

# Training workshop for anglofone African countries: Deep dive into tracking NDC mitigation commitments under the Paris Agreement

Presentation: Elements on mitigation assessments

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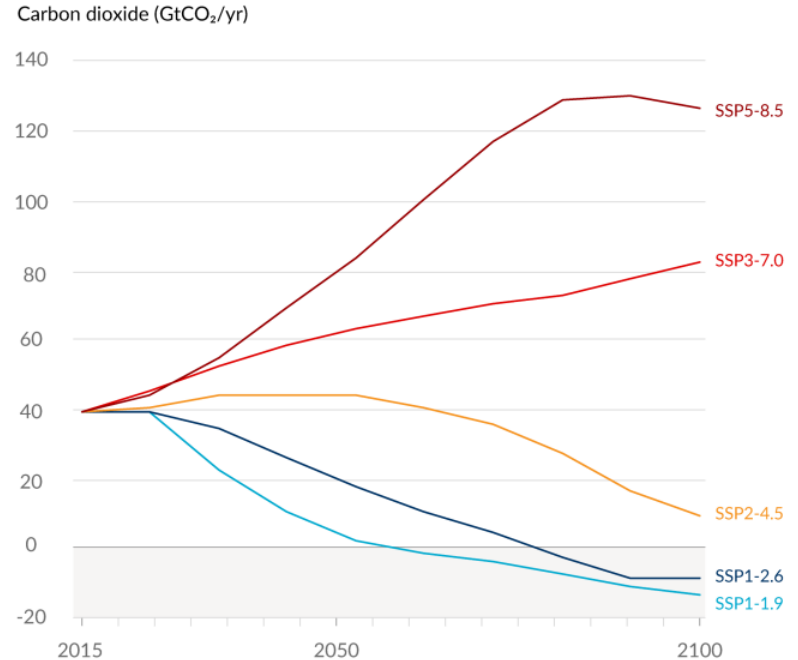
# 1 ) Conceptualizing mitigation

# Mitigation

**Mitigation** contributes to the objective of stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system by promoting efforts to reduce or limit GHG emissions or to enhance GHG sequestration.

Organisation for Economic Co-operation and Development (OECD)

Future annual CO2 emissions in next decades



Source: Figure SPM-4 IPCC AR6 Volume I (2021)

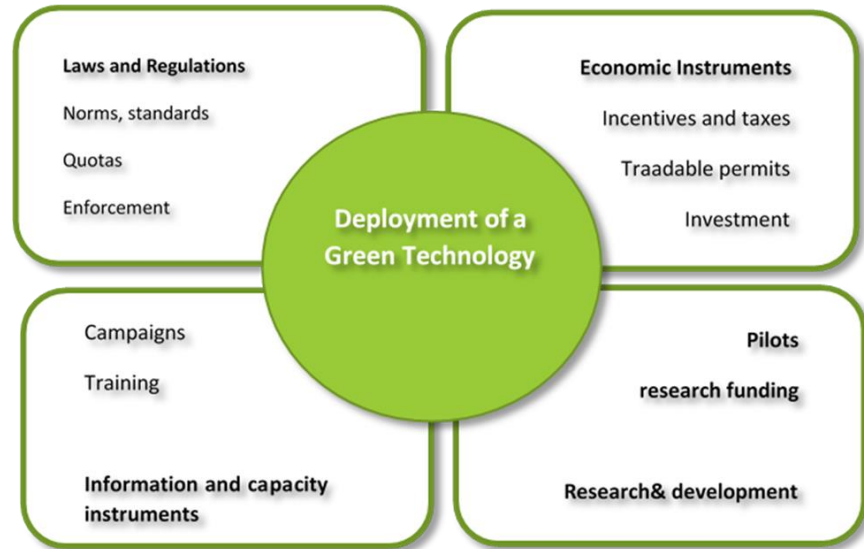
The identification of **mitigation measures, policies, actions and plans** that can be formulated and implemented is a key part in Party reporting to the UNFCCC established first under the UNFCCC, and then later under the Kyoto Protocol and now under the Paris Agreement and its Enhanced Transparency Framework (ETF).

