

# Hands-on training workshop on enhancing institutional arrangements and effective implementation of the Enhanced Transparency Framework

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### Maldives

Definition of NDC indicators

**Khetsiwe Khumalo**  
Advisor - Climate Transparency  
UNEP CCC

# What is an indicator?

- An indicator is a specific, observable and measurable characteristic that can be used to show changes or progress a programme is making toward achieving a specific outcome.
- Indicators are signs of progress
- Indicators are a means to demonstrate achievement of an objective.



# Type of indicators

## Quantitative Progress Indicators

As a general rule, a quantitative indicator consists of a **unit of measurement and the value** (e.g., 50 MW),. These often relate to the inputs for the mitigation initiatives, the activities carried out, and their intermediate or along the way effects.

- Measuring aggregate emissions reduction from mitigation actions;
- Identifying co-benefits of mitigation actions, policies and measures for sustainable development and for economic and social growth.

## Qualitative Progress Indicators

Qualitative indicators are **descriptive and non-numerical** ( can also be used to track the progress of mitigation initiatives. These include **subjective assessments** of progress towards a specific impact goal. They tend to be useful where parameters are difficult to quantify, often the case for non-GHG effects.

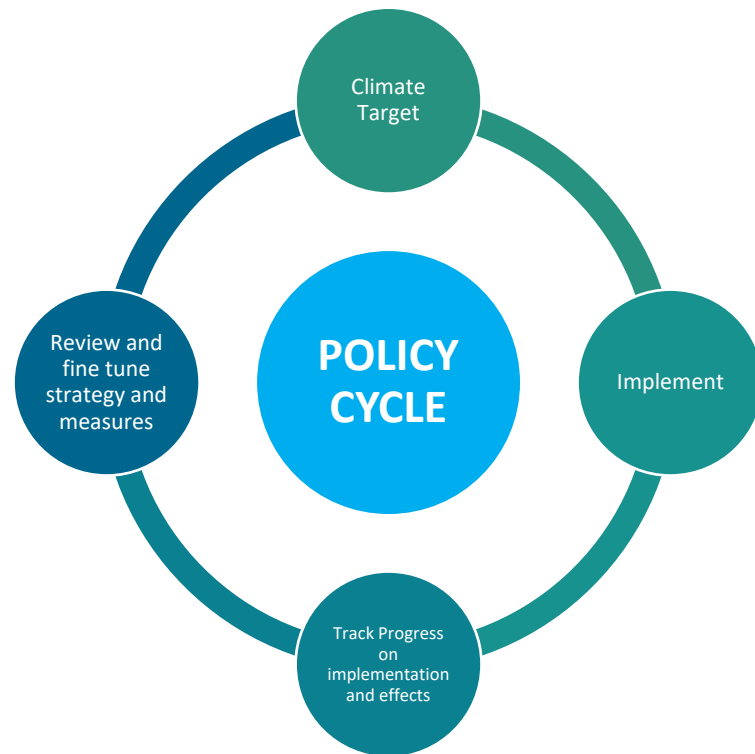


# Why we need indicators?

A system of tracking progress is useful to identify whether an initiative is **on track** and being implemented as planned, and any gaps that will need to be addressed to deliver the expected results.

Tracking progress needs to cover three main steps:

1. Definition and application of **progress indicators**
2. **Estimation ex-post** of the actions, policies and measures in terms of avoiding GHG emissions
3. **Monitoring** of key performance indicators



# Indicators in the MPGs

## **C. Information necessary to track progress made in implementing and achieving its nationally determined contribution under Article 4 of the Paris Agreement**

65. Each Party shall identify **the indicator(s)** that it has selected to track progress towards the implementation and achievement of its NDC under Article 4. Indicators shall be **relevant to a Party's NDC** under Article 4, and may be either **qualitative or quantitative**.



