



Starting Points for GHG Accounting of Developing Country Parties under the Paris Agreement

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Acronyms

AAU	Assigned Amount Unit
AFOLU	Agriculture, Forestry and Other Land Uses
AI	Annex I Countries
BAU	Business-as-Usual
BR	Biennial Reports
BUR	Biennial Update Reports
COP	Conference of the Parties
ETF	Enhanced Transparency Framework
GHG	Greenhouse Gases
IAR	International Assessment and Review
ICA	International Consultation and Analysis
iNDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LULUCF	Land Use, Land Use Change, and Forestry
MRV	Measuring, Reporting and Verification
NAI	Non-Annex I Countries
NC	National Communications
NDC	Nationally Determined Contributions
NIR	National Greenhouse Gas Emissions Inventory Report
OECD	Organization for Economic Cooperation and Development
PA	Paris Agreement
UNFCCC	United Nations Framework Convention on Climate Change



Background

The year 1992 can be considered as the beginning of the global fight against climate change and its impacts. In that year, during the Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted. The UNFCCC is a framework for international cooperation whose ultimate goal is “to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC 1992). Such a level should be achieved within a period sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Since then, the signing countries (the Parties) have met annually at the Conference of the Parties (COP), with the task of supervising and reviewing the implementation of the Convention, developing the negotiation process, discussing necessary actions and making decisions by consensus (UNFCCC, 1992).

In 1997, during the third session of the Conference of the Parties (COP3), the Kyoto Protocol (KP) was adopted. As the first legally binding international agreement, the KP implements decisions of the UNFCCC and commits industrialized country Parties to meet greenhouse gas emission reduction or limitation targets (UNFCCC, 1998). During the first KP commitment period (2008–2012), the participating Parties committed themselves to emission reduction targets corresponding to an overall reduction of 5% below 1990 levels (UNFCCC 1998). Despite the implementation of the KP, global emissions have continued to increase, reflecting the need for a new climate regime with the broadest possible cooperation and contribution from all countries; a global regime in accordance with the principle of common but differentiated responsibilities, and respective capacities as well as socio-economic conditions of each country (UNFCCC 1992). To meet this need, the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) was established in 2011, during COP 17, with the mandate to formulate a protocol or other legally binding instrument applicable to all Parties during the post-2020 period. This instrument should be adopted at COP21 (Decision 1/CP17).

Finally, during COP21 in 2015, the Paris Agreement (PA) was adopted, in which 195 states and the European Union committed themselves to transform their economies towards low-carbon economies. The PA is a legally binding international treaty aimed at keeping the global average temperature rise in this century below 2°C, and commits all Parties to propose and meet emission reduction targets (UNFCCC, 2015).

This document presents the main background, the technical issues and the decisions applicable to GHG accounting in the context of the Paris Agreement, and the instruments for its implementation: The Nationally Determined Contributions (NDC). It also incorporates elements and lessons learned arising from the implementation of the KP. The document is divided into three main sections that address the context and technical elements, from the provisions of the Convention and the Protocol to those designed under the PA, whose applicability and enforcement are linked to the implementation of the NDC.

Accounting in the Context of the Kyoto Protocol and the Convention

Transparency and MRV under the UNFCCC

Within the UNFCCC, countries have been divided into two major groups, Annex I and Non-Annex I, according to their economic development status and commitments made to the Convention. Annex I (AI) includes industrialized countries with developed economies, plus countries with economies in transition. Non-Annex I (NAI) countries are those whose economies are under development (UNFCCC, 2007b). Independently from the group in which they are located, all Parties are subject to general reporting requirements under the UNFCCC. Knowledge about each country's annual GHG emissions and removals is key towards achieving the ultimate objective of the Convention.

In accordance with Articles 4 and 12 of the Convention, all Parties are required to communicate relevant information on the implementation of the Convention to the COP (UNFCCC, 1992). This information should be submitted in a transparent, comprehensive and comparable way, in order to provide a basis for estimating current emission levels and the level of ambition of existing efforts, as well as progress in the achievement of both national and international targets (UNFCCC, 2014, UNFCCC, 2007b). The basis for transparency in the UNFCCC is this sharing of information, whose mechanisms have evolved throughout the history of the Convention with the KP and, in a different manner, between the AI and NAI countries.

In order to achieve transparency, Parties to the Convention agreed to submit national reports to inform on the implementation of activities relating to mitigation. The required contents, level of detail and timetable for the submission of the reports are different for developed and developing country parties, in accordance to the principle of common but differentiated responsibilities. During COP13 in Bali, the concept of Measurement, Reporting and Verification (MRV) was formally introduced and agreed on to be applied to all Parties (Decision 1/CP.13). To further promote transparency among Parties, new elements for MRV (Decisions 1/CP.16; 2/CP.17; 19/CP.18; 20 and 23/CP.19) were developed during COP16, COP17, COP18 and COP19, leading to guidelines and a UNFCCC framework for MRV.

