

# Implementation Report on the Revision and Capacity Building for Operationalising the MauNDC Registry



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# Initiative for Climate Action Transparency - ICAT

## Implementation Report on the Revision and Capacity Building for Operationalising the MauNDC Registry

Deliverable #04

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## Abbreviations

BTR	Biennial Transparency Report
DCC	Department of Climate Change
ETF	Enhanced Transparency Framework
ICAT	Initiative for Climate Action Transparency
MauNDC	Mauritius Nationally Determined Contributions
MRV	Measurement, Reporting, and Verification
NCCAPF	National Climate Change Adaptation Policy Framework
NCCMSAP	National Climate Change Mitigation Strategy and Action Plan
NDCs	Nationally Determined Contributions
UNEP-CCC	UNEP Copenhagen Climate Centre
UNOPS	United Nations Office for Project Services

# Executive Summary

The implementation of the revised MauNDC Registry represents a multi-phase effort to strengthen Mauritius's climate transparency systems under the Initiative for Climate Action Transparency (ICAT) Mauritius project. This report consolidates activities undertaken from February to August 2025, encompassing stakeholder consultations, technical refinements, and capacity-building interventions.

The process began with Validation Workshop 2 on 13<sup>th</sup> February 2025, where key gaps in the registry's structure, usability, and data alignment were identified. These insights informed a series of post-workshop consultations and technical updates, including registry restructuring, vocabulary simplification, and software enhancements. Between March and June 2025, stakeholders—including the Department of Climate Change (DCC), UNEP Copenhagen Climate Centre (UNEP-CCC) and the United Nations Office for Project Services (UNOPS), and Deloitte—collaborated to implement these changes, resolve backend challenges, and prepare the system for broader use.

A significant portion of the work focused on revising few registry's functions and making it more user friendly. Through a series of technical discussions and mapping exercises, outcomes and interventions were aligned with national strategies such as the NCCMSAP and NCCAPF. Predefined interventions were introduced to ensure consistency, and new non-GHG indicators were developed to reflect data that users could realistically provide. These proposals were validated during the July workshops and incorporated into the registry, alongside improvements in data types, field definitions, and user interface elements.

The Training and Stakeholder Consultation Workshops held in Mauritius and Rodrigues from July 14–18, 2025 marked a pivotal phase in operationalizing the revised registry. These sessions adopted a “learning by doing” approach, equipping over 75 stakeholders with hands-on experience in data entry, system navigation, and registry coordination. A dedicated session for DCC focused on coordinator-level functions, reinforcing institutional ownership and oversight capabilities.

Following the workshops, additional refinements were made based on user feedback, including the introduction of non-GHG indicators, improved export functionality, and clearer definitions for intervention status and data types. These updates were designed to enhance usability, reduce data entry errors, and align registry content with national climate strategies (NCCMSAP and NCCAPF).

## Key Achievements and Outcomes

- **Registry Structural Revisions:**

Based on feedback from Validation Workshop 2 (February 2025), the registry underwent extensive revisions:

- Outcomes and interventions were aligned with national strategies (NCCMSAP and NCCAPF).
- Predefined interventions were introduced to improve consistency.
- Sectoral classifications and vocabulary lists were simplified.
- Confusing fields such as “Parent Outcome” and “Parent Intervention” were disabled with the help of PwC.
- Definitions were added for intervention status, types of instruments, and data types.

- **Software and Functional Enhancements:**

- Numeric-only restrictions were applied to quantitative fields to reduce data entry errors.
- Export functionality was enabled for key modules such as Organizations and

Individuals by PwC.

- Obsolete and duplicate vocabulary entries were disabled.
- QA and Verifier roles were removed from the workflow to reflect actual institutional processes.
- Backend deletion constraints are being addressed in coordination with UNEP's technical team.
- **Capacity Building and User Engagement:**
  - Over 75 stakeholders across Mauritius and Rodrigues were trained.
  - Sector-specific dummy datasets were used to simulate real-world data entry.
  - Participants provided feedback on usability, terminology, and data consistency.
  - DCC was trained on coordinator-level functions, including oversight tools and allocation workflows.
- **Governance and Institutional Strengthening:**
  - The workshops fostered stronger inter-ministerial collaboration and clarified institutional roles in the MRV process.
- **Data Improvements:**
  - Recognizing the limited capacity of users to input GHG data, the registry was updated to include user-friendly, non-GHG indicators.
  - With the assistance of external experts, DCC aims to progressively convert these into GHG-equivalent values to facilitate national reporting (e.g., Biennial Transparency Report and GHG Inventory).

### **Strategic Significance**

This report consolidates the technical, institutional, and procedural advancements made since Validation Workshop 2. It documents the iterative process of refining the MauNDC Registry, addressing user challenges, and embedding transparency practices within national systems. The workshops served not only as a platform for training but also as a mechanism for validating system updates and identifying further enhancements.

By integrating user feedback, aligning with national strategies, and strengthening institutional ownership, the revised MauNDC Registry is now better positioned to support Mauritius's commitments under the Enhanced Transparency Framework (ETF) of the Paris Agreement. Although a few software constraints remain, the outcomes of this report contribute directly to the long-term goal of institutionalizing a robust, inclusive, and responsive climate transparency system in Mauritius.

# Chapter 1: Introduction

Mauritius has taken decisive steps to strengthen its Measurement, Reporting, and Verification (MRV) framework in alignment with the Enhanced Transparency Framework (ETF) under the Paris Agreement. In previous phases of this initiative, Deliverable 3 presented a comprehensive review of the national framework for NDC tracking, identified critical data gaps, and proposed a revised structure for the MauNDC Registry. These efforts culminated in a stakeholder validation workshop that provided key insights and feedback from line ministries, technical working groups, and data providers.

This report, Deliverable 4, builds upon those outcomes by documenting the concrete actions taken to address the identified data gaps, the improvements made in data availability, and the results achieved through targeted capacity-building interventions. This deliverable focuses on the outcomes of the third technical training workshop designed to strengthen hands-on registry use among data champions, MRV officers, and sectoral focal points.

## 1.1 Objective of the Report

The objective of this report is:

- To describe how the data identified before Workshop 3 and the indicator gaps highlighted during the Validation Workshop were subsequently addressed.
- To present the results and evidence of improvements in the MauNDC Registry following these interventions.
- To document the outcomes of the "learning by doing" capacity-building workshop and its impact on institutional capacity for climate data tracking and reporting.

The report contributes to Mauritius's efforts to institutionalize climate transparency systems by ensuring that improvements are not only technical but also embedded within national processes and capacities.

## 1.2 Linkages to Previous Deliverables

This deliverable builds directly on the foundations established in the earlier phases of the project:

### **DELIVERABLE 1**

focused on the inception, stakeholder mapping, and the initial assessment of the existing NDC tracking systems

### **DELIVERABLE 2**

detailed the baseline analysis of sectoral data availability, institutional roles, and the evaluation of existing tools such as the MauNDC Registry

### **DELIVERABLE 3**

presented a recommendation for revision in structure for outcomes, interventions, and indicators within the MauNDC Registry, identified gaps through stakeholder engagement, and synthesized the outcomes of the second validation workshop

Deliverable 4 takes this work forward by focusing on practical implementation, addressing the data and structural gaps identified earlier, operationalizing the revised registry structure, and strengthening institutional capacity through direct training and registry population efforts.

# Chapter 2: Post-Validation Actions and Refinement Process

## 2.1 Recap of Gaps Identified in Validation Workshop 2

The assessment of user feedback on the MauNDC Registry, conducted during Workshop 2 on 13 February 2025 in Mauritius, revealed several operational, structural, and user-interface-related gaps that hinder effective data input, tracking, and reporting. The primary outcome of the workshop was the identification of gaps as raised by users, providing a clear basis for targeted improvements.

One of the primary challenges raised was users' limited understanding of the registry's structure, particularly how outcomes, interventions, and indicators are interlinked. Furthermore, outdated terminology, inconsistent classifications, and a lack of clear definitions (e.g., for project stages, instruments, and priority levels) have confused and increased the risk of data misclassification and duplication.

### **Key Recommendations of Validation Workshop:**

- Update sectoral vocabulary and simplify classifications.
- Integrate intervention details into a single, user-friendly interface.
- Add predefined interventions, clear outcome hierarchy, and embedded guidance notes.
- Implement sector-specific access and assign unique IDs to interventions.
- Enhance financial tracking (VAT, co-financing, disbursement timelines).
- Expand to include adaptation indicators, non-GHG metrics, and improved reporting functions.

On the governance and reporting side, improvements like sector-specific access, introduction of unique IDs for interventions, refined financial tracking (including VAT, co-financing, and disbursement timelines), and clearer roles for verifiers are suggested. Finally, it was recommended to expand the registry's capability to include adaptation-related indicators and non-GHG metrics, and to create a more responsive reporting and data retrieval system to support continuous monitoring, institutional coordination, and policy alignment.

## 2.2 Post-Workshop Consultations and Follow-Up Engagement

Following the Validation Workshop held on 13<sup>th</sup> February 2025, a series of critical updates and technical refinements were identified to enhance the functionality and user experience of the Mauritius Nationally Determined Contributions (MauNDC) Registry. These updates were aimed at aligning the registry with operational needs ahead of the stakeholder training scheduled for mid-July 2025, while also strengthening data integrity and system usability.

PwC (Registry Software Consultant)<sup>1</sup> and United Nations Office for Project Services (UNOPS) teams to assess the feasibility of the proposed changes. These discussions focused on evaluating the time, effort, and cost implications involved in the implementation. Technical support from the PwC was also engaged, particularly to address the structural and IT-related adjustments required within the registry.

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<sup>1</sup> PwC is the software consultant responsible for developing the MauNDC Registry and is not engaged as part of the ICAT consultancy project.

### Software Challenges in the MauNDC Registry

During the course of Registry development and validation, several software-related challenges were identified that affected smooth functioning and user experience. These included:

1. **Deletion Constraints** – The system currently restricts full deletion of outdated or incorrect entries (such as Outcomes, Indicators, and Support). Due to interdependencies with other tasks, deletions can only be carried out once pending tasks are cleared. This requires intervention from UNEP's System Administrator, limiting flexibility for DCC and users.
2. **Obsolete Vocabulary Entries** – Lookup lists (e.g., gases, sectors) contained outdated or duplicate entries, causing confusion among users. Although such entries can be disabled, they remain semi-visible, leading to clutter. A request for permanent deletion is still under technical review.
3. **Export Limitations** – Initially, there was no export option for user records. While export functionality was later introduced for "Organizations" and "Individuals," broader export options for few other modules remain pending.
4. **User Input Risks** – Editable fields such as Parent Outcome, Parent Intervention, and MRV Role created risks of user error. Although some fields were disabled, other error-prone fields remain, requiring additional safeguards.
5. **Field Formatting Issues** – Certain fields (like quantitative value under Indicators) previously allowed alphabetical entries, leading to data inconsistencies. While numeric-only restrictions have been applied, other formatting checks may still be required.
6. **Visibility of Non-Applicable Functions** – Features such as Verifier functions, QA Status, and MRV Roles created confusion when visible to users despite being non-functional. While these have been disabled, they remain visible in the system interface.
7. **Backend Limitations** – Backend deletion functionality was deliberately not provided in the system in order to maintain data security, integrity, and authenticity. This safeguard was introduced to prevent accidental or unauthorized deletions that could compromise linked records and system reliability. As a result, any required deletions must be handled by UNEP's internal technical team, which has created dependencies and slowed down the resolution of certain issues.

## 2.3 Progress Discussion Summary on MauNDC Registry Updates and Related Activities

This section provides a chronological summary of key discussions and decisions related to the ongoing updates of the MauNDC Registry, including technical challenges, stakeholder coordination, and planned actions. The discussions involved multiple stakeholders such as the DCC, UNOPS, and Deloitte. The meetings were attended by:

- Federico Antonio Canu, UNEP Copenhagen
- Vimla Kanhye, DCC Mauritius
- Akash Vajpai, Deloitte India
- Janki Govani, Deloitte India
- Tasneem Ali, Deloitte India

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### **March 18, 2025**

During the initial discussions, stakeholders collectively agreed that the roles of Verifier and QA in the MauNDC Registry were redundant and often bypassed in the current operational flow as the QA/QC is externally handled during NC/BUR/BTR preparations. Request to disable all QA functionalities was initiated.

