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Reporting Tables – potential areas of work under SBSTA and options

Part I - GHG inventories and tracking
progress towards NDCs

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Marcia Rocha (OECD)

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Foreword

This document was prepared by the OECD and IEA Secretariats in response to a request from the Climate Change Expert Group (CCXG) on the United Nations Framework Convention on Climate Change (UNFCCC). The Climate Change Expert Group oversees development of analytical papers for the purpose of providing useful and timely input to the climate change negotiations. These papers may also be useful to national policy-makers and other decision-makers. Authors work with the CCXG to develop these papers. However, the papers do not necessarily represent the views of the OECD or the IEA, nor are they intended to prejudge the views of countries participating in the CCXG. Rather, they are Secretariat information papers intended to inform Member countries, as well as the UNFCCC audience.

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Abstract

Reporting Tables – potential areas of work under SBSTA and options Part I - GHG inventories and tracking progress towards NDCs

The Modalities, Procedures and Guidelines (MPGs) adopted at COP24 in Katowice lay out rules for reporting and review under the Enhanced Transparency Framework of the Paris Agreement. The Katowice decision on the MPGs requests the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop Common Reporting Tables (CRTs) for the reporting of national GHG inventories and Common Tabular Format (CTFs) for information necessary to track progress towards NDCs, to be adopted by 2020. This paper analyses potential issues and options Parties may wish to consider when developing CRTs and CTFs. The widespread use of CTFs for tracking progress towards NDCs can potentially facilitate comparability and aggregation of data and information on collective progress in the future. This paper also develops options for CTFs for reporting on information necessary to track progress made in implementing and achieving NDCs and provides worked examples showing how these options could be used for different types of NDC targets.

JEL Classification: F53, Q54, Q56, Q58

Keywords: UNFCCC, climate change, transparency, reporting, emissions, progress

Résumé

Tableaux de notification – domaines de travail potentiels dans le cadre de l’OSCST et options Partie I – inventaires des GES et suivi des avancées dans la réalisation des CDN

Les Modalités, procédures et lignes directrices adoptées à la COP24 de Katowice définissent les règles applicables aux rapports et examens aux fins du cadre de transparence renforcé de l’Accord de Paris. La décision de Katowice relative aux Modalités, procédures et lignes directrices charge l’Organe subsidiaire de conseil scientifique et technologique (OSCST) de concevoir des tableaux communs de notification (TCN) pour l’établissement des inventaires nationaux de GES, ainsi que des formats tabulaires communs (FTC) où faire figurer les informations nécessaires au suivi des avancées dans la réalisation des CDN, qu’il est prévu d’adopter d’ici 2020. Le présent document analyse les problèmes potentiels et les options que les Parties pourraient avoir à cœur de prendre en considération dans le cadre de l’élaboration des TCN et des FTC. La généralisation de l’utilisation de FTC pour suivre le déroulement de la réalisation des CDN pourrait éventuellement faciliter la comparaison et l’agrégation des données et des informations sur les avancées collectives dans l’avenir. Le présent document décrit en outre des FTC envisageables pour communiquer les informations nécessaires au suivi des avancées obtenues dans la mise en œuvre et la réalisation des CDN, et fournit des exemples détaillés montrant comment ces formats possibles pourraient être employés selon les différents types de CDN.

Classification JEL : F53, Q54, Q56, Q58

Mots-clés : CCNUCC, changement climatique, transparence, notification d’informations, émissions, progrès

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List of acronyms

AFOLU	Agriculture, Forestry and Other Land-use
APA	Ad Hoc Working Group on the Paris Agreement
BTR	Biennial Transparency Report
BUR	Biennial Update Report
CCXG	Climate Change Expert Group
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of the Parties to the UNFCCC
CRF	Common Reporting Format
CRT	Common Reporting Table
CTF	Common tabular Format
ETF	Enhanced Transparency Framework
GHG	Greenhouse Gas
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
KCA	Key Category Analysis
LULUCF	Land-use, Land-use Change and Forestry
MPGs	Modalities, Procedures and Guidelines
NC	National Communication
NDCs	Nationally Determined Contributions
NID	National Inventory Document
NIR	National Inventory Report
PA	Paris Agreement
QA/QC	Quality Assurance/Quality Control
SBSTA	Subsidiary Body for Scientific and Technological Advice
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

The Modalities, Procedures and Guidelines (MPGs) adopted at COP24 in Katowice lay out rules for reporting and review under the Enhanced Transparency Framework (ETF) of the Paris Agreement (PA). The MPGs are common to all Parties and define the informational elements to be provided by Parties under the ETF in a number of areas including national greenhouse gas (GHG) inventories and information necessary to track progress made in implementing and achieving Nationally Determined Contributions (NDCs). The Katowice decision on the MPGs requests the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop Common Reporting Tables (CRTs) for the reporting of national GHG inventories and Common Tabular Format (CTFs) for a number of other areas, including information necessary to track progress towards NDCs under Article 4. This paper analyses potential issues and options Parties may wish to consider when developing CRTs and CTFs and develops options for CTFs for reporting on information necessary to track progress made in implementing and achieving NDCs.

National GHG inventories

Reporting national GHG inventories is currently already mandatory under the UNFCCC for all Parties, although the level of detail and frequency of information required of Parties varies considerably across developed and developing country Parties. The MPGs strengthen current reporting requirements of GHG inventories, particularly for developing country Parties. The increased stringency and new requirements in inventory reporting by developing country Parties is balanced by the availability of flexibility on a number of provisions in the inventory section of the MPGs to those developing country Parties that need it in the light of their capacities.

This paper pays special attention to the potential implications of the use of flexibility in GHG inventory reporting. The paper proposes a tabular format for developing country Parties that need in the light of their capacities to report on their use of flexibility. Although such a table is not explicitly asked for by the MPGs, they state that those developing country Parties that need to use flexibility in the light of their capacities shall “clearly indicate” the flexibility they are applying, to “concisely clarify capacity constraints [...] and to provide self-determined estimated time frames for improvements in relation to those capacity constraints”. Reporting information on how Parties have used flexibility in a clear, transparent and systematic manner would be important to help reviewers in their task of reviewing inventories.

Developing country Parties that need in the light of their capacities may apply flexibility to not report on certain GHG inventory information, e.g. specific gases or in certain years. To enhance transparency and in order to avoid the assumption of false zeros¹, the SBSTA could usefully guide Parties on whether and how Parties could specify in CRTs which data they are not reporting due to the use of flexibility. There are options for how this could be achieved, such as by using a colour code in the CRTs to highlight where flexibility has been applied, by a separate notation key or by inserting footnotes to those rows or columns concerned by the use of flexibility. Another option could be for Parties to provide a

¹If not explicitly indicated, missing data could be interpreted as not occurring or insignificant, which would constitute a “false zero”.

documentation box as part of each table where they can provide further information on cells where flexibility was applied.

Parties to the Paris Agreement submitting annual national inventory reports under the Convention shall use the MPGs to fulfil national inventory reporting obligations under the Convention. It will be important to ensure that the application of the MPGs respects important guiding principles such as ensuring environmental integrity, promoting TACCC principles, promoting improvement over time and preventing backsliding.

Annex I Parties currently report on GHG inventories using 2006 IPCC guidelines for National Greenhouse Gas Inventories via Common Reporting Format (CRF) tables and the CRF reporter software. These tables contain many useful elements for the reporting on GHG inventories and could represent, together with the CRF reporter software, a good starting point for the SBSTA work on CRTs. The work on CRTs will need to incorporate changes and new options introduced by the MPGs or by the 2019 IPCC refinement to be used in conjunction with the 2006 IPCC guidelines (if agreed upon by the CMA).

Tracking progress towards NDCs

The MPGs define what information, by when, how frequently and under what reporting format Parties are to provide when tracking progress towards their NDCs. An important portion of the information on tracking progress is to be provided in a “structured summary” (sub-section C of the Section III on tracking progress of the MPGs Annex). One of the core elements of the structured summary is information on self-selected quantitative or qualitative indicators to track progress towards implementation and achievement of a Party’s NDC.

The exact format of the structured summary is to be developed under the SBSTA as part of the CTFs to be adopted in 2020.² Parties have put forward a wide range of target types in their NDCs with different scope, coverage and time frames which will affect the choice of tracking progress indicators to be reported under the ETF. This paper proposes options for a common format for CTF tables to be used by all Parties for the structured summary accommodating the different aspects of NDCs. The paper also provides worked examples on how the proposed structured summary table could be filled for different types of NDC targets.

² The SBSTA is to develop common tabular formats for the information referred in Chapter III of the MPGs, which, in addition to the information in the structured summary, includes information on national circumstances and institutional arrangements, on accounting approaches, a description of the Party’s NDC, and information on mitigation policies and measures and GHG projections.

1. Introduction

The Modalities, Procedures and Guidelines (MPGs) for the Enhanced Transparency Framework for action and support (ETF) of the Paris Agreement are part of the “Katowice Climate Package”, the group of decisions adopted at COP24 in 2018 in Katowice. The MPGs negotiated over three years, consist of a set of rules for reporting and review of information submitted by Parties under the ETF (UNFCCC, 2019_[1]). An important feature of the MPGs is that they are “common”, that is, they are to be applied to all Parties. However, according to Article 13.2 of the Paris Agreement, the ETF shall provide flexibility “to those developing country Parties that need in the light of their capacities”; the MPGs specify the flexibility that is available to those Parties.

