Training Workshop for Eswatini: In country Training on NDC tracking improving indicators, filling CTF tables, and introducing the BTR road map tool

Presentation: Definitions and development of NDC indicators

Fernando Farias

Senior Advisor

UNEP Copenhagen Climate Centre

Tracking Progress and Ex-post Assessment of Mitigation Impacts using indicators

A system of tracking progress is useful to identify whether a mitigation 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:

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

CBIT GSP

Progress Indicators

Quantitative Progress Indicators

Based on quantitative measurements or statistics of a certain condition tracked over time. 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 can also be used to track the progress of mitigation initiatives. These include non-numerical or 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.

CBIT GSP

Sources of Indicators

United Nations E/CN.3/2022/17

Economic and Social Council

Distr.: General
8 December 2021

Original: English

Statistical Commission
Fifty-third session
1–4 March 2022
Item 3 (m) of the provisional agenda*
Items for discussion and decision

Climate change statistics

Report of the Secretary-General

In total: 158 indicators to report Climate Change:

Emissions, Concentration, Mitigation, Vulnerability and Adaptation

CBIT GSP

Sources of indicators

Indicators classified under: Total greenhouse gas emissions

Source: Climate change statistics, UN Economic and Social Council

Total greenhouse gas emissions:

1 Total greenhouse gas emissions per year
2 Total emissions of indirect greenhouse gases
3 Greenhouse gas emissions from land use, land use change and forestry
4 Total greenhouse gas emissions from the national economy
5 Greenhouse gas emissions per capita
6 Greenhouse gas emissions in gross fixed capital formation of direct investment
7 Greenhouse gas emissions in value added of foreign-controlled multinational enterprises
8 Carbon footprint

CBIT GSP

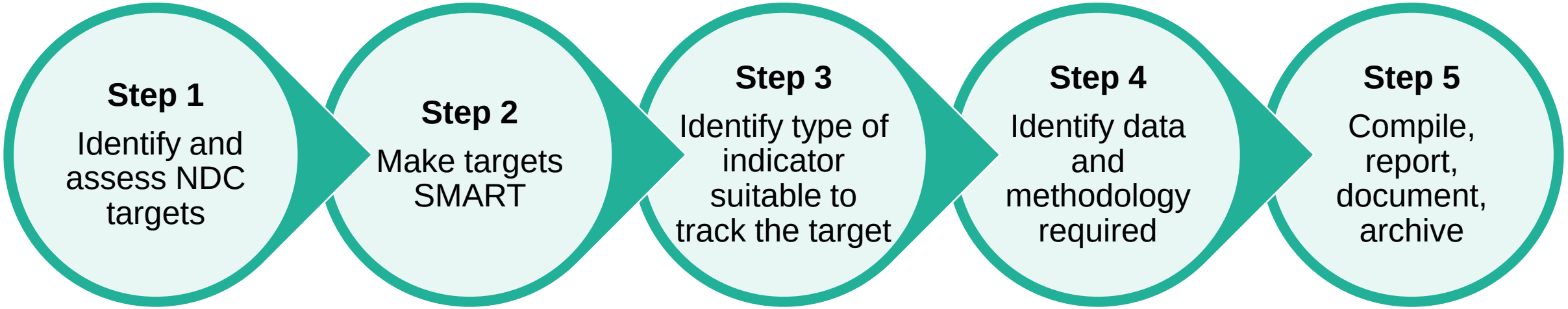
Indicators in the MPGs

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.

CBIT GSP

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 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).

CBIT GSP

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_2O, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and SF_6	37	%	2025	Base year emission estimation in the fourth BUR is around 2.4 Mio. kt 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_2O 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	CO_2, CH_4, N_2O, HFCs and PFCs	359	Mt CO_2 eq	2030	No reference value is used. But in its NDC submission Argentina compares the level of ambition to its 2016 emissions, which were around 364 Mt CO_2 eq.

CBIT GSP

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	Bangladesh 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 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	M	A	R	T
Specific	Measurable	Ambitious	Relevant	Time-bound
The indicator is clearly defined, so there cannot be different interpretations of it	The indicator value can be measured quantitatively or qualitatively	Achieving the target requires ambitious action	The indicator relates to a relevant impact of a mitigation action	The indicator relates to a point in time of timeframe

CBIT GSP

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?

CBIT GSP

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	• 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	• As for absolute emission reduction target • BAU level clearly defined? Data and methods available?	%
Intensity target	• As for absolute emission reduction target • Intensity-relevant factor and source / methodology to be used clearly defined, e.g., GDP, population?	kt CO2 eq / capita or GDP / etc. % (if compared to BAU or base period)

CBIT GSP

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

Type of mitigation target	Elements to consider for a SMART target	Unit
Renewable Energy	• 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?	• % • GWh • MW
Energy Efficiency	• Definition of "energy efficiency" to be used • What does the target relate to, e.g. - energy efficiency improvement compared to a base year or BAU - Energy efficiency target level?	• GWh • TJ / unit of GDP
Forest cover	• Is there a national forest definition? • Methodology to determine forest cover agreed? • Reference level / baseline data and methodology available?	• Hectares or km^2 • % of national territory • % increase compared to reference / baseline

CBIT GSP

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.