Concerns were also raised regarding the functionality of input fields within the registry. Free-text fields were seen as problematic due to inconsistent entries, so it was proposed to replace them with dropdowns or enforce specific formats to enhance data standardization and reduce human error. Additionally, the need for an editable user manual was highlighted to add the definitions. Stakeholders suggested that this manual should be regularly updated by administrators without requiring technical developer support to ensure it remains aligned with future upgrades and user onboarding.

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### **March 26, 2025**

A consensus was reached among the key partners – DCC, UNOPS, and Deloitte – on the removal of five specific QA-related fields. These included sections like “QA Recommendations,” “QA Justifications,” and “QA Comments,” which were deemed unnecessary following the decision to disable the QA role entirely. The team discussed the need to finalize the revised outcomes, interventions, and indicator structure in the registry ahead of Workshop 3. To avoid any loss of progress during these changes, it was agreed that a complete system backup would be carried out before implementing further edits.

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### **April 22, 2025**

This meeting reconfirmed previous decisions regarding QA removal. Stakeholders reiterated that QA sections in the system would be disabled permanently, and any associated fields would be deleted accordingly. Registry revisions were planned to be completed before the end of May, allowing ample time for user testing and showcasing the final structure during Workshop 3.

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### **May 28, 2025**

By this time, Deloitte had completed the mapping exercise for outcomes and interventions. This mapping ensured that all registry entries were aligned with national development strategies and climate priorities. During this meeting, it was also proposed that legacy data that was outdated or incomplete should be deleted from the registry. However, before any such deletions, essential records would be archived to maintain a verifiable trail for historical reference and compliance purposes.

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### **June 11–13, 2025**

Multiple technical limitations in the registry system were highlighted. Deloitte reported that they were unable to delete certain data entries, even with administrative privileges, due to system-imposed constraints like task lock-ins and field dependencies. For instance, outcomes that were already linked to interventions or indicators could not be deleted unless those relationships were manually broken. These challenges raised concerns about backend rigidity and emphasized the need for a more flexible data management interface or backend support.

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### **June 17, 2025**

PwC, which was involved in registry development and support, was requested support in cleaning the database. It was agreed that several MRV user roles, which were either unused or caused confusion during operation, would be deactivated. The team decided that the registry would undergo another round of testing after the database was cleaned to ensure full functionality and proper user flow.

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### **June 18–19, 2025**

PwC further clarified the scope of their backend support. They stated that data deletions by admin users would only be possible after all interdependencies between entries were resolved. This involved removing all linkages manually or through backend configurations. Additionally, there were delays in enabling exports from the revised registry system, which was considered essential for reporting and archival. In response, it was suggested that all deletions and modifications should be tracked separately for inclusion in the final implementation report.

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### **June 25, 2025**

Concerns were raised regarding the presence of irrelevant data in the registry. These entries were not only outdated but also lacked coherence, posing a risk of confusing users during training sessions. Stakeholders insisted that a fresh, clean dataset of dummy entries should be created, properly mapped to relevant outcomes and indicators, and consistent with the latest vocabulary list. Furthermore, inconsistencies and duplications within the vocabulary list used across registry fields were flagged for immediate attention.

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### **June 27, 2025**

Despite previous attempts, manual deletion of registry entries continued to face technical blocks. PwC proposed backend-level deletion to resolve the issue, but noted that it required intervention from UNEP's technical team due to contractual and system-level access constraints.

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### **June 30 – July 3, 2025**

On June 30, DCC gave a formal go-ahead for PwC to proceed with backend deletions following the cleaning of the registry data. However, the team encountered additional system-related issues, including mismatched vocabulary entries and locked tasks, which restricted seamless data management and deletion processes. On July 1, PwC responded by clarifying that backend deletions were not part of their existing contractual obligations. As such, they recommended that UNEP's internal technical team take over this responsibility to avoid contractual overreach. By July 3, DCC proposed nominating a backend user to facilitate these deletions before the scheduled training sessions began.

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### **July 4 – July 12, 2025**

On July 4, Deloitte cautioned against introducing a backend user so close to the training timeline, highlighting the risks of potential errors or instability in the system that might disrupt training. As a precaution, Deloitte recommended deferring all deletion activities until after the training was complete. On July 10, PwC reaffirmed that frontend deletions remained infeasible under the current system setup unless the contractual scope was expanded or backend access was granted. In response, on July 12, DCC requested PwC to explore alternative technical options, specifically the resolution of task dependencies, to make frontend deletions operational. This step was particularly important to support registry demonstrations and training exercises without data clutter or confusion.

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### **July 14 – July 18, 2025**

Workshop 3 was held from July 14 to July 18, 2025, in Mauritius and Rodrigues. The sessions focused on finalizing outcome and indicator mappings, addressing registry functionality issues, and training stakeholders on the updated MauNDC Registry structure.

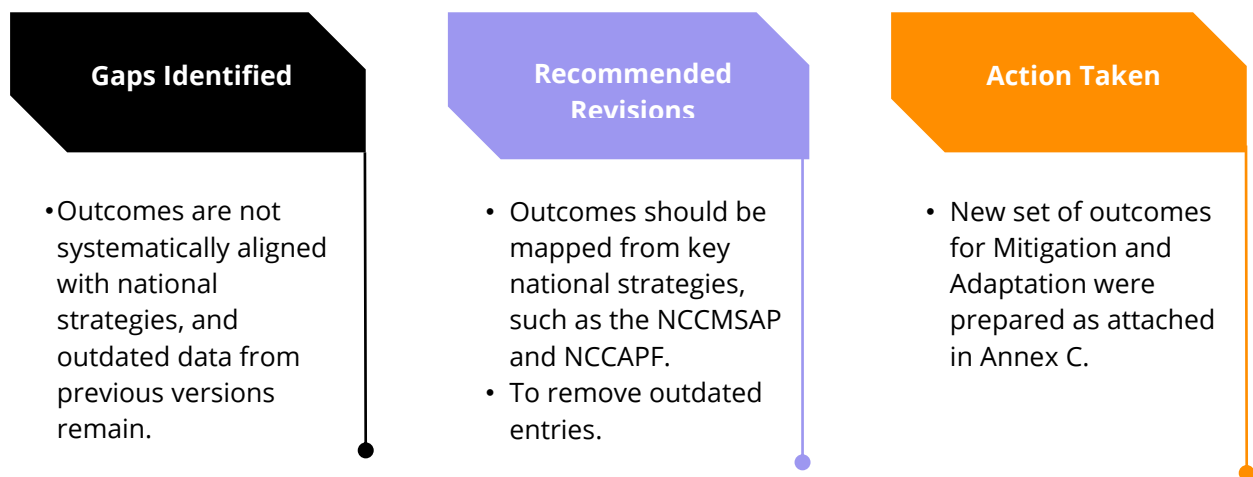
# Chapter 3: Revisions in MauNDC Registry

To enhance the transparency, consistency, and usability of the MauNDC Registry, a series of technical and structural revisions were undertaken based on stakeholder feedback and operational experience. These changes were implemented at both the coordinator and thematic user levels to improve workflow, data quality, and user experience. While many recommendations were successfully incorporated, a few proposed changes were found to be unfeasible at this stage due to technical constraints or misalignment with the current registry architecture. These have been duly highlighted in the following sections along with the reasons for non-implementation.

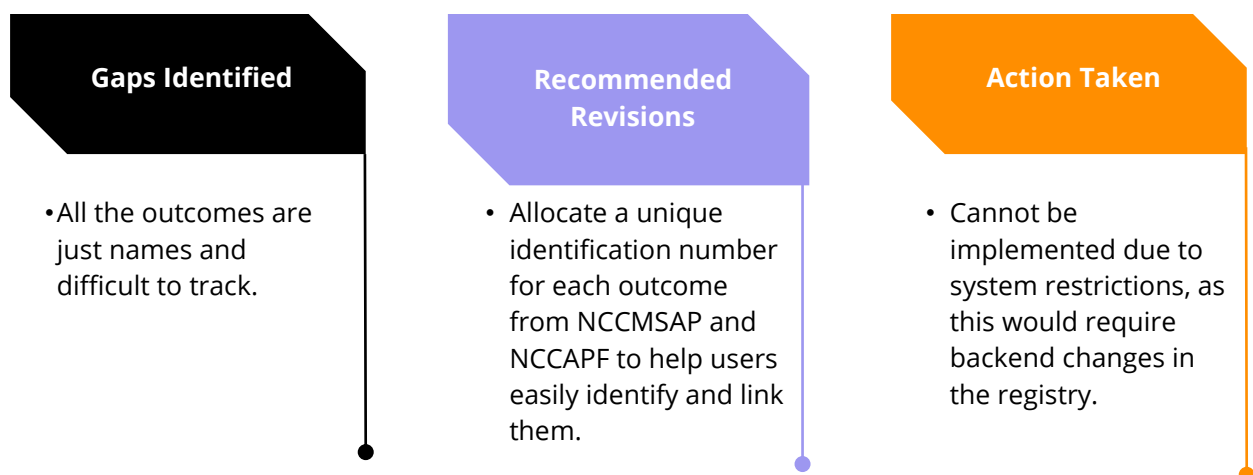
## 3.1 Revision of Outcomes

Changes in outcomes were made at the coordinator’s end. Outcomes from the National Climate Change Mitigation Strategy and Action Plan (NCCMSAP) and the National Climate Change Adaptation Policy Framework (NCCAPF) were recommended for mitigation and adaptation, respectively. Previous outcome data shall not be considered.

### 3.1.1 Aligning Outcomes with National Documents



### 3.1.2 Adding a Unique Identification Number to outcomes



### 3.1.3 Disabling Parent Outcome

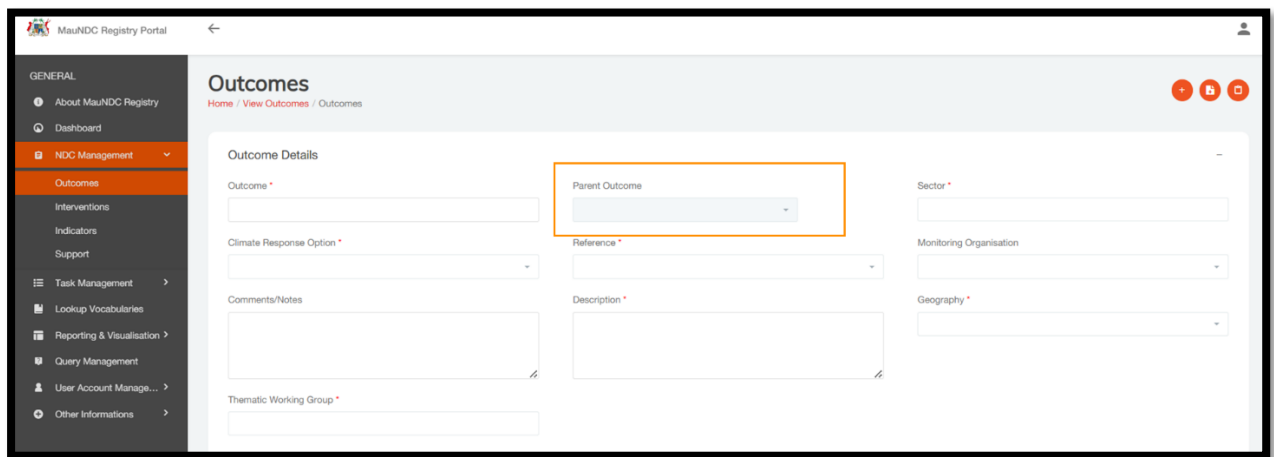
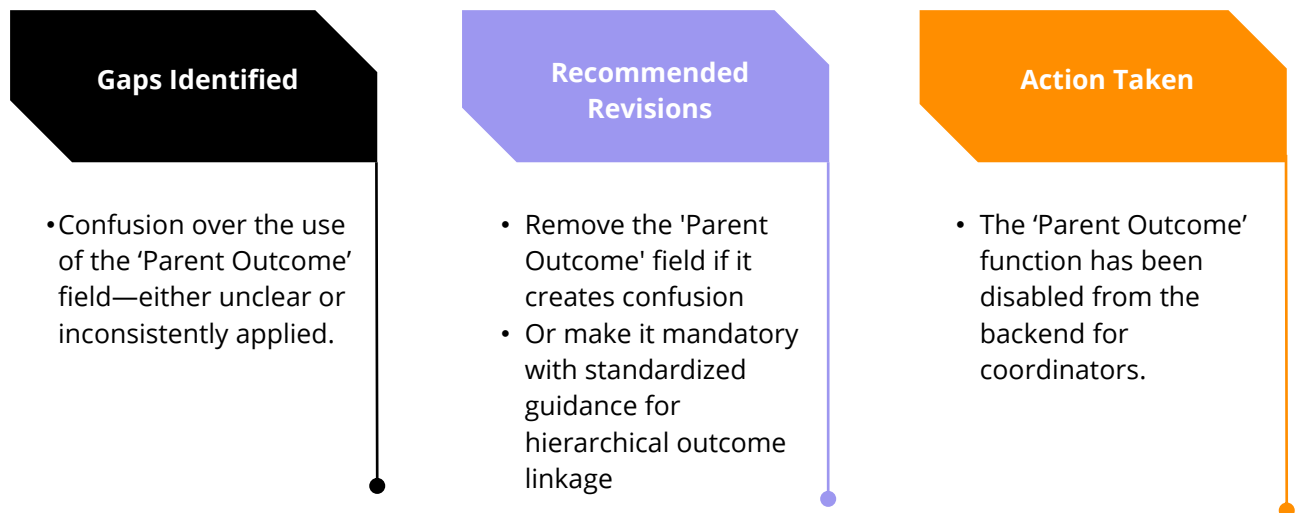
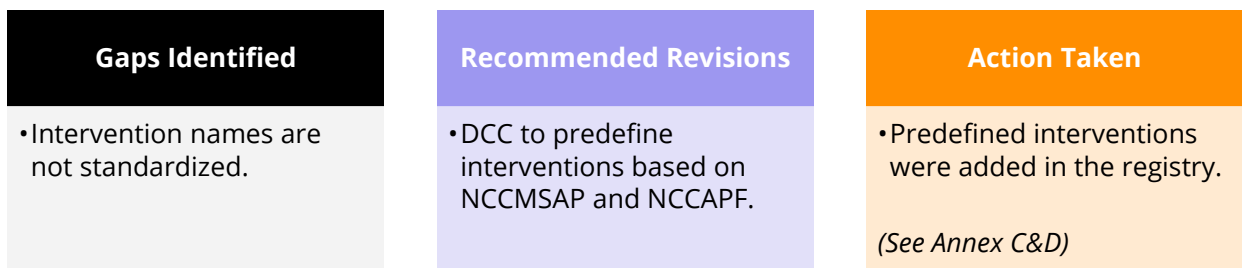