The MPGs require (“shall”) Parties to report on: (i) national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHG); and (ii) information necessary to tracking progress made in implementing and achieving NDCs. Moreover, developed country Parties “shall” and other Parties that provide support “should” report on (iii) information on financial, technology development and transfer and capacity-building support provided and mobilised. Further, Parties “should” report on information related to climate change impacts and adaptation and developing country Parties “should” provide information on financial, technology development and transfer and capacity-building support needed and received.. This paper explores issues and options relating to reporting tables in the areas of national GHG inventories and of tracking progress made in implementing and achieving NDCs (the companion paper (Falduto and Ellis, 2019_[2]) explores issues and provides options for reporting tables for financial support provided, mobilised and received).

The MPGs request the SBSTA to develop “common reporting tables” (CRT) for the reporting of national GHG inventories and “common tabular formats” (CTF) for the reporting of information on tracking progress (among others), to be adopted by COP26 (UNFCCC, 2019_[1]). It is important that the outcome of this work reflects the different principles of the Paris Agreement and its accompanying decision as well as of the MPGs (UNFCCC, 2015_[3]), (UNFCCC, 2016_[4]), (UNFCCC, 2019_[1]). These include e.g. ensuring environmental integrity, promoting Transparency, Accuracy, Completeness, Comparability, Consistency (TACCC) principles, avoiding double counting, promoting improvement over time, preventing backsliding and providing flexibility to those developing country Parties that need it in the light of their capacity.

Parties have experience reporting information using reporting tables in the areas of GHG inventories and on tracking progress towards mitigation commitments and reporting obligations. Experience in and capacity for reporting information on GHG inventories and tracking progress towards NDCs vary largely across issues and between developed and developing country Parties. Based on the analysis of relevant experience and the new requirements under the ETF, this paper examines the issues Parties may wish to consider in the work under the SBSTA in 2019 and 2020 and proposes options for reporting tables in the area for tracking progress towards NDCs.

2. National inventories

Under the ETF, Parties shall provide biennially a national inventory report on anthropogenic emissions by sources and removals by sinks of GHG (UNFCCC, 2015^[3]), (UNFCCC, 2016^[4]), (UNFCCC, 2019^[1]). The MPGs adopted at COP24 state that each Party shall submit a Biennial Transparency Report (BTR) and a National Inventory Document (NID); the latter may be submitted as a stand-alone report or as a component of a BTR.

Reporting national GHG inventories is currently already mandatory under the UNFCCC for all Parties. While the vast majority of Parties have reported information on GHG inventories under the UNFCCC framework, this reporting has been highly heterogeneous as Parties have done so according to different guidelines³, levels of obligation and detail and at different frequencies (Ellis et al., 2018^[5]). Current reporting arrangements require Annex I countries to submit annual GHG inventories, containing (i) a National Inventory Report (NIR) including detailed and transparent information on the inventory and (ii) “common reporting format” (CRF) tables including quantitative information on GHG emissions and removals. GHG inventories are also to be submitted as part of non-Annex I countries’ National Communications (NCs) and an update of these inventories in developing country Parties’ Biennial Update Reports (BURs) (a detailed analysis of experience in reporting GHG inventories can be found in Chapter 3 of (Ellis et al., 2018^[5])).

This section first summarises the informational elements required or requested by the MPGs for reporting on national GHG inventories and identifies, for each informational element, whether reporting under the ETF is voluntary (“should”) or mandatory (“shall”), and compares to current requirements for developed and developing countries (Table 1). It then explores potential issues and options Parties may wish to consider in their work in the developing CRTs under the SBSTA. Lastly, considering the potential important implications of the use of flexibility on the information Parties provide in their GHG inventories, this paper pays special attention to how flexibility can be used in GHG inventory reporting.

³ These include the different guidelines for reporting of national inventories in Biennial Reports (developed countries), in Biennial Update Reports (developing countries) or guidelines for the preparation of National Communications. Also, a number of methodological guidelines for national GHG inventories have been developed by the IPCC. These include among others the Revised 1996 IPCC Guidelines for national GHG inventories (“Revised 1996 IPCC guidelines”) and the 2006 IPCC Guidelines for national GHG Inventories (“2006 IPCC guidelines”). These guidelines accommodate different levels of capacity, including providing different “tiers” representing different levels of methodological complexity.

Table 1. Summary of reporting requirements in the area of national GHG inventories under the ETF and relevant experience

Reporting element under the ETF	Requested (“should”) or required (“shall”) under the ETF?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
Information on methods and cross-cutting elements		
Methods used, including the rationale for the choice of methods, references and sources of information used for the emission factors and activity data used to compile the GHG inventory (<i>Annex MPGs II para 39</i>)	Required	Developed – yes (“shall”) Developing – yes, to a lesser extent (“encouraged”)
Information on the category and gas, and the methodologies, emission factors and activity data used at the most disaggregated level (<i>Annex MPGs II para 40</i>)	Required, but with qualifier “to the extent possible”.	Developed – yes (“shall” use the 2006 IPCC Guidelines) Developing –yes, to a lesser extent (“should” use the Revised IPCC 1996 Guidelines (NC guidelines) and inventories updates in BURs “should contain updated data on activity levels”)
Description of key categories, including information on the approach used for their identification, and on the level of disaggregation used (<i>Annex MPGs II para 25 and 41</i>)	Required, with flexibility provided on the threshold used for defining key categories	Developed – yes (“NIR shall include”) Developing – yes (“are encouraged to”)
Individual and cumulative percentage contributions from key categories (<i>Annex MPGs II para 25 and 42</i>)	Required, with flexibility provided on the threshold used for defining key categories	Developed – yes (“AI Parties shall estimate and report the individual and cumulative percentage contributions of key categories”) Developing – yes (“are encouraged to”)
Report recalculations including explanatory information and justifications for recalculations with an indication of relevant changes and their impact on the emission trends (<i>Annex MPGs II para 26–28 and 43</i>)	Required	Developed – yes (“shall”) Developing – no specific reporting requirement
Results of the uncertainty analysis as well as methods used (<i>Annex MPGs II para 29 and 44</i>)	Required, with flexibility provided	Developed – yes (“shall”) Developing – yes (“encouraged to apply the IPCC Good Practice Guidance” and “encouraged to provide information on the level of uncertainty associated with data and their underlying assumptions, and to describe the methodologies used, if any, for estimating uncertainties”)

Reporting element under the ETF	Requested (“should”) or required (“shall”) under the ETF?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
Information on the reasons for lack of completeness (<i>Annex MPGs II para 30-33 and 45</i>)	Required	Developed – yes (“should [...] explain the reasons for [...] exclusions” of sources and sinks not included in the inventory) Developing – yes (“should use the notation keys”)
QA/QC plan and information on QA/QC procedures (<i>Annex MPGs II para 34-36 and 46</i>)	Required, with flexibility provided	Developed – yes (“shall”) Developing – yes (“encouraged to apply the IPCC Good Practice Guidance”)
Sectors and gases		
Estimates of emissions and removals for all categories, gases and carbon pools considered in the GHG inventory throughout the reported period on a gas-by-gas basis in units of mass at the most disaggregated level (<i>Annex MPGs II para 47</i>)	Required	Developed – yes (“shall report a national inventory [...] of all GHG”, “should be presented on a gas-by-gas basis”) Developing – yes (“ shall, as appropriate and to the extent possible provide its national inventory, on a gas-by-gas basis”)
Report seven gases (<i>Annex MPGs II para 48</i>)	Required, with flexibility provided	Developed – yes (“shall”) Developing – yes, but partially (“shall, as appropriate and to the extent possible provide its national inventory [...], estimates of anthropogenic emissions” of CO ₂ , CH ₄ and N ₂ O and “are encouraged” to provide information on HFCs, PFCs, SF ₆ and NF ₃)
Each Party reporting HFCs, PFCs, SF ₆ and NF ₃ shall report actual emissions of the gases, providing disaggregated data by chemical and category (<i>Annex MPGs II para 49</i>)	Required for those Parties reporting on HFCs, PFCs, SF ₆ and NF ₃	Developed – yes (“shall report actual emissions of HFCs, PFCs, SF ₆ and NF ₃ , providing disaggregated data by chemical and category in units of mass”) Developing – yes, to a lesser extent (“are encouraged, as appropriate, to provide information” on HFCs, PFCs, SF ₆ and NF ₃)
Report the following sectors: energy, industrial processes and product use, agriculture, LULUCF and waste, according to the IPCC guidelines referred to in paragraph 20 above (<i>Annex MPGs II para 50</i>)	Required	Developed – yes, indirectly (“shall” use the 2006 IPCC Guidelines) Developing – yes, to a lesser extent (“should” use the Revised IPCC 1996 Guidelines)
Information on the following precursor gases CO, NMVOCs, as well as sulphur oxides (<i>Annex MPGs II para 51</i>)	Requested (“should”)	Developed – yes (“should provide information on” CO, NO _x , NMVOCs and SO _x) Developing – yes, to a lesser extent (“are encouraged, as appropriate, to report on” CO, NO _x , NMVOCs. SO _x may be included)
Each Party may report indirect CO ₂ from the atmospheric oxidation of CH ₄ , CO and NMVOCs (<i>Annex MPGs II para 52</i>).	Requested (“may”)	Developed – yes (“may report”) Developing – no specific mention

