CGE Webinar

Mitigation assessment in ETF reporting

Marion Vieweg

United Nations
Climate Change Secretariat

Reporting requirements on mitigation in NCs and BTRs

United Nations
Climate Change Secretariat

NCs

- Methodologies
- Results
- Measures
- Scenarios → **MPGs section III.F**
- Institutional arrangements → **MPGs section III.A**

BTRs, MPGs section III.D

Per mitigation action

- Name
- Description
- Objectives
- Type of instrument
- Status
- Gases
- Start year
- Implementing entity
- **Methodologies** and assumptions used to estimate GHGs

Also in CTF table 5

Additionally in CTF table 5

(extra flexibility in reporting)

- **Estimate of achieved GHG impacts**
- Estimate of expected GHG impacts

Optional reporting

('may')

- Cost
- Non-GHG mitigation benefits
- Interaction of measures

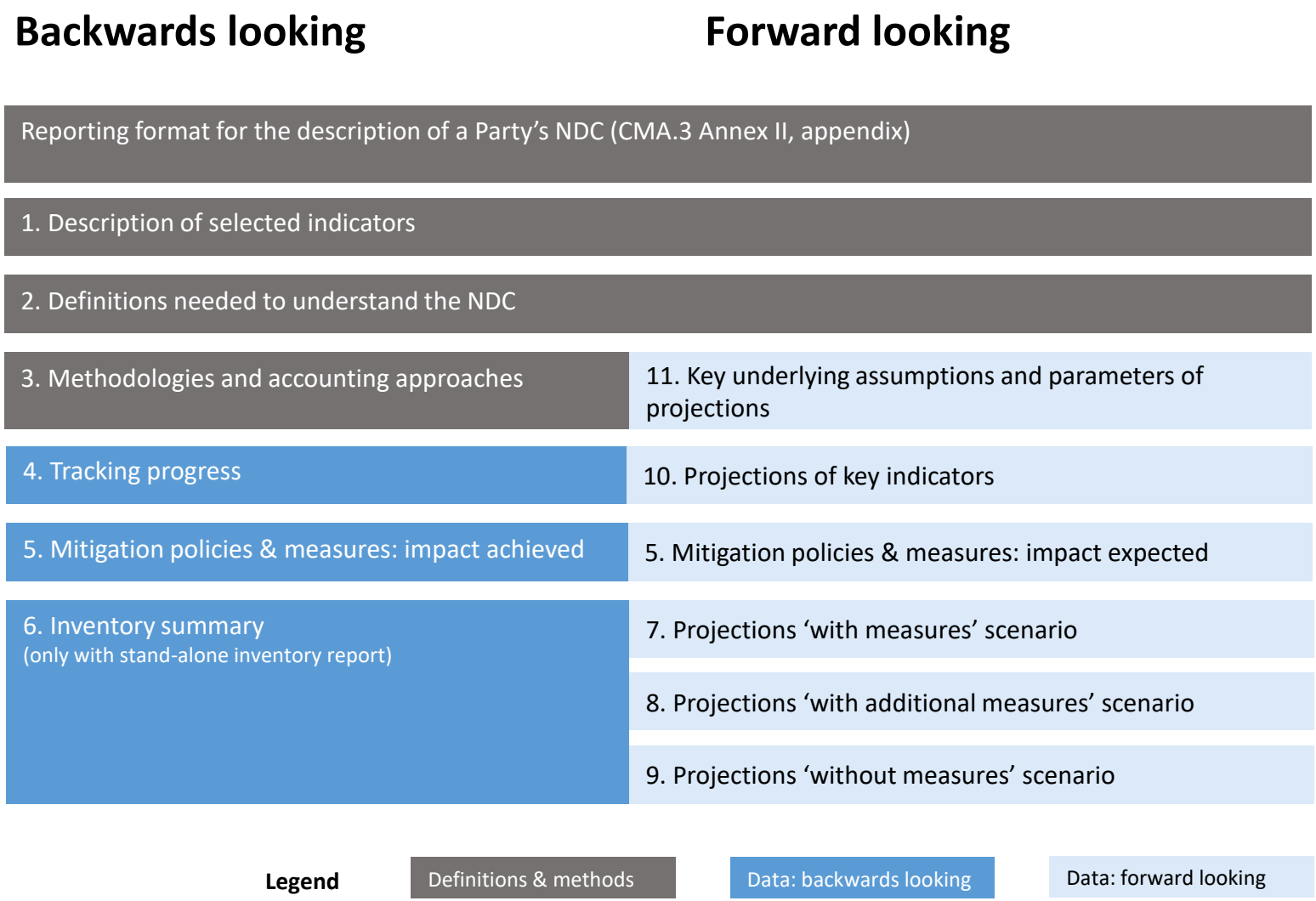
Understanding the perspective of requirements