While all parties have to submit a National Communication (NC), the information requirements for AI Parties are stricter. AI Parties that have ratified the Kyoto Protocol must include supplementary information and annual national GHG inventories to demonstrate compliance with their commitments under the Protocol. In addition, AI parties shall submit Biennial Reports (BR) outlining their progress in achieving emission reductions and the supports provided to NAI Parties, and submit this information to an International Assessment and Review (IAR). Non-Annex I (NAI) Parties submit Biennial Update Reports (BUR) that undergo an International Consultation and Analysis (ICA) (UNFCCC, 1992, UNFCCC, 2014).

Quantitative information for the estimation of anthropogenic emissions and removals by GHG sinks in each country is to be compiled in the National Greenhouse Gas Emission Inventory Reports (NIR) (Fransen, 2009, UNFCCC, 2014, Lacy, 2011). Developed countries are required to provide information on their NIR annually as a separate submission from the NC and BR. NAI Parties shall include the NIR as part of the preparation for the NC and include an update of the NIR in the BUR.

According to a study by the Organization for Economic Co-operation and Development (OECD), most AI countries submitted complete and timely reports, while reports from NAI countries were often delayed and their completeness varied widely from one country to another. Likewise, the current MRV regime for pre-2020 commitments or pledges does not make it compulsory to report all the information needed to understand these commitments or pledges and assess progress (Ellis & Moarif, 2015).

Under present conditions, reports under the UNFCCC guidelines do not allow the international community to comprehensively assess progress towards pre-2020 commitments/pledges, particularly regarding collective obligations (Ellis & Moarif, 2015). Under the new post-2020 climate regime, marked by the Paris Agreement's mitigation objectives expressed through Nationally Determined Contributions (NDC), an Enhanced Transparency Framework was established. This is currently under development by the UNFCCC and will allow tracking progress towards the achievement of country goals in their NDCs, as well as the overall goals defined in the Paris Agreement. The modalities, procedures and guidelines of the Enhanced Transparency Framework will build upon the current MRV framework established by COP16 and COP17. and might eventually supersede it.

GHG Accounting under the UNFCCC

For the purpose of this document, GHG accounting is understood as the process and procedure to assess progress in the achievement of the mitigation targets as expressed in the NDC. GHG accounting makes it possible to estimate the degree of individual and aggregate mitigation goal achievements, as well as to facilitate transparency as a key for building mutual trust towards collective action.

The concept of GHG accounting, and the first accounting rules thereunder, were presented in the framework of the Kyoto Protocol and adopted through the Marrakesh Agreement (COP7). The central goal of the KP, as set out in Article 3, Paragraph 1, requires each Annex I Party to ensure that its total GHG emissions do not exceed its permissible level of emissions during the commitment period, referred to as the assigned amount (see text box). Paragraphs 7 and 8 in Article 3 of the KP establish the initial assigned amounts to each Party in terms of a percentage of their base year emissions (UNFCCC, 2007a), which correspond to specific emission reduction targets. Determining compliance with the commitment made under Article 3, Paragraph 1 by each Party depends on the accurate accounting of emissions and the assigned amounts at the start, during, and at the end of the commitment period.

In order to ensure KP accounting, the requirements for the estimation of emissions and the tracking of the assigned amounts (expressing the mitigation targets for the KP) were reflected in the accounting rules and modalities; the Convention's reporting and reviewing requirements were also incorporated and strengthened. Together, these components and the data systems that support them comprise the KP Accounting System, which focuses on two principal sources of information: GHG inventories and national registry information for the tracking and recording of assigned amounts, including traded units (UNFCCC, 2007a). There is also the International Transaction Log that connects the Parties' registries with a secretariat system to verify that transactions are consistent with rules under the KP (CMNUCC, 2017).

Accounting under the Kyoto Protocol

The KP provides a set of rules and regulations related to the information provided by the Parties that constitutes the framework for accounting and compliance. Annex B of the KP presents the maximum amount of emissions at the Parties' level during the commitment period, known as the Assigned Amount Unit (AAU). In order to comply, Parties may implement national mitigation measures, participate in the Kyoto Mechanisms (KM) and/or carry out activities in the LULUCF sector, as well as purchase AAUs from other countries registered in Annex B under the concept of International Emissions Trading (IET). The latter has no effect on collective commitments.