Reporting element under the ETF	Requested (“should”) or required (“shall”) under the ETF?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
International aviation and marine bunker fuel emissions as two separate entries (<i>Annex MPGs II para 53</i>)	Requested (“should”)	Developed – yes (“International aviation and marine bunker fuel emissions [...] should be reported separately”) Developing – yes (“should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories”)
Clearly indicate how feedstocks and non-energy use of fuels have been accounted for in the inventory (<i>Annex MPGs II para 54</i>)	Requested (“should”)	Developed – yes (“Information on how and where feedstocks and non-energy use of fuels have been reported in the inventory”) Developing – no specific mention
Information on the approach taken for estimating emissions and subsequent removals from natural disturbance (ND) on managed lands, and how it is consistent with IPCC guidance, as appropriate (<i>Annex MPGs II para 55</i>).	Required, for parties addressing ND on managed lands in GHG inventory.	Developed – no Developing – no
Supplementary information on emissions and removals from harvested wood product (HWP)s estimated using the production approach (<i>Annex MPGs II para 56</i>)	Required, for parties using an approach to reporting emissions and removals from HWP	Developed – yes (“The SBSTA invited Parties in a position to do so to voluntarily report on harvested wood products in their national inventories in a manner consistent with current UNFCCC reporting guidelines”). Developing – yes (same as above)
Time series		
Consistent annual time series starting from 1990 (<i>Annex MPGs II para 57</i>)	Required, with flexibility provided	Developed – yes Developing – yes, to a lesser extent (“encouraged to provide a consistent time series back to the years reported in the previous NCs” in BURs)
The latest reporting year shall be no more than two years prior to the submission of its NID (<i>Annex MPGs II para 58</i>)	Required, with flexibility provided	Developed – yes Developing – no

Source: Author, based on, (UNFCCC, 2003^[6]), (UNFCCC, 2013^[7]), (UNFCCC, 2012^[8]), (UNFCCC, 2013^[9]) (UNFCCC, 2006^[10])

The MPGs represent an overall strengthening of current reporting requirements of GHG inventories under the Convention, as they make inventory reporting requirements of developing country Parties considerably more stringent. For example, the MPGs require all Parties⁴ to report on inventories at least biennially, which enhances transparency and the predictability of information flow in comparison to current reporting arrangements for Non-Annex I Parties under the Convention. The MPGs for reporting national inventories present a number of similarities with UNFCCC reporting guidelines on annual inventories for Annex I Parties under the Convention (UNFCCC, 2013^[9]). For example, the national inventory reports to be submitted under the ETF consist of a national inventory document and common reporting tables (UNFCCC, 2019^[11]). This is done similarly to annual inventories by Annex I, although format of tables and outline of the reports are not yet defined under the MPGs and may differ from what is currently required from Annex I Parties. Further, the level of detail in the MPGs regarding methodologies⁵ and informational elements to be reported have several common elements with what is currently required from Annex I Parties under the Convention (UNFCCC, 2013^[9]) and are thus considerably more stringent than current reporting requirements for Non-Annex I Parties.

According to Decision 1/CP.24 (UNFCCC, 2018^[11]), Parties to the Paris Agreement submitting annual national inventory reports under the Convention shall use the MPGs to fulfil national inventory reporting obligations under the Convention. It will be important to ensure that the application of the MPGs respects important guiding principles such as ensuring environmental integrity, promoting TACCC principles, promoting improvement over time and preventing backsliding.

2.1. Potential considerations for SBSTA work in developing CRTs

The MPGs specify that each Party shall use the 2006 IPCC guidelines for National Greenhouse Gas Inventories⁶ (hereinafter referred to as the 2006 IPCC guidelines), and shall use any subsequent version or refinement of the IPCC guidelines agreed upon by the CMA. The development of the new Methodology Report to refine the current 2006 IPCC guidelines was carried out by the Task Force on National Greenhouse Gas Inventories (TFI) in accordance with the decision taken at the 44th Session of IPCC in Bangkok, Thailand, in October 2016. This Report (hereafter referred to as 2019 IPCC Refinement) has been adopted by the IPCC at its Plenary Session in May 2019. While the 2019 IPCC Refinement does not revise the 2006 IPCC guidelines (it should be used in conjunction with the 2006 IPCC guidelines), it updates, supplements and/or elaborates the 2006 IPCC Guidelines where gaps or out-of-date science have been identified. If agreed upon by the CMA, the SBSTA will need to consider this refinement in developing the new CRT tables; timing of agreement by the CMA could be of importance for that work to be incorporated into the SBSTA work on development of CRTs, which will be carried out in 2019/2020⁷

⁴ With exception of Small Island Developing States (SIDS) and Least Developed Countries (LDCs) who may do so at their discretion.

⁵ For example, regarding the use of IPCC Inventory guidelines, KCA, time-series consistency and recalculations, assessment of completeness and uncertainty or the preparation of a QA/QC.

⁶ Also, each Party is encouraged to use the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands.

⁷ The CRTs could also include options for the use of the 2019 IPCC Refinement for those Parties that elect to use the 2019 Refinement, without having it being adopted upon by CMA.

As of 2015, Annex I Parties report according to 2006 IPCC guidelines' methodologies via "Common Reporting Format" (CRF) tables. CRF tables contain many useful elements and could constitute a good starting point for the designing CRTs, which would be consistent with the Paris Agreement provision mandating the transparency framework to build on and enhance the transparency arrangements under the Convention. A series of changes and adjustments would still be necessary for CRTs reflecting changes and new options introduced by e.g. the MPGs or by the 2019 IPCC refinement to be used in conjunction with the 2006 IPCC guidelines (if agreed upon by the CMA). In developing these new tables, it would also be helpful for the SBSTA to develop clear guidance on how to map the current CRF and the new CRT tables/rows/columns, so that capacity already acquired for reporting in the CRF system can be easily transferred to the new system.

At present, Agriculture, Forestry and other Land-use (AFOLU) data are reported in two entirely separate sub-worksheets in CRF tables (CRF Table 3. Agriculture and Table 4. Land-use and land-use change and forestry (LULUCF)). Continuing to do so would be helpful, especially as Parties are to report on the contribution from the LULUCF sector in their inventories and, if not reported in the inventories, in their structured summary for tracking progress made in implementing and achieving NDCs (refer to Section 3. for details).

While Annex I country Parties currently report using a web-based CRF Reporter to the UNFCCC, the vast majority of Non-Annex I Parties' data and information is reported in pdf format (even when in tabular format). The SBSTA is to develop, pursuant to the MPGs, CRTs for the electronic reporting of the information by all Parties. The CRF reporter software could represent a good starting point for the work on an inventory reporting software. Potential improvements and adjustments would however likely need to be performed to address changes and new options introduced by the MPGs (e.g. new threshold for the key-category analysis or KCA) and to accommodate for the large number of Parties who would use it. In general, it would be useful for CRTs to have an easy machine-readable format. This is especially important in the context of data aggregation and the global stocktake.

2.2. Flexibility and Inventory reporting

The MPGs for preparing and reporting of national inventories are common to all Parties, but they specify a number of areas where flexibility is available and where developing country Parties that need it in the light of their capacities may not report certain information (e.g. certain GHG gases and certain years or using a lower threshold for the key category analysis). Table 2 summarises the provisions where and how flexibility is available to developing country Parties that need it in the light of their capacities in preparing their GHG inventories.

Table 2. GHG inventories: where and how is flexibility available?

Informational or methodological element	Provision	How flexibility can be applied (by developing country Parties that need it in the light of their capacities)
Key Category Analysis (KCA)	Each Party shall identify key categories using KCA consistent with IPCC guidelines, i.e. using a 95% threshold ¹ for identifying key categories	Flexibility to identify key categories using a threshold no lower than 85%, in place of the 95% threshold defined in the IPCC guidelines
Uncertainty assessment	Each Party shall quantitatively estimate and qualitatively discuss the uncertainty, as well as estimate the trend uncertainty of the emission and removal estimates for all source and sink categories	Flexibility to provide, at a minimum, a qualitative discussion of uncertainty for key categories
Use of notation key "Not estimated (NE)"	Each Party may use the notation key "NE" when the estimates of emissions of a category would be considered insignificant, that is, likely below 0.05% of national total and 500ktCO ₂ eq, whichever is lower	Flexibility to instead consider emissions category insignificant if its level of emissions is likely below 0.1% of national total and 1000ktCO ₂ eq, whichever is lower
Quality assurance/quality control (QA/QC)	Each Party shall elaborate an inventory QA/QC plan in accordance with the 2006 IPCC guidelines, and implement and provide information on general inventory QC procedures	Developing country Parties using flexibility are instead "encouraged" to do so
Reported greenhouse gases	Each Party shall report seven gases (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ and NF ₃)	Flexibility to instead report at least three gases (CO ₂ , CH ₄ and N ₂ O) as well as any of the additional four gases (HFCs, PFCs, SF ₆ and NF ₃) that are included in the Party's NDC under Article 4 of the PA, are covered by an activity under Article 6 of the PA, or have been previously reported
Time series	Each Party shall report a consistent annual time series starting from 1990; the latest reporting year shall be no more than two years prior to the submission of its national inventory reports	Flexibility to instead report data covering, at a minimum, the reference year/period for its NDC and, in addition, a consistent annual time series from at least 2020 onwards; latest reporting year three years prior to the submission of their national inventory reports

Note: ¹An inventory category is referred to as "key category" if (under current definitions) it contributes to more than 95% of a country's total GHG emissions level, trend or uncertainty (based on an uncertainty analysis), when summed up in descending order of magnitude.

Source: Author, based on (UNFCCC, 2019_[1]).

The increased stringency and new requirements in inventory reporting by developing country Parties is balanced by the availability of flexibility to those developing country Parties that need in the light of their capacities on a number of provisions (UNFCCC, 2019_[1]). The MPGs do not define whether or how the design of CRTs are to take flexibility into account. The MPGs specify however that developing country Parties that use flexibility "shall (...) provide self-determined estimated time frames for improvements in relation to" the capacity constraints leading to the use of flexibility (UNFCCC, 2019_[1]). This implies that the use of flexibility is time-bound and that over time, reporting becomes more consistent and comparable amongst Parties. This supports the development of fixed-format CRTs, that is, a format which all Parties, regardless of whether they are using flexibility or not, would use to report on their inventories.