## C. Information necessary to track progress made in implementing and achieving NDCs

- Each Party **shall** identify **indicator(s)** (*quantitative or qualitative; relevant to the NDC*) to track progress towards implementation and achievement of its NDC
- Each Party **shall** provide:
  - the information for each selected indicator for the **reference point(s)**, level(s), baseline(s), base year(s); and the **most recent information** for each reporting year; and **compare** these
  - description of each **methodology and accounting approach** used for its NDC target, construction of baseline, and each indicator identified; [*key parameters, assumptions, definitions, data sources, models, IPPC guidelines, metrics, etc*]
  - all this information in a **structured summary** to track progress:
    - ✓ Information on indicators [*reference level; most recent; at the reporting years in between*]
    - ✓ GHG emissions and removals consistent with the scope of its NDC, where applicable;
    - ✓ Contribution from the LULUCF sector for each year of the target period or target year, as applicable;
    - ✓ Information on use of ITMOs, as applicable;
- Each Party **with an NDC that consists mitigation co-benefits** from adaptation actions and economic diversification plans, **shall** provide information on domestic policies and measures implemented to address social and economic consequences of response measures.

# Identifying and compiling NDC indicators - Step by step approach



# Step 1: Identify and assess NDC targets

**What to do.** As a starting point, identify all mitigation and adaptation targets included in the most recent NDC. List them in a tabular format, including

- The target or effort.
- The target value (if quantitative) or description (if qualitative).
- The scope of the target or effort (e.g., sectors, gases).
- The unit of the target value (if quantitative).
- The target timeframe.
- The baseline value (if available).





# Step 1: Identify and assess NDC targets - GHG related targets

| NDC target type   | Country Examples   | Scope  | Target value | Target unit           | Target timeframe | Value in reference / Base period / BAU  |
|---|--|--|--------------|-----------------------|------------------|---|
| <b>Absolute emission reduction or limitation target relative to a base year</b> | Brazil NDC commits 'to reduce its greenhouse gas emissions in 2025 by 37%, compared with 2005'.  | CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and SF <sub>6</sub> | 37           | %                     | 2025             | Base year emission estimation in the fourth BUR is around 2.4 Mio. kt <sub>e</sub> of CO <sub>2</sub> eq. May be updated according to the latest inventory.               |
| <b>Emission reduction target below a BAU level</b>                              | Morocco's NDC unconditional) reduction target, '18.3% below BAU emissions by 2030''.   | CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O and HFCs  | 18.3         | %                     | 2030             | The BAU scenario is projected approx. 1.4 Mio. kt CO <sub>2</sub> eq in 2030  |
| <b>Fixed-level target</b>   | Argentina's 's fixed-level target, will not exceed net emissions of 359 Mt CO <sub>2</sub> eq by 2030 to 369 Mt CO <sub>2</sub> eq for 2030. | CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs and PFCs  | 359          | Mt CO <sub>2</sub> eq | 2030             | <u>No reference value is used.</u> But in its NDC submission Argentina compares the level of ambition to its 2016 emissions, which were around 364 Mt CO <sub>2</sub> eq. |

# Step 1: Identify and assess NDC targets – Non-GHG related targets

| NDC target type                            | Country Examples   | Scope | Target value              | Target unit | Target timeframe | Value in reference / Base period / BAU |
|--|--|-------|---------------------------|-------------|------------------|--|
| <b>Sectoral non-greenhouse gas targets</b> | China has pledged to 'increase the share of non-fossil fuels in primary energy consumption to around 25%.  | N/A   | 25                        | %           | 2030             | N/A                                    |
| <b>Mitigation actions</b>                  | <u>Bangladesh</u> aims to implement renewable energy projects, enhance efficiency of existing power plants, improve technology for power generation. | N/A   | Implementation of actions | MW          | 2030             | N/A                                    |

## Step 1: Identify and assess NDC targets – Adaptation targets

| Sector/focus            | Country Examples   | Target value / Qualitative description  | Target unit | Target timeframe |
|-------------------------|--|---|-------------|------------------|
| <b>Water Quality</b>    | Expand the scope of Brazil's National Drinking Water Quality Surveillance Program (VIGIAGUA) to reach 85% of Brazilian municipalities, by 2019.  | Engagement with 85% of Brazilian municipalities   | %           | 2019             |
| <b>Human Settlement</b> | Fiji to promote the enforcement of appropriate national building codes and infrastructure design on critical facilities and public assets.   | Enforcement of national building codes to support compliance of disaster resilient infrastructure | N/A         | 2030             |
| <b>Agriculture</b>      | Kenya to up-scale and promote drought tolerant traditional high value crops; water harvesting for crop production; index-based weather insurance; conservation agriculture; agro-forestry; and Integrated soil fertility management. | Implementation of disaster resilient agricultural techniques and management                       | N/A         | 2030             |

## Step 2: Make targets SMART

**What to do. Assess and, if necessary, clarify the scope covered by the target. Where necessary, clarify also other elements, e.g., units, reference / baseline levels.**

This is a relevant prerequisite to constructing relevant indicators in the following step. The more general targets are defined, the more work will be required. In doing so, involve the stakeholders who will be responsible for implementing the measures necessary to achieve the targets.