Transactions are subject to specific rules (different for each KM) and are quantified in Kyoto Units (KU), which represent the right to emit the equivalent of a ton of CO₂. Three KMs were defined: International Emissions Trading (IET), which allows the transfer of units between Annex B Parties; the Clean Development Mechanism (CDM), where Annex I Parties invest in mitigation activities in Non-Annex I countries and receive credits for the reductions or removals achieved; and the Joint Implementation Mechanism (JI), where an Annex I Party invests in an activity implemented in the jurisdiction of another Annex I Party and receives credit for the reductions or removals achieved. The LULUCF sector accounting is restricted to the removals and reduced emissions by activities defined in Article 3, Paragraphs 3 and 4 of the KP, which are subject to specific rules for each activity.

The Parties' levels of compliance are determined at the end of the commitment period by comparing the National Inventory of Greenhouse Gas Emissions against the AAUs, which include reductions and additions by transfers of KMs and emissions and/or net removals from LULUCF activities. If, according to the National GHG Emissions Inventory reported in their National Communications, the total emissions are less than or equal to the AAUs and the net balance of the KUs, the Party is considered to have fulfilled its commitment.

Provisions for Accounting in the Context of NDCs

Nationally Determined Contributions (NDC)

Intended Nationally Determined Contributions (iNDC) were defined at COP19 as Party contributions towards achieving the ultimate goal of the UNFCCC (Levin, et al., 2014). The term “intended” reflects the legal status of the contributions prior to the ratification of the PA by a Party; once ratified, the iNDC becomes the Nationally Determined Contribution (NDC). The contributions are proposed on a voluntary basis taking into account national circumstances, and adapted to national priorities, capacities and responsibilities, including emission profiles and mitigation opportunities (Levin, et al., 2014). Thus, the information provided in the contributions varies strongly in scope and focus among countries. The Table 1 provides a classification of the variety of contributions into “types of mitigation contributions.”

Without pretending to cover the entire range of diverse types of NDC mitigation contributions submitted by Parties in terms of their iNDCs, the following is a rough categorization that suffices for the purpose of this document.

“These individual measures can be the basis for collective action, and if they are ambitious enough, set a path towards a low-carbon and resilient future.” (Levin, et al., 2014). Parties should include a mitigation contribution that indicates the level of their emissions reduction, which represents the mitigation goals of the Party. The Parties’ efforts in their NDCs should represent a progression in time, reflecting the greatest possible ambition and considering the need for support in developing countries (UNFCCC, 2015).

Information needed for Tracking NDC

The information contained in Paragraph 14 of Decision 1/CP20 (the “Lima Call for Climate Action”), proposes the minimum elements that should be considered when formulating or monitoring NDC (these elements are known as “up-front information”¹). Decision 1/CP21, Paragraph 27, recognized this information as appropriate to facilitate clarity, transparency and understanding (CTU) of the NDC. This information includes:

- Quantifiable data on the reference point (with indication of a base year, where applicable);
- Implementation period, scope and coverage;
- Assumptions and methodological approaches, including those for estimating and accounting emissions and, where applicable, anthropogenic greenhouse gas removals;

¹ This is the name by which the contents of UNFCCC Decision 1/CP20 are known. Paragraph 14 details the information that Parties must provide in their iNDCs.

Table 1. Main Types of Nationally Determined Contributions (GHG Reduction Targets)

Category		Description and Examples
Type of Target	Base Year GHG Target	Defines a target period or year in which the country will not emit more than a certain amount of GHGs comparing to a base year or in absolute terms. Examples: • Emit no more than 500 MtCO ₂ e/ year by 2030.
	Base year intensity GHG target	Emissions per unit of economic output. Defines a reduction or limitation target or amount of emissions by a reference unit related to a base year. Example: • The emission intensity per USD of GDP will be 80% less in 2050 than it was in 2005.
	Deviation from a GHG Base-line	Defines a reduction or limitation target compared to a scenario of emissions growth projected into the future, in the absence of the emission reduction efforts. Example: • By 2030, reduce 25% of emissions compared to BAU or another baseline scenario
	Trajectory Targets	Defines a target to reduce emissions to specified amounts over several years, comprising a long period. Example • Reduce emissions by x amount by 2025, y by 2030 and z by 2035, over the 2020 to 2035 period.
	Policies and/ or Actions	Defines specific climate policies or actions with quantifiable emissions reductions outcomes Example: • Implement a transport policy by 2030 that will achieve a minimum participation of electric vehicles of 20% in terms of passenger kilometers.
Conditioning	Conditional Target	Specifies conditions to achieve the target. Example: Receipt of support, access to technology, capacity building or access to market mechanisms
	Unconditional Target	Does not specify any conditions to reach the target.
	Combination	Combination of conditional and unconditional target.
Scope	Sectors/ Geographic area	Refers to coverage in geographic extent of the country and/or sectors. The target can apply to the entire country, or part of it, or to the entire economy or specific sectors only.
	Gases	Specifies the GHGs considered, from all GHGs covered by the UNFCCC to single gases or the inclusion of other climate relevant pollutants, such as black carbon.