Figure 1: Disabled Parent Outcome

## 3.2 Revision of Interventions

Interventions were revised by defining them from the backend based on the NCCMSAP and NCCAPF frameworks. These were structured to be more user-friendly and have been implemented at the user end to ensure consistency and ease of selection during data entry.

### 3.2.1 Intervention names



### 3.2.2 Changes in Vocabulary

Gaps Identified	Recommended Revisions	Action Taken
<ul style="list-style-type: none"> <li>•Overly detailed classifications create confusion.</li> <li>•Sector list is too long and complex.</li> <li>•Excessive number of gases listed.</li> </ul>	<ul style="list-style-type: none"> <li>•Simplify classifications; restructure sector list into sectors and subsectors; retain only relevant gases for NDC tracking.</li> </ul>	<ul style="list-style-type: none"> <li>•Classifications reduced to 10 categories. Sectors and subsectors restructured. Gases limited to those relevant for NDC tracking. (See table below)</li> </ul>

Table 1: Changes done in the List of Classification, Sectors and Gases

Revised Classification	Revised Gases	Revised Sectors
<b>1. Finance</b>	Carbon dioxide (CO <sub>2</sub> )	<b>Mitigation sectors</b>
1.1 Public Financial Flows	Methane (CH <sub>4</sub> )	Energy
1.2 Private Financial Flows	Nitrous oxide (N <sub>2</sub> O)	Transport
1.3 Multi-lateral Financial Flows	Hydrofluorocarbons (HFCs)	Industrial processes and product use
1.4 Bilateral financial flows	Perfluorocarbons (PFCs)	Agriculture
<b>2. Voluntary agreements</b>	Sulfur hexafluoride (SF <sub>6</sub> )	Land use, land use change and forestry
<b>3. Regulatory</b>	Nitrogen trifluoride (NF <sub>3</sub> )	Waste management
3.1 Pollution prevention plan	Carbon monoxide (CO)	Other
3.2 Carbon Budgets	Sulphur oxides (SO <sub>x</sub> )	
<b>4. Information</b>	Nitrogen oxides' (NO <sub>x</sub> )	<b>Adaptation sectors</b>
<b>5. Education</b>	Nitrogen oxides and non-methane volatile organic compounds (NMVOCs)	Infrastructure and disaster risk reduction (DRR)
5.1 Public awareness		Water
<b>6. Research</b>		Agriculture (adaptation)
<b>7. Market instrument</b>		Tourism and coastal zone management
7.1 Carbon tax		Fisheries and blue economy
7.2 Carbon offset		Biodiversity (marine and terrestrial)
7.3 Rebate scheme		Health
8. Governance		
9. MRV		
10. Other cross cutting		
11. Multi-sectoral policy		
12. Technology Development and Transfer		
13. Capacity building		

### 3.2.3 Establishing Definitions

Gaps Identified	Recommended Revisions	Action Taken
<ul style="list-style-type: none"> <li>•Lack of clarity on intervention stages definition.</li> <li>•No definition for Type of instrument.</li> <li>•Lack of clarity on the predefined scenario.</li> <li>•No definition to indicate intervention priority.</li> </ul>	<ul style="list-style-type: none"> <li>•Define standard intervention stages, statuses; predefined scenario, and introduce a priority field with clear definitions (e.g., high/medium/low).</li> </ul>	<ul style="list-style-type: none"> <li>•Standard tracking stages, statuses, and predefined scenario were defined and added.</li> <li>•Priority field was explained to user and it can be defieced based on the department decision.</li> </ul> <p><i>(Refer below for definations)</i></p>

#### Definition of Intervention Status

<b>Planned</b>	<ul style="list-style-type: none"> <li>•The intervention has been identified and scheduled for implementation, but activities have not yet started.</li> </ul>
<b>Ongoing</b>	<ul style="list-style-type: none"> <li>•The intervention has been officially approved through a legal, institutional, or policy decision, but implementation activities may or may not have begun.</li> </ul>
<b>Implemented</b>	<ul style="list-style-type: none"> <li>•The intervention has been fully or substantially carried out as planned, and core activities have been completed.</li> </ul>
<b>Discontinued</b>	<ul style="list-style-type: none"> <li>•The intervention was initially planned or adopted but has been officially halted or cancelled and is no longer being pursued.</li> </ul>

Figure 2: Definitions of Intervention Status in Intervention

#### Definition of Type of Instrument

<b>Economic</b>	<ul style="list-style-type: none"> <li>•Instruments that leverage market-based mechanisms to drive action, such as carbon pricing, cap-and-trade systems, or subsidies for green technologies.</li> </ul>
<b>Fiscal</b>	<ul style="list-style-type: none"> <li>•Government-led budgetary tools, including taxes, levies, grants, or budget allocations, that support or discourage certain behaviors or investments</li> </ul>
<b>Voluntary / Negotiated Agreements</b>	<ul style="list-style-type: none"> <li>•Non-binding pacts between government and private sector or civil society, where actors commit to specific actions or targets, often in exchange for incentives or recognition.</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>•Binding legal measures such as laws, ordinances, and standards that mandate compliance (e.g., building codes for energy efficiency or vehicle emission norms)..</li> </ul>

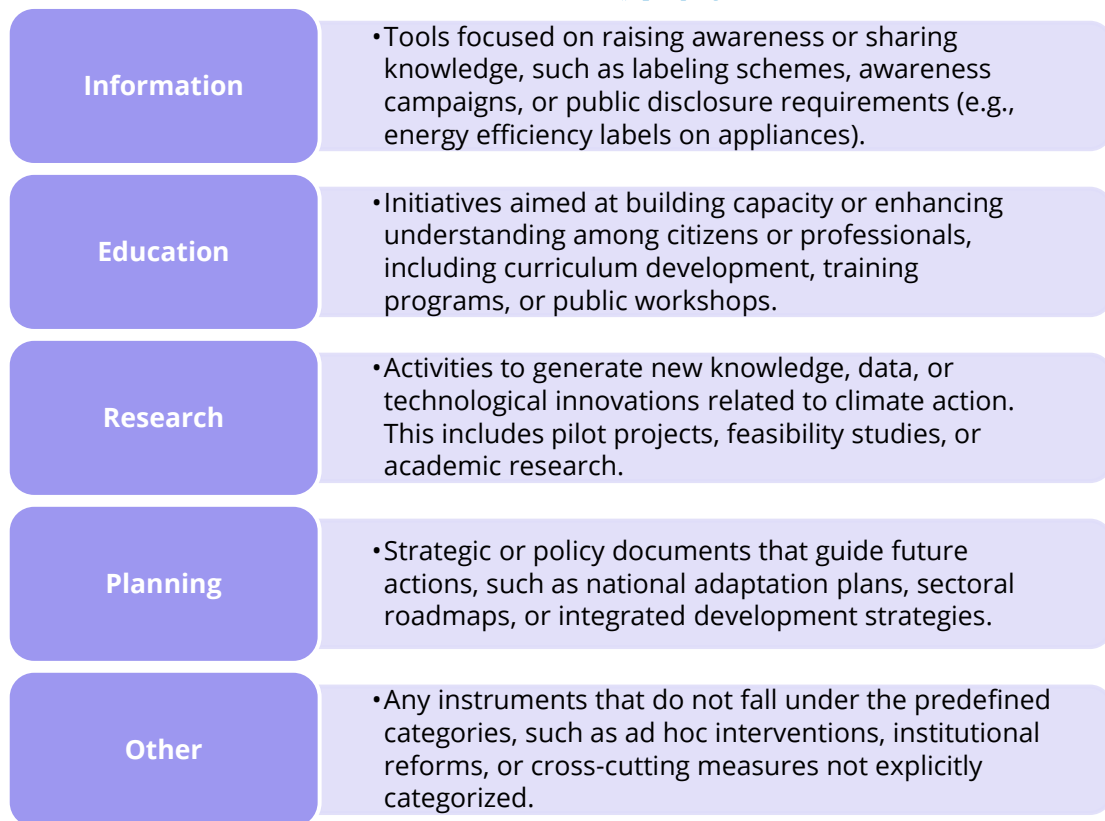


Figure 3: Definitions of Types of Instruments in Interventions

### Understanding of a Predefined Scenario

**With measures** for current policies and measures,

**With additional measures** for planned but unadopted actions,

**Without measures** if the intervention is independent of any policy or plan

### 3.2.4 Disabling Parent Intervention

Gaps Identified	Recommended Revisions	Action Taken
<ul style="list-style-type: none"> <li>Parent intervention is not mandatory which is confusing and hinders uniformity.</li> </ul>	<ul style="list-style-type: none"> <li>Either make it mandatory or remove the field entirely to avoid confusion.</li> </ul>	<ul style="list-style-type: none"> <li>Parent intervention field was disabled from the MauNDC registry.</li> </ul>

The screenshot shows the 'Interventions' web application interface. The form is titled 'Intervention Details' and includes the following fields:

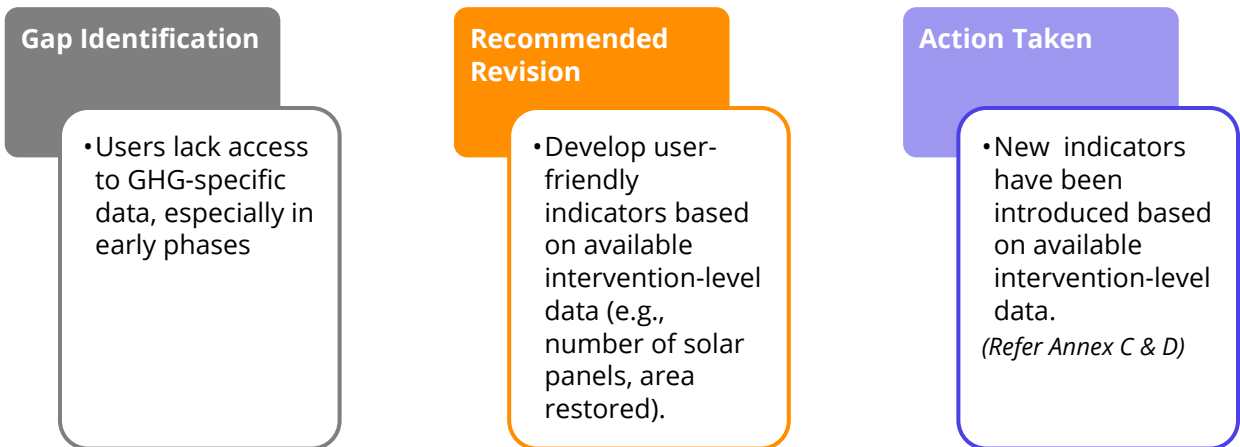
- Intervention ID:** 1048
- Intervention Name:** Dummy\_DI\_Promote end-use energy efficiency
- Sector:** Energy > Energy Industries
- Climate Response Option:** Mitigation
- Parent Intervention:** (This dropdown menu is highlighted with an orange box)
- Description:** Promoting end-use energy efficiency involves implementing measures that reduce energy consumption at the point of use—such as in households, industries, transport, and commercial buildings—without compromising service quality. This includes deploying energy-efficient appliances, improving building insulation, upgrading industrial processes, and encouraging substantial changes. These actions have proven potential, reduce costs, and...
- Objective:** Achieve a 10% reduction in energy consumption - this is expected to avoid approximately 0.5-1.0 million tCO<sub>2</sub>e/year in emissions, while reducing energy costs and improving system reliability.
- Objective Unit:** %
- Priority:** High
- Methodologies Assumptions:** (Empty text area)
- Classification:** 2.1 Energy efficiency technology
- Thematic Working Group:** Energy Industries (Mitigation)
- Quantified Objective:** 10.00
- Gases Affected:** (Empty text area)