## Step 2: Make targets SMART

**S**

**Specific**

The indicator is clearly defined, so there cannot be different interpretations of it

**M**

**Measurable**

The indicator value can be measured quantitatively or qualitatively

**A**

**Ambitious**

Achieving the target requires ambitious action

**R**

**Relevant**

The indicator relates to a relevant impact of a mitigation action

**T**

**Time-bound**

The indicator relates to a point in time of timeframe



## Step 2: Make targets SMART

### **E.g. achieving a share of 28% of renewable power by 2030**

This is not a fully SMART target yet.

- What should the 28% refer to – e.g., power generation (including or excluding imports and exports?) or capacities installed?
- Which technologies should be counted as renewable power technologies?

### **E.g. to increase public awareness of climate changes effects and impacts on general health**

- How do you tell whether or not the indicator has been achieved?
- What types of climate change impacts will be addressed?
- What mechanism will be used to engage with the public?
- Under which conditions will public awareness be considered as increased?
- What are the current levels of public awareness, have these been defined?
- Finally, has a timeframe been established for when the target must be reached?

## Step 2: Make targets SMART – Mitigation targets issues – GHG related targets

| Type of mitigation target   | Elements to consider for a SMART target  | Unit  |
|---|--|---|
| <b>Absolute emission reduction or limitation target relative to a base year</b> | <ul style="list-style-type: none"> <li>• Base year clearly agreed?</li> <li>• Gases included agreed?</li> <li>• Sectors / GHG inventory categories agreed</li> <li>• Target year agreed?</li> </ul>            | kt CO <sub>2</sub> eq   |
| <b>Emission reduction target below a BAU level</b>                              | <ul style="list-style-type: none"> <li>• As for absolute emission reduction target</li> <li>• BAU level clearly defined? Data and methods available?</li> </ul>  | %   |
| <b>Intensity target</b>   | <ul style="list-style-type: none"> <li>• As for absolute emission reduction target</li> <li>• Intensity-relevant factor and source / methodology to be used clearly defined, e.g., GDP, population?</li> </ul> | kt CO <sub>2</sub> eq / capita or GDP / etc.<br>% (if compared to BAU or base period) |

## Step 2: Make targets SMART – Mitigation targets issues – Non-GHG related target

| Type of mitigation target | Elements to consider for a SMART target   | Unit   |
|---------------------------|---|--|
| <b>Renewable Energy</b>   | <ul style="list-style-type: none"> <li>• Definition of “renewable” to be used – e.g., which sources, which technologies?</li> <li>• What does it relate to – share in total power / power + heat generated, GWh electricity generated, renewable generation capacities installed / operational?</li> </ul>                  | <ul style="list-style-type: none"> <li>• %</li> <li>• GWh</li> <li>• MW</li> </ul>   |
| <b>Energy Efficiency</b>  | <ul style="list-style-type: none"> <li>• Definition of “energy efficiency” to be used</li> <li>• What does the target relate to, e.g.               <ul style="list-style-type: none"> <li>- energy efficiency improvement compared to a base year or BAU</li> <li>- Energy efficiency target level?</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• GWh</li> <li>• TJ / unit of GDP</li> </ul>  |
| <b>Forest cover</b>       | <ul style="list-style-type: none"> <li>• Is there a national forest definition?</li> <li>• Methodology to determine forest cover agreed?</li> <li>• Reference level / baseline data and methodology available?</li> </ul>   | <ul style="list-style-type: none"> <li>• Hectares or km<sup>2</sup></li> <li>• % of national territory</li> <li>• % increase compared to reference / baseline</li> </ul> |