- Planning processes, including institutional arrangements, participation, legal basis and policy, implementation priorities, consultation processes, creation of expert and working groups, and awareness campaigns;
- Equity and Ambition. The information will be based on the fact that climate change mitigation must be a shared global effort, recognition of common but differentiated responsibilities, as well as national capacities and circumstances.

In terms of climate change mitigation, the Enhanced Transparency Framework established by the Paris Agreement determined in Paragraphs 7 and 9 of Article 13 the information that each country should provide periodically (UNFCCC, 2015):

- a) A national inventory report of anthropogenic emissions by sources, and removals by sinks of greenhouse gases
- b) The information necessary to track progress made in implementing and achieving its nationally determined contribution under Article 4; and
- c) Developed countries should supply information on support provided in the form of financing, technology transfer and capacity-building to developing countries. In the case of developing countries, support should be informed in the form of financing, technology transfer and capacity building, both needed and received.

Common modalities, procedures and guidelines for transparency of action and support are to be developed for approval by the Conference of the Parties, serving as the meeting of the Parties to the Paris Agreement (CMA). Nevertheless, the PA is clear in that developing countries, especially SIDS and LDCs, have the flexibility to implement these transparency provisions, including the report's scope, frequency and level of detail (Decision 1/CP.21, Paragraph 90). In addition, and with the aim of elucidating the information necessary to facilitate clarity, transparency and understanding (CTU) in the NDC (Article 4.8; PA and Decision 1/21, Paragraphs 25, 27 and 28), Parties may set intermediate or endpoint targets or maximum permissible emission levels. In addition to helping understand the emissions trajectory, this allows carrying out intermediate evaluations of NDC achievements, and which preventive or corrective actions can be taken, also increases CTU for the tracking and accounting of its mitigation target. Article 4 of the PA defines accounting principles outside the Enhanced Transparency Framework. The following section addresses these principles and proposes core steps for the development of accounting rules.

Lessons and Elements for Accounting under the Paris Agreement

Introduction to Accounting Rules

The Ad Hoc Working Group on the Paris Agreement should formulate guidance on how the Parties account for their NDCs (Decision 1/CP21), and develop modalities, guidelines, and procedures on transparency by 2018. The latter will promote a clear understanding of climate action and support, incorporating requirements related to mitigation commitments, adaptation and support provided and received, for transparency purposes.

The PA also defines information that needs to be submitted to the Convention in terms of transparency. These requirements are specified under the Enhanced Transparency Framework established by the PA (see Article 13). The currently existing MRV framework, as established under CP16 and CP17, including, NC, and BUR/BR, shall inform the modalities, procedures and guidelines of the Enhanced Transparency Framework. Some of the information under the accounting provisions, the ETF and the actual MRV framework might overlap. Yet, in the context of defining these modalities, the PA requires ETF procedures and guidelines to avoid duplication and undue burdens.

Article 4.13 of the Paris Agreement demands the accounting of emissions and removals corresponding to the NDC, promoting certain principles in accordance with guidance that is still under development today. The great diversity and differences between the NDC

types mean that future accounting rules need to address the variance in NDCs submitted. Also, it should be determined if these NDCs are sufficient to reach the ultimate target of the PA, which implies the calculation of their aggregate effect. This represents an accounting challenge, given the ambiguity and variety of interpretations of the concepts presented in the NDCs.

At the international level, accounting rules facilitate not only comparability but also transparency and accuracy in tracking progress in the achievement of the Parties' mitigation commitments. They also make it possible to determine the fulfillment of individual commitments and the aggregate impact of all Parties' achievements. Finally, they specify how Internationally Transferred Mitigation Outcomes (ITMOs) count towards the achievement of the NDC mitigation targets. On the other hand, and in order to facilitate the understanding of progress in the achievement of mitigation goals, the country must track the implementation of actions that allow this achievement. Typically, significant mitigation policies and actions would be implemented to achieve emission reductions, and ideally the country would carry out an analysis of the aggregate impact of such policies and actions in terms of the achieved emission reductions and removals. In doing so, countries should consider existing methods and guidance under the Convention when implementing or recognizing mitigation actions towards their NDC, in accordance with GHG accounting terms (Article 4.14, PA).