As such, it is important to properly identify the type of actions, policies, plans and measures that can contribute to the **amount of GHG available in the atmosphere, their associated objectives and the co-benefits** (i.e. economic or social benefits) expected from their implementation.

# Supplementary instruments to implement mitigation

For a successful implementation of mitigation actions, policies and measures it may be required the development of a **regulatory framework** to allow or facilitate its implementation, the **staff** in charge of its implementation to be adequately **trained**, and improve the awareness of different **stakeholders** towards issues related to the action to be raised.

Source: adapted from CGE Supplementary training material for the team of technical experts. Module 2.1: mitigation actions and their effects (2015).





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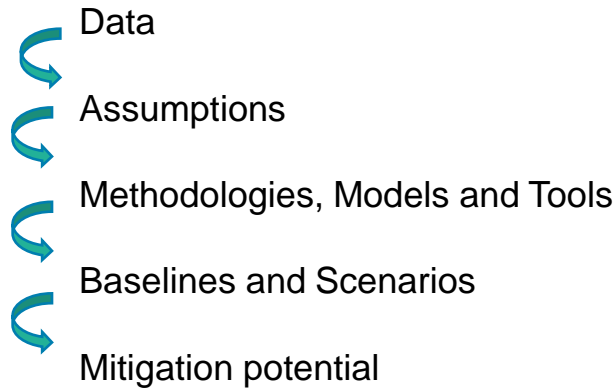


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## 2 ) Assessing mitigation and approaches

# Assessing mitigation policies, measures, actions and plans under the ETF

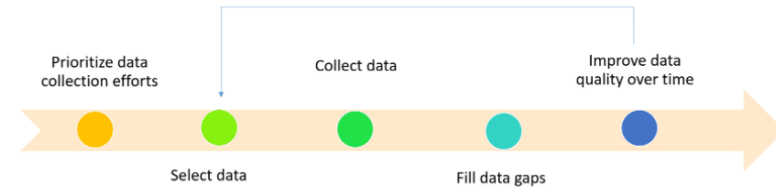


Type of analysis	Associated action	Timeline	Results	Tool	Indicators, metrics
Ex-Ante	Assessing	Future situation	Likely impact	Projections	Qualitative, Quantitative
Ex-Post	Tracking	ongoing or past situation	Actual impact	Progress of implementation	Baseline

# Data needs for assessing mitigation policies, measures, actions and plans under the ETF

Collecting good quality data is paramount for transparent and valuable mitigation assessments.

figure to the right presents a typical cycle of data management to perform mitigation assessments:



Adapted from WRI. Policy and Action Standard (2014).



## Data needs for assessing mitigation policies, measures, actions and plans under the ETF

Helpful sources of data and assumptions can include:

- GHG inventories and prior national communications
- Energy statistics and energy balances
- National economic and demographic statistics and surveys
- Planning reports from utilities
- Relevant studies (e.g. low carbon scenarios, renewable energy assessments).

International data and studies can help fill data gaps.

Develop consistent accounts of energy use and emissions for base year (and, if relevant, other historical years).

## Description and assumptions

Before considering assessing mitigation initiatives or tracking their progress, it is important to comprehensively describe them. This helps in developing a common understanding of their technical and economic boundaries, effects and opportunities.

In this context, the scope, description and objectives can work as a basic information package to which other relevant elements can be added, e.g. costs, non-mitigation benefits, amongst others.

# Methodologies, models and tools for mitigation assessments

**Methodology:** The process applied to determine emissions.

**Method:** Equations, algorithms and models used to estimate emissions. These include top-down, bottom-up and complex methods as well as simple equations.

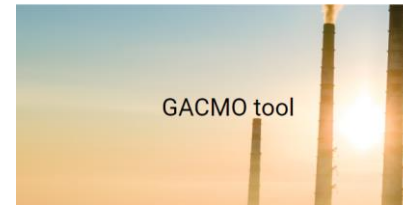
**Model:** A schematic (mathematical, computer-based) description of a system that accounts for its known or inferred properties.

**Tool:** Instruments to support calculations, using specific or standard software. Tools usually at least implicitly follow a certain methodology and are based on a defined set of methods. To the extent possible, tools can also provide standardized data, such as emission factors or global warming potential values. Tools range from complex modelling to simple spreadsheet solutions.