United Nations
Climate Change Secretariat

Some reporting elements aim to understand the past and progress to date: they are **backwards looking**

Other reporting requirements aim to understand potential future progress: they are **forward looking**

The description of indicators, definitions and methodologies is a prerequisite for both



Reporting formats for NDC progress

United Nations
Climate Change Secretariat

1. Description of selected indicators

Indicator(s) selected to track progress	Description
{Indicator}	
Information for the reference point(s), level(s), baseline(s), base year(s) or starting point(s), as appropriate	
Updates in accordance with any recalculation of the GHG inventory, as appropriate	
Relation to NDC	

4. Tracking progress

Reporting on ITMOs!

	Unit	Reference level	Implementation period of the NDC: Year 1	Year 2	...	...	... End year	Target level	Target year	Progress made (comparison of most recent and ref. level)
{Indicators}										
Total GHGs, consistent with NDC coverage										
Contribution from LULUCF sector, as applicable										
ITMOs										
Assessment of the achievement of the NDC: → Restatement of the target → Information for reference level → Final information for the indicator at the target year → Comparison → Achievement of NDC (Y/N, explanation)										

2. Definitions needed to understand the NDC

	Description
Definition needed to understand each indicator:	
{indicator}	
Any sector or category defined differently than in the NIR:	
{Sector}	
{Category}	
Definition needed to understand mitigation co-benefits of adaptation actions and/or economic diversification plans:	
{Mitigation co-benefit(s)}	
Any other relevant definitions:	
{...}	

Table 1 **describes** the indicators, table 2 provides additional **definitions**, table 4 tracks **achieved progress** and table 10 provides **projections** on expected future development of these indicators