2.2.1. Options for clearly indicating the provision to which flexibility is applied

The application of flexibility by developing country Parties that need it in the light of their capacities is to be self-determined on the basis of capacity, and they "shall clearly indicate the provision to which flexibility is applied" and "concisely clarify capacity constraints" (UNFCCC, 2019_[1]). The MPGs do not define how, where or under which format Parties are to communicate how they are applying flexibility in preparing and reporting on their

inventories. Clearly reporting on the use of flexibility is crucial for the understanding of the inventory information provided by Parties by review teams and/or the international community. This section explores options Parties may wish to consider regarding how to report on (or “clearly indicate”) the flexibility they are applying in the context of inventory reporting in the context of CRTs.

Developing country Parties that need it in the light of their capacities are to provide the following information when using flexibility: (i) clearly indicating the provision to which flexibility is applied; (ii) concisely clarifying capacity constraints and (iii) providing self-determined estimated time frames for improvements in relation to those capacity constraints (UNFCCC, 2019^[11]). For example, if a developing country Party that needs it in the light of its capacities uses flexibility when performing a KCA, then it shall report on the threshold used, along with information on capacity constraints and self-determined time period for moving towards using the threshold defined in the IPCC guidelines.

There are several options for developing country Parties that need it in the light of their capacities to clarify where and how they are applying flexibility on the basis of capacity. One first option could be for Parties to provide this information in a narrative format in a dedicated section of their NID. Alternatively, a mix of tabular and narrative format could also be used to report on flexibility use by those developing country Parties that need it in the light of their capacities. Table 3 provides an example of how developing country Parties that need it in the light of their capacities could provide information on the use of flexibility in a tabular format in their NIDs

Table 3. Option for reporting on information on flexibility use in tabular format, for developing country Parties that need it in the light of their capacities

	<i>Provision</i>	<i>Is flexibility in reporting applied?</i>	<i>If so, how?</i>	<i>Concise clarification of capacity constraints^g</i>	<i>Time frame for improvement^g</i>
<i>Flexibility used in the preparation or provision of National inventory data</i>	Key Category Analysis (Annex MPGs II para 25) ^a				
	Uncertainty assessment (Annex MPGs II para 29) ^b				
	Assessment of completeness (Annex MPGs II para 32) ^c				
	Quality assurance/quality control (Annex MPGs II para 34) ^d				
	Reported greenhouse gases (Annex MPGs II para 48) ^e				
	Time series (Annex MPGs II paras 57 & 58) ^f				

Notes: ^a Flexibility available to identify key categories using a threshold no lower than 85%, in place of the 95% threshold defined in the 2006 IPCC guidelines.

^b Flexibility available to provide, at a minimum, a qualitative discussion of uncertainty for key categories

^c Flexibility available to use notation key "NE" for a category if its level of emissions is likely below 0.1% of national total and 1000 ktCO₂eq, whichever is lower

^d Developing country Parties using flexibility are encouraged to elaborate an inventory QA/QC plan in accordance with the 2006 IPCC guidelines, and to implement and provide information on general inventory QC procedures

^e Flexibility to report at least three gases (CO₂, CH₄ and N₂O) as well as any of the additional four gases (HFCs, PFCs, SF₆ and NF₃) that are included in the Party's NDC under Article 4 of the PA, are covered by an activity under Article 6 of the PA, or have been previously reported

^f Flexibility to instead report data covering, at a minimum, the reference year/period for its NDC and, in addition, a consistent annual time series from at least 2020 onwards; latest reporting year three years prior to the submission of their NID

^g Parties shall concisely clarify capacity constraints and provide self-determined estimated time frames for improvements in relation to those capacity constraints in their Biennial Transparency Reports

Source: Author.

2.2.2. Use of flexibility in Key Category Analysis

Key Category Analysis (KCA) is the IPCC's method for identifying which emissions or removals categories to prioritise in GHG estimation, by e.g. using higher tiered methods. According to the 2006 IPCC guidelines "level assessment" approach, key categories are those that, when summed together in descending order of magnitude, add up to 95 percent of that Party's anthropogenic GHG emissions. Developing country Parties that need it in the light of their capacities may use flexibility for the KCA provision of the MPGs (Annex MPGs II para 25) by identifying key categories using a threshold no lower than 85%, in place of the 95% threshold defined in the IPCC guidelines.

According to the 2006 IPCC guidelines, it is good practice to clearly document the results of the KCA in the inventory report (IPCC, 2006_[12]). In describing the flexibility used it could therefore also be important for developing country Parties to clearly identify whether a category is identified as non-key per application of flexibility (those categories comprised between 85 and 95% in the level assessment) or in accordance with the IPCC guidelines (those categories comprised between 95-100% in the level assessment). Additionally, in case a category is considered as non-key as a result of using flexibility, it could be useful for the developing country Party to provide information on self-estimated time frame for improvement on that specific category (in addition to the timeframe for improvement required in using flexibility available in the KCA provision of the MPGs). Table 4 provides an example of how developing country Parties could document that information in their NIDs.

Table 4. Example of table on summary of non-key categories in a Party's GHG inventory

Quantitative approach used: level assessment

IPCC category code	IPCC category	Greenhouse gas	Flexibility used ^a	Tier applied	Time frame for improvement ^b	Comments

Notes ^a For each non-key category, the Party states whether the identification of the non-key category resulted from the application of flexibility (Yes) or from IPCC discretion (No); ^b For each category not considered as key through the use of flexibility, the Party could provide a timeline for improvement. This cell should be greyed out if identification of non-key category results from the use of discretion per 2006 IPCC guidelines.

Source: Author, based on Table 4.4 in (IPCC, 2006_[12])

It could also be useful for Parties to indicate in their CRTs which categories resulted in a non-priority category due to the use of flexibility in the KCA (by e.g. adding a footnote, a special notation key or a colour to the corresponding rows/columns clarifying that this was the case). Additionally, further information on the results of the KCA could also be provided in the NIDs in tabular format, as per 2006 IPCC guidelines on reporting and documentation of KCA results.

2.2.3. Use of flexibility and data gaps

The MPGs provide considerable room for flexibility for developing country Parties that need it in the light of their capacities – while reporting to the best of their abilities – not to report in the highest level of detail possible immediately. Flexibility provided in three provisions specifically may lead to data gaps in CRTs:

- **Assessment of completeness and use of “NE” notation key⁸ (Annex MPGs II.C para 32):** developing country Parties that need it in the light of their capacities may consider an emissions category insignificant if its level of emissions is likely below 0.1% of national total and 1000 ktCO₂eq, whichever is lower (instead of 0.05% and 500 ktCO₂eq respectively as per 2006 IPCC guidelines). This means that flexibility allows for a differentiated use of notation key “NE” across those Parties using flexibility and those which do not. For transparency purposes, it would be helpful for developing country Parties using flexibility to indicate clearly which “NEs” result from the use of flexibility and those which do not.
- **Flexibility in reporting of GHG (Annex MPGs III.C para 48):** developing country Parties using flexibility shall report at least three gases in a disaggregated manner (CO₂, CH₄ and N₂O) as well as any of the further four gases (HFCs, PFCs, SF₆ and NF₃) that are included in the Party’s NDC, are covered by an activity under Article 6 of the PA, or have been previously reported. This means that Parties are not required to provide information on all gases immediately (if they are not included in the Party’s NDCs, are not covered by an activity under Article 6 nor have been previously reported), which could lead to some data gaps in CRTs.
- **Flexibility in reporting time series (Annex MPGs III.C pars 57-58):** developing country Parties that need in the light of their capacities have the flexibility to report (i) data covering, at a minimum, the reference year/period for its NDC and, in addition, a consistent annual time series from at least 2020 onwards (as opposed to 1990 onwards) and (ii) latest reporting year three years prior to the submission of their national inventory reports (as opposed to two years for Parties that are not using flexibility). Parties reporting CRF tables use one table per year. If a similar format would be adopted for CRTs, then Parties would likely not provide tables for those years where there is no reporting in the pre-2020 period.

There are several potential issues arising from data gaps, with implications for transparency, which Parties may wish to consider in their work on CRTs under the SBSTA. First, if Parties are not reporting on emissions from certain gases or in certain years, it does not mean that those emissions are either not occurring or insignificant. It would be therefore important to consider how these data gaps could be best depicted in CRTs, so that a

⁸ Notation keys include: Not estimated (“NE”): Not estimated Emissions and/or removals occur but have not been estimated or reported; Included elsewhere (“IE”): Emissions and/or removals for this activity or category are estimated and included in the inventory but not presented separately for this category; Confidential information (“C”): Emissions and/or removals are aggregated and included elsewhere in the inventory because reporting at a disaggregated level could lead to the disclosure of confidential information; Not applicable (“NA”): The activity or category exists but relevant emissions and removals are considered never to occur. Such cells are normally shaded in the reporting tables; Not occurring (“NO”): An activity or process does not exist within a country.

distinction can be made between data missing due to the use of flexibility and data missing due to other reasons, such as those addressed by the IPCC notation keys.

There are a few options⁹ for Parties to distinguish data gaps arising from the use of flexibility from other missing data. One option would be for Parties to specify either by a separate notation key, a footnote, or a colour code those cells where in CRTs where flexibility was used. It is important however to consider the risk of overloading the CRTs with qualitative information. Parties could for example report most of or all qualitative information in their NIDs. Alternatively, Parties could provide a documentation box as part of each table where they can provide further information such as an explanation of a notation key. Regardless of the way forward, it would be important for Parties to consider in their work under the SBSTA how to avoid creating “false zeros” when reading CRTs or compiling data from CRTs, especially in the context of data aggregation for e.g. the global stocktake.

⁹ The option of leaving cells blank has not been put forward in this paper as it goes against current reporting practice, as it is considered good practice for Parties to fill in all entries in a reporting table.

