



Economic Commission for Europe**Conference of European Statisticians****Sixty-ninth plenary session**

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Official statistics for climate action**Reporting on climate data and information under the Paris Agreement: A potential opportunity for national statistical offices to get involved****Prepared by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat***Summary*

The document informs about reporting on climate data and information under the Paris Agreement and opportunities for national statistical offices to contribute and be involved in the process.

The document is presented to the Conference of European Statisticians' session on "Official statistics for climate action" for discussion.



I. Introduction

1. The Paris Agreement is built around individual climate plans from all governments – nationally determined contributions (NDCs) – on which the governments will track and report their progress towards the implementation and achievement of these plans under the enhanced transparency framework (ETF). Every five years, governments will come together to participate in the global stocktake (GST) – a process of periodically taking stock of the implementation of the Paris Agreement to assess the collective progress towards achieving the purpose of the Agreement and its long-term goals.
2. Transparency of climate action and support, through the ETF, is viewed as an important part of the Paris Agreement. For many, the ETF is a key mechanism for building mutual trust and confidence, while others additionally see the ETF as a tool for facilitating implementation and raising ambition of climate action. In contrast to the current measurement, reporting and verification (MRV) arrangements under the Convention and the Kyoto Protocol, the ETF under the Paris Agreement applies to all Parties through a common set of operational details – the ETF modalities, procedures and guidelines (MPGs). The Paris Agreement recognizes the national circumstances and capacity constraints of developing country Parties and as a result provides flexibility to developing country Parties that need it in the light of their capacities.
3. The ETF will serve as the primary vehicle for the governments to demonstrate progress in implementation and achievement of their NDCs which need to be prepared and communicated every five years. To facilitate clarity, transparency and understanding (ICTU) of NDCs, they need to include certain information elements for which detailed guidance exists, including inter alia, quantifiable information on the reference point of the NDC.¹
4. Under the ETF, it is mandatory for all governments to report in biennial transparency reports (BTRs) on climate action and support, undergo a technical expert review of their BTRs as well as a facilitative multilateral consideration of progress.² Parties are to submit the first BTR under the ETF no later than 31 December 2024 and subsequent reports every two years thereafter.³
5. The information from the BTRs, including on tracking progress of the implementation and achievement of NDCs through a set of nationally defined indicators, from all Parties will feed into the GST, taking place first in 2023 and then every five years thereafter. The outcomes of the GST will in turn inform the preparation of more ambitious successive NDCs by all Parties. Hence, the robustness of the GST depends to a large extent also on the quality of the inputs, including from BTRs and NDCs (see figure 1).

¹ Further information on the information relevant for NDCs is contained in annex I and guidance for ICTU is available at