## Step 3: Identify type of indicator suitable to track the target

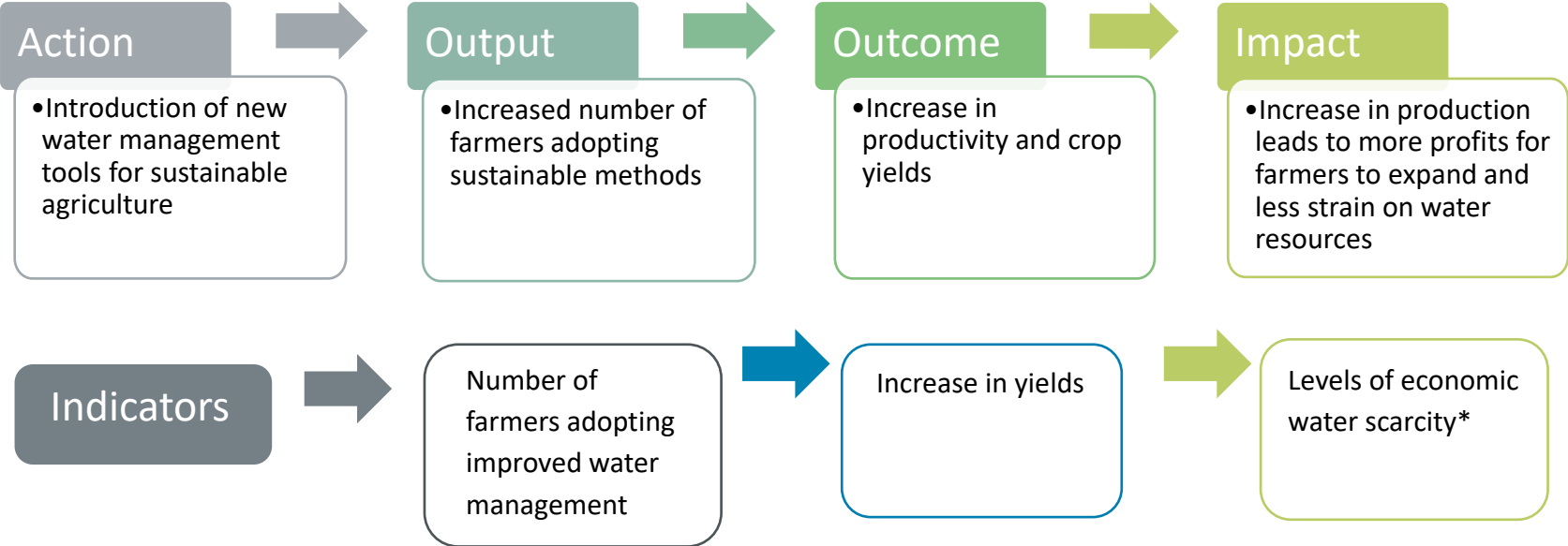
**What to do.** Once the NDC targets have been made SMART, identify indicators which allow understanding whether these targets have been met or not.

- With quantitative targets, once they are made SMART, the most relevant indicator can be identified from the target itself.
- With qualitative targets the intervention logic framework (Logframe) provides a helpful approach to identifying suitable progress indicators (cf. section 2.1).

Further indicators, e.g., related to implementation, could of course be chosen to support the understanding of progress, e.g., afforested surface area, area for which forest management plans have been improved, etc.

The MPGs leave the choice of indicators to the Parties, as long as the indicators are relevant to their NDC. The use of such implementation-related progress indicators can surely be considered beneficial at the national level. Parties might however decide not to include such information in their BTRs.

# Step 3: Indicator type – Developing a logical framework



# Step 3: Identify type of indicator suitable to track the target

## – GHG target

| Type of mitigation target   | Relevant indicators  | Unit                  |
|---|--|-----------------------|
| <b>Absolute emission reduction or limitation target relative to a base year</b> | <p>GHG emissions</p> <ul style="list-style-type: none"> <li>as reported in the national GHG inventory adapted to the specific scope of the target (e.g., gases and sectors covered),</li> <li>including use of market-based mechanisms, and</li> <li>adapted to the specific timeframe of the target (e.g., where a multi-year target-period applies).</li> </ul>  | kt CO <sub>2</sub> eq |
| <b>Emission reduction target below a BAU level</b>                              | <p>Relationship (e.g., difference in %) between</p> <ul style="list-style-type: none"> <li>GHG emissions in the BAU target year / period (updated, where applicable) and</li> <li>GHG emissions as reported in the national GHG inventory adapted to the specific scope of the target (e.g., gases and sectors covered), including use of market-based mechanisms, and adapted to the specific timeframe of the target (e.g., where a multi-year target-period applies)</li> </ul> | %                     |
| <b>Peaking Target</b>   | <p>GHG emissions in all years leading to the current year,</p> <ul style="list-style-type: none"> <li>as reported in the national GHG inventory adapted to the specific scope of the target (e.g., gases and sectors covered),</li> <li>including use of market-based mechanisms</li> </ul>  | kt CO <sub>2</sub> eq |