Figure 4: Disabled Parent Intervention

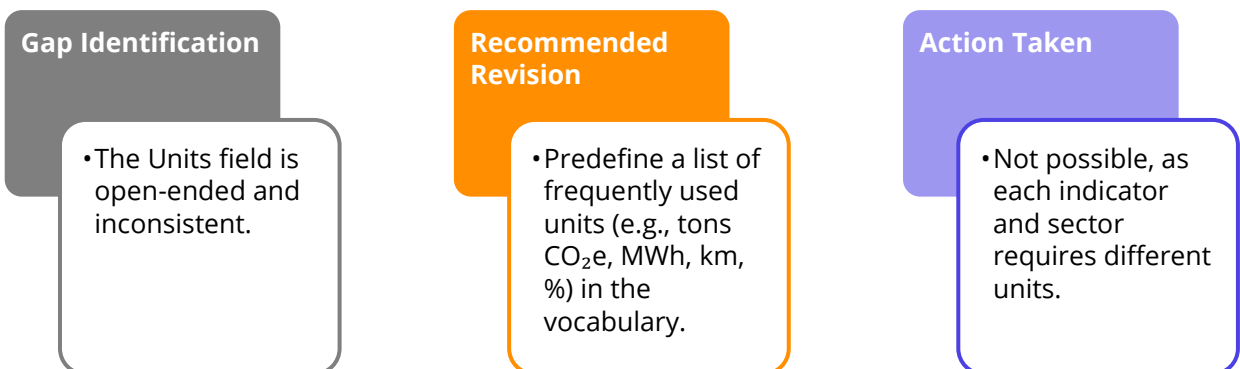
### 3.3 Revision of Indicators

Definitions were added, and new non-GHG, user-friendly indicators were developed based on data users can readily provide. These were designed to simplify data entry while ensuring alignment with national reporting needs.

#### 3.3.1 Non-GHG Indicators



#### 3.3.2 Uniformity in Unit of Indicator



### 3.3.3 Input of Numeric Data

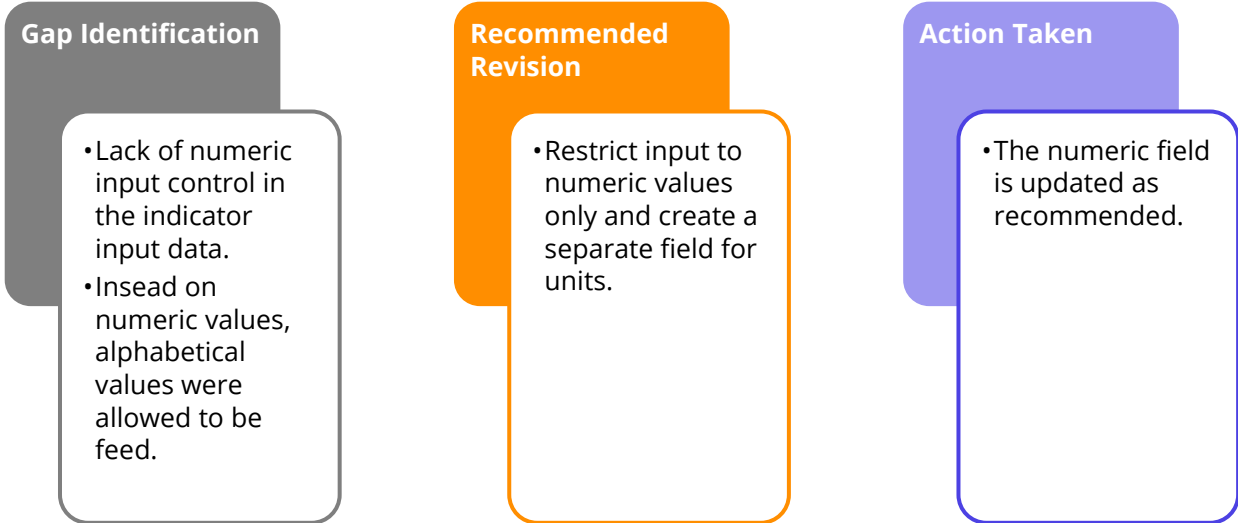
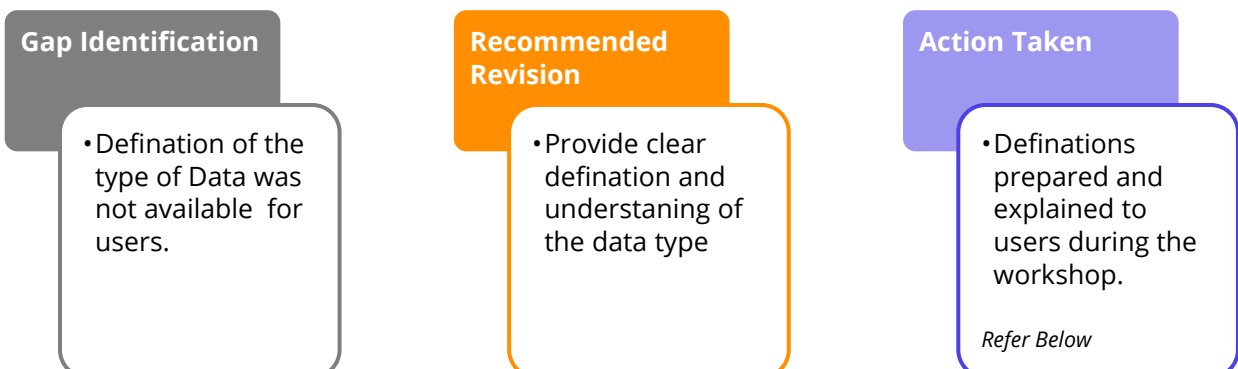


Figure 5: Updates in the Quantitative Values Field

### 3.3.4 Definition of Data Type



<b>Baseline Data</b>	• Reference data that reflects conditions before policy implementation, used as a benchmark for comparison.
<b>NDC Scenario (Ex-ante Data)</b>	• Projected data estimating the impact of policies and measures outlined in the Nationally Determined Contributions before they are implemented.
<b>Historical Data (Ex-post Data)</b>	• Actual observed data from the past, used to assess the real impact of implemented policies.
<b>Business as Usual (BAU) Scenario (Ex-ante)</b>	• A forward-looking projection assuming no new policies or measures are implemented beyond the current status quo.
<b>Other Projected Scenario (Ex-ante)</b>	• Alternative future projections under specific assumptions, such as enhanced mitigation efforts or different socio-economic pathways.

Figure 6: Definitions of Data Type in Indicators

### 3.4 Other Revisions

Table 2: Other Revision in the MauNDC Registry

Gap Identified	Recommended Revision	Action Taken
No export option available for user records	Add export functionality for "Organisations" and "Individuals" modules	Export functionality implemented, enabling download by Administrators and Coordinators
Risk of user errors in specific editable fields	Disable high-risk editable fields (Parent Outcome, Parent Intervention, MRV Role)	Fields are disabled to prevent incorrect data entry
Unnecessary visibility of Verifier functions and QA Status	Remove or hide Verifier functions and QA Status fields from the user view	Verifier function disabled in workflow; QA Status hidden under Outcomes, Interventions, Indicators, and Support
Alphabetical entries allowed in numerical fields	Restrict specific fields to accept numerical values only	Quantitative Value field under Indicators modified to restrict entries to numerical input
Inability to fully delete outdated or incorrect entries (Outcomes, Indicators, Support, etc.)	Enable full deletion capability with safeguards for dependencies	Partial implementation, deletions possible only after pending tasks are cleared; requires UNEP System Administrator action
Technical errors and feature requests are outstanding	Resolve technical errors and address pending feature requests	Under review — Error 404 in Outcomes, auto-mailer issue, removal of Priority field under Interventions, Word version of User Manual requested

# Chapter 4: Capacity Building through “Learning by Doing”

To strengthen institutional capacity and promote practical understanding of the MauNDC Registry, a hands-on training approach was adopted through Workshop 3. This “learning by doing” methodology enabled participants from Mauritius and Rodrigues to directly engage with the system, apply theoretical concepts in a live environment, and build technical skills essential for accurate data entry and registry operations.

## 4.1 Objectives and Approach of Workshop 3

Workshop 3 was designed as a hands-on, interactive capacity building exercise based on the principle of “learning by doing.” The overall objective was to strengthen the technical capacity of stakeholders from both Mauritius and Rodrigues to effectively use the MauNDC Registry, understand the revised structure of indicators, and contribute to data entry in line with the updated national framework.

The approach focused on:

Reinforcing understanding of the registry’s architecture, including new revisions made to interventions, outcomes, and indicator definitions;

Demonstrating the use of the registry through guided tutorials, live walkthroughs, and mock data entry;

Facilitating sector-specific discussions to improve clarity on expected inputs from stakeholders;

Encouraging peer learning and cross-institutional collaboration.

While the specific delivery methods varied between Mauritius and Rodrigues (based on local institutional capacity and familiarity with the registry), the learning goals and core content remained consistent across both locations.

## 4.2 Structure and Delivery of Training Sessions

The third MauNDC Registry capacity-building workshop was conducted in Mauritius and Rodrigues from 14 to 18 July 2025 by Deloitte under the ICAT project, with support from UNEP-CCC and UNOPS. It was designed to follow a hands-on, practical learning format, reinforcing the “learning by doing” approach. These sessions were conducted separately in Mauritius and Rodrigues, each tailored to the specific needs and capacities of local stakeholders. It also included a day of training for the DCC official for the coordinator level access. Further details of the workshop proceedings, participant feedback, and session outcomes are documented in the respective workshop reports for Mauritius and Rodrigues.

### 4.2.1 Mauritius Workshop - Thematic Users (July 14 – July 15, 2025)

As part of the ongoing ICAT project, Deloitte conducted a two-day hands-on training and stakeholder consultation workshop to strengthen the operationalization of the MauNDC Registry and build user capacity in data tracking for NDC implementation. Held at the **Caudan Arts Centre**, the workshop brought together over 45 national stakeholders from various sectors on **July 14 and July 15, 2025**.



Figure 7: Highlights of Workshop at Mauritius

### 4.2.2 DCC Workshop - Contributor (July 16, 2025)

The workshop's third day was dedicated to a focused, in-depth training session with the Department of Climate Change (DCC) to prepare them for their role as Coordinator within the MauNDC Registry. This role is central to managing, overseeing, and ensuring the smooth functioning of the registry for all thematic areas.

The project team began with a recap of the two-day technical sessions, reiterating the demonstration on how to derive outcomes, interventions, and indicators from the MauNDC Registry, followed by a review of key user feedback and identified gaps from the earlier sessions.

A major part of the day was devoted to delivering a complete, hands-on summary of the coordinator's access rights and responsibilities within the registry. This included:

- **Full system navigation training** – familiarizing DCC with all registry modules and their

functions, including Outcomes, Interventions, Indicators, Task Management, and Reporting modules.

