



# Vanuatu's Integrated Monitoring Reporting and Verification (MRV) Tool for Climate Action Tracking



## March 2019



## Background

The Paris Agreement (PA), adopted in December 2015, sets out a global action plan that puts the world on track to avoid dangerous climate change by limiting global warming to well below 2°C. It refers to NDC 'Nationally Determined Contributions' that each individual country should make to achieve the worldwide goal set to reduce emissions of greenhouse gases (GHG's). Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. Another important aspect of PA is enhanced transparency framework (ETF); Article 13 of the Paris Agreement established an enhanced transparency framework for action and support, with built-in flexibility which takes into account Parties' different capacities and builds upon collective experience. The purpose of ETF is to provide clarity on support provided and received by relevant individual Parties in the context of climate change actions, and, to the extent possible, to provide a full overview of aggregate financial support provided, to inform the global stocktake under Article 14.

Vanuatu parliament ratified the Paris climate change agreement on 18th June 2016. Upon ratification, the INDCs with emission reduction targets has become Nationally Determined Contributions (NDCs). The new Paris agreement on climate change entered into force on 4<sup>th</sup> November 2016. In view of the successful adoption and ratification of the Paris agreement, Vanuatu intends to initiate the preparatory activities for implementation of its NDCs. The mitigation contribution for the Vanuatu NDC submission is a sector specific target of transitioning to close to 100% renewable energy in the electricity (energy) sector by 2030.

Being a responsible party to the global climate change agreement Vanuatu has taken first of its kind initiative to implement Integrated Monitoring, reporting and verification (MRV) framework for climate actions. This voluntary initiative of Vanuatu is unique and commendable since the least developed countries (LDCs) and small island developing States (SIDS) are not obligated and have provided flexibility to prepare and communicate strategies, plans and actions for low greenhouse gas emissions development reflecting their special circumstances.

The key objective of Vanuatu's integrated MRV framework is to enhance Vanuatu's ability to achieve its mitigation NDC target through an MRV database and tool for quantification, monitoring and reporting and verification of GHG emission reductions in the energy sector. The overall impact will be to effectively reduce and monitor its GHG emissions and achieve its NDC commitment. In addition, the integrated tool enables Vanuatu to track the support and climate finance flow towards achieving the NDC goals along with Sustainable Development Goals and benefits.

### **Integrated Monitoring, Reporting and Verification (MRV) Framework**

Integrated MRV framework for implementation of NDC designed as per the guidance and requirement under PA notably - Article 4, Article 5, Article 6, Article 11, Article 12, Article 13, Article 14.

*Fulfil requirements of "Transparency Framework" under the Paris Climate Change Agreement and potential use for market and non-market-based approaches under Article 6.*

### **Key Benefits of Vanuatu's Integrated MRV**

- Domestically- Vanuatu's Integrated MRV helps to strategies, plan, implement, track and assess the climate change mitigation actions including the status of GHG emissions, climate financial flow and SDG impacts (Co-benefits).
- Internationally- Integrated MRV will enable Vanuatu to meet the reporting requirements under the Paris agreement and other donor agencies requirements i.e. enhanced transparency framework of the Paris Agreement for post-2020 requirements – Vanuatu is expected to report on their national GHG inventory, NDC actions and progress towards achieving their NDC goals, international support provided etc.