3. Tracking progress made in implementing and achieving NDCs

The MPGs define what information, by when, how frequently and under what reporting format Parties are to provide when tracking progress towards their NDCs (UNFCCC, 2019^[11]), Annex, Section III – “Information necessary to track progress made in implementing and achieving NDCs”). (UNFCCC, 2019^[11]) requests the SBSTA to develop, pursuant to the MPGs, Common Tabular Formats (CTFs) for the electronic reporting of the information Parties shall provide in tracking progress made in implementing and achieving NDCs. Table 5 summarises the information necessary for tracking progress, as defined by the MPGs. The informational elements to be provided by Parties include information on (UNFCCC, 2019^[11]):

- national circumstances and institutional arrangements (MPGs Annex, Section III.A);
- a description of the Party's NDC , (MPGs Annex, Section III.B);
- information necessary to track progress made in implementing and achieving NDCs (MPGs Annex, Section III.C), including a sub-section carrying the same name as the main section III, which includes information on self-selected indicators (amongst others) to be reported in the so-called “structured summaries”
- information on mitigation policies and measures (MPGs Annex, Section III.D);
- a summary of GHG emissions and removals (MPGs Annex, Section III.E, and
- GHG projections (MPGs Annex, Section III.F).

Annex I Parties have experience reporting on progress towards achieving their 2020 targets under the Convention using Common Tabular Format tables, adopted in Doha (UNFCCC, 2012^[13]). Non-Annex I Parties are requested to report on e.g. mitigation actions in their Biennial Update Reports, as well as on “Programmes containing measures to mitigate climate change” in their National Communications, information that could be relevant in the context of tracking progress towards NDCs under the ETF. This reporting has now become mandatory to all Parties. Parties will report on tracking progress based on their choice of NDC; the nationally-determined nature of NDCs makes reporting on progress less of a capacity constraint issue than e.g. the reporting of GHG inventories. Flexibility is however available under two provisions of the tracking progress section. Those provisions are i) estimates of expected and achieved GHG emission reductions for its actions, policies and measures (MPGs Annex, Section III.D, para 85), and ii) projections of GHG emission and removals (MPGs Annex, Section III.F, para 95).

This section summarises the reporting requirements for tracking progress towards NDCs under the ETF and provides a mapping of current requirements of Annex I and Non-Annex I Parties to the reporting requirements under the ETF (Table 5). It then looks at relevant issues that Parties may wish to consider in developing CTFs for reporting on progress towards implementing and achieving NDCs. Lastly, it explores options for the structure of the “structured summary” for tracking progress towards NDCs under the ETF (worked examples on how the proposed structured summary table on information on indicators could be filled for different types of NDC targets are provided in the Annex).

Table 5. Summary of reporting requirements under the ETF for tracking progress towards NDCs and relevant experience

Reporting element under the ETF	Requested (“should”) or required (“shall”)?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
National circumstances and institutional arrangements (Annex MPGs III.A)		
Information on national circumstances including (a) Government structure; (b) Population profile; (c) Geographical profile; (d) Economic profile; (e) Climate profile; (f) Sector details (Annex MPGs III.A para 59)	Required	Developed – yes (“shall”) Developing – yes (“are encouraged” to provide [...] information on national circumstances”, “may provide a description of existing institutional arrangements”)
Information on how its national circumstances affect GHG emissions and removals over time (Annex MPGs III.A para 60)	Required	Developed – yes (“shall”); Developing – yes (“should”)
Information on the institutional arrangements in place to track progress (Annex MPGs III.A para 61)	Required	Developed – yes (“shall”); Developing – yes (“may provide”)
Information on legal, institutional, administrative and procedural arrangements (Annex MPGs III.A para 62)	Required	Developed – yes (“shall”); Developing – no
Description of a Party’s NDC, including updates (Annex MPGs III.B)		
Description of a Party’s NDC, including updates, including: (a) Target(s) and description, including targets types; (b) Target year (s) or period(s); (c) Reference point(s), level(s), baseline(s), base year(s) or starting point(s), and their respective value(s); (d) Time frame(s) and/or periods for implementation; (e) Scope and coverage, including, as relevant, sectors, categories, activities, sources and sinks, pools and gases; (f) Intention to use cooperative approaches that involve the use of ITMOs under Article 6 towards NDCs; (g) Any updates or clarifications of previously reported information	Required	Developed – yes (“shall describe its economy-wide emission reduction target”) Developing – No
Structured summary (Annex MPGs III.C para 77)		
For selected indicators (Annex MPGs III.C para 65), information on selected indicators for reference point(s), level(s), baseline(s), base year(s) or starting point(s) (Annex MPGs III.C para 67 and 77a(i))	Required	No, for large majority of potential indicators (except when using GHG emissions as indicators*)
Information on each selected indicator for each previous reporting years during the implementation period (IP) (Annex MPGs III.C para 68 and 77a(ii))	Required	No, for large majority of potential indicators (except when using GHG emissions as indicators*)
The most recent information identified on selected indicators (Annex MPGs III.C para 68 and 77a(iii))	Required	No, for large majority of potential indicators (except when using GHG emissions as indicators*)
Comparison of information for selected indicator between reporting year of IP and reference points (Annex MPGs III.C para 69)	Required	No, this is a new reporting element for all Parties
Assessment of achievement based on latest information for each selected indicator (Annex MPGs III.C para 70)	Required	No, this is a new reporting element for all Parties

Reporting element under the ETF	Requested (“should”) or required (“shall”)?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
For the first NDC, information on accounting approach, including on how it is consistent with Article 4, Paras 13 and 14 of the Paris Agreement (may choose to provide information on how it is consistent with guidance on mitigation); for subsequent NDCs, information provided in III.B and C consistent with guidance on mitigation (Annex MPGs III.C paras 71,72)	Required with requested elements (“may choose”)	No, this is a new reporting element for all Parties
Definitions needed to understand the NDC, the selected indicators, sectors and categories (if different from national inventories), mitigation co-benefits of adaptation actions and/or economic diversification plans (Annex MPGs III.C para 73)	Required	To a large extent, new reporting elements for all Parties
Description of methodologies and/or accounting approaches related to targets, baselines and indicators (Annex MPGs III.C para 74) (Annex MPGs III.C para 75)	Required	To a large extent, new reporting elements for all Parties
Information on how each indicator is related to its NDC; Explanation of how the methodology in each reporting year is consistent with the methodology or methodologies used when communicating the NDC; Explain methodological inconsistencies with the Party’s most recent national inventory report, if applicable; Description of how double counting of net GHG emission reductions has been avoided (Annex MPGs III.C para 76)	Required	No, this is a new reporting element for all Parties
Where applicable, information on GHG emissions and removals consistent with the coverage of its NDC under Article 4 (Annex MPGs III.C para 77b)	Required, with qualifier “where applicable”	Developed – yes (“information on greenhouse gas emissions and trends” in CTF tables) Developing – yes (shall report an inventory, to the extent its capacities permit”, “are encouraged to report summary information tables on inventories for previous submission years” in BURs)
Contribution from the LULUCF sector for each year of the target period or target year (Annex MPGs III.C para 77c) Information consistently with relevant decisions adopted by the CMA on Article 6 (Annex MPGs III.C para 77d): (i) The annual level of anthropogenic emissions by sources and removals by sinks covered by the NDC on an annual basis reported biennially; (ii) An emissions balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by its NDC adjusted on the basis of corresponding adjustments undertaken by effecting an addition for ITMOs first-transferred/transferred and a subtraction ITMOs used/acquired; (iii) Any other information consistent with decisions adopted by the CMA on reporting under Article 6; (iv) Information on how each cooperative approach promotes sustainable development; and ensures environmental integrity and transparency, including in governance; and applies robust accounting to ensure inter alia the avoidance of double counting.	Required, “as applicable” Required, for those Parties that participate in co-operative approaches that involve the use of ITMOs towards an NDC under Article 4, or authorizes the use of MO for international mitigation purposes other than achievement of its NDC	Developed – yes; Developing – yes Developed – yes (Annex I Parties “shall” report Standard Electronic Format tables containing information on transactions under the Kyoto Protocol market mechanisms) Developing – yes (“shall provide [...] to the extent possible” information on international market mechanisms” in their BURs)
Information necessary to track progress on the implementation and achievement of the domestic policies and measures implemented to address the social and economic consequences of response measures, including: (a) Sectors and activities associated with response measures; (b) Social and economic consequences from the response measures action; (c) Challenges and barriers to address the consequences; (d) Actions to address the consequences (Annex MPGs III.D, para 78)	Required (of Parties with NDCs that consist of mitigation co-benefits resulting from Parties’ adaptation actions and/or economic diversification plans consistent with Article 4, para 7)	