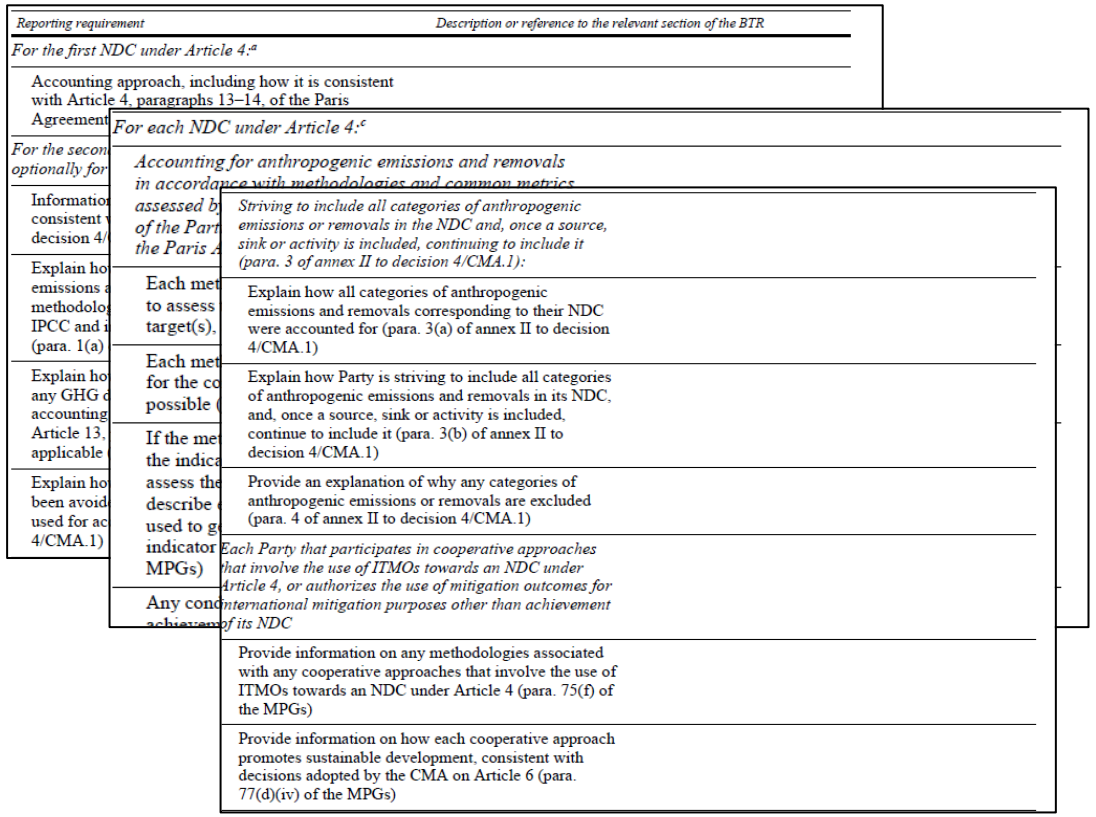
10. Projections of key indicators

Key indicator(s)	*Unit, as applicable*	*Most recent year in the NIR, or the most recent year for which data is available 20XX*	*Projections of key indicators* 20X(0)(5)	20X(0)(5)	20X(0)(5)

Methodologies used for tracking progress

United Nations
Climate Change Secretariat

3. Methodologies and accounting approaches



Reporting requirement	*Description or reference to the relevant section of the BTR*
For the first NDC under Article 4:[a]	
Accounting approach, including how it is consistent with Article 4, paragraphs 13–14, of the Paris Agreement	
For the secon optionally for	
Informatio consistent decision 4/	
Explain ho emissions methodolo IPCC and (para. 1(a)	
Explain ho any GHG accounting Article 13, applicable	
Explain ho been avoid used for ac 4/CMA.1)	

Reporting requirement	*Description or reference to the relevant section of the BTR*
For each NDC under Article 4:[c]	
Accounting for anthropogenic emissions and removals in accordance with methodologies and common metrics assessed b of the Part the Paris A	
Each met to assess target(s),	
Each met for the co possible (	
If the me the indica assess the describe used to g indicator MPGs)	
Any cond achieve	

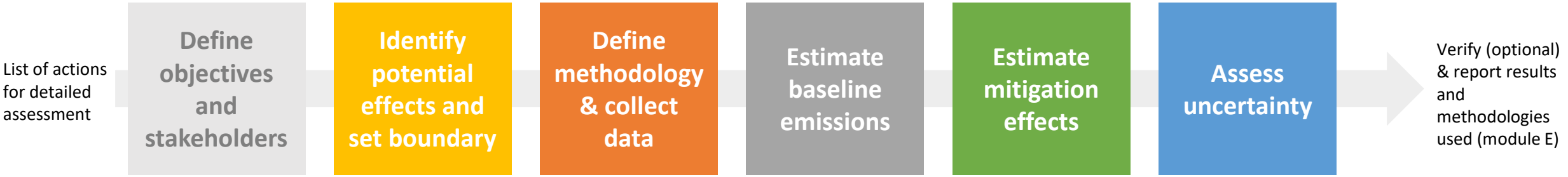
Striving to include all categories of anthropogenic emissions or removals in the NDC and, once a source, sink or activity is included, continuing to include it (para. 3 of annex II to decision 4/CMA.1):
Explain how all categories of anthropogenic emissions and removals corresponding to their NDC were accounted for (para. 3(a) of annex II to decision 4/CMA.1)
Explain how Party is striving to include all categories of anthropogenic emissions and removals in its NDC, and, once a source, sink or activity is included, continue to include it (para. 3(b) of annex II to decision 4/CMA.1)
Provide an explanation of why any categories of anthropogenic emissions or removals are excluded (para. 4 of annex II to decision 4/CMA.1)
Each Party that participates in cooperative approaches that involve the use of ITMOs towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC
Provide information on any methodologies associated with any cooperative approaches that involve the use of ITMOs towards an NDC under Article 4 (para. 75(f) of the MPGs)
Provide information on how each cooperative approach promotes sustainable development, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)

Information can be reported in the common tabular format or a reference to the relevant section of the BTR can be provided:

- Methodologies and accounting approaches
- Metrics and IPCC guidelines
- Assumptions, key parameters, definitions, data sources, models
- Consistency (communicated and implemented NDC; accounting for NDC and GHG inventory)
- Changes (corrections, improvements, updates)
- Inclusion of all relevant categories, and exclusions
- Information associated with any cooperative approaches that involve use of ITMOs, if applicable

Reporting on ITMOs!