The accounting systems that countries design for tracking progress in achievement of their NDCs could be integrated with existing MRV systems. Even so, the accounting system considers additional elements, such as the use of ITMOs if they are included in the NDC, and assesses the total achievement of a mitigation target proposed in the NDC. It does not account for lower levels such as single policies, measures or projects (provided these levels do not represent the NDC's mitigation target in itself). MRV systems can provide data, processes, and structure to the accounting system. Through the institutionalization of accounting rules, they develop into an accounting system.

Accounting Principles in the Paris Agreement

Article 4.13 of the PA asks the Parties to promote the principles of, transparency, accuracy, completeness, comparability and consistency (TACCC), environmental integrity, and ensure avoiding double calculation in accounting for anthropogenic emissions and removals corresponding to their NDCs (double accounting) (UNFCCC, 2015). Article 31 of Decision 1/CP21 states the following:

- "a) Parties account for anthropogenic emissions and removals in accordance with methodologies and common metrics assessed by the Intergovernmental Panel on Climate Change, and adopted by the Conference of the Parties serving as the meeting of the Parties of the Paris Agreement;
- b) Parties ensure methodological consistency, including on baselines, between the communication and implementation of nationally determined contributions;
- c) Parties strive to include all categories of anthropogenic emissions or removals in their nationally determined contributions and, once a source, sink or activity is included, continue to include it;
- d) Parties shall provide an explanation of why any categories of anthropogenic emissions or removals are excluded.

In the following analysis, we present the guiding principles stated in Article 4.13 of the PA for NDC accounting, rendering how they could be applied within the context of tracking the achievement of NDC mitigation targets. Together with the approaches established under the Convention and its related legal instruments, they should form the basis for developing accounting guidance.

All the following measures, recommended to improve compliance with the defined accounting principles, are being negotiated under the COP/CMA.

Note: The following is restricted to the mitigation targets expressed in carbon units, including base year absolute emission goals, as well as those concerning a baseline scenario or intensity target.

1. Transparency

The transparency principle in GHG accounting of the NDC, not to be confused with the Enhanced Transparency Framework in Article 13 of the PA, is important in order to provide clarity and understanding of the mitigation contributions. Failure to provide clarity about the mitigation target can lead to a misinterpretation of the progress made in achieving the target, making it difficult to track and project or adjust mitigation or baseline scenarios. In order to achieve transparency in GHG accounting, the targets, methodologies, data, data sources, assumptions and "quantifiable information" on the baseline should be provided. In terms of clarifying the baseline information on the base year, baseline assumptions, policies and actions included in or excluded from the baseline are helpful.

In addition, transparency in terms of tracking progress towards achievement of the NDC could be increased by establishing intermediate targets and/or maximum allowable emission levels for the years before the target year. This could be applied at the national level only, without compromising the country at the international level, and contribute to increasing transparency and improving implementation planning at a national level.

Such NDCs, of the target type “emission deviation from a baseline scenario,” might increase transparency by establishing permissible variation ranges of the main variables in the baseline scenario. Sensitivity analysis can help identify the main variables conditioning emissions and removals.

Possible measures to increase transparency of NDC Accounting:

- Clarification of the target as a function of gases, sectors, sources and sinks, coverage, use of markets, cooperative approaches and methodologies used for the estimation of emissions, baseline projections and emission scenarios (as appropriate).
- Clarification of the relation of contributions, if several contributions intersect.
- Describing compliance with use of methodologies and common metrics in tracking progress of NDC achievements adopted by the CMA.
- Describing assumptions used, in order to define their contribution (especially in terms of NDC targets with BAU scenarios e.g., GDP and population growth rates, as well as price projections). If an adjustment of the baseline depending on an out-of-range deviation of variables is foreseen, define what is the range and how the adjustment is foreseen.
- Report in advance to the international community any structural changes in the information used or in information gathering throughout implementation of the NDC.

2. Accuracy

The principle of accuracy in GHG accounting for the NDC seeks to ensure the fidelity of the estimates of anthropogenic emissions and removals. It means that the latter should not be over or underestimated systematically. In addition, the uncertainties behind

these estimates should be minimized. The level of uncertainty, however, can vary widely depending on the sector or type of policies or measures implemented as actions to achieve the NDC mitigation target. If the principle of accuracy isn’t guaranteed, it could call into question the aggregate efforts of the international community to combat climate change.

The principle is of particular relevance to the NDCs with the target type “deviation from a BAU scenario,” as the level of uncertainty in a BAU scenario is generally high due to the relatively long projection period and the uncertainties implied in the development of the numerous variables affecting emission levels.