Reporting element under the ETF	Requested (“should”) or required (“shall”)?	Is this information, or similar information already covered in reporting guidelines for developed country or developing country Parties?
Mitigation Policies and measures (P&M), actions and plans (Annex MPGs III.D)		
Mitigation P&M, actions and plans (Annex MPGs III.D, para 80)	Required	Developed – yes Developing – yes (“should provide information, in a tabular format, on actions to mitigate climate change)
Report by sector (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management or other) (Annex MPGs III.D, para 81)	Required, with qualifier “to the extent possible”;	Developed – yes (“to the extent appropriate”) Developing – yes (“should provide information [...] on coverage (i.e. sectors and gases)”))
Information on (a) Name; (b) Description; (c) Objectives; (d) Type of instrument; (e) Status; (f) Sector(s) affected; (g) Gases affected; (h) Start year of implementation; (i) Implementing entity or entities. (Annex MPGs III.D, para 82)	Required, with qualifier “to the extent possible”;	Yes
Information on (a) Costs; (b) Non-GHG mitigation benefits; (c) How the mitigation actions identified interact with each other (Annex MPGs III.D, para 83)	Requested (“Each Party may”)	Developed – Yes Developing - No
Relevant information on P&M contributing to mitigation co-benefits resulting from adaptation actions or economic diversification plans. (Annex MPGs III.D, para 84)	Required (of Parties with NDCs that consist of mitigation co-benefits from Parties’ adaptation actions and/or economic diversification plans consistent with Article 4, para 7)	No
Estimates of expected and achieved GHG emissions reductions for its actions, P&M, including information on methodologies and assumptions used to estimate these reductions (Annex MPGs III.D, para 85,86)	Required, with flexibility provided to developing country Parties that need it in the light of their capacities	Developed – yes Developing – yes (“to the extent possible”)
Identification of no longer in place; that influence GHG emission from international transport; information on how P&M are modifying longer-term trends in GHG emissions and removals (Annex MPGs III.D, para 87,88, 89)	Requested (“should”)	Developed – yes Developing - no
Detailed information on the assessment of economic and social impacts of response measures (Annex MPGs III.D, para 90)	Requested (“Encouraged”)	Developed – yes; Developing - no
Summary of greenhouse gas emissions and removals (Annex MPGs III.E)	Required, for each party that submits a stand-alone NIR	Developed - yes Developing – yes (“are encouraged to”)
Projections of greenhouse gas emissions and removals, as applicable (Annex MPGs III.F)	Required, with flexibility provided to developing country Parties that need it in the light of their capacities	Developed – yes Developing – no specific requirement or request

Note: * For Parties with economy-wide GHG emissions reduction target (e.g. absolute reduction below base year and reduction below business-as-usual) could track progress towards their targets using total domestic emissions as an indicators. The submissions of GHG inventories can therefore be considered as relevant experience.

Source: Author, based on (UNFCCC, 2003^[6]), (UNFCCC, 2013^[7]), (UNFCCC, 2012^[8]), (UNFCCC, 2013^[9])

An important portion of the information on tracking progress is to be provided in a “structured summary” (Annex MPGs III.C para 77). Section 3.1 explores options for a common format for the “structured summary” for tracking progress towards NDCs under the ETF. This exercise focuses in this paper on the quantitative part of the information to be provided by Parties under “information necessary to track progress made in implementing and achieving” NDCs. This includes information on indicators and options for reporting on the minimum set of information on Article 6 units in the structured summary, as defined in the MPGs (Annex MPGs III.C para 77d).

One of the core elements to be provided by a Party in its structured summary is information on “indicators that it has selected to track progress towards 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.” (MPGs Annex, Section III.C para 65). In addition to information on indicators, Parties are to provide e.g. a description of the indicators used, of each methodology and/ or accounting approaches and an explanation of how double counting of net GHG emissions reductions has been avoided. CTFs for reporting on the qualitative information referred to in Section III.C, e.g. the description of the indicators or methodologies and/or accounting approaches used, are not explored in paper.

In their structured summary, Parties engaging in cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMOs) towards an NDC under Article 4, or that authorize the use of mitigation outcomes (MO) for international mitigation purposes other than achievement of its NDC are required to provide information related to the use of ITMOs and MOs (Annex MPGs III.C para 77). During COP 24, Parties did not however reach consensus on the set of rules that will govern market mechanisms, which would further clarify how the information reported is to be calculated and whether additional information could be required.

Parties have put forward a wide range of target types with different scopes, coverages and time frames (Briner and Moarif, 2016^[14]). The MPGs however state that CTFs “should accommodate all types of NDCs under Article 4, as appropriate” (UNFCCC, 2019^[11]). This could imply that a common set of reporting tables for tracking progress towards different types of NDCs would be needed, which would accommodate for information to be provided for e.g. different timescales (e.g. for NDCs with different target years) or for different gases or sectors (as NDCs vary in scope). There are a number of advantages with having a common format for structured summary tables such as allowing for more consistent and comparable information to be provided by Parties, as well as to ease review processes.

Given the large diversity of NDCs, there may be a wide variety of information to be reported by Parties under the ETF. Table 6 shows that, while NDCs vary in their scope, time frame and coverage, there are a number of common elements that could be reported for tracking progress under the ETF towards different NDC types. It is important that these tables strike a balance between gathering consistent and most updated information across Parties, but not to the detriment of the provision of in-depth, detailed/country-specific NDC information and respecting the party-driven nature of the process. Worked examples on how the proposed structured summary table on information on indicators could be filled for different types of NDC targets are provided in the Annex.

Table 6. Information needed to track progress towards different types of NDC

Target	Examples of NDCs submitted	Potential information/indicators in structured summary for tracking progress made in implementing and achieving
Economy-wide emission absolute reduction targets (tCO ₂ -eq); Achievement of carbon neutrality	Annex I Parties, Botswana, Brazil, Ethiopia, RMI Norway, Bhutan (goal to remain carbon neutral)	Net GHG emissions and removals (including contribution from LULUCF sector); percentage reduction of emissions in comparison to reference (base year, base period, business-as usual) for each year of implementation period and at target year; relevant Article 6 information as applicable and consistently with relevant decisions adopted by the CMA on Article 6
Non-economy-wide emission reduction targets (tCO ₂ -eq) Peaking emissions in a given year	Guyana, Liberia China	Same as A above Net GHG emissions and removals (including contribution from LULUCF sector); relevant Article 6 information as applicable and consistently with relevant decisions adopted by the CMA on Article 6.
Economy-wide goals to reduce emissions relative to a BAU baseline (tCO ₂ -eq)	Algeria, Argentina, Bangladesh, Barbados, Côte d'Ivoire, Ecuador, Georgia, Iran, Kiribati, Korea, Mexico, Turkey, Viet Nam	Net GHG emissions and removals (including contribution from LULUCF sector); percentage reduction of emissions in comparison to reference emissions for each year of implementation period and at target year; information on baselines; relevant Article 6 information as applicable and consistently with relevant decisions adopted by the CMA on Article 6.
Sector-specific goals relative to a BAU baseline (tCO ₂ -eq) Emissions intensity goals (kgCO ₂ -eq per unit of GDP) Emissions per capita goals (tCO ₂ -eq per cap)	Albania, Kiribati Chile, China, India, Singapore Ghana, Israel, Zimbabwe	Same as D above Net GHG emissions and removals (including contribution from LULUCF sector), percentage reduction of emissions intensity in comparison to base year for each year of implementation period and at target year updated; GDP and/or population projections if applicable. Relevant Article 6 information as applicable and consistently with relevant decisions adopted by the CMA on Article 6.
Various non-GHG goals, including for non-fossil or renewable energy, energy efficiency, forest cover, etc.	Antigua and Barbuda, China (share of non-fossil energy, forest cover), India (share of non-fossil electricity), Myanmar	Information on chosen indicator on reference point(s), level(s), baseline(s), base year(s) or starting point(s), for each year of the implementation period and at target year;
Implementation of qualitative P&M, creation of institutions etc. No measurable goals	Guinea-Bissau, Mozambique, Sierra Leone Pakistan, Saudi Arabia, Egypt	Progress made towards milestones Qualitative info on progress, if available

Note: Beyond the information considered in this table, Parties engaging in cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMOs) towards an NDC under Article 4, or that authorize the use of mitigation outcomes (MO) for international mitigation purposes other than achievement of its NDC are required to provide information related to the use of ITMOs and MOs (Annex MPGs III.C para 77d).

Source: Author, adapted from (Briner and Moarif, 2016_[15])

3.1. Options for Structured Summary common tabular format

Table 7. Option for CTFs for tracking progress made in implementing and achieving NDCs – Structured Summary: Indicators
Table 7a. CTF Information on indicators – Option 1

Reporting year: YYYY

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>N*</i>	<i>N+1</i>	<i>N+2</i>	<i>...</i>	<i>T**</i>
<i>Information on indicators</i>											
Indicator 1											
Indicator 2											
...											
<i>Supporting information</i>											
Information 1 (e.g. socio-economic indicator)											
Information 2 (e.g. business-as-usual emissions)											
...											

*N= first year of the implementation period in question

**T = target year/period level

Table 7b. Information on indicators – Option 2

Reporting year: YYYY

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>N*</i>	<i>N+1</i>	<i>N+2</i>	<i>...</i>	<i>T**</i>
<i>Information on indicators</i>											
Indicator 1											
Indicator 2											
...											
<i>Supporting information</i>											
Information 1 (e.g. socio-economic indicator)											
Information 2 (e.g. business-as-usual emissions)											
...											
<i>Comparison of most recent information on indicators with reference (e.g. base year)***</i>											
Indicator 1/reference											
Indicator 2/reference											
...											

*N= first year of the implementation period in question

**T = target year/period level

***In order to provide a picture of progress, information from implementation/achievement period could be compared with information in the e.g. reference year or with the information in the target year. Paragraph 69 of the Annex of the MPGs however specify that each party shall compare the most recent information on the indicators to the information on the reference point(s), level(s), baseline(s), base year(s) or starting point(s).

Table 7c. Information on indicators – Option 3

Reporting year: YYYY

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>N*</i>	<i>N+1</i>	<i>N+2</i>	<i>...</i>	<i>T**</i>
<i>Information on indicators</i>											
Indicator 1											
Indicator 2											
...											
<i>Supporting information</i>											
Information 1 (e.g. socio-economic indicator)											
Information 2 (e.g. BAU)											
...											
<i>Comparison of most recent information on indicators with reference (e.g. base year)***</i>											
Indicator 1/reference											
Indicator 2/reference											
...											
<i>Assessment by the Party of achievement</i>											
Indicator 1											<i>Yes/No</i>
Indicator 2											<i>Yes/No</i>
...											