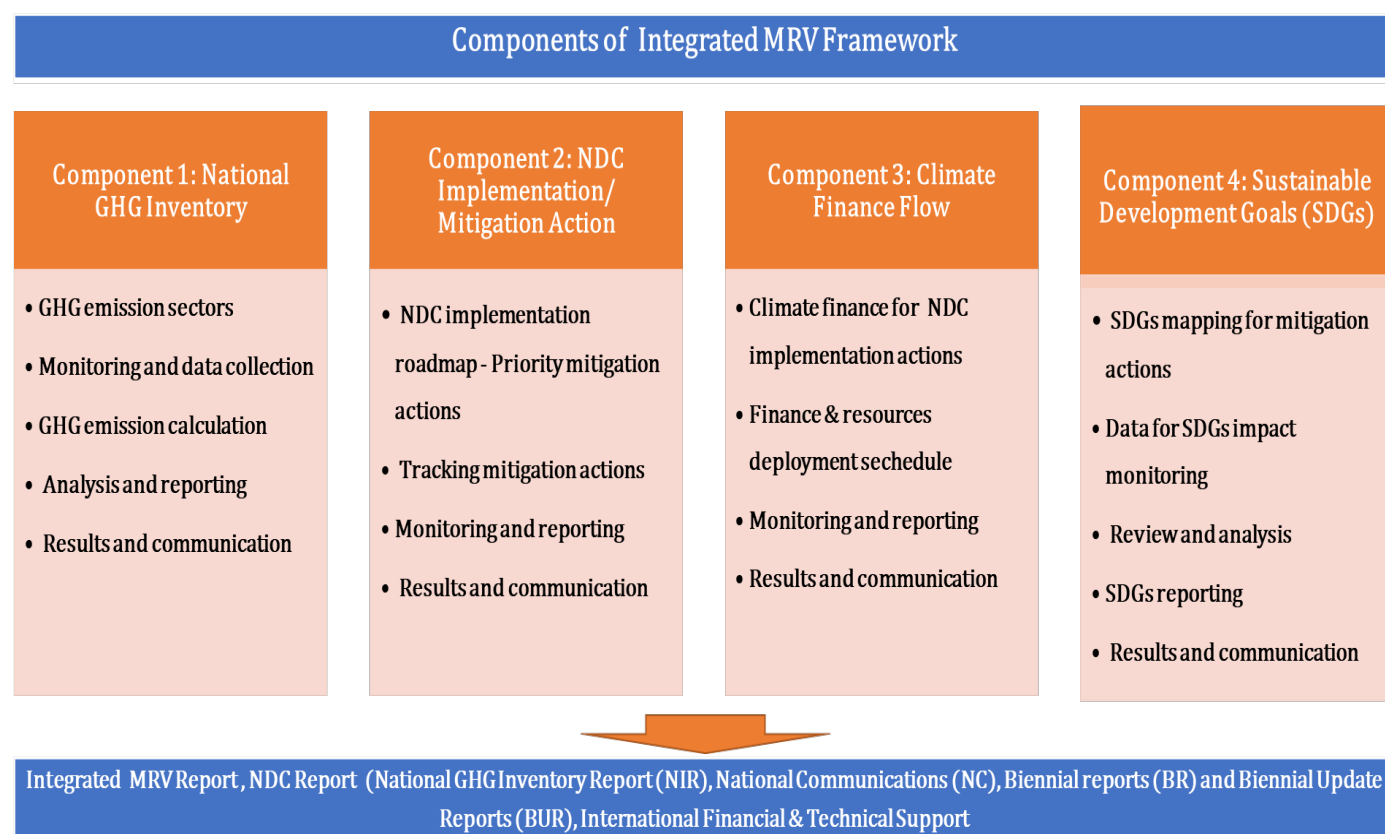
## Other benefits

- Build national capacities and ensure sustainability of reporting processes
- Provide the information basis for planning and implementing mitigation actions
- Unlock new sources of finance to combat climate change by documenting impact and good governance practices
- Inform national and international policymakers
- Identify needs for technical and financial support and assist in institutionalising activities related to reporting on climate change

## Structure of Vanuatu's Integrated MRV System

The integrated MRV tool is a first of its kind initiative which enables tracking, reporting and verification:

- GHG emissions
- Impact of Climate Change mitigation (including NDC) actions
- Climate finance flows and
- SDG impacts (Based on the UNDP Climate Action Impact Tool-CAIT).