Possible measures to increase accuracy of NDC Accounting:

- Implement procedures and institutional arrangements to systematically improve quality control and quality assurance of estimates of anthropogenic GHG emissions and removals.
- Calculate and progressively reduce uncertainty associated with the current emission estimates, projections (including baselines) and tracking of the progress made in the NDC.
- Sensitivity analyses: These analyses allow estimating how changes in significant variables (macroeconomic variables) or in sectorial factors would affect national emissions (see principle of transparency on assumptions used in the definition of NDC).
- Use Tier 2/3 of the IPCC guidelines for all significant/key emission sources/sinks.

3. Completeness

The sovereignty to define contributions under the NDC lies with each Party. Yet, developing country Parties are encouraged to continue enhancing their mitigation efforts, and to move over time towards economy-wide emission reduction or limitation targets in light of different national circumstances. In

this sense, although the principle of completeness generally refers to seeking coverage of all key GHG emission sources and sinks, it must be considered in the aforementioned context of GHG accounting.

In addition to encouraging including over time all significant emission sources and sinks in the NDC with respect to national circumstances, and asking Parties to explain why any categories of anthropogenic emissions or removals are excluded, Parties should strive to include and define how significant domestic measures are considered, including climate policies. When defining new NDCs, the provisions of the Paris Agreement under Article 4 for enhancing the level of ambition need to be respected. An explanation of how this is achieved also promotes completeness.

Possible measures to increase completeness of NDC Accounting:

- Include all domestic mitigation measures, such as policies and projects, in the NDC, and define in terms of accounting how they affected baseline scenario definition and projections, if relevant.
- Specify timeframes and/or implementation periods, scope and coverage.
- Ensure greater coverage over time.

4. Comparability

The principle of comparability seeks that GHG accounting reported by the Country Parties is comparable among other parties, considering the Global Stock-take proposed by the PA (Article 14, PA). For this reason, the COP21 Decision, Paragraph 31, stipulates the use of methodologies and common metrics assessed by the IPCC and adopted by the CMA. Still, a country could also look at the comparability of climate data at the national level. This would then translate into the use of common metrics among emission estimates, baseline projections and emission scenarios (e.g. using emission factors from the National Inventory for emission calculations at policy level, insofar as they have the same basis – e.g.,

coverage and scope fall together). The use of consistent methodologies at the national level, as well as emission factors and Global Warming Potentials at the level of domestic actions, sectors or different regional scales, allows a high degree of comparability.

Given the wide range of types of mitigation goals presented in the NDC, ensuring this principle of comparability to its fullest extent for tracking results across Parties poses major challenges. However, by analyzing the reporting format for contribution progress, a valid degree of comparability can be achieved to demonstrate the outcome of the Parties' commitments and their global impact. Failure to comply with the principle of comparability will make it difficult to assess the aggregate impact of mitigation targets at the global level, and ultimately, communication to the public.

Possible measures to increase comparability of NDC Accounting:

In addition to the provisions of the Paris Agreement seeking to improve comparability of NDC accounting across Parties:

- Migration towards a single implementation period in order to facilitate comparability.
- Following standardized formats when reporting information, regarding both emissions and emissions reductions, to assure comparability and consistency among the various countries.
- Making sure that the information on emissions for the reference year (or the year used as the reference from which point onwards the emissions baseline was projected), starts with National Inventory Data.
- Provide databases at national level with metrics, emission factors, or even activity data that is also used for the determination of mitigation outcomes at the level of significant domestic actions, and at the different geographical scales.

- Parties could homologate their sector definition (e.g., at the administrative level) according to those defined in the IPCC guidelines, especially if implementation occurs widely on sectoral level.
- Strive for completeness and comprehensiveness, thereby improving comparability.
- If methodologies are changed and this implies a significant modification in the country's emissions, recalculate the time series of emissions and evaluate adjusting the baseline scenario and base year emissions correspondingly. This also applies if activity data, emission factors or methodologies are improved.

For the AFOLU sector, the following more specific recommendations can be added:

5. Consistency

The principle of consistency in GHG accounting for the NDC expresses the need for continuity throughout a predefined time span, regarding the use of methodologies and assumptions, emission calculations, and baseline projections.

Emission estimations and projections for baseline scenarios must be based upon and be consistent with the emissions calculated as a result of the National Inventory.

Inconsistency in the calculation of emissions within a predefined time span may lead to an erroneous interpretation of changes in national emissions and their underlying causes, resulting in a mistaken report on the progress in achieving mitigation targets.

Possible measures to increase consistency in NDC Accounting:

- Paragraph 31 of Decision 1/CP21 calls upon the various countries to maintain methodological consistency between the communication and implementation of their NDCs. This means that, as much as possible, the same methodological approach must be followed and the data must be consistent among years, inventories and projections used when formulating the NDC.
- The calculation of emissions reductions for those mitigation measures prioritized for achievement of the NDC should be based on the same metrics as the National Inventory (especially the GWPs). In addition, methodologies and factors should be used that are consistent with those used in calculating the National Inventory.