Steps for GHG assessment of mitigation actions



For a detailed description of the steps and process to conduct a mitigation assessment, also see the GHG Protocol Policy and Action Standard, available at https://ghgprotocol.org/policy-and-action-standard

Identifying effects is key for robust assessment

United Nations
Climate Change Secretariat

Define objectives and stakeholders

Identify potential effects and set boundary

Define methodology & collect data

Estimate baseline emissions

Estimate mitigation effects

Assess uncertainty

Intended & unintended effects

- Intended effects: Objectives of the intervention, e.g. GHG reduction
- Unintended effects, including:
  - Rebound effects
  - Effects in other sectors
  - Spillover effects

In-jurisdiction & out-of-jurisdiction effects

- Inside / outside the geopolitical boundary
- Within / outside the authority of actors

Short-term & long-term effects

- Need to define time frames
- Based on nature of intervention

Permanent & temporary effects

- Special interventions needed to ensure permanence?

Likelihood of effects

- Likely
- Possible
- Unlikely

! Consideration of all possible effects improves the analysis and enables an enhanced design of measures

The role of methods and tools in data collection

United Nations
Climate Change Secretariat

- Define objectives and stakeholders
- Identify potential effects and set boundary
- **Define methodology & collect data**
- Estimate baseline emissions
- Estimate mitigation effects
- Assess uncertainty

Possible methods

Comprehensive data collection from all sources

Data collection from representative sample

Observation

Survey of random sample

Data collection from secondary sources

Possible tools

Online portal for (mandatory) data submission

Standardised data submission sheet (electronic, paper)

Video, apps, questionnaires

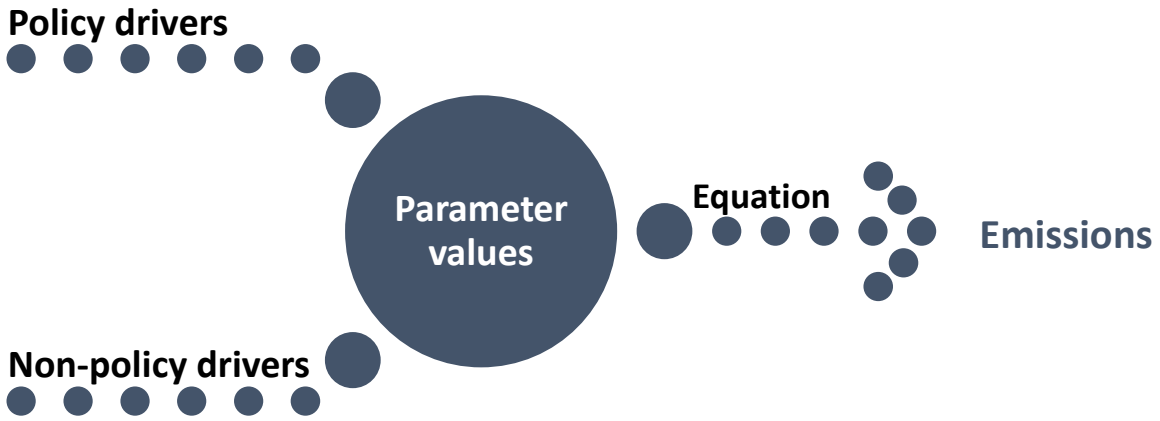
Online survey tools

Tools need to fit the selected method and methods need to fit the intended purpose!

The **methodology** is defined by the selection of methods and tools

Baseline terminology

Drivers affect parameters (variables) in the calculation



Methods and tools will have different requirements on how many parameters need to be estimated for baseline development!

Example equation

Equation 2.5: GHG Emissions from the Electricity Sector

$$Emissions_{GHG,fuel} = \sum_{tech} Fuel\ Consumption_{fuel} \times Emission\ Factor_{GHG,fuel,tech}$$

Parameters

Activity data

Emission factors

Calculating mitigation effects

United Nations
Climate Change Secretariat

Define objectives and stakeholders

Identify potential effects and set boundary

Define methodology & collect data

Estimate baseline emissions

Estimate mitigation effects

Assess uncertainty

Total net change in GHG emissions resulting from the policy or action (t CO_2e) =

Total net policy scenario emissions (t CO_2e) – Total net baseline scenario emissions (t CO_2e)

Note: "Net" refers to the aggregation of emissions and removals. "Total" refers to the aggregation of emissions and removals across all sources and sinks included in the GHG assessment boundary.