### ***National GHG Inventory***

- GHG emission inventory for all sectors
- Monitoring and data Collection
- GHG emission calculation
- GHG emissions and time series analysis

### ***NDC –GHG Mitigation Action Tracker***

- NDC implementation roadmap
- GHG mitigation action implementation tracking
- Monitoring – data collection and GHG analysis
- NDC action reporting – annually and consolidated

### ***Climate Finance Flow Tracker***

- Climate finance for NDC action implementation
- Finance, budget & resources deployment
- Financial indicator monitoring and tracking
- NDC action reporting – annually and consolidated

### ***Sustainable Development Goals (SDG) Monitoring***

- SDGs mapping for NDC/GHG mitigation actions based on UNDP Climate Impact Assessment Tool (CIAT-<https://climateimpact.undp.org/#!/>)
- Monitoring and data collection for SDGs
- SDG Reporting - annually and consolidated

### ***Climate Impact Policies***

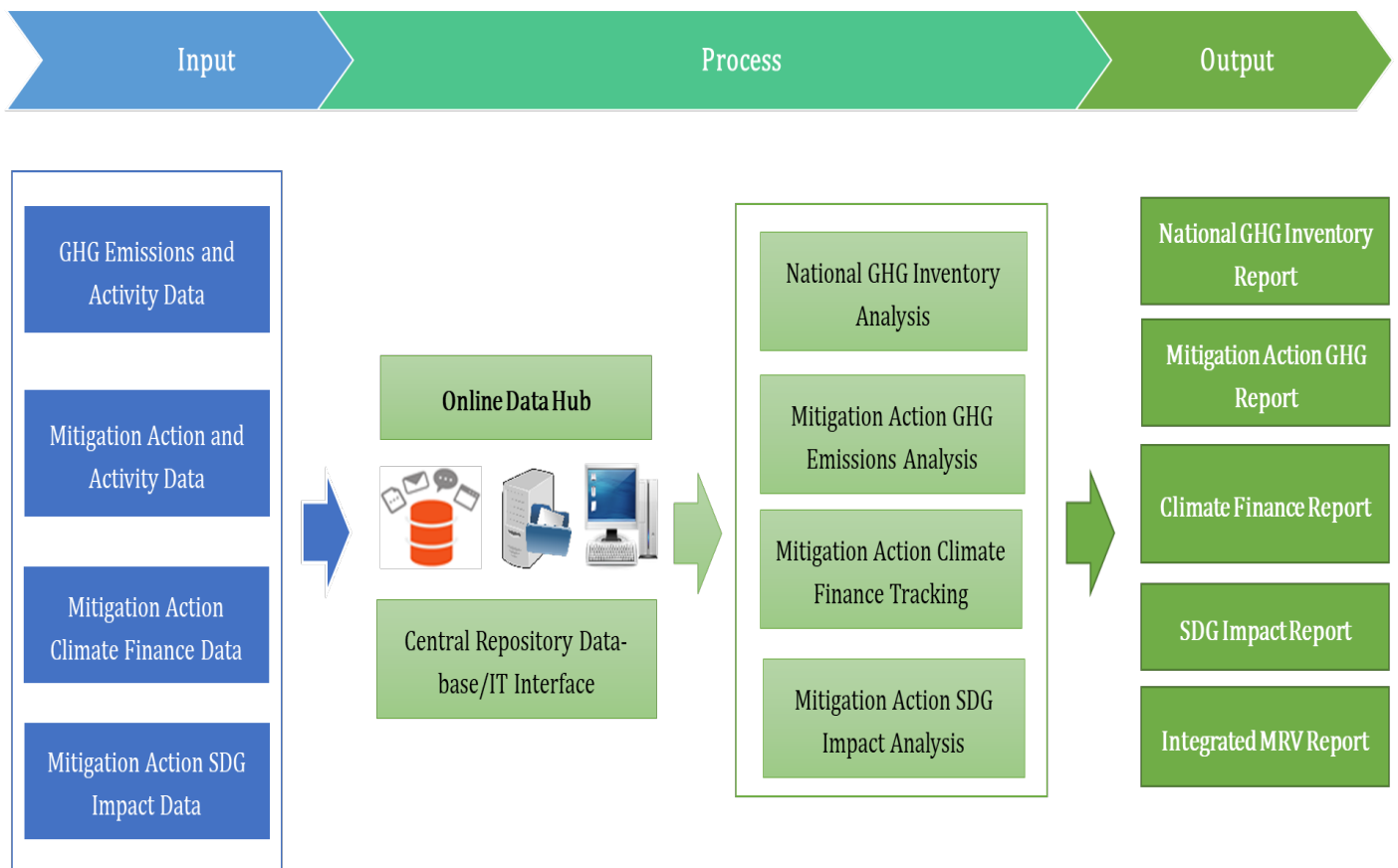
- National Policies for Climate Change
- Sectoral Policies
- Rules & Regulations