- **Role-specific permissions** – explaining the elevated privileges of the coordinator role, such as creating, editing, assigning, and approving entries across sectors.
- **Allocation process** – demonstrating how Coordinators can allocate outcomes, interventions, and indicators to thematic users or sectoral focal points, ensuring that the right data entry and review responsibilities are assigned to the most relevant stakeholders.
- **Monitoring and oversight tools** – training on the use of built-in dashboards, progress trackers, and notification systems to follow up on data submissions, monitor completeness, and identify inconsistencies.

Additionally, the team presented a comprehensive worksheet containing the adaptation and mitigation lists of outcomes, interventions, and indicators. This worksheet highlighted the semi-final feedback from participants in Days 1 and 2, serving as a working document for DCC to practice allocations and refinements.

### 4.2.3 Rodrigues Workshop - Thematic Users (July 17 – July 18, 2025)

The two-day workshop held at the ICT Centre, Port Mathurin, Rodrigues, brought together approximately 30 key stakeholders to strengthen user capacity for using the Mauritius NDC (MauNDC) Registry. The training focused on enhancing understanding of the registry's structure, particularly its core modules, interventions, indicators, and outcomes, and equipping users with practical skills in data entry and system navigation.

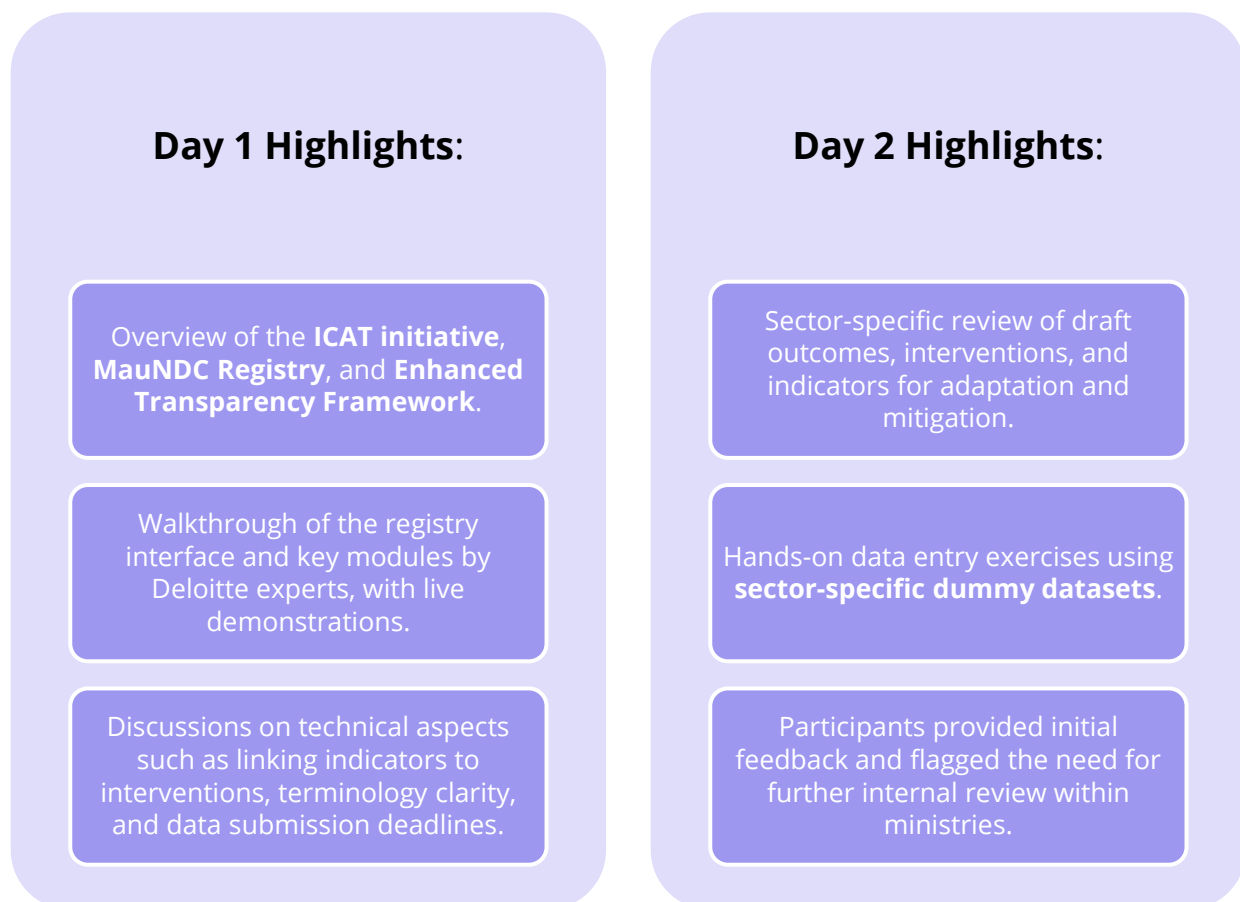


Figure 8: Highlights of the Workshop at Rodrigues

The workshop concluded with a commitment to integrate stakeholder inputs into finalizing sectoral lists and refining data collection processes, ensuring a more robust and user-friendly MauNDC Registry.

### 4.3 Hands-on Exercises on Registry Use and Data Entry

To facilitate practical learning, a set of dummy outcomes, interventions, and indicators were pre-configured in the MauNDC Registry before the workshop. These entries were tailored across different sectors to reflect real-world scenarios, enabling participants to gain hands-on experience with the platform. During the workshop sessions in both Mauritius and Rodrigues, users were guided through the process of navigating the Registry interface, entering data, selecting appropriate indicators, and reviewing outputs. The exercises were designed to mirror the actual workflow expected during live registry use, thereby strengthening participants' familiarity and confidence in operationalizing the system.

#### Mauritius

Participants engaged in a range of practical exercises designed to simulate real data entry processes into the registry. These exercises included:

- **Mock Entry of Interventions and Indicators** – Using pre-prepared case studies aligned with NCCMSAP/NCCAPF interventions, participants entered data related to specific projects, including objectives, outcomes, reporting frequency, and indicator values.
- **Categorization Practice** – Exercises required users to classify indicators as output, outcome, impact, GHG, or non-GHG, supported by field definitions and registry tooltips.
- **Data Consistency Checks** – Participants reviewed each other's entries to identify inconsistencies or mismatches between unit types, reporting frequencies, and indicator values.
- **Advanced Field Navigation** – Users explored functionalities such as linking indicators to national targets and setting timelines for data submission.

The exercises were interspersed with feedback sessions where trainers highlighted common challenges and demonstrated the best practices.



Figure 9: Hands-on on the Dummy Data by Thematic Users in Mauritius

## Rodrigues

Hands-on exercises in Rodrigues were simplified and structured to build foundational comfort with the registry system. Key activities included:

- **Filling Out Key Registry Fields** – Participants practiced entering basic information for locally relevant interventions such as mangrove rehabilitation, renewable energy pilots, and water conservation programs.
- **Selecting Appropriate Units and Frequencies** – Through guided examples, participants were trained to use consistent units (e.g., hectares, households, kW installed) and select appropriate reporting frequencies (e.g., annual).
- **Understanding Indicator Definitions** – Simplified explanation sessions were held before exercises to explain key terms like GHG impact, adaptation benefit, and non-GHG indicators.
- **Peer Learning Groups** – Participants worked in small groups to complete entries and discuss challenges, with trainers providing support and reviewing their work.

These exercises helped lay a strong foundation for continued engagement of Rodrigues stakeholders in national MRV processes and ensured inclusivity in registry development.



*Figure 10: Hands-on on the Dummy Data by Thematic Users in Rodrigues*

## Outcomes of the Mauritius & Rodrigues MauNDC Registry Workshops (14–18 July 2025)

- Strengthened user capacity in data entry, navigation, and operational use of the MauNDC Registry through hands-on, scenario-based exercises.
- Enhanced understanding of the registry's structure, linkages between outcomes, interventions, and indicators, and clarified user roles.
- Collected participant feedback to refine sectoral lists, improve data collection processes, and address usability issues.
- Provided coordinator-level training to DCC officials, enabling them to manage user allocations, oversee data quality, and coordinate registry operations.
- Fostered stronger stakeholder engagement in both Mauritius and Rodrigues, ensuring inclusivity in national MRV processes.
- Established a foundation for continuous system improvement based on real-world user

experiences and local needs.

From the outcomes of the Workshop with Thematic Users, a few enhancements were identified to improve the MauNDC Registry's effectiveness. Feedback gathered during the hands-on sessions and discussions highlighted practical challenges faced by users in data entry, allocation, and reporting, as well as opportunities to streamline processes and strengthen usability. These insights directly informed the updates and improvements described in Chapter 5, ensuring that the proposed revisions are grounded in real user experience and address both technical and institutional needs.

# Chapter 5: MauNDC Registry Updates and Improvements

## 5.1 Data Improvements

Following the validation workshop, it became evident that many registry users lacked the technical capacity and knowledge to input GHG-related data, primarily because they were unfamiliar with the necessary calculation methods. This limitation posed a challenge to the effective functionality of the MauNDC Registry. To address this gap, at least during the initial operational stage, it was decided to modify data collection approach. Instead of requiring users to calculate and input GHG emissions directly, new user-friendly indicators were proposed in a format aligned with the type of data that users already possess and can easily provide. These proposed indicators were subsequently validated by users to ensure practicality and relevance.

Furthermore, it was agreed that the DCC, with support from external experts would work towards converting these non-GHG indicators into GHG indicators and corresponding values, for integration into the National Greenhouse Gas Inventory and Biennial Transparency Report (BTR). This approach ensures that users can contribute accurate and usable data without the burden of complex calculations, while maintaining the robustness and compliance of national reporting obligations.

## 5.2 Overview of Updates Made Post Workshop 3

Following Workshop 3 (July 14–18, 2025), a comprehensive set of updates was made to the MauNDC Registry based on direct feedback from thematic users, MRV officers, and sectoral focal points. These updates reflect both technical refinements and usability enhancements, grounded in the practical experiences and suggestions of registry users during hands-on exercises and consultations.

### Registry Content Updates

<b>Revised Outcomes:</b>	Outcomes were aligned with national climate strategies (NCCMSAP and NCCAPF) and validated by users during the workshop. Outdated entries were removed, and sector-specific outcomes were refined to reflect current policy priorities.
<b>Revised Interventions:</b>	A new set of predefined interventions was introduced, structured for ease of selection and consistency. These were reviewed and refined during the workshop, with users contributing to terminology and categorization improvements.
<b>Revised Indicators:</b>	Indicators were updated to include both GHG and non-GHG metrics. Sectoral users proposed practical, intervention-level indicators based on data they could realistically provide. Definitions for data types (e.g., baseline, historical, NDC scenario) were clarified and embedded in the registry interface.
<b>Data Requirement Inputs:</b>	Users provided detailed inputs on units, reporting frequency, and data sources for each indicator. These were consolidated into sectoral worksheets and used to populate the registry with realistic, context-specific data requirements.

## Functional and Usability Enhancements

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### Task Management Improvements:

Discussions highlighted the need to simplify the current data type categories. Existing options—Baseline Data, NDC Scenario Data, Historical Data, BAU Data, and Other Scenario—were found to be unclear for many users. A proposed refinement aims to make these categories more intuitive and reduce errors during data entry.

Additionally, users requested the ability to enter **multiple historical data points** for a single indicator to support long-term trend analysis and avoid repetitive entries.

### Reporting Visualization Preferences:

Participants expressed a strong preference for **time-series charts** over pie charts in the reporting module. Time-series visualizations were seen as more effective for tracking progress, identifying fluctuations, and supporting decision-making.

### User Manual Enhancements:

Thematic users advocated for a more detailed and precise user manual. They requested clear definitions of registry terms, examples of data entry, and guidance on indicator classification. This improvement is expected to promote consistency across sectors and reduce misinterpretation.

### Additional Technical Updates:

Numeric-only restrictions were applied to quantitative fields.

Export functionality was enabled for Organizations and Individuals modules.

Confusing fields such as “Parent Outcome” and “Parent Intervention” were disabled by PwC as suggested by Deloitte.

Definitions for intervention status, instrument types, and scenarios were embedded in the registry.

These updates reflect a participatory and iterative refinement process, ensuring that the MauNDC Registry is technically robust, user-friendly, and responsive to the needs of its stakeholders. The feedback loop established through Workshop 3 has laid the foundation for continuous improvement and institutional ownership of the registry.

# Conclusion

Workshop 3, held in Mauritius and Rodrigues between 14–18 July 2025, successfully advanced the operationalization of the MauNDC Registry by combining targeted capacity building with system validation. The sessions achieved their core objective of equipping stakeholders with the technical skills and procedural understanding required to monitor, report, and track progress on Nationally Determined Contributions (NDCs). Participants demonstrated improved competency in interpreting NDC-related policies and measures, translating them into measurable indicators, and entering and managing these datasets within the registry.