- The above equation applies only within the defined assessment boundary.
- If you are conducting separate assessments of individual measures, you cannot automatically add up mitigation potential as there may be interactions between different measures.

➡ Adding up individual measures to sectoral or national levels needs to consider interactions between measures!

Overview of calculation methods commonly used

United Nations
Climate Change Secretariat

Identifying measure(s) delivering result according to set rules

- Integrated assessment*

Baseline and mitigation effect estimates

- Economic analysis*
- Trend / regression analysis
- Accounting frameworks
- Bottom-up optimisation
- Technology screening

Estimation of mitigation effects only

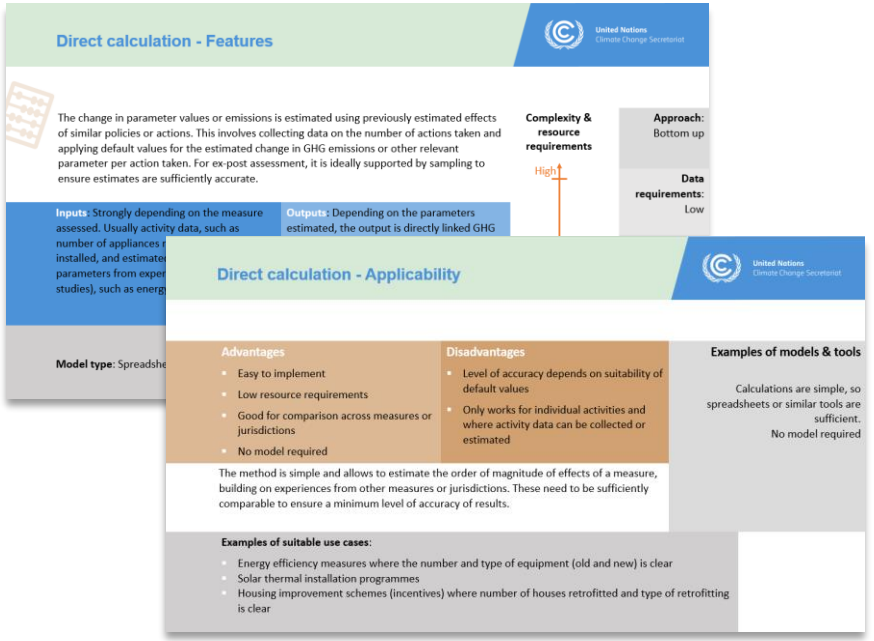
- Direct calculation (deemed estimates)

Variations

- Specific data sources: Comparison group method (ex-post only)
- Specific way to present results: Marginal abatement cost (MAC) curve

These represent variations but do not constitute methods in themselves, as the actual estimation requires the choice of one of the shown methods.