### ***Knowledge Management and Capacity Building***

- Training modules for stakeholders
- Data/information collection templates
- SOPs for data collection and calculations etc.



## Structure of Vanuatu's Integrated MRV Framework



## Key Features of Vanuatu's Integrated MRV Tool

- Preparation of national GHG inventory of Vanuatu according to 2006 IPCC for National Greenhouse Gas Inventories
- Pre-defined default 2006 IPCC Guidelines methods, fixed CO<sub>2</sub> equivalent types for separate categories or groups of categories as per IPCC-AR5
- Annual GHG emission inventory and tracking of emissions over the period (trend analysis)
- User-friendly interface for activity data input and automated calculation results
- Addon features for database administration, Quality Control, data export / import as well as data reporting
- Define NDC actions (projects and programmes) for mitigation and adaptation or cross-cutting
- Periodic monitoring feature for each NDC action and performance of each activity and action
- Unique ID for each NDC action and tracking of GHG emission from each mitigation measure (avoid double counting)
- Project finance tracking, budget and expenditure monitoring
- Environment integrity and Sustainable development impact assessment and monitoring during the operational phase
- Generate report -Customise reports as per the domestic and international reporting requirements, along with flexibility to incorporate additional reporting requirement
- Imperative tool for result based financing



# Integrated MRV Framework for Vanuatu (Tool)



The screenshot displays the login interface for the 'Integrated MRV Framework for Vanuatu (Tool)'. At the top left is the Vanuatu coat of arms. The main heading is 'INTEGRATED MRV FRAMEWORK FOR VANUATU'. Below this is a light blue 'LOGIN' button. In the bottom right corner, there is the UNDP logo with the tagline 'Empowered lives. Resilient nations.' and a decorative arc of colored segments (dark blue, blue, green, light blue, dark green, orange) in the top right corner.

Integrated MRV Tool



# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



National GHG Inventory



NDC Action Tracking



Climate Finance Flow



SDG Tracking



Reports



MRV Tracking Report



Integrated MRV Tool – Dashboard



# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



National GHG Inventory



NDC Action Tracking



Climate Finance Flow



SDG Tracking



Reports



MRV Tracking Report

REPORTS

Select Year

All

Report Type

- National GHG Inventory Report
- NDC Goal Tracking Report
- Climate Finance Report
- SDG Tracking Report

Show Report

Integrated MRV Tool – Reports





# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



NDC Action Tracking



Climate Finance Flow



SDG Tracking



Reports



MRV Tracking Report

## GHG INVENTORY

--Select Sector--

Sub-sector

--Select Sector--

Sector

--Select Month--

Month

--Select Year--

Year

Natural Gas (litres)

Natural Gas Liquid (litres)

Motor Gasoline (litres)

Liquefied Petroleum Gas -  
LPG (litres)

Jet Gasoline (litres)

Jet Kerosene (litres)

Other Kerosene (litres)

Gas/Diesel Oil (litres)

Residual Fuel Oil - RFO  
(litres)

Others (litres)

Submit

Integrated MRV Tool – GHG Inventory Input (Energy Sector)