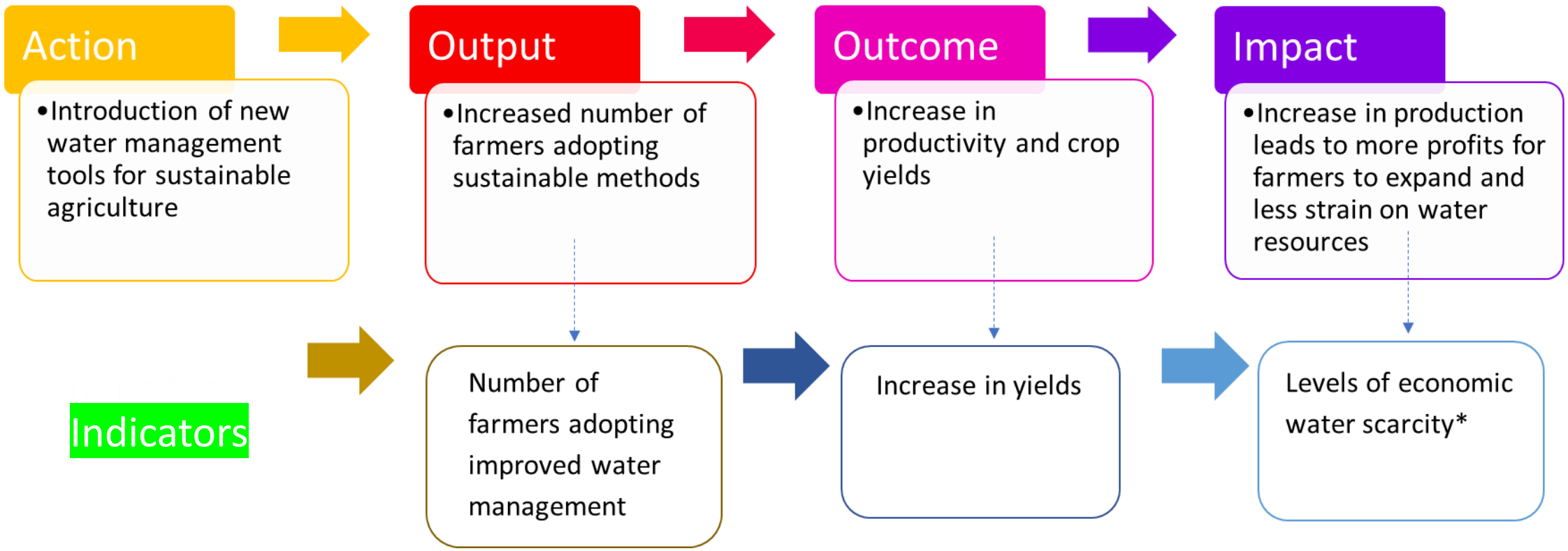
- With quantitative targets, once they are made SMART, the most relevant indicator can be identified from the target itself.
- With qualitative targets the intervention logic framework (Logframe) provides a helpful approach to identifying suitable progress indicators.

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.

CBIT GSP

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



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	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).	kt CO_2 eq
Emission reduction target below a BAU level	Relationship (e.g., difference in %) between • 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	GHG emissions in all years leading to the current year, • 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

CBIT GSP

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

Type of mitigation target	Relevant indicators	Unit
Renewable Energy	Depending on specific definition of target, relevant indicators include • % of electricity generated by source • Total generation by source • Installed capacity by source	• % • GWh • MW
Energy Efficiency	Depending on specific definition of target, relevant indicators include • Total energy demand or consumption • Energy intensity of the economy	• GWh • TJ / unit of GDP
Forest cover	Depending on specific definition of target, relevant indicators include • Share of land covered by forest • Area covered by forest • Area restored or reforested • Forest stock • CO_2 sequestered per year	• % • ha • ha • m^3 • t CO_2 eq

CBIT GSP

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.

CBIT GSP

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.

CBIT GSP

Step 4:Identify data and methodology required – GHG target

Mitigation target categories	Relevant data sources
Absolute emission reduction or limitation target relative to a base year	• National GHG inventory data from the BTR under preparation
Emission reduction target below a BAU level	• National GHG inventory data from the BTR under preparation • BAU projections from the most recent NDC or from the BTR under preparation in case the BAU projections are updated over time
Peaking Target	• National GHG inventory data from the BTR under preparation
Intensity target	• National GHG inventory data from the BTR under preparation • Depending on specific target: GDP, population typically available from the national statistical offices

CBIT GSP

Step 4:Identify data and methodology required – non GHG target

Mitigation target categories	Relevant data sources
Renewable Energy	Depending on specific target: • % 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	• 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	• Depending on type of target information like: - % 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 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.
Implementation of qualitative policies and measures	• 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 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.

CBIT GSP

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	Identify • 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.	Report • 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.	• 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	Report, • 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	• Put data collection and compilation processes in place before the action starts	Report • The fact that the implementation has not yet started and • When it is planned to start?

CBIT GSP

CBIT-GSP
CLIMATE TRANSPARENCY

UN environment programme | copenhagen climate centre

Thank you for your attention!

Fernando FARIAS | Fernando.farias@un.org
UNEP-CCC

gef

UN environment programme