By directly linking to the outputs and recommendations from Validation Workshop 2 (February 2025), Workshop 3 served as both a platform for implementing and testing previously agreed functional updates and as a mechanism for identifying further enhancements. This iterative approach ensured that the registry's evolving architecture remained responsive to user needs, sector-specific contexts, and national transparency priorities.

The active participation of the DCC in a dedicated Coordinator training session reinforced the importance of centralized oversight in maintaining data quality, consistency, and completeness. The workshop also fostered a collaborative environment for surfacing technical challenges, refining user workflows, and strengthening institutional capacity. The recommendations and feedback generated during Workshop 3 form a critical input to the functional updates and process improvements presented in Chapter 5 of this report.

## Annex B: Workshop Agenda

### Mauritius



### AGENDA DAY 1

Time	Agenda Item	Description
09:00 – 09:15	<i>Opening Remarks</i>	Welcome, training objectives, and expected outcomes.
09:15 – 09:45	<i>Context setting and Introduction to the MauNDC Registry</i>	Overview of registry design, structure, and its role in tracking NDC progress.
09:45 – 10:30	<i>Registry Components Overview</i>	Detailed explanation of: <ul style="list-style-type: none"> <li>➤ Outcomes</li> <li>➤ Interventions</li> <li>➤ Indicators</li> </ul>
10:30 – 10:45	<i>Coffee Break</i>	
10:45 – 11:30	<i>Live Walkthrough of the Registry Interface</i>	Demonstration of the MauNDC system interface, modules, and navigation.
11:30 – 12:30	<i>Data Entry Demonstration – Interventions &amp; Indicators</i>	Step-by-step demo of data input, linking interventions to outcomes, and indicators.
12:30 – 13:30	<i>Lunch Break</i>	
13:30 – 15:30	<i>Practical Exercise: Hands-on Data Entry Simulation</i>	Participants log in to the registry, practice data input for a few example interventions and indicators. Addressing participant queries, feedback on usability, and registry performance.
15:30 – 16:00	<i>Wrap-up and Summary</i>	Key messages, participant reflections, and preparation for Day 2.



### AGENDA DAY 2

Time	Agenda Item	Description
09:00 – 09:15	<i>Recap of Day 1</i>	Summary of key learnings and Day 2 expectations.
09:15 – 10:30	<i>Sectoral Session – Mitigation</i>	Presentation of mitigation interventions sector-wise + Stakeholder feedback
10:30 – 10:45	<i>Coffee Break</i>	
10:45 – 12:30	<i>Group Work: Input of Mitigation Interventions</i>	Hands-on session: Participants from each sector enter data related to mitigation interventions into the registry.
12:30 – 13:30	<i>Lunch Break</i>	
13:30 – 14:45	<i>Sectoral Session – Adaptation</i>	Presentation of adaptation interventions by sector + Stakeholder feedback
14:45 – 15:30	<i>Group Work: Inputting Adaptation Data</i>	Hands-on session: Participants from each sector enter data related to adaptation interventions into the registry.
15:30 – 16:00	<i>Reflections and Discussion</i>	Capture sector-specific feedback, issues faced, and proposed improvements.

## Rodrigues



## AGENDA DAY 1

Time	Agenda Item	Description
09:00 – 09:15	<i>Opening Remarks</i>	Welcome, training objectives, and expected outcomes.
09:15 – 09:45	<i>Context setting and Introduction to the MauNDC Registry</i>	Overview of registry design, structure, and its role in tracking NDC progress.
09:45 – 10:30	<i>Registry Components Overview</i>	Detailed explanation of: <ul style="list-style-type: none"> <li>➤ Outcomes</li> <li>➤ Interventions</li> <li>➤ Indicators</li> </ul>
10:30 – 10:45	<i>Coffee Break</i>	
10:45 – 11:30	<i>Live Walkthrough of the Registry Interface</i>	Demonstration of the MauNDC system interface, modules, and navigation.
11:30 – 12:30	<i>Data Entry Demonstration – Interventions &amp; Indicators</i>	Step-by-step demo of data input, linking interventions to outcomes, and indicators.
12:30 – 13:30	<i>Lunch Break</i>	
13:30 – 15:30	<i>Practical Exercise: Hands-on Data Entry Simulation</i>	Participants log in to the registry, practice data input for a few example interventions and indicators. Addressing participant queries, feedback on usability, and registry performance.
15:30 – 16:00	<i>Wrap-up and Summary</i>	Key messages, participant reflections, and preparation for Day 2.



## AGENDA DAY 2

Time	Agenda Item	Description
09:00 – 09:15	<i>Recap and Day 5 Objectives</i>	Brief recap and framing of final workshop day.
09:15 – 10:30	<i>Review of Mitigation and adaptation Outcomes, Interventions and Indicators</i>	<i>Review of Mitigation and adaptation Outcomes, Interventions and Indicators by the respective group of stakeholders.</i>
10:45 – 11:00	<i>Coffee Break</i>	
10:45 – 12:30	<i>Hands-on Exercise</i>	Participants carry out the hands-on exercise of adding dummy data into <a href="#">the registry</a> .
12:45 – 13:45	<i>Lunch Break</i>	

## Annex C: Mitigation – Outcomes, Intervention and Indicators

Sector	Outcomes	Interventions	Proposed Indicators	Data Requirements
Energy/ Energy Industries	Decarbonisation of the electricity system using renewable energies and demand side energy efficiency	Promote end-use energy efficiency	Emission reductions from energy efficiency (tCO <sub>2</sub> e/year)	Baseline and post-intervention energy consumption data (by sector/facility) - Emission factors for electricity and fuels - Details of implemented EE measures (type, date, coverage) - Methodology used to estimate savings (e.g. IPMVP)
	Decarbonisation of the electricity system using renewable energies and demand side energy efficiency	Enhancing renewable energy sources in the electricity mix, with completed phase out of coal before 2030	Share of renewable energy in electricity mix (%) Coal-based electricity generation capacity decommissioned (MW) GHG emissions from electricity generation (tCO <sub>2</sub> e/year)	Total electricity generated (MWh) - Electricity from renewable sources (MWh) - Energy mix breakdown by source - Historical and current installed capacity of coal-fired power plants - Fuel-wise generation data (MWh)
Transport (Land Shipping and aviation)	Towards a sustainable low-carbon land transport system in Mauritius	Improved fuel economy of vehicles	Average vehicle fuel economy (L/100 km or km/L) - Annual fuel consumption by vehicle category (litres) - CO <sub>2</sub> emissions per km for new vehicles (gCO <sub>2</sub> /km)	Vehicle registration and technical inspection records - Fuel efficiency test results - National fuel consumption statistics - Emission factors per fuel type
	Towards a sustainable low-carbon land transport system in Mauritius	Decreasing peak time congestion to improve traffic fluidity	Average vehicle speed during peak hours (km/h) in major corridors Total vehicle hours lost due to congestion per year	Traffic flow and GPS speed monitoring data - Road network performance studies - Surveys or telematics on trip-level fuel consumption
	Towards a sustainable low-carbon land transport system in Mauritius	Reducing consumption of fossil fuels through increased adoption of lower-carbon vehicles	Share of electric/hybrid vehicles in fleet (%) - Annual sales of electric/hybrid vehicles (units) - Avoided CO <sub>2</sub> emissions from EV adoption (tCO <sub>2</sub> /year)	Vehicle fleet composition and registration database - National fuel import and sales statistics - EV/Hybrid adoption statistics - Methodology for estimating avoided emissions (baseline vs actual)
	Towards a sustainable low-carbon land transport system in Mauritius	Electrification of mass transit mode of passenger transport	% of public transport fleet electrified - Electricity consumption by electric public transport (MWh/year) - Avoided CO <sub>2</sub> emissions compared to diesel baseline (tCO <sub>2</sub> /year)	Public transport authority fleet inventory - Energy consumption data (electricity bills, diesel purchase records) - Emission factors for diesel vs electricity grid mix - Calculation of avoided emissions

Solid Waste Management	Avoided emissions at landfills from a circular waste economy	Composting of the putrescible fraction of solid waste	Tons of organic waste composted annually  CH <sub>4</sub> emissions avoided from landfill (tCO <sub>2</sub> e/year)	Annual data on municipal organic waste generated - Quantity of waste diverted to composting facilities - Emission factors for landfill methane generation
	Avoided emissions at landfills from a circular waste economy	Recycling of municipal solid waste	Recycling rate (% of total MSW)  Emissions avoided from recycling vs virgin production (tCO <sub>2</sub> e/year)	Municipal solid waste generation statistics - Recycling facility throughput data by material type - Recycling rate calculation methodologies
	Avoided emissions at landfills from a circular waste economy	Energy recovery from municipal solid waste	Energy generated from waste-to-energy (MWh/year)  GHG savings from displaced fossil fuel use (tCO <sub>2</sub> e/year)	Waste-to-energy facility operating data (MWh/year generated) - Quantity of waste processed in energy recovery - National electricity grid emission factors - Data on fossil fuel use displaced by energy recovery
Waste Water Management	Avoided emissions in wastewater management	Reduced methane emissions from the adoption of low-carbon water treatment technologies	Methane avoided in wastewater treatment through more Population connected to the centralised wastewater system (co2e/year)	Percentage Population connected to centralised wastewater treatment plants (WWTPs) - Volume of domestic wastewater treated annually (m <sup>3</sup> /year) - Records of methane capture/ flaring/ Energy generation
Industrial Processes and Product Use	Reducing the import of HFCs according to the Kigali Amendment to the Montreal Protocol	Phase-Down of hydrofluorocarbons (HFCs) refrigerants in Mauritius	Annual HFC refrigerants consumption (tonnes CO <sub>2</sub> e) Or % reduction in HFC refrigerants imports vs baseline	Annual imports of HFCs (by type and GWP) - Baseline year consumption data (HFC tonnes, converted to CO <sub>2</sub> e) - Customs data on refrigerant imports - HFC use data from servicing sector and HFC Refrigerants retailers - Calculation methodology for % reduction
	Reducing the import of HFCs according to the Kigali Amendment to the Montreal Protocol	Phase out of HFC based domestic refrigerators and small commercial refrigeration equipment	Number of HFC based domestic refrigerators and small commercial refrigeration equipment imported	Annual number of imports of refrigerators and cooling appliances, disaggregated by refrigerant type (eg HFC, HCFCs, natural refrigerants) - Market share of non-HFC alternatives (e.g., natural refrigerants like R-600a, CO <sub>2</sub> ) - Registration/certification records for appliances - Customs and trade statistics
	Reducing the import of HFCs according to the Kigali Amendment to the Montreal Protocol	Environmentally sound disposal of HFC refrigerants	Tonnes of HFCs recovered (tCO <sub>2</sub> e) or Number of trained technicians for HFC recovery	Quantity of HFCs collected and recovered from decommissioned equipment - Records from recovery/recycling units and licensed waste operators - Number of certified technicians trained in HFC recovery and safe disposal - Documentation of disposal in compliance with Montreal Protocol guidelines