- Setting a definition of forests consistent with all levels of activity, establishing a matrix for the change of land use, and defining consistent forestry reference levels at the various geographical scales.
- Development of a consistent definition of geographical areas (regional and sub-regional) across the emissions inventory, the geographical scale of the NDC target, and the domestic actions implemented under the NDC.

6. Avoiding Double Calculation or Double Counting

A robust assignment of the reductions must be ensured in order to avoid double claims or double reporting, among Parties or entities under a Party's jurisdiction. Mainly, this situation presents itself with participation in carbon markets or the use of cooperative approaches, financing by third parties, and the possible aggregation of sectorial data that generate overlaps.

Instances of double counting are of different types and can occur at different levels. Most of them are associated with transactions of ITMOs in the carbon markets. Some of these instances of double counting are double issuance (when more than one unit is issued for the same reduction), double sale (when a single unit is sold more than once), or double claim (when the same unit is claimed by two or more entities) (Prag, 2012.)

Possible measures to avoid double counting in GHG Accounting:

- Starting from the scope of the NDC mitigation target and the split into unconditional and conditional targets, all instances of possible double counting, including double finance, should be considered by developed and developing country Parties. The aim is to define a robust accounting provision and registry, or tracking and recording systems, against double counting.
- Reaching official agreements regarding the use of market mechanisms and the responsibilities of stakeholders, especially a registration of areas (in terms of FOLU activities) and project durations.

It is premature to seek further recommendations at international level negotiations, such as possible centralized or decentralized registries, or similar solutions providing comparable functions.

7. Environmental Integrity (for emission reductions)

The principle of environmental integrity is typically linked to the use of market mechanisms, and in the case of the Paris Agreement, to voluntary cooperative approaches described under Article 6. As these are under development, no definition of environmental integrity will be provided here.

Possible measures to improve environmental integrity in GHG Accounting:

While the international community still needs to negotiate and decide issues that determine the quality of ITMOs, there are some current general recommendations:

- Implementing quality control and assurance systems, as well as reliable verification procedures, to avoid perverse incentives that might tamper with verification integrity.

- Robust accounting of international transferred emission reduction units.
- Moving towards more ambitious NDC mitigation targets with an ample scope.

Assuring compliance with the first six principles for the accounting of emissions reductions under the NDC.

Steps in Defining the Accounting System and Rules

Emission reduction targets are set by comparing current emissions and removals against a starting point, whether this is a base year/period, a baseline or any other reference scenario. By applying the GHG accounting principles described above, and based on the progress made in the international definition of accounting rules, the PA Parties can move forward implementing the provisions at a domestic scale, in terms of an accounting system.

As mentioned above, the PA defines accounting for mitigation outcomes under the NDC. It is intended to cover the processes, rules and principles used for tracking progress in achievement of the NDC mitigation targets. An appropriate GHG accounting system is set out as a function of a robust institutional framework, which should include clear roles and responsibilities at both intra- and interinstitutional levels; an institution specifically in charge of the overall accounting system, and with sufficient institutional leadership to enforce the procedures; formal arrangements for information exchange and data quality assurance and control; and mechanisms to ensure sustainability and improvement. In a nutshell, the rules and institutional framework make up the accounting system that allows tracking progress in the achievement of the NDC mitigation targets.

The following steps can be followed when defining accounting rules and establishing an accounting system at the national level:

Table 2. Steps for the Definition of NDC Accounting Rules and Systems

Step 1	Specify the NDC target
	<ul style="list-style-type: none"> • For the reference point, seek consistency with the (relevant parts of the) National GHG Emissions Inventory; • For the reference point and the target, define which policies and measures, or their partial results, are included either in the target or in the reference (more relevant for baseline scenario targets); • If applicable, differentiate for all policies and measures whether they count towards the conditional or the unconditional target; • For NDC targets of the type “deviation from baseline emission scenario,” identify the main variables, for example by applying sensitivity analysis, and describe the main assumptions. If the baseline isn’t static, define the validity of the baseline and adjustment conditions; • Specify the use of market mechanisms and the inclusion of the AFOLU sector.
Step 2	Specify the method for determining progress in achieving the NDC target
	<ul style="list-style-type: none"> • Determine the calculation basis depending on the emissions scope considered by the NDC; • Determine the anthropogenic emissions and removals on this basis; and • Determine the deviation from the reference point (baseline scenario/base year).
Step 3	Data needs and requirements
	<ul style="list-style-type: none"> • Arrange the data collection processes and communicate them; • Documented methodologies, assumptions, inputs and data in a way that allows reproduction of the calculations; • Reduce uncertainties over time, e.g., evaluate the risk that the emissions or removals from a policy or measure implemented under the NDC are not captured by the calculation basis; • Strive for the use of common data sources and parameters (among reference point, target, and GHG inventory); • Ensure consistency of data, data quality and methodologies across time; • Seek comparability with other Parties; • When carbon markets are used, ensure that the mitigation is real, measurable and verified (and that the reductions are additional).