 National GHG Inventory

 >  
NDC Action Tracking

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Climate Finance Flow

 >  
SDG Tracking

 Reports

 MRV Tracking Report



GHG INVENTORY (ENERGY SECTOR) - YEAR 2000

Source	CO2	CH4	N2O	NOX	CO	NMVOC	SO2	Total (tCO2e)
Energy Industries	20823.37	0.84	0.17	0.00	0.00	0.00	0.00	20892
Manufacturing Industries and Construction	1070.40	0.04	0.01	0.00	0.00	0.00	0.00	1074
Civil Aviation - Domestic	1837.01	0.08	0.02	0.00	0.00	0.00	0.00	1845
Road Transportation	19645.17	0.81	0.16	0.00	0.00	0.00	0.00	19710
Railways	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Navigation-Domestic	834.67	0.03	0.01	0.00	0.00	0.00	0.00	838
Commercial-Institutional	226.71	0.01	0.00	0.00	0.00	0.00	0.00	227
Residential	1621.28	0.06	0.01	0.00	0.00	0.00	0.00	1626
Agriculture-Forestry-Fishing	58.92	0.00	0.00	0.00	0.00	0.00	0.00	59
International Bunkers- Aviation and Marine	3809.93	0.16	0.03	0.00	0.00	0.00	0.00	3822
Total (tCO2e)								50093

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Integrated MRV Tool – Annual GHG Inventory Report (Energy Sector)



# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



National GHG Inventory



NDC Action Tracking



Climate Finance Flow



SDG Tracking



Reports

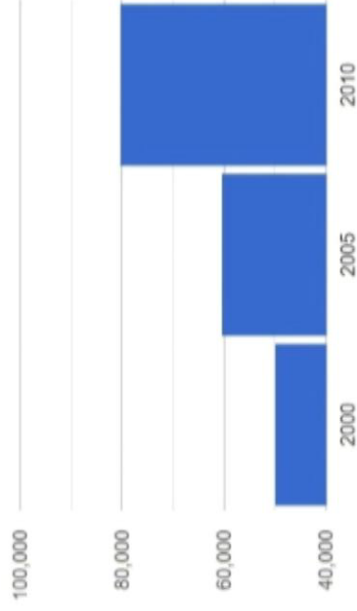


MRV Tracking Report

CONSOLIDATED GHG INVENTORY (ENERGY SECTOR)

	2000	2005	2010
Total (tCO <sub>2</sub> e)	50093	60699	80357

GHG Emission (tCO<sub>2</sub>e)



Integrated MRV Tool – Consolidated GHG Report





National GHG Inventory



NDC Action Tracking



Climate Finance Flow



SDG Tracking



Reports



MRV Tracking Report

NDC ACTION TRACKING REPORT (CONSOLIDATED)

Project Identifier	Mitigation Action	Sector	Sub-sector	Mitigation Activity	Implementing Agency	Commissioning Date (yyyy-mm-dd)	Status	Expected GHG Reduction over Lifetime(tCO2e)	GHG Reduction since Commissioning(tCO2e)
VA-EN-RE-1   Undine solar PV plant	Undine solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2016-04-01	Operation	4391	367
VA-EN-RE-2   Parliament Building and Meteo complex solar PV plants	Parliament Building and Meteo complex solar PV plants	Energy	Energy Industries	Renewable Energy	UNELCO	2016-04-01	Operation	6605	551
VA-EN-RE-3   Kawene solar PV plant	Kawene solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2018-04-01	Operation	12915	0
<b>Total</b>								<b>23911</b>	<b>918</b>

Integrated MRV Tool – NDC Goal Tracking Report (Consolidated)



# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



 National GHG inventory

 > NDC Action Tracking

 > Climate Finance Flow

 > SDG Tracking

 Reports

 MRV Tracking Report

## CLIMATE FINANCE TRACKING REPORT (CONSOLIDATED)

Project Identifier	Mitigation Action	Sector	Sub-sector	Mitigation Activity	Agency	Financial Closure (yyyymm-dd)	Status	Project Cost(USD)	Budget spent since Financial closure(USD)
VA-EN-RE-1 Undine solar PV plant	Undine solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	Operation	1466800	476850
VA-EN-RE-2 Parliament Building and Meteo complex solar PV plants	Parliament Building and Meteo complex solar PV plants	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	Operation	1349560	0
VA-EN-RE-3 Kawene solar PV plant	Kawene solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	Operation	3130000	0
<b>Total</b>								<b>5946360</b>	<b>476850</b>