Agriculture (Crops)	Reducing emissions from good agricultural practices	Reducing chemical inputs in crop production	Fertilizer use per hectare (kg/ha) in agricultural land Or N <sub>2</sub> O emissions from agricultural soils (tCO <sub>2</sub> e/year)	Total fertilizer consumed (by type: nitrogen, phosphate, potash, etc.) - Total agricultural land area under cultivation (ha) Or - Type and quantity of fertilizer applied - Crop type and area (hectares) - Soil characteristics (N content, organic matter)
	Reducing emissions from good agricultural practices	Implementation of smart agriculture, bio-farming and other sustainable agricultural practices	% farmland under smart agriculture, bio-farming, and sustainable practices. Or Number of technologies developed and promoted. Or GHG emission intensity of crop production (tCO <sub>2</sub> e/ton yield)	Total farmland area (ha) - Area under smart agriculture practices (precision farming, conservation tillage, etc.) - Area under bio-farming/organic certification - Adoption rates of sustainable practices Or - List of sustainable agriculture technologies developed (irrigation efficiency, organic fertilizers, pest management, etc.) - Number of technologies disseminated through extension services or programs Or - Total GHG emissions from crop production (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O) - Crop yield (tons) by type - Emission factors for inputs and practices
AGRICULTURE (LIVESTOCK)	Improved food security with application of mitigation technologies for livestock waste management	Improved food security through the adoption of environmentally sound animal excrement management technologies	% farms with anaerobic digesters or improved systems  % farms with anaerobic digesters or improved systems adopted by women  CH <sub>4</sub> /N <sub>2</sub> O emissions reduced from manure management (tCO <sub>2</sub> e/year)	Number of livestock farms by type and size - Number of farms adopting anaerobic digesters / improved waste management systems - Gender-disaggregated data on technology adoption - Manure generation rates by livestock category - Emission factors for CH <sub>4</sub> and N <sub>2</sub> O from manure treatment methods
Forestry	Increasing the sink capacity of Mauritius	Planting trees in urban areas	Number of trees planted  CO <sub>2</sub> sequestered in urban forests (tCO <sub>2</sub> e/year)	Municipal/urban greening project records - Tree species, age, and survival rates - Growth rates and biomass accumulation factors - Carbon sequestration coefficients by species/region
	Increasing the sink capacity of Mauritius	Afforestation of abandoned agricultural land	Area afforested (hectares)  CO <sub>2</sub> removal from biomass growth (tCO <sub>2</sub> e/year)	Land-use data on abandoned agricultural land - Area covered under afforestation projects - Tree species mix and planting density - Biomass growth rates and carbon sequestration coefficients - Monitoring data on survival and growth rates
	Increasing the sink capacity of Mauritius	Conservation of Native Biodiversity	Land under conservation management and restoration (Cumulative Ha)	Total area (hectares) under legally designated conservation management (national parks, nature reserves, restored forest areas,

				wetlands, mangroves etc.) - Area newly brought under conservation/restoration each year (ha/year) - Types of conservation/restoration measures undertaken (e.g., reforestation, invasive species removal, mangrove rehabilitation, watershed restoration) - Monitoring of survival rate of restored vegetation and biodiversity indicators - GIS-based mapping of conservation areas to avoid double-counting
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### Annex C: Adaptation – Outcomes, Intervention and Indicators

Sr No	Outcomes	Interventions	Proposed Indicators	Indicative Data Requirements
W1	<b>Enhanced governance and adaptation planning capacity in the Water Sector</b>	Develop hydrological models and socioeconomic risk assessments (W1.1)	% of watershed areas with climate-risk models	List of watershed areas - Presence/coverage of hydrological & risk models
		Conduct technical studies and research on climate change and water sector related activities (W1.2)	# of water-sector policies updated # of prioritized adaptation activities identified	Inventory of existing & updated water-sector policies - List of adaptation activities from studies/research
		Support research on long-range sea-level rise and application in planning (W1.3)	% of national/local plans integrating long-range sea-level rise research # of long-range sea-level rise studies conducted/updated # of planning documents applying findings from sea-level rise research	Existence of long-range sea-level rise research - Application of findings in national/local plans
W2	<b>Improve water use efficiency</b>	Develop funding mechanisms for wastewater treatment and reuse (W2.1)	% of reuse projects financed through new mechanisms	Total number of reuse projects - Number financed through new mechanisms
		Increase awareness and capacity-building on reuse of treated water (W2.2)	Number of stakeholders trained or sensitized on safe reuse of treated water	Total number of reuse projects - Number financed through new mechanisms
		Invest in irrigation infrastructure and access to water for agriculture (W2.3)	Increase in irrigated area Water use efficiency (SDG 6.4.1)	Total irrigated land area (baseline & current) - Water use efficiency values
		Install rainwater harvesting systems and improve legal/regulatory frameworks (W2.4)	# of systems installed # of water policies or regulations updated	Number & type of rainwater harvesting systems installed - Policy/regulation documents updated
		Construct desalination plants (W2.5)	Desalination capacity (m <sup>3</sup> /day) Volume of desalinated water produced	Installed capacity of desalination plants - Annual water output data
		Promote water saving technology in crop production	Area under water saving technology (ha) Or Number of waters saving technologies developed and promoted.	Total cultivated land area (ha) - Area equipped with water-saving technologies (e.g., drip irrigation, sprinkler irrigation, laser land levelling, soil moisture sensors) - Type of water-saving technology adopted

				Or - List of water-saving technologies researched/developed - Number of technologies actively disseminated and promoted via extension services, farmer training programs, or government schemes
W3	<b>Practice and promote Integrated water management and ecosystem-based adaptation</b>	Develop cross-sectoral ecosystem-based adaptation strategy (W3.1)	Area of floodplains reconnected # of wetlands mapped # of institutions trained on NbS	GIS mapping of floodplains & wetlands - Area (ha) reconnected - List of wetlands mapped - Training reports, attendance records
		Identify and protect land for wetland adaptation to sea-level rise (W3.2)	Area (ha) designated for tidal wetland adaptation	Official records of designated wetland areas - GIS maps showing boundaries - Land use/zoning documents
		Mainstream adaptation into National IWRM Plan (W3.3)	Inclusion of adaptation measures in IWRM Plan (Yes/No) # of adaptation measures integrated	Updated IWRM Plan - List of adaptation measures included - Stakeholder validation reports
		Promote multi-level and intersectoral water governance (W3.4)	# of coordination platforms or committees established # of policies/strategies jointly developed	Records of coordination bodies - List of intersectoral policies or strategies developed
W4	<b>Improved data, monitoring and evaluation for water adaptation</b>	Develop oceanic and atmospheric observation systems (W4.1)	# of oceanic/atmospheric observation stations established	List of observation stations - Technical specifications and location data - Operational status reports
		Develop M&E framework for water adaptation (W4.2)	Existence of M&E framework for water adaptation (Yes/No) # of adaptation indicators tracked	Official M&E framework document - List of indicators developed and monitored - Progress reports on adaptation measures
A1	<b>Enhanced knowledge base on climate risks and ecosystem services in Agriculture Sector</b>	Conduct climate change risk and adaptation assessments to identify vulnerable areas (A1.1)	# of climate risk and adaptation studies completed # of vulnerable ecosystems and communities identified	List of studies completed (titles, year, scope) - Geographic areas covered - Vulnerability mapping outputs - Profiles of communities identified as vulnerable
		Develop research programs and technical studies to integrate climate change into agriculture sector policies (A1.2)	# of agriculture policies/strategies with integrated climate actions # of prioritized activities identified with climate benefits	Official agriculture policies and strategies (with climate sections highlighted) - Research/technical study reports - List of identified priority activities with climate co-benefits - Status of implementation
		Conduct evaluation of ecosystem services and their economic value (A1.3)	# of ecosystem services evaluated Economic value (USD) of key ecosystem services	List of ecosystem services considered (e.g., pollination, soil fertility, water retention) - Economic valuation methodology used - Valuation results (USD)

A2	<b>Promotion of climate-smart land use and biodiversity</b>	Encourage participatory land use planning for sustainable agriculture (A2.1)	# of community land use plans developed % of targeted land area under such plans	Number of land use plans prepared and approved - Maps of targeted vs. covered areas - Community participation records
		Ensure alignment with water, forestry, and biodiversity adaptation (e.g., water conservation, forest cover increase) (A2.2)	% of land area under micro-irrigation Area of forest cover increased (ha/year) # of floodplain easements implemented (New)	Area under micro-irrigation (ha) - Annual Forest cover statistics (remote sensing/GIS) - List & size of floodplain easements implemented
		Promote ecosystem-based adaptation including bee pastures and agroforestry (A2.3)	Area under agroforestry practices (ha) # of bee pasture conservation projects supported	Agroforestry area mapped (ha, by region) - Records of supported bee pasture projects - Number of farmers adopting practices
		Promote composting and reduce synthetic fertilizer use (A2.4)	% of farms using compost/ organic manure as primary soil amendment	Total number of farms in the region - Number of farms primarily using compost/organic manure instead of synthetic fertilizers - Volume of compost produced and applied annually (tons) - Reduction in synthetic fertilizer sales/consumption (tons/year)
		Promote climate-resilient technologies and new crop varieties (A2.5)	# of climate-resilient crop varieties introduced Or Annual food crop production per unit area	Number and type of climate-resilient crop varieties developed/released officially - Adoption rate of these varieties (hectares cultivated) Or - Area cultivated under food crops (ha) - Total production of key food crops (tons) - Yield per hectare (tons/ha) - Disaggregated data by crop type and region for better accuracy
A3	<b>Strengthened institutional capacity and financial support for climate adaptation in agriculture</b>	Build institutional and community capacity (A3.1) (NBS indicator)	# of training sessions held # of participants trained (gender-disaggregated)	Training program records - Attendance sheets with gender-disaggregated data - Evaluation/feedback reports
		Develop financial planning for transition to climate-smart agriculture (A3.2)	Financial resources allocated for CSA transition (USD/year)	National budget allocations for CSA - Donor/IFI contributions & grants - Private sector investments/loans - List of CSA projects funded - Disbursement vs allocation data
		Develop M&E framework for all adaptation strategies (A3.3)	M&E framework developed (Yes/No) # of strategies with tracked indicators	Copy of M&E framework - List of strategies with included indicators - Reports on monitoring progress
		Strengthen communication tools and early warning systems (EWS) (A3.4)	# of communication tools upgraded or developed # of farmers reached through advisories	List of tools/platforms developed (apps, SMS, radio, etc.) - Coverage statistics (# of farmers reached, disaggregated) - Feedback surveys from users

F1	<b>Sustainable utilisation of fisheries resources</b>	Promote collaboration with regional and international bodies for stock assessments (F1.1)	# of regional/international collaboration initiatives on fisheries	Records of MoUs/agreements signed with regional or international fisheries bodies -Number and type of joint initiatives (e.g., stock assessments, surveys, joint projects) -Reports and proceedings of collaboration meetings/workshops
		Establish integrated Blue Economy-based sector management framework (F1.2)	Existence of integrated management framework (Yes/No) # of sector policies/strategies aligned with Blue Economy principles	Existence of sector management framework (policy/legal documents, cabinet approvals) - Number of fisheries/aquaculture sector strategies aligned with Blue Economy principles - Records of stakeholder consultations for policy integration
		Strengthen linkages between fisheries, value addition, and infrastructure (F1.3)	# of new value chain linkages developed # of infrastructure projects supporting fisheries value addition	Records of new or upgraded infrastructure projects supporting fisheries (landing sites, processing facilities, storage, logistics) - Investment/ incentives provided to fishermen may be included
		Upgrade the Vessel Monitoring System (VMS) (F1.4)	Functionality level of VMS (e.g., % of vessel coverage) # of enforcement cases supported by VMS data	% of registered vessels with active VMS units installed - VMS operational reports (uptime, functionality) - Enforcement cases supported by VMS data (illegal fishing, area violations, unreported catches)
F2	<b>Resilient coastal and marine ecosystems and communities (NBS indicator)</b>	Promote good fishing practices and integrated catchment-coast climate responses (F2.1)	# of sustainable fishing training programs conducted	Training program records (dates, participants, modules) - Number of fishermen trained in sustainable fishing practices
		Expand and strengthen Marine Protected Areas (F2.3)	# of MPAs established or expanded Total area (km <sup>2</sup> ) under MPAs	Number of MPAs established or expanded (gazetted area notifications) - Total area (km <sup>2</sup> ) under legal protection - Monitoring reports on compliance and effectiveness
		Rehabilitate marine habitats: mangroves, seagrass and corals (F2.4)	Area of mangrove replanted (ha/year) # of coral nurseries/farming sites established area of seagrass planted (ha/year)	Area of mangroves replanted (ha/year) with GPS mapping - Area of seagrass restored (ha/year) - Number and size of coral nurseries/farming sites established - Monitoring reports on ecosystem survival rates
		Upskill or re-skill under-employed fishermen (F2.5)	# of fishermen trained	Training program records (curriculum, trainers, modules) - Number of fishermen trained, disaggregated by gender and age group
F3	<b>Climate-resilient aquaculture development</b>	Promote ocean ranching form of aquaculture (F3.1)	# of ocean ranching projects implemented Volume of aquaculture production from ranching systems	Number of projects implemented (location, type of species) - Annual aquaculture production from ranching systems (tons/year) - Financial/investment records of projects