Step 4 Management model for GHG accounting

- Establish an institutional structure for the collection, transmission, processing, and reporting of the accounting data;
- Establish quality assurance and quality control measures;
- Provide formal basis as well as data submission formats;
- Define responsibilities, processes, and timelines.

Step 5 Determine progress and repeat

- Calculate intermediate target, if applicable (and report under accounting or transparency provisions as applicable);
- Report including accompanying information (see accounting principles) apart from the progress in achievement of the NDC mitigation target.

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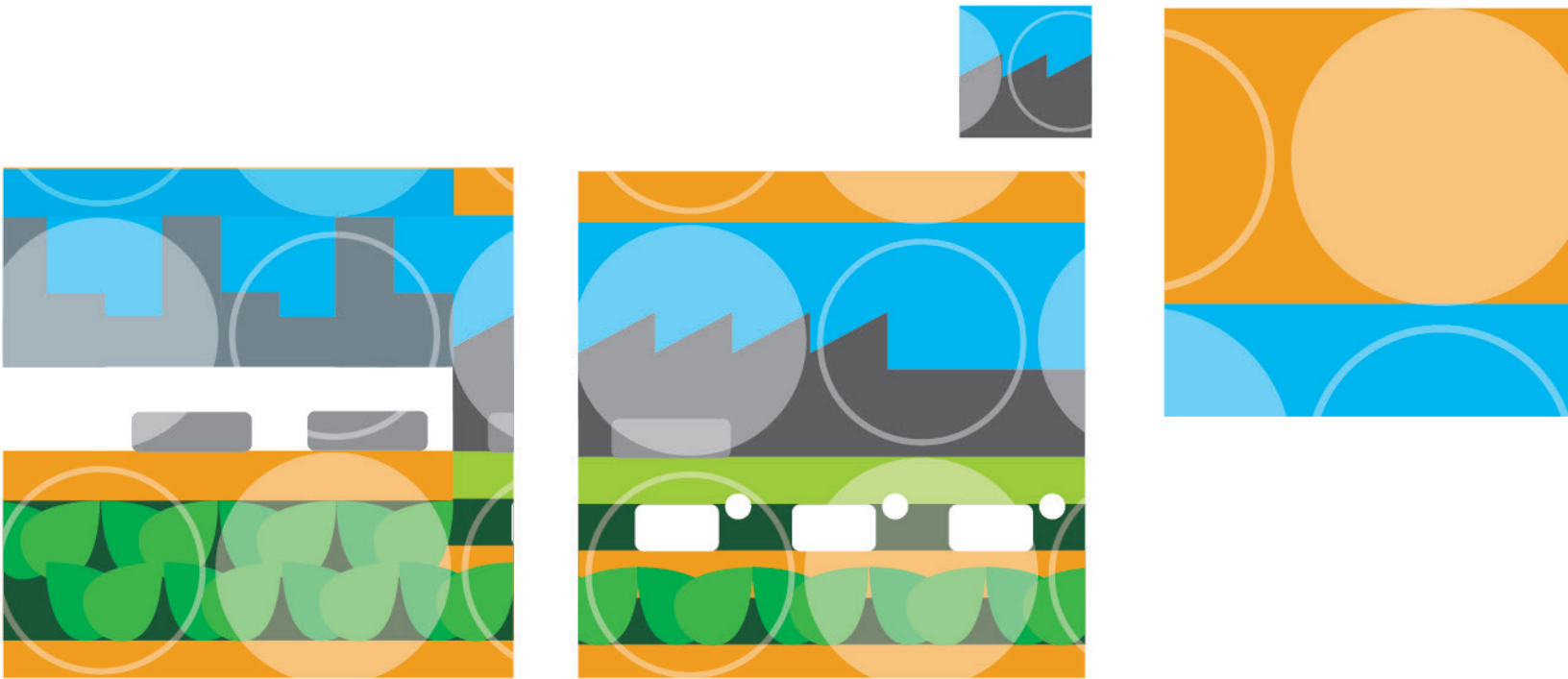
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Reglas de contabilidad para el logro de las metas de mitigación de países no-Anexo 1

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