*N= first year of the implementation period in question

**T = target year/period level

***In order to provide a picture of progress, information from implementation/achievement period could be compared with information in the e.g. reference year or with the information in the target year. Paragraph 69 of the Annex of the MPGs however specify that each party shall compare the most recent information on the indicators to the information on the reference point(s), level(s), baseline(s), base year(s) or starting point(s).

Table 8. Option for CTFs for tracking progress made in implementing and achieving NDCs – Structured Summary: GHG emissions balance

Table 8a. Option 1 - Information on GHG emissions

Reporting year: YYYY

<i>GREENHOUSE GASES EMISSIONS BALANCE</i>						
	<i>N*</i>	<i>N+1</i>	<i>...</i>	<i>N+5</i>	<i>...</i>	<i>N+10</i>
Total GHG emissions in scope of NDC						
LULUCF contribution**						
Total GHG emissions in scope of NDC adjusted on the basis of corresponding adjustments undertaken by effecting an addition for ITMOs first-transferred/transferred and a subtraction for ITMOs used/acquired***						

*N= first year of the implementation period in question

**If not included in the inventory time series of total net GHG emissions and removals, as applicable.

***For Parties that participate in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards an NDC under Article 4, or authorises the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC. While 77d mandates Parties to report on annual level of GHG emissions, it does not specify that the adjusted GHG emissions would be reported on an annual basis. This table presents one possible way to report the adjusted GHG emissions. Further clarity on this matter may come from decisions adopted by the CMA on Article 6.

Table 8b. Option 2 - Information on GHG emissions

Reporting year: YYYY

<i>GREENHOUSE GASES EMISSIONS BALANCE</i>						
	<i>N*</i>	<i>N+1</i>	<i>...</i>	<i>N+5</i>	<i>...</i>	<i>N+10</i>
Total GHG emissions in scope of NDC						
LULUCF contribution						
ITMOs first-transferred/transferred**						
ITMOs used/acquired**						
Total GHG emissions in scope of NDC adjusted on the basis of corresponding adjustments undertaken by effecting an addition for ITMOs first-transferred/transferred and a subtraction for ITMOs used/acquired**						

*N= first year of the implementation period in question

**If not included in the inventory time series of total net GHG emissions and removals, as applicable.

***For Parties that participate in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC). While 77d mandates Parties to report on annual level of GHG emissions, it does not specify that the adjusted GHG emissions would be reported on an annual basis. This table presents one possible way to report the adjusted GHG emissions. Further clarity on this matter may come from decisions adopted by the CMA on Article 6.

4. Conclusions

The Modalities, Procedures and Guidelines (MPGs) on transparency agreed at COP24 provide detailed reporting guidance for Parties for their biennial reporting under the enhanced transparency framework for action and support (ETF) of the Paris Agreement. Reporting electronically in a tabular format is required, or requested, for several types of information. The Subsidiary Body for Scientific and Technological Advice (SBSTA) is requested to develop Common Reporting Tables (CRTs) for the reporting of national greenhouse gas (GHG) inventories and Common Tabular format (CTFs) for a number of other areas, including information necessary to track progress towards NDCs under Article 4 (UNFCCC, 2019^[1]). With a focus on national GHG inventories and on information necessary to track progress towards Nationally Determined Contribution (NDC)s, this paper analyses potential issues Parties may wish to consider in their work on CRTs and CTFs under the SBSTA. Further, the paper develops options for the structure of CTFs for the Structured Summary in the area of tracking progress towards NDCs.

GHG inventories

The MPGs are “common”, that is, they are to be applied to both developed and developing Parties. The MPGs represent strengthening of current reporting requirements of GHG inventories of developing country Parties under the Convention. They increase reporting requirements relating to reporting frequency and to how the inventory data is prepared. Article 13.2 of the Paris Agreement states that the ETF is to provide flexibility for “those developing country Parties that need it in the light of their capacities”. The MPGs allow for flexibility on a number of provisions in the inventory section of the MPGs for those developing country Parties who need it in the light of their capacities.

This paper proposes a tabular format that developing Parties that need it in the light of their capacities could use when reporting information on flexibility. The MPGs do not define how, where or in which format Parties are to communicate how they are applying flexibility in preparing their inventories. The use of flexibility by developing country Parties that need it in the light of their capacities will impact what information they will provide and how that information is prepared. It is therefore important for Parties to consider the best way for developing country Parties that need it in the light of their capacities to transparently report on their use of flexibility including and on how they apply flexibility, e.g. in their National Inventory Document (NID). The tabular format proposed in this paper for the reporting on flexibility is not explicitly requested in the MPGs, although the MPGs do indicate that developing country Parties “shall clearly indicate the provision to which flexibility is applied, concisely clarify capacity constraints, noting that some constraints may be relevant to several provisions, and provide self-determined estimated time frames for improvements in relation to those capacity constraints” (Paragraph 6 of the Annex of MPGs).

It would be important for the SBSTA to consider how any data gaps could best be depicted in CRTs, so that a distinction can be made between data missing due to the use of flexibility

and data missing due to other reasons, such as those addressed by the Intergovernmental panel on Climate Change (IPCC) notation keys. Clearly reporting on the use of flexibility is crucial for the understanding of the inventory information provided by Parties by review teams and/or the international community. For example, if Parties do not report on emissions from certain gases or in certain years as a result of using the flexibility provisions in the MPGs, it does not mean that those emissions are either not occurring or insignificant.

All Parties to the Paris Agreement submitting annual national inventory reports under the Convention shall use the MPGs to fulfil national inventory reporting obligations under the Convention. It would be important to ensure that the implementation of the MPGs would respect a range of principles laid out in the Paris Agreement including that of building on and enhancing on the transparency arrangements under the Convention.

The MPGs specify that each Party shall use the 2006 IPCC guidelines for National Greenhouse Gas Inventories (2006 IPCC guidelines) and shall use any subsequent version or refinement of the IPCC guidelines agreed upon by the CMA. Annex I Parties currently use a tabular format (“CRF”) to report on annual inventories using 2006 IPCC guidelines’ methodologies. One option would be to design CRTs building on CRF table design, which would be consistent with the guiding principle of the MPGs to build on and enhance the transparency arrangements under the Convention. The work on CRTs would need to consider, however, a series of changes and new options introduced by the MPGs or by the 2019 IPCC refinement to be used in conjunction with the 2006 IPCC guidelines (if agreed upon by the CMA).

In summary, this paper identifies the following potential issues Parties may wish to consider when developing CRTs and/or outlines for NIDs for reporting on national inventories:

- CRF tables and CRF reporter software could represent good starting points for the development of CRTs and the inventory reporting software for the electronic reporting of inventories under the ETF
- The best way to transparently report on how they apply flexibility in their NIDs for developing country Parties that need it in the light of their capacities;
- How any data gaps could be best depicted in CRTs, so that a distinction can be made between data missing due to the use of flexibility and data missing due to other reasons, such as those addressed by the IPCC notation keys;
- How the use of the new MPGs would avoid any backsliding compared to current inventory reporting guidelines, for example in the frequency of inventory reporting by Annex I Parties under the Convention;
- Creating CRTs that are machine readable and options for inventory reporting software.

Tracking progress towards NDCs

The adoption of the MPGs represent a significant step forward for enhancing transparency in the area of tracking progress towards Parties’ mitigation commitments under the Paris Agreement. The MPGs now require all Parties to provide this tracking information biennially, whereas in the pre-2020 period the information was required only for developed country Parties with 2020 Cancun targets under the Convention. The MPGs define what

information, by when and how Parties are to provide when tracking progress towards their NDCs.

An important portion of the information on tracking progress is to be provided in a “structured summary”, the focus of this paper; the exact format of the structured summary is to be developed under the SBSTA as part of the CTFs to be adopted in 2020. This paper develops options for CTF formats for the structured summary for reporting on information necessary to track progress made in implementing and achieving NDCs. These options differ mainly in the level of detail and amount of information Parties could provide. Table 9 below summarises the different sets of information and level of detail captured in the different options explored here.

Table 9. Overview of CTF options explored for the Structured Summary

Table 9a. Information on indicators

	Indicators and supporting information	Comparison of most recent information on indicators with reference (e.g. baseyear)	Assessment by the Party of achievement
Option 1 (Table 7.a)	✓		
Option 2 (Table 7.b)	✓	✓	
Option 3 (Table 7.c)	✓	✓	✓

Table 9b. Information on GHG emissions balance

	Total GHG emissions in scope of NDC	LULUCF contribution	ITMOs first-transferred/ Transferred*	ITMOs used/acquired	Total GHG emissions in scope of NDC adjusted on the basis of corresponding adjustments
Option 1 (Table 8.a)	✓	✓			✓
Option 2 (Table 8.b)	✓	✓	✓	✓	✓

Notes: *It is not yet agreed whether Parties would report on unit or net flows of ITMOs and whether they would report on ITMOs transferred and acquired and/or first transferred and used.

Parties have put forward a large diversity in NDC targets and different types of information may be provided by Parties in tracking progress towards NDCs. A common set of reporting tables to be used by all Parties, which would accommodate information necessary to track progress towards different types of NDCs, would present a number of advantages for the process of tracking progress. For example, common reporting tables could enhance consistency of information provided by Parties in the context of the Global Stocktake and could ease the review of that information. Given the large diversity of NDCs, however, it is important that this is not to the detriment of the provision of the required in-depth, detailed/country-specific information necessary to the understanding of progress. Worked examples on how the proposed structured summary table on information on indicators could be filled for different types of NDC targets are provided in the Annex.