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## Integrated MRV Tool – Climate Finance Tracking Report (Consolidated)



# Integrated Monitoring Reporting and Verification (MRV) Framework for Vanuatu



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-  NDC Action Tracking >
-  Climate Finance Flow >
-  SDG Tracking >
-  Reports
-  MRV Tracking Report

## SDG REPORT (CONSOLIDATED)

Project Identifier	Mitigation Action	Sector	Sub-sector	Mitigation Activity	Implementing Agency	Status	Location	Stakeholder Engagement	Environmental & Social Screening	Impact Summaries
VA-EN-RE-1 Undine solar PV plant	Undine solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	Operation	Undine Bay, Efate	Yes	Yes	
VA-EN-RE-2 Parliament Building and Meteo complex solar PV plants	Parliament Building and Meteo complex solar PV plants	Energy	Energy Industries	Renewable Energy	UNELCO	Operation	Port Vila, Efate	Yes	Yes	
VA-EN-RE-3 Kawene solar PV plant	Kawene solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	Operation	Devil's Point, Efate	Yes	Yes	

Integrated MRV Tool – SDG Tracking Report (Consolidated)



 National GHG Inventory

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NDC Action Tracking

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Climate Finance Flow




 >  
SDG Tracking

 Reports

 MRV Tracking Report

 Create Dashboard

MRV TRACKING REPORT (CONSOLIDATED)

Project Identifier	Mitigation Action	Sector	Sub-sector	Mitigation Activity	Implementing Agency	Financial Closure (yyyy-mm-dd)	Commissioning Date (yyyy-mm-dd)	Budget spent since Financial Closure (USD)	GHG Reduction since Commissioning (tCO2e)	SDG Impact Summary
VA-EN-RE-1 Undine solar PV plant	Undine solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	2016-04-01	476850	367	
VA-EN-RE-2 Parliament Building and Meteo complex solar PV plants	Parliament Building and Meteo complex solar PV plants	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	2016-04-01	0	551	
VA-EN-RE-3 Kawene solar PV plant	Kawene solar PV plant	Energy	Energy Industries	Renewable Energy	UNELCO	2015-03-31	2018-04-01	0	98	

Integrated MRV Tool – NDC Climate Action Tracking Report (Consolidated – GHG, CF and SDG)



 National GHG Inventory

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NDC Action Tracking

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Climate Finance Flow

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SDG Tracking

 Reports

 MRV Tracking Report

 Create Project

## MRV REPORT

### Project Details

Project Identifier	VA-EN-RE-3
Project Title	Kawene solar PV plant
Project Cost (USD)	3130000
Technology	SolarPV
Project Location	Devil's Point, Efare
Geographical Coordinates	17.43 South 168.12 East
Project Entity	UNELCO
Other Party	UNELCO
Start of Operation	2018-04-01
Operation Lifetime	15

GHG

Climate Finance Flow

SDG

### SDG-Qualitative Impacts



Integrated MRV Tool – NDC Climate Action MRV Report-1 (Individual Project)







Create Project

GHG

GHG Reduction	Expected Value	2016	2017
Electricity Generation (MWh)	714	676	220
Total Electricity generation since commissioning (MWh)		896	
GHG emission reduction (tCO2e)	293	277	90
Total GHG emission reduction since commissioning (tCO2e)		367	

Climate Finance Flow

Expenditure	2015	2016
Estimated Expenditure (USD)	733400	733400
Actual Expenditure (USD)	476850.0	0
Unutilized Funds (USD)	256550	733400

SDG

Integrated MRV Tool – NDC Climate Action MRV Report-2 (Individual Project)



