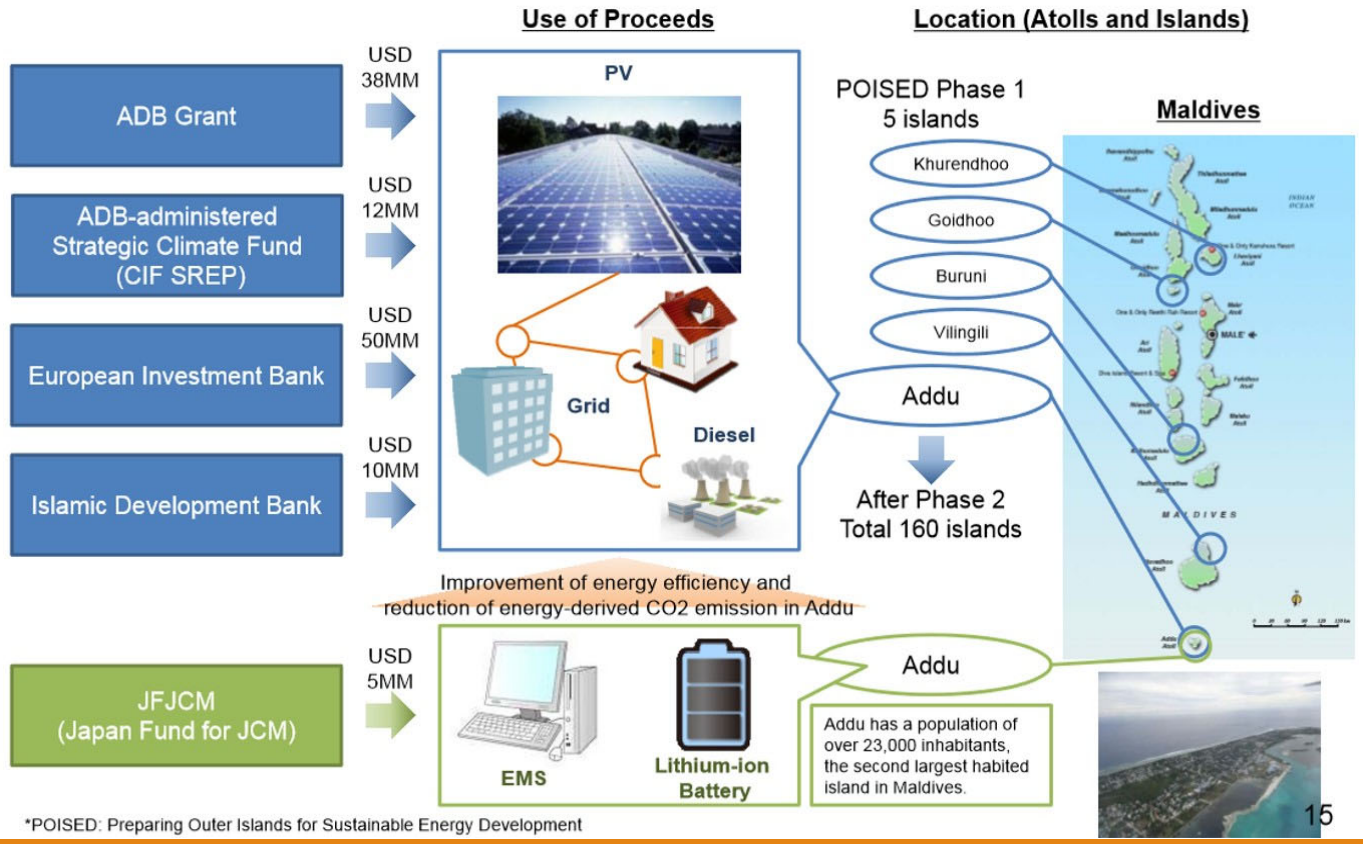
- $5 M Grant to Addu atoll subproject - JFJCM
- Install **smart micro-grid technology** with advanced battery system and energy management system (EMS)
- Increase Solar PV penetration level in the island (33% - 54%)

✓Suppression of PV and load fluctuations

✓Large amounts of renewables integrated to the grid

✓DG operation point optimization

Project registration process impacted by COVID19



Source: International Cooperation Office Ministry of the Environment, Japan (MOEJ)

JCM in Maldives – On going Projects

- Greater Male Waste-to-Energy Project: (waste incineration thermal power plant)
- Project size : $151.13 million
  - JFJCM Grant: $10 million,
  - Other ADB Grants and Loans: $73.39 million,
  - Other confinancier: $40 million and
  - GoM: $27.74)
- Expected emission reduction of 40,417 tCO2e/yr
  - displacing diesel power generation with waste to energy plant
  - Reducing emission by changing from unmanaged open burning of waste to waste incineration

Project JCM timeline

- Methodology – 2023
- Registration – 2024
- Credit Issuance – 2027

Source: International Cooperation Office Ministry of the Environment, Japan (MOEJ)

JCM in Maldives - Challenges

Lack of awareness about JCM and/or general market based mechanisms for mitigation among local private sector

Lack of scale

Difficulty establishing bilateral partnerships in private sector

High initial investment

Thank you