

Hands-on training on implementing enhanced transparency framework focusing on key elements to fast-track Biennial Transparency Reports development in Mauritius.

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Definition of NDC indicators

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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.

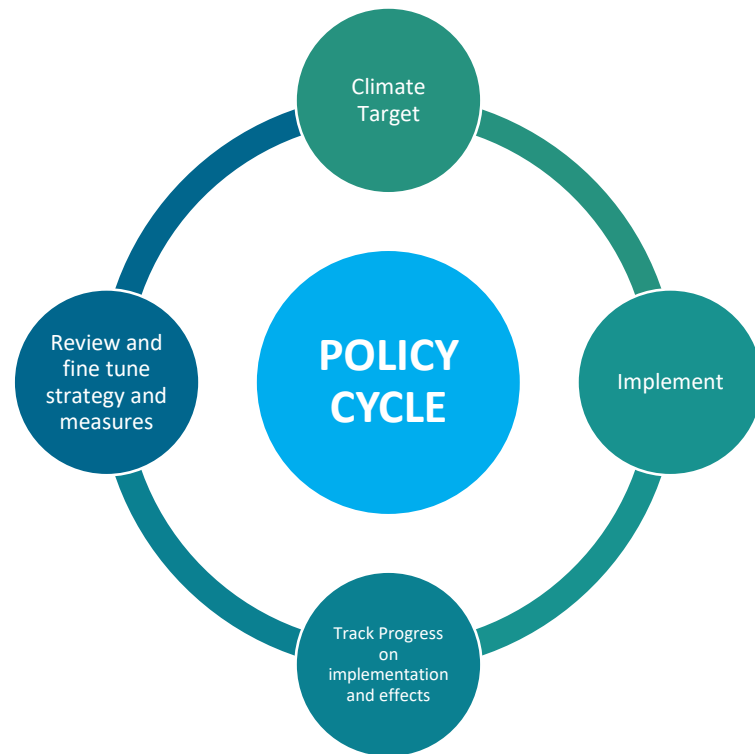


Why we need indicators?

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
Absolute emission reduction or limitation target relative to a base year	Brazil NDC commits 'to reduce its greenhouse gas emissions in 2025 by 37%, compared with 2005'.	CO ₂ , CH ₄ , N ₂ O, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and SF ₆	37	%	2025	Base year emission estimation in the fourth BUR is around 2.4 Mio. kt _e of CO ₂ eq. May be updated according to the latest inventory.
Emission reduction target below a BAU level	Morocco's NDC unconditional) reduction target, '18.3% below BAU emissions by 2030'.	CO ₂ , CH ₄ , N ₂ O and HFCs	18.3	%	2030	The BAU scenario is projected approx. 1.4 Mio. kt CO ₂ eq in 2030
Fixed-level target	Argentina's 's fixed-level target, will not exceed net emissions of 359 Mt CO ₂ eq by 2030 to 369 Mt CO ₂ eq for 2030.	CO ₂ , CH ₄ , N ₂ O, HFCs and PFCs	359	Mt CO ₂ 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 ₂ 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
Sectoral non-greenhouse gas targets	China has pledged to 'increase the share of non-fossil fuels in primary energy consumption to around 25%.	N/A	25	%	2030	N/A
Mitigation actions	<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
Water Quality	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
Human Settlement	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
Agriculture	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
Absolute emission reduction or limitation target relative to a base year	<ul style="list-style-type: none"> • Base year clearly agreed? • Gases included agreed? • Sectors / GHG inventory categories agreed • Target year agreed? 	kt CO ₂ eq
Emission reduction target below a BAU level	<ul style="list-style-type: none"> • As for absolute emission reduction target • BAU level clearly defined? Data and methods available? 	%
Intensity target	<ul style="list-style-type: none"> • As for absolute emission reduction target • Intensity-relevant factor and source / methodology to be used clearly defined, e.g., GDP, population? 	kt CO ₂ eq / capita or GDP / etc. % (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
Renewable Energy	<ul style="list-style-type: none"> • Definition of “renewable” to be used – e.g., which sources, which technologies? • What does it relate to – share in total power / power + heat generated, GWh electricity generated, renewable generation capacities installed / operational? 	<ul style="list-style-type: none"> • % • GWh • MW
Energy Efficiency	<ul style="list-style-type: none"> • Definition of “energy efficiency” to be used • What does the target relate to, e.g. <ul style="list-style-type: none"> - energy efficiency improvement compared to a base year or BAU - Energy efficiency target level? 	<ul style="list-style-type: none"> • GWh • TJ / unit of GDP
Forest cover	<ul style="list-style-type: none"> • Is there a national forest definition? • Methodology to determine forest cover agreed? • Reference level / baseline data and methodology available? 	<ul style="list-style-type: none"> • Hectares or km² • % of national territory • % increase compared to reference / baseline