		Evaluate role of currents and ecosystems in aquaculture planning (F3.3)	# of studies on currents and ecosystem effects on aquaculture	Research studies on currents, temperature, nutrient flows, and ecosystem effects - Mapping outputs of aquaculture suitability zones - Reports on implications for site selection
F4	<b>Strengthened data systems and stakeholder capacity for Fisheries</b>	Build stakeholder capacity for ecosystem identification and fishery plans (F4.2)	# of stakeholders trained	Number of training programs conducted (records, modules, attendees) - Fishery-specific management plans developed (policy or technical documents)
		Facilitate interdisciplinary knowledge exchange on fish phenology (F4.3)	# of interdisciplinary meetings/workshops # of research outputs shared with managers	Records of workshops/meetings conducted (attendance, agendas, outcomes) - Research reports/outputs shared with fisheries managers - Collaborative publications or knowledge briefs
		Develop fisheries knowledge and data-sharing system (F4.5)	Data platform operational (Yes/No) # of users accessing platform # of data points uploaded and updated annually	Operational status of fisheries data platform (Yes/No) - Number of registered users accessing the platform
		Economic valuation of marine and coastal ecosystems (F4.4)	Estimated value (USD) of coastal/marine ecosystem services	Baseline valuation studies of marine and coastal ecosystems - Data on fisheries production, aquaculture yield, and market prices - Tourism revenue linked to marine and coastal areas - Coastal protection and storm surge buffering value (avoided damage costs) - Carbon sequestration value from mangroves, seagrasses, and reefs - Biodiversity valuation and ecosystem service assessment reports - National accounts / environmental-economic accounts
T1	<b>Improved protection of critical ecosystems and climate-resilient tourism infrastructure</b>	Develop an implementation plan for Strategic Tourism Plan incl. financing (T1.1)	Implementation plan developed (Yes/No) Budget allocated for climate-resilient tourism activities (USD/year)	Drafts/final Strategic Tourism Plan - National and sectoral budget allocations - Climate-resilient project pipeline in tourism
		Promote restoration: native vegetation, marshes, mangroves, seagrass, dunes, coral habitat (T1.2)	Area (ha) restored (by habitat type) # of restoration projects implemented # of coral nurseries established	Project implementation reports - GIS/remote sensing data - Monitoring reports on survival rates - Biodiversity baseline data
		Use pilot studies with developers for governance innovation (T1.3)	# of pilot studies completed # of governance innovations adopted by tourism operators	Pilot study reports - Records of governance innovations adopted - MoUs/agreements with developers - Stakeholder feedback

		Develop multi-stakeholder decision-making processes for land-use planning (T1.4)	Stakeholder consultation framework adopted (Yes/No) # of stakeholders participating in planning processes	Consultation records and minutes - Stakeholder lists (by sector) - Policy/land-use planning documents - Workshop/training attendance sheets
		Develop integrated tourism planning aligned with agri-biodiversity-coastal strategies (T1.5)	Integrated tourism-ecosystem plan developed (Yes/No) # of cross-sectoral projects initiated	Draft/final integrated plans - Records of cross-sectoral initiatives - Policy alignment documents - Sectoral budget allocations
T2	<b>Active engagement of the tourism sector in adaptation and sustainability</b>	Launch ecotourism linked to carbon sequestration (T2.1)	# of ecotourism projects launched Carbon sequestered through associated conservation projects (tons CO <sub>2</sub> e/year)	Project pipeline of ecotourism initiatives - Carbon sequestration monitoring reports - GIS data on conservation areas - Carbon accounting methodologies
		Build capacity for sustainable tourism & valorisation of local resources (T2.2)	# of stakeholders trained in sustainable tourism # of awareness campaigns conducted # of resource-efficient innovations adopted in tourism	Training reports & participant lists - Awareness campaign records - Innovation/technology adoption surveys - Case studies from tourism operators
		Implement incentives: PES, eco-taxes, biodiversity offsets (T2.3)	# of operators benefitting from PES or eco-tax schemes Total funds mobilized through tourism-based incentive schemes (USD/year)	Records of PES/eco-tax scheme beneficiaries - Tax collection data - Biodiversity offset agreements - Conservation fund allocation report
T3	<b>Strengthened monitoring and accountability of tourism development impacts</b>	Develop ecotourism strategy, EMS, audits, and M&E framework (T3.1)	Ecotourism strategy adopted (Yes/No) # of hotels/IRS audited M&E framework developed and used (Yes/No)	Draft/final ecotourism strategy - EMS certification records - Hotel/resort audit reports - M&E framework guidelines
		Promote eco-friendly practices and eco-labelling in tourism operations (T3.2)	# of certified eco-labelled hotels/resorts % of tourism operators implementing verified eco-practices	Eco-label certification records - Compliance audit reports - Monitoring reports from tourism associations - Independent verification assessments
H1	<b>Climate-resilient health policy and institutional frameworks developed</b>	Develop knowledge base on climate-related health risks and adaptation actions (H1.1)	# of climate-health studies conducted # of risk and vulnerability maps developed	Research reports & publications - GIS/spatial data on health risks - National health statistics (climate-related diseases) - Vulnerability mapping datasets
		Develop community-based health and climate approaches (H1.2)	# of community programs initiated # of communities covered by adaptation outreach	Community outreach program reports - List of participating communities - NGO/CSO reports on health adaptation - Beneficiary/coverage data
		Develop cross-sectoral institutional framework for health adaptation (H1.3)	Institutional framework developed (Yes/No) # of public health plans integrating climate risks	Draft/final framework documents - National and regional health plans - Policy integration evidence (climate-health references)

		Prepare Health National Adaptation Plan (HNAP) with roadmap and M&E (H1.4)	HNAP developed (Yes/No) M&E framework established # of health adaptation actions budgeted/funded	Draft/final HNAP - Government budget allocations for health adaptation - Donor-funded health projects - M&E guidelines and implementation reports
H2	Strengthened health infrastructure	Upgrade health facilities for surge capacity and climate-sensitive disease response (H2.1)	# of risk assessment of the health institution yearly	Infrastructure upgrade reports - Facility audit reports - Ministry of Health (MoH) infrastructure databases - Disaster preparedness plans
		Establish observatory and a unit for climate-sensitive/vector-borne diseases (H2.3)	Observatory established (Yes/No) # of new surveillance units operational	Institutional set-up documents - National Disease Surveillance reports - MoH registry of health observatories - Staffing and operational budgets
		Expand Early Warning Systems (EWS) for disease/environmental hazard surveillance (H2.4)	# of diseases and hazards under EWS Frequency of updates/alerts issued Coverage (national/regional) of EWS	EWS technical specifications - Health surveillance data - Alert/notification logs - GIS maps of coverage - Collaboration records with meteorological/hazard monitoring agencies
	Strengthened systems to address climate-sensitive health risks	Expand medical insurance coverage for climate-related health issues (H2.2)	# of insurance products covering climate-sensitive diseases # of people covered under climate-inclusive insurance	Insurance product details - Insurance coverage data - Health insurance reports
		Introduce new mosquito/vector control techniques (H2.5)	# of new vector control technologies deployed Change in vector population or disease incidence (before/after intervention)	Vector control program data - Disease incidence data - Research/impact assessments
H3	Improved public awareness and preventive health behavior	Develop IEC plans to change public perception and behavior (H3.1)	# of IEC materials produced # of awareness campaigns conducted Reach (% of population)	IEC materials - Campaign records - Survey data
		Promote healthy lifestyles, nutrition, and vector control (H3.2)	% increase in population practicing healthy behaviours (survey-based) # of community-led initiatives on nutrition/vector control	Survey reports - Community initiative records
H4	Skilled health workforce for climate-related disease burden	Develop curricula for life-long learning on climate-health (H4.1)	# of curricula/modules developed for academic purposes (for schools) # of institutions integrating modules	Curricula documents - Records from educational institutions
		Train health professionals on climate change adaptation (H4.2)	# of health workers trained # of planning units with trained personnel	Training records - Health ministry HR data
H5	Availability and preparedness for	Maintain stockpile of emergency medical supplies (H5.1)	Volume and type of emergency supplies stocked # of stockpile replenishment cycles annually	Stockpile inventory records - Procurement reports - Replenishment schedules

	<b>essential medicines and vaccines</b>	Expand vaccine availability (H5.2)	# of vaccines added to national immunization program % coverage of at-risk populations	Immunization program data - Vaccination coverage reports
11	<b>Improved knowledge on climate risks to coastal infrastructure and communities</b>	Conduct climate risk and vulnerability assessments (I1.1)	# of risk and vulnerability assessments conducted # of vulnerable hotspots identified	Reports of completed assessments - GIS/maps of vulnerable zones - List of identified hotspots with classification
		Develop information systems and promote climate data in infrastructure planning (I1.2)	Climate-infrastructure data platform operational (Yes/No) # of infrastructure projects using topographic, hydrologic, and climate data	Existence of operational data platform - Number of infrastructure projects using integrated data - Access logs/records of platform usage
12	<b>Climate risks mainstreamed in sectoral infrastructure policies and coastal development planning</b>	Develop technical guidelines for adaptation using nature-based solutions (I2.1)	Guidelines published and in use (Yes/No) # of projects implementing NbS (nature-based solutions)	Published adaptation guidelines - List and status of projects applying NbS
		Build awareness and capacity among developers and engineers (I2.2)	# of professionals trained# of awareness sessions held	Training records - Participant lists and feedback - Agenda/summary of awareness sessions
		Establish coordination and consultation mechanisms for integrated landscape planning (I2.3)	Inter-agency coordination mechanism established (Yes/No) # of joint planning sessions conducted	Existence of coordination mechanism - Records/minutes of planning sessions - List of participating agencies
		Optimize land use for priority infrastructure adaptation (I2.4)	% of strategic land areas designated for priority climate-resilient infrastructure # of land-use plans updated to reflect climate risks	Land-use maps and zoning documents - Records of updated plans - Percentage of strategic areas designated
13	<b>Strengthened disaster preparedness and risk reduction systems for infrastructure</b>	Operationalize real-time warning systems for infrastructure failure (I3.1)	Warning system operational (Yes/No)# of alerts issued annually	Existence and functionality of warning system - Records/logs of alerts issued
		Develop M&E framework including use of Doppler radar data (I3.2)	M&E framework developed (Yes/No) # of infrastructure adaptation activities tracked using indicators	Approved M&E framework - Database of tracked adaptation activities - Reports using Doppler radar data
14	<b>Climate-resilient road infrastructure systems in place and operational</b>	Identify roads at high risk for damage during climate events (I4.1)	# of roads mapped as climate-vulnerable or Risk classification system developed (Yes/No)	GIS-based vulnerability mapping - Road inventory (length, type, location) - Hazard exposure data (flood, landslide, cyclone zones) - Classification methodology & criteria
		Define mechanisms for rapid damage assessment and funding (I4.2)	Emergency response funding plan developed (Yes/No) or Average response time post-disaster (hours/days)	Existence and approval of emergency funding framework - Historical records of response times - Contingency budget allocation and disbursement mechanism
		Establish intervention mechanisms for road recovery (I4.3)	Road intervention protocol implemented (Yes/No) # of emergency intervention teams activated	Formalized road recovery SOPs - Number and readiness of emergency response teams - Activation records post-disaster

	Revise road design guidelines for climate resilience (I4.4)	Guidelines revised (Yes/No) # of new projects using updated guidelines	Official publication of revised road design standards - Project approval data referencing new guidelines - Compliance monitoring reports
	Introduce resilient materials for road construction (I4.5)	# of projects using climate-resilient materials Performance rating of materials post-disaster	Project records (type of materials used) - Lab/field test results on material durability - post-disaster performance assessments
	Ensure timely restoration of damaged roads (I4.6)	% of damaged roads restored within set timeframe Average restoration time post-event	Records of road damages vs restoration timelines - Defined “set timeframe” benchmarks - post-disaster progress monitoring reports
	Amend procurement processes to be climate-responsive (I4.7)	New procurement procedures adopted (Yes/No) Procurement lead time during emergencies	Official revised procurement policies - Procurement records during emergency events - Time between disaster and contract award
	Use simulation models for climate stress testing of road infrastructure (I4.8)	# of models developed # of road segments tested with simulation tools	Existence of models (flood, cyclone, heat stress tests) - Road segments tested, and results documented - GIS/engineering model outputs
	Integrate responses to new infrastructure failure types (e.g., bridge collapses) (I4.9)	Response protocols developed for new failure types (Yes/No) # of contingency plans covering emerging risks	Official protocols for new failure modes - Inventory of contingency plans - Lessons learned from past failures
<b>Resilient coastal and marine ecosystems and communities (NBS indicator)</b>	Carry out Risk Assessment and Ridge to Reef Feasibility Studies before restoration Programme	# of feasibility and risk assessment reports	Ridge to Reef data (land–sea interaction zones) - Methodology for risk classification and feasibility analysis - Stakeholder engagement records - Prioritization criteria used in selecting restoration sites