Source CGE Supplementary training material for the team of technical experts. Module 2.1: mitigation actions and their effects (2015).



GREENHOUSE  
GAS PROTOCOL



Greenhouse gas Abatement Cost Model (GACMO)

## Scenarios and Baseline setting

### Scenario

A possible future pathway with the ability to capture key factors of human development that influence GHG emissions and our ability to respond to climate change. Scenarios cover a range of plausible futures and can be used to integrate knowledge about the drivers of GHG emissions, mitigation options, climate change, and climate impacts. (IPCC AR5)

### Reference or Baseline Scenario

Baseline scenarios or reference scenarios are projections of GHG emissions and their key drivers as they might evolve in a future in which no explicit actions, policies and measures are taken to reduce GHG emissions.

a Baseline scenario acts as a reference to which (further) policies, constraints, or other changes could be added to determine how the baseline may change in response

## Mitigation potential

In a mitigation assessment, the identification of the "Mitigation Potential" associated with any particular policy or activity aimed at reducing GHG emissions is central to the assessment process.

The Mitigation Potential refers to the quantity of GHG mitigation in relation to a baseline or reference case that can be achieved by a mitigation option over a given period.

The assessment of mitigation actions, policies and measures can also provide information beyond the magnitude of the GHG emissions reductions and cost-effectiveness. Most notably, mitigation assessments can also generate information about an action's expected sustainable development benefits, as well as more clarity relating to the feasibility of its implementation, including the adequacy of existing institutional capacity, its replicability and the opportunities for technology transfer.

Halsnæs K et al. 2007. Framing Issues. In: Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

## Estimating GHG emissions

One of the most common approaches is defining an emissions factor and multiplying it with the available activity data or energy consumption data.

**GHG Emissions = Projected activity data x Emission Factor**

However, if data is available for more parameters related to energy consumption and GHG emissions directly and indirectly related to the activity, the following formula could be used:

**GHG emissions = Projected energy consumption x Energy efficiency x GHG intensity of energy generation + Non-energy GHG emissions**

The **results** of calculating mitigation scenario emissions (outputs) can be **expressed in different forms**:

### 1) GHG Emissions

- a) Cumulative mitigation potential over the assessment period a Mt CO<sub>2</sub>e (2015 – 2030);
- b) Average annual savings over the assessment period a Mt CO<sub>2</sub>e/a or Mt CO<sub>2</sub>e/yr;
- c) Annual savings for a given year (usually the end year) a Mt CO<sub>2</sub>e/a (2030);
- d) Net present values of reductions (discounted future savings) a Mt CO<sub>2</sub>e/a (2014);

### 2) Costs of mitigation actions, policies and measures (US\$/t CO<sub>2</sub>e)

- a) Market Costs
- b) Social Costs



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## 3 ) Compiling and reporting results of mitigation assessments

## Reporting mitigation assessments

Reporting on the estimated and registered impacts of mitigation initiatives are a **key requirement** for effective national transparency systems, as well as reporting as part of the Enhanced Transparency Framework.

The **Modalities, Processes, and Guidelines of the ETF** also call for tracking progress in the implementation of a country's NDC once the mitigation initiatives are under implementation.



## Barriers in reporting mitigation information

Heterogeneous information for reporting from different teams even at Government level can be found, leading to difficulties in integrating the data from different sources into a single set of results to report.

Some of the common **barriers** include:

Different **format of results** of the mitigation potential calculations

Different **timeframes and frequency of reporting** (Annualized, period, or number of specific years)

Differences in **baseline considerations**

Differences in **measurement and units** e.g. costs

## Overcoming barriers in reporting mitigation information

Barriers presented in the collection and integration of information on exercises of ex-ante and ex-post determination of expected or achieved mitigation effects can be overcome by means of:

- Developing common trainings for the Government staff in charge of the preparation of information to conduct the mitigation assessments, and encouraging homogeneity in the use of technical language
- Definition of a set of national templates to distribute to the different ministries
- Use of compatible or even the same computing tools as far as possible (an example could be the joint use of spreadsheets with common formats)
- Implementation and application of compatible MRV systems.



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# Thank you

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