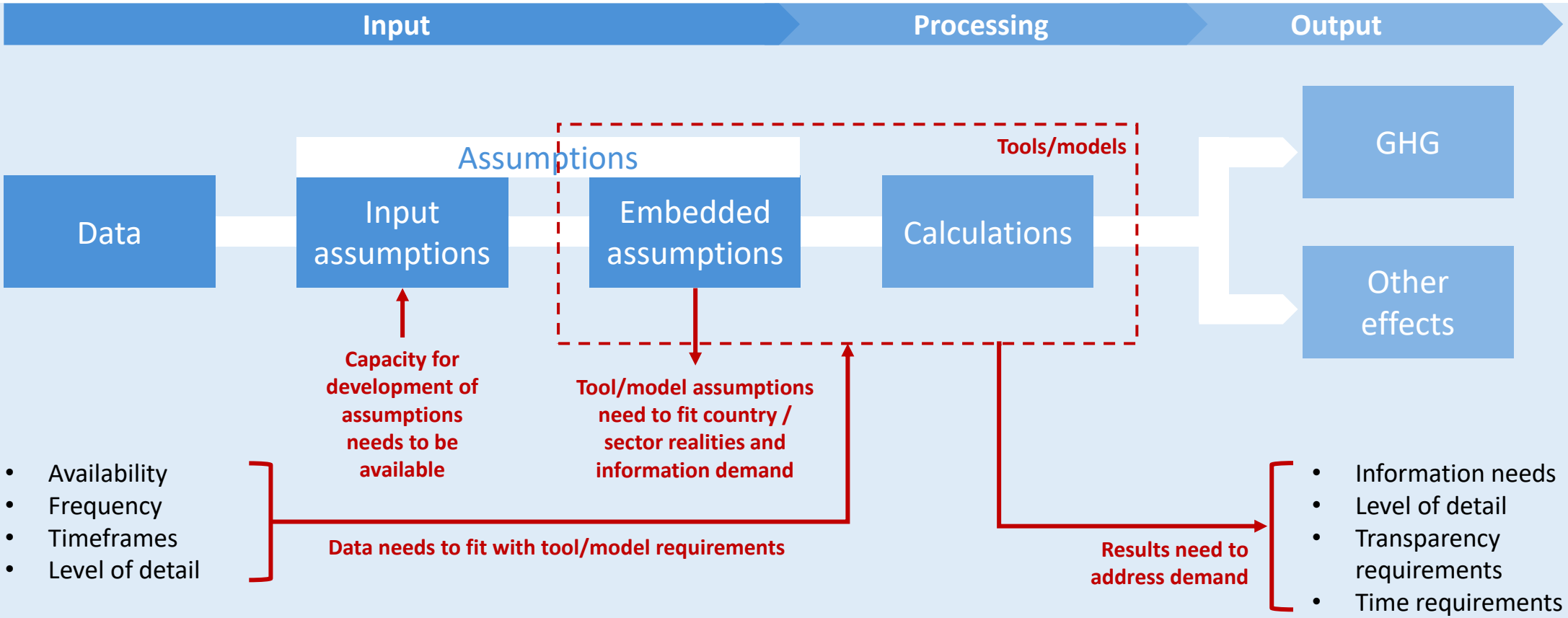
'Fact sheets' for the different methods are available in the CGE training material



* Top down methods – all others are considered bottom up methods

Quality of input will determine usefulness of output

United Nations
Climate Change Secretariat



Time requirements for different methods

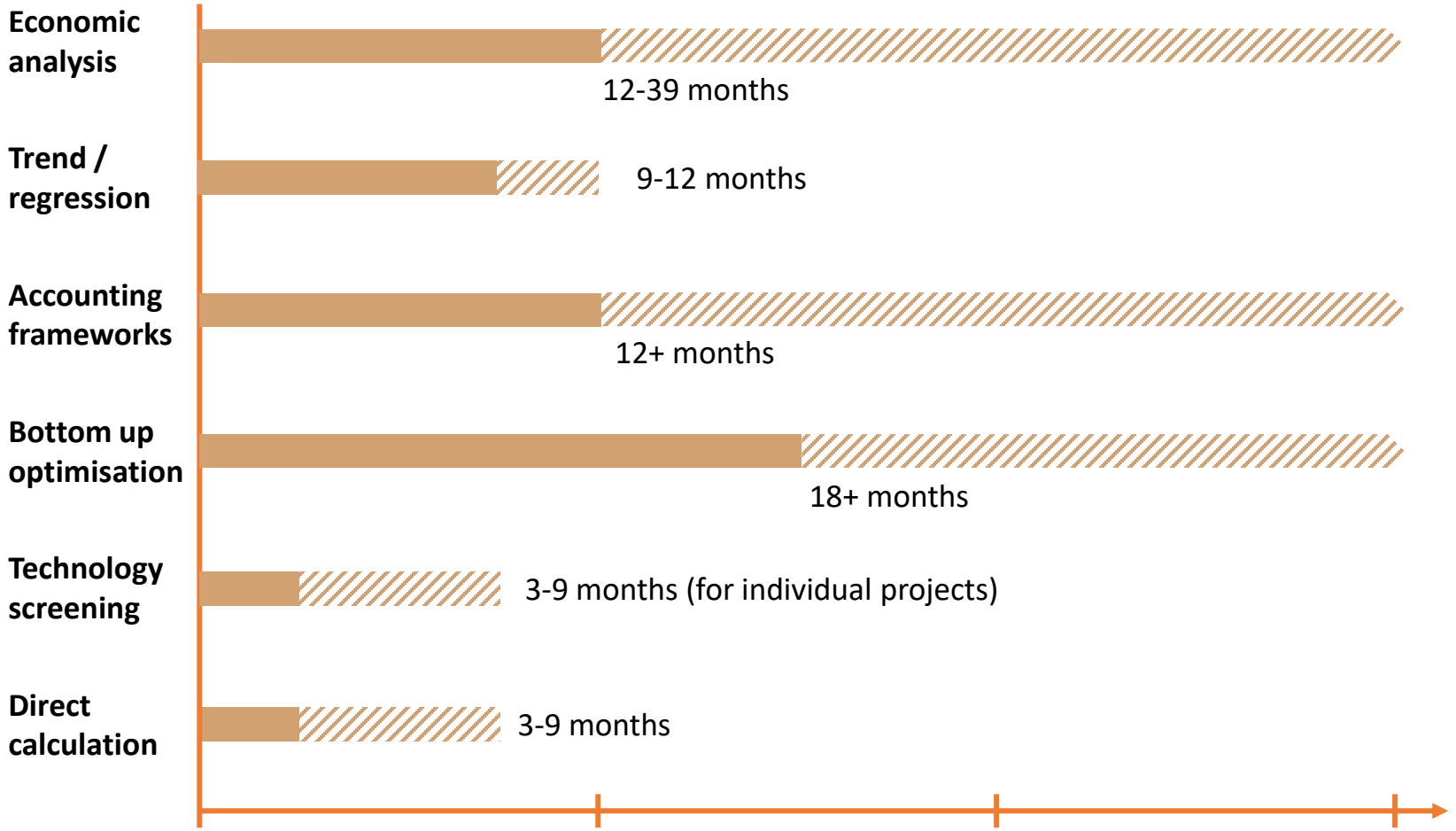
United Nations
Climate Change Secretariat