## Step 3: Identify type of indicator suitable to track the target – Non-GHG target

| Type of mitigation target | Relevant indicators  | Unit  |
|---------------------------|--|---|
| <b>Renewable Energy</b>   | <p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> <li>• % of electricity generated by source</li> <li>• Total generation by source</li> <li>• Installed capacity by source</li> </ul>  | <ul style="list-style-type: none"> <li>• %</li> <li>• GWh</li> <li>• MW</li> </ul>  |
| <b>Energy Efficiency</b>  | <p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> <li>• Total energy demand or consumption</li> <li>• Energy intensity of the economy</li> </ul>   | <ul style="list-style-type: none"> <li>• GWh</li> <li>• TJ / unit of GDP</li> </ul>   |
| <b>Forest cover</b>       | <p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> <li>• Share of land covered by forest</li> <li>• Area covered by forest</li> <li>• Area restored or reforested</li> <li>• Forest stock</li> <li>• CO<sub>2</sub> sequestered per year</li> </ul> | <ul style="list-style-type: none"> <li>• %</li> <li>• ha</li> <li>• ha</li> <li>• m<sup>3</sup></li> <li>• t CO<sub>2</sub> eq</li> </ul> |



## Step 4: Identify data and methodology required

**What to do. Once indicators have been defined, identify the data and methodology required to compile the indicator.**

For each indicator, a data collection plan needs to be developed. This will provide a complete overview for each indicator of what is being measured, the baseline, the targets, data sources and methods. It also specifies who will be collecting data, with what frequency and to whom it will be reported. In the case of NDC indicators, much relevant information or sometimes even the indicator data itself is likely to be already available from data collection for the compilation of other sections of the BTR.

## Step 4: Identify data and methodology required

In considering the data and potential methodology required, the following questions might be helpful:

1. What information is required for the indicator?
2. Where can that information be found – has it already been compiled for other purposes, e.g., national statistics, SDG reporting?
3. For which years is the information available?
4. Does the information available have the necessary quality, e.g., is the approach to data collection / calculation consistent over time, is the data sufficiently accurate?
5. Is the information already available with the correct scope and in the correct units? Or are adjustments to scope / units necessary?
6. Is a calculation necessary to compile the indicator (e.g., GHG emissions, GHG emission reductions or removals?) If so, is there an internationally accepted practice that should be used, e.g. the 2006 IPCC Guidelines for National GHG Inventories, the World Resource Institute Policy and Action Standard, Progress indicators for mitigation and/or adaptation actions as agreed for reporting to donors.



## Step 4: Identify data and methodology required – Adaptation target

| Adaptation target areas                           | Relevant data sources   |
|---|---|
| <b>Water</b>                                      | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>Volume of water (m<sup>3</sup>) can be derived from sector analysis this may have been collected as part of the NAP and/or national water provider</li> </ul>   |
| <b>Ecosystems and biodiversity</b>                | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>National totals of species can be potentially sourced from Ministries of Environment, Environmental Protection Agencies and National Biodiversity Statistics</li> </ul>   |
| <b>Extreme events and disasters</b>               | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>National Statistical Offices and/ or Disaster Management Agencies</li> <li>Severe Weather Database</li> <li>National Hydrometeorological Institutes</li> </ul>  |
| <b>Human settlements and environmental health</b> | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>Health Statistics</li> <li>Ministry of Health</li> <li>International: WHO Mortality database</li> </ul>   |
| <b>Agriculture and forestry</b>                   | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>Data on agricultural production can be collected through agricultural surveys organized by the national statistical agencies</li> <li>Geospatial data/remote sensing from the ministry or agency responsible for agriculture</li> </ul> |