Annex – Worked examples

This Annex provides worked examples on how the tables proposed in this paper for the structured summary on information on indicators could be filled in for different types of NDC targets. The worked examples are developed for option 3 (Table 7c) where the most complete set of information, at the highest level of detail, would need to be provided.

4.1. Worked Example 1 – Absolute emissions reduction target

Hypothetical NDC target: Economy-wide GHG emissions reduction multi-year target of 45% relative to 1990 levels by 2030

Reporting year: 2026

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>2025</i>
<i>Information on indicators</i>											
Total GHG emissions in scope of NDC	MtCO ₂ e	Base year	1990	5200	2030	2860	3900	3795	3441	3378	-
<i>Supporting information</i>											
-											
<i>Comparison of most recent information on indicators with reference (e.g. base year)</i>											
Total GHG emissions in scope of NDC/ total GHG emissions in scope of NDC at base year	%						75	73	66	65	-
<i>Assessment by the Party of achievement</i>											
Total GHG emissions in scope of NDC											-

4.2. Worked Example 2 – Absolute emissions reduction target (including reporting on achievement)

Hypothetical NDC target: Economy-wide GHG reduction single-year target of 40% relative to 2005 levels by 2025

Reporting year: 2027

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>2025</i>
<i>Information on indicators</i>											
Total GHG emissions in scope of NDC	MtCO _{2e}	Base year	2005	2800	2025	1680	1425	1604	1615	1809	1586
<i>Supporting information</i>											
-											
<i>Comparison of most recent information on indicators with reference (e.g. base year)</i>											
Total GHG emissions in scope of NDC/ total GHG emissions in scope of NDC at base year	%						51	57	58	65	57
<i>Assessment by the Party of achievement</i>											
Total GHG emissions in scope of NDC											Yes

Note: The MPGs state that Parties “shall identify the indicator(s) that it has selected to track progress towards the implementation and achievement of its NDC”, “indicators shall be relevant to a Party’s NDC under Article 4” (Annex MPGs III.C para 65) and Parties “shall provide the most recent information for each selected indicator identified (...) for each reporting year during the implementation period of the NDC” (Annex MPGs III.C para 68). This implies that, regardless of whether a Party has a multi-year or a single-year target, the Party would need to report on the self-selected indicators over the course of the implementation period to track progress towards implementation and achievement.

4.3. Worked Example 3 – GHG and black carbon emissions reduction below business-as-usual

Hypothetical multi-target NDC: GHG and black carbon (BC) emissions reduction below business-as-usual

- Target 1: GHG reduction target of 25% by 2030 relative to business-as-usual levels
- Target 2: BC reduction target of 55% by 2030 relative to business-as-usual levels

Reporting year: 2027

INFORMATION ON INDICATORS												
	Unit	Reference type	Reference Year (specify)	Reference level (in unit)	Target year/period (specify)	Target year/period level (in unit)	Information on progress made in implementing NDCs (in unit)					Information on progress made in achieving NDCs (in unit)
							2021	2022	2023	2024	2025	2030
<i>Information on indicators</i>												
Target 1: Total GHG emissions in scope of NDC	MtCO _{2e}	BAU	2030	970	2030	728	702	735	683	771	695	-
Target 2: BC emissions in scope of NDC	kt	BAU	2030	150	2030	67.5	133	115	107	114	97	-
<i>Supporting information</i>												
Target 1: GHG BAU emissions in scope of NDC	MtCO _{2e}						747	772	797	821	846	
Target 2: BC BAU emissions in scope of NDC	kt						126	129	131	134	137	
<i>Comparison of most recent information on indicators with reference (e.g. base year)</i>												
Total GHG emissions in scope of NDC/ 2030 BAU GHG emissions	%						72	76	70	79	72	
BC emissions in scope of NDC/ 2030 BAU black carbon emissions	%						89	77	71	76	65	
<i>Assessment by the Party of achievement</i>												
Target 1: Total GHG emissions in scope of NDC												
Target 2: Black carbon emissions in scope of NDC												

4.4. Worked Example 4 – GHG intensity target and target to increase afforested area

Hypothetical multi-target NDC: GHG intensity target and target to increase afforested area

- Target 1: Reduction target to reduce CO₂ intensity of GDP by 50% by 2030 below 2005 levels
- Target 2: Increase the forested area by 44 million hectares compared to 2005 levels

Reporting year: 2026

<i>INFORMATION ON INDICATORS</i>											
	<i>Unit</i>	<i>Reference type</i>	<i>Reference Year (specify)</i>	<i>Reference level (in unit)</i>	<i>Target year/period (specify)</i>	<i>Target year/period level (in unit)</i>	<i>Information on progress made in implementing NDCs (in unit)</i>				<i>Information on progress made in achieving NDCs (in unit)</i>
							<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>2030</i>
<i>Information on indicators</i>											
Target 1: CO ₂ emissions intensity of GDP	ktCO ₂ /100 million currency	Base year	2005	32	2030	16	18.27	17.50	16.84	16.28	-
Target 2: Total afforested area (TAA)	Thousand hectares	Base year	2005	200,400	2030	244,400	230,100	231,020	232,150	232,850	-
<i>Supporting information</i>											
CO ₂ emissions in scope of NDC	MtCO ₂						11,604	11,727	11,849	11,972	-
GDP	100 million currency						635,169	670,103	703,608	735,271	-
<i>Comparison of most recent information on indicators with reference (e.g. base year)</i>											
CO ₂ emissions intensity of GDP / CO ₂ emissions intensity of GDP in 2005	%						57	55	53	51	-
$(TAA_{year} - TAA_{base\ year}) / TAA_{target\ year} - TAA_{base\ year} * 100$	%						68	70	72	74	
<i>Assessment by the Party of achievement</i>											
Target 1: CO ₂ emissions intensity of GDP											
Target 2: Total afforested area											

References

- Briner, G. and S. Moarif (2016), “Unpacking provisions related to transparency of mitigation and support in the Paris Agreement”, *OECD/IEA Climate Change Expert Group Papers*, No. 2016/2, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5j1ww004n6nq-en>. [14]
- Briner, G. and S. Moarif (2016), “Unpacking Provisions Related to Transparency of Mitigation and Support in the Paris Agreement”, *OECD/IEA Climate Change Expert Group Papers*, Vol. No. 2016/02, <http://dx.doi.org/10.1787/5j1ww004n6nq-en>. [15]
- Ellis, J. et al. (2018), “Operationalising selected reporting and flexibility provisions in the Paris Agreement”, *OECD/IEA Climate Change Expert Group Papers*, No. 2017/6, OECD Publishing, Paris, <http://www.oecd.org/environment/cc/ccxg.htmwww.iea.org> (accessed on 11 February 2019). [5]
- Falduto, C. and J. Ellis (2019), *Reporting Tables – potential areas of work under SBSTA and options: Financial support provided, mobilised and received*. [2]
- IPCC (2006), *2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1: General Guidance and Reporting, Chapter 4 Methodological choice and identification of key categories*, https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_4_Ch4_MethodChoice.pdf. [12]
- Jeffery, M. et al. (2018), “PRIMAP-crf: UNFCCC CRF data in IPCC 2006 categories”, *Earth System Science Data*, Vol. 10/3, pp. 1427-1438, <http://dx.doi.org/10.5194/essd-10-1427-2018>. [16]
- UNFCCC (2019), *Decision 18/CMA.1: Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018*, UNFCCC Secretariat, Bonn, https://unfccc.int/sites/default/files/resource/cma2018_3_add2%20final_advance.pdf. [1]
- UNFCCC (2018), *Decision 1/CP.24 - Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement*, <https://unfccc.int/sites/default/files/resource/10a1.pdf> (accessed on 3 May 2019). [11]
- UNFCCC (2018), *Decision 18/CMA.1: Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agr*, UNFCCC Secretariat. [17]

- UNFCCC (2016), *Decision 1/CP.21 Adoption of the Paris Agreement, Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015*, UNFCCC Secretariat, Bonn, <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>. [4]
- UNFCCC (2015), *Paris Agreement*, UNFCCC Secretariat, Bonn, https://unfccc.int/sites/default/files/english_paris_agreement.pdf (accessed on 8 February 2019). [3]
- UNFCCC (2013), *Decision 24/CP.19: Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention; Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013*, UNFCCC Secretariat, Bonn, <https://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2> (accessed on 26 February 2019). [7]
- UNFCCC (2013), *Decision 24/CP.19: Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention; Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013*, UNFCCC Secretariat, Bonn, <https://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2> (accessed on 26 February 2019). [9]
- UNFCCC (2012), *Decision 19/CP.18: Common tabular format for UNFCCC biennial reporting guidelines for developed country Parties*, UNFCCC Secretariat, Bonn, <http://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf#page=3> (accessed on 28 November 2017). [13]
- UNFCCC (2012), “Decision 2/CP.17: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention: Annex III: UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention”, in *Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011, FCCC/CP/2011/9/Add.1*, UNFCCC Secretariat, Bonn, <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>. [8]
- UNFCCC (2006), *Report of the Subsidiary Body for Scientific and Technological Advice on its twenty-fourth session, held at Bonn from 18 to 26 May 2006: VII. Methodological issues under the convention; B. Harvested Wood Product*, UNFCCC, Bonn, <https://unfccc.int/sites/default/files/resource/docs/2006/sbsta/eng/05.pdf> (accessed on 11 March 2019). [10]
- UNFCCC (2003), *Decision 17/CP.8: Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention, Report of the Conference of the Parties on its Eighth Session, held at New Delhi from 23 October to 1 November 2002: Part Two: Action taken by the Conference of the Parties at its eighth session*, UNFCCC Secretariat, Bonn, <http://unfccc.int/resource/docs/cop8/07a02.pdf#page=2>. [6]

www.oecd.org/environment/cc/ccxg.htm

www.iea.org



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