These are indicative estimates of the time required to:

- Understand the method and tools
- Set up
- Calculations and quality control
- Analysis of results

This does not include the time required for data collection, which will vary based on:

- The method selected
- Available data
- Ease of collecting missing data in the specific context



Capacity-building support under the UNFCCC

United Nations
Climate Change Secretariat

Training activities

- Workshops and webinars under the CGE
- E-learning courses
- Blended courses (hybrid with in-person and online components)
- Training programme for technical experts participating in the TER of BTRs

Material and tools

- MRV training material
- Compendium on Greenhouse Gas Emissions Baselines & Monitoring

MRV/Transparency helpdesk and Facebook exchange group

- Providing opportunity to exchange, an expert database and a library

UNFCCC support links:

https://unfccc.int/CGE

https://unfccc.int/universal-participation-ETF#tab_home

Compendium on greenhouse gas baselines and monitoring:

National level mitigation actions

Building and construction sector

Passenger and freight transport

THANK YOU FOR YOUR ATTENTION.

https://unfccc.int/CGE

United Nations
Climate Change Secretariat

Matching methods and tools with objectives

United Nations
Climate Change Secretariat

Method	Model type	Type of outputs			Suitability for objectives		
		Non-GHG effects	Time series scenarios	Time range of assessment	Setting targets	Estimate achieved results	Estimate future effects
Integrated assessment	**IAM**	GDP, welfare, health, etc.	x	Long-term	xxx	o	x
Economic	**CGE (static)**	GDP, prices, tax revenue, labour	o	Medium-term	xx	o	x
Economic	**CGE (dynamic)**		x	Medium-term	xx	o	x
Economic	**ME**	Economic	x	Short- to medium term	xx	x	x
Trend	**Statistics**	o	x	Short- to medium term	x	o	x
Bottom-up optimisation	**Optimisation, simulation**	Economic, (pollutants)	x	Medium- to long-term	x	o	xx

o = not suited o/x = limited suitability or depending on model x = suitable (number of 'x' indicate level of suitability)

Matching methods and tools with objectives

United Nations
Climate Change Secretariat

Method	Model type	Type of outputs			Suitability for objectives		
		Non-GHG effects	Time series scenarios	Time range of assessment	Setting targets	Estimate achieved results	Estimate future effects
Accounting frameworks	**Specialised**	o/x	x	Short- to medium term	o/x	xx	xxx
Technology screening	**Specialised**	x	x	Short- to medium term	o	xx	x
Direct calculation	**Spreadsheet**	o	x	Short-term	o	x	xx
Comparison group	**N/A**	o	o	N/A	o	xxx	o
MAC curves	**N/A**	Marginal cost	o	Depending on method	x	o	o

o = not suited

o/x = limited suitability or depending on model

x = suitable (number of 'x' indicate level of suitability)