# Step 4: Identify data and methodology required – Non-GHG target

| Mitigation target categories                               | Relevant data sources   |
|--|---|
| <b>Renewable Energy</b>                                    | <p>Depending on specific target:</p> <ul style="list-style-type: none"> <li>• % of electricity generated by source and/or total generation by source from the national energy balance (if available ), likely collected for the mitigation chapter of the BTR under preparation</li> <li>• Installed capacity by source: Potentially collected for the mitigation chapter of the BTR under preparation, alternatively to be collected from the Ministry responsible for power and heat generation</li> </ul>  |
| <b>Energy Efficiency</b>                                   | <ul style="list-style-type: none"> <li>• Total energy demand or consumption: from the national energy balance (if available), potentially collected for the mitigation chapter of the BTR under preparation</li> <li>• Energy intensity of the economy: Potentially available from the national statistical services.</li> </ul>  |
| <b>Forest cover</b>  | <ul style="list-style-type: none"> <li>• Depending on type of target information like: <ul style="list-style-type: none"> <li>- % of land covered by forest</li> <li>- Hectares of land covered by forest</li> <li>- Hectares of land restored or reforested</li> <li>- Volume of forest stock</li> <li>- Tonnes of CO2 stored/sequestered per year</li> </ul> </li> </ul> <p>Has likely been collected for the preparation of the LULUCF categories of the national GHG inventory and potentially for the mitigation and/or adaptation chapters.</p> |
| <b>Implementation of qualitative policies and measures</b> | <ul style="list-style-type: none"> <li>• Information likely available from the mitigation chapter of the BTR under preparation.</li> </ul>  |

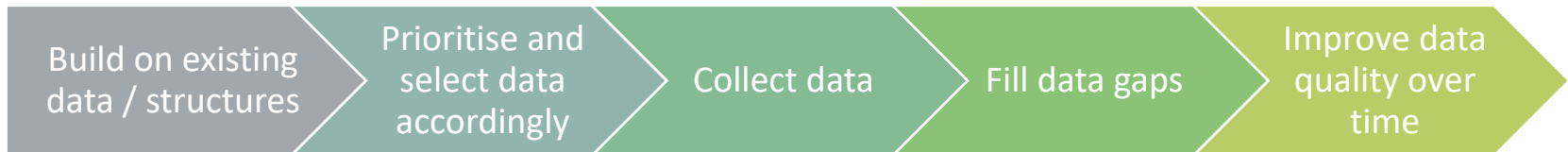


## Step 5: Compiling, reporting, documenting, archiving

**What to do.** The assessment of available data sources in the previous step will show that many progress indicators can be compiled with data already available from BTRs and National Communications (NCs).

The timing – when such data, e.g., national GHG inventory estimates, information on adaptation actions, becomes available – will be important to consider for the overall BTR compilation process.

Where additional data needs to be collected, assess whether such data collection can be integrated into existing data collection processes or can be built up together with data collection processes which need to be established for BTR reporting.



# Step 5: Compiling, reporting, documenting, archiving – Data gaps

| Type of data gap   | What to do  | What to report in the BTR  |
|--|---|--|
| <b>Relevant input data not available at all</b>  | <p>Identify</p> <ul style="list-style-type: none"> <li>activities enabling the collection of relevant data (e.g., research, studies, new statistics)</li> <li>entities responsible for these activities</li> <li>necessary preconditions, e.g., budget / staff, legal framework, MoUs, etc.</li> </ul>  | <p>Report</p> <ul style="list-style-type: none"> <li>the fact that the indicator data is currently not available and why that is the case</li> <li>action taken to make the indicator data available in the future</li> <li>When you expect to be able to report on the indicator</li> <li>What international support is required to do so (if applicable)</li> </ul>                              |
| <b>Relevant input data not available for all years, all sectors, all regions, etc.</b>         | <ul style="list-style-type: none"> <li>Where possible, use gap-filling approaches (e.g., overlap, surrogate data, interpolation, and trend extrapolation) to estimate the indicator value for the full scope / all relevant years</li> <li>Use approaches suggested under “relevant input data not available at all” to collect missing data in the future</li> </ul> | <p>Report,</p> <ul style="list-style-type: none"> <li>what information was not available / for which years?</li> <li>What gap filling approaches have been deployed?</li> <li>actions taken to make indicator data available in the future</li> <li>When would you expect to be able to report the indicator?</li> <li>What international support is required to do so (if applicable)?</li> </ul> |
| <b>Data is not available as a relevant mitigation or adaptation action has not started yet</b> | <ul style="list-style-type: none"> <li>Put data collection and compilation processes in place before the action starts</li> </ul>   | <p>Report</p> <ul style="list-style-type: none"> <li>The fact that the implementation has not yet started and</li> <li>When it is planned to start?</li> </ul>   |

## Examples of Rwanda's mitigation indicators

| Sector                          | Headline Indicator                                  | Supporting Indicator                           | Other Factors  |
|---------------------------------|---|--|--|
| Energy (Electricity generation) | Share of renewables in total electricity supply (%) | Generation of electricity (GWh and % of total) | Rural Energy Strategy development (progress towards milestones)                                    |
| Energy                          | Current fossil fuel use (% of total energy use)     | Number of Electric Vehicles                    | Availability and cost of new and low carbon energy technologies and practices                      |
| IPPU                            | Current GHG emissions (Mt CO <sub>2</sub> eq)       | F-gas substitution (%)                         | Substitution of F-gases and progress towards targets under Kigali amendment to Montreal Protocol   |
| AFOLU (agriculture)             | Crop production (t of total crop biomass)           | Crop rotation (ha)                             | Climatic and other key factors influencing yields and agricultural practices                       |
| Waste                           | Current total waste disposal (t)                    | Waste to energy generation (MW)                | Waste recycling progress (e.g., policies and practices; plastic, metals and paper recycling rates) |

## Examples of Rwanda's adaptation indicators

| Adaptation Indicator  | Data source   |
|---|---|
| Percentage change in national climate change vulnerability index (%)  | Vulnerability Index study report  |
| Water storage per capita & number of households and institutions with a rainwater harvesting system installed (m <sup>3</sup> per capita) | Integrated Water Resources Management & Water Monitoring and Development Unit |
| Proportion of land surface covered by forest (ha)   | Rwanda Water and Forestry Authority & Forestry department-GIS Report          |
| Percentage of extreme weather events for which advance warning was provided at least 30 min in advance (%)                                | Rwanda Meteo, Quarterly high impact weather report                            |

# Identifying and compiling NDC indicators - Step by step approach

## Step 1: Identify and assess NDC targets

- What to do: Identify mitigation and adaptation targets in NDC. List targets in a tabular format with relevant details

## Step 2: Make targets SMART

- What to do: Clarify scope, units, reference/baseline levels. Involve stakeholders responsible for implementing measures

## Step 3: Identify type of indicator suitable to track the target

- What to do: Identify indicators for quantitative and qualitative targets. Implementation-related progress indicators beneficial at the national level. Parties might not include such information in their BTRs

## Step 4: Identify data and methodology required

- Identifying data and methodology. Determine what information is required, its availability, and quality. Check if adjustments to scope or units are necessary. Identify if calculations are needed and what methodologies to use

## Step 5: Compiling, reporting, documenting, archiving

- Compiling and reporting. Assess integration of data collection with existing processes. Plan long-term improvements for data quality and availability.
- Document all relevant information for future compilation. Learn from national GHG inventory and statistical offices' processes

# Identifying and compiling NDC indicators - Step by step approach - EXERCISE

## Step 1: Identify and assess NDC targets

- What to do: Identify mitigation and adaptation targets in YOUR NDC
  - GHG, non-GHG, adaptation

## Step 2: Make targets SMART

- What to do: Is the target SMART?

## Step 3: Identify type of indicator suitable to track the target

- What to do: Identify indicators for quantitative and qualitative targets

## Step 4: Identify data and methodology required

- Determine what information is required, from whom, its availability, and quality.

## Step 5: Compiling, reporting, documenting, archiving

- Assess integration of data collection with existing processes.
- Plan long-term improvements for data quality and availability.
- Document all relevant information for future compilation. Learn from national GHG inventory and statistical offices' processes



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**Thank you for your attention!**

**Khetsiwe Khumalo** | [Khetsiwe.khumalo@un.org](mailto:Khetsiwe.khumalo@un.org)  
UNEP-CCC