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

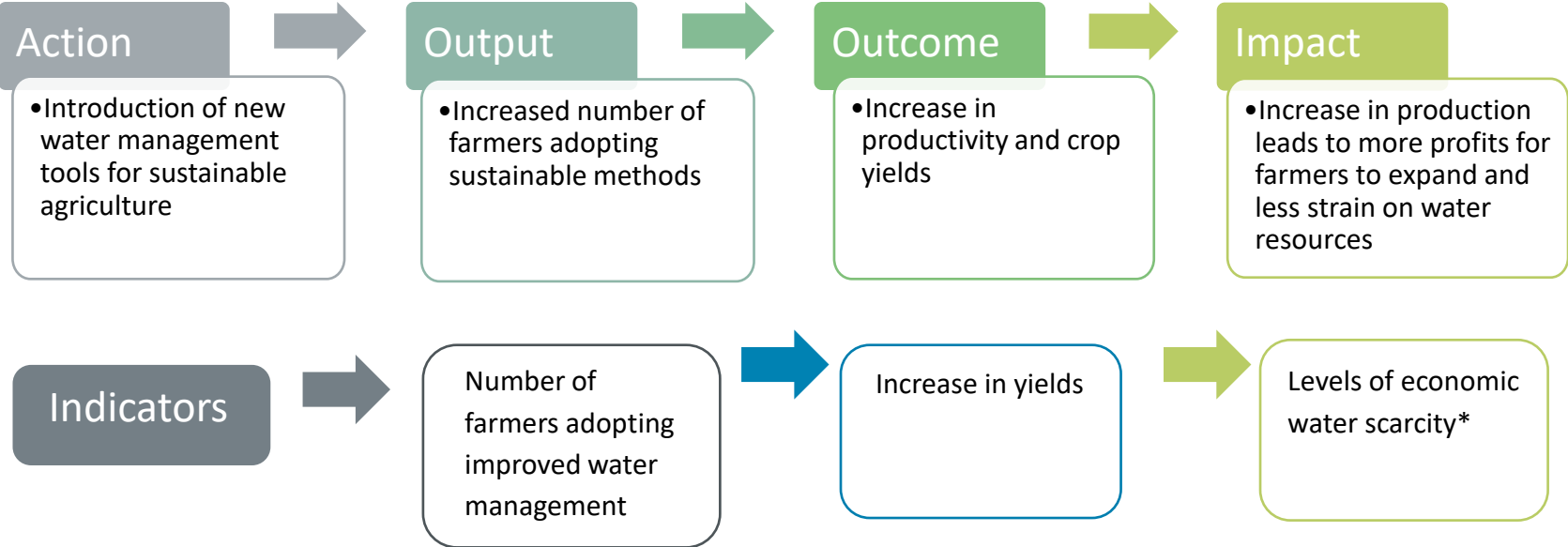
What to do. Once the NDC targets have been made SMART, identify indicators which allow understanding whether these targets have been met or not.

- 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
Absolute emission reduction or limitation target relative to a base year	<p>GHG emissions</p> <ul style="list-style-type: none"> 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). 	kt CO ₂ eq
Emission reduction target below a BAU level	<p>Relationship (e.g., difference in %) between</p> <ul style="list-style-type: none"> GHG emissions in the BAU target year / period (updated, where applicable) and 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) 	%
Peaking Target	<p>GHG emissions in all years leading to the current year,</p> <ul style="list-style-type: none"> 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 	kt CO ₂ eq

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

Type of mitigation target	Relevant indicators	Unit
Renewable Energy	<p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> • % of electricity generated by source • Total generation by source • Installed capacity by source 	<ul style="list-style-type: none"> • % • GWh • MW
Energy Efficiency	<p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> • Total energy demand or consumption • Energy intensity of the economy 	<ul style="list-style-type: none"> • GWh • TJ / unit of GDP
Forest cover	<p>Depending on specific definition of target, relevant indicators include</p> <ul style="list-style-type: none"> • Share of land covered by forest • Area covered by forest • Area restored or reforested • Forest stock • CO₂ sequestered per year 	<ul style="list-style-type: none"> • % • ha • ha • m³ • t CO₂ eq



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
Water	Depending on specific target: <ul style="list-style-type: none"> • Volume of water (m³) can be derived from sector analysis this may have been collected as part of the NAP and/or national water provider
Ecosystems and biodiversity	Depending on specific target: <ul style="list-style-type: none"> • National totals of species can be potentially sourced from Ministries of Environment, Environmental Protection Agencies and National Biodiversity Statistics
Extreme events and disasters	Depending on specific target: <ul style="list-style-type: none"> • National Statistical Offices and/ or Disaster Management Agencies • Severe Weather Database • National Hydrometeorological Institutes
Human settlements and environmental health	Depending on specific target: <ul style="list-style-type: none"> • Health Statistics • Ministry of Health • International: WHO Mortality database
Agriculture and forestry	Depending on specific target: <ul style="list-style-type: none"> • Data on agricultural production can be collected through agricultural surveys organized by the national statistical agencies • Geospatial data/remote sensing from the ministry or agency responsible for agriculture

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

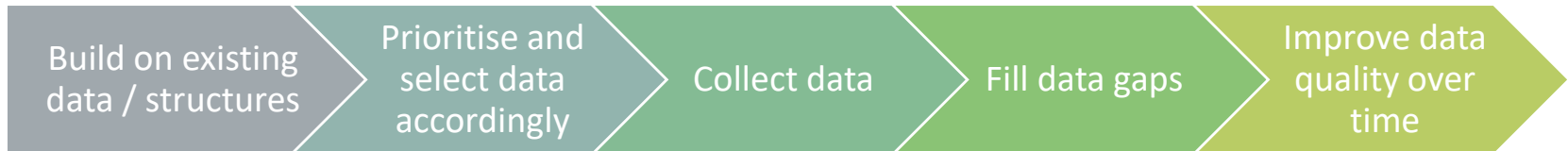
Mitigation target categories	Relevant data sources
Renewable Energy	<p>Depending on specific target:</p> <ul style="list-style-type: none"> • % of electricity generated by source and/or total generation by source from the national energy balance (if available), likely collected for the mitigation chapter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

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

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 ₂ 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 ³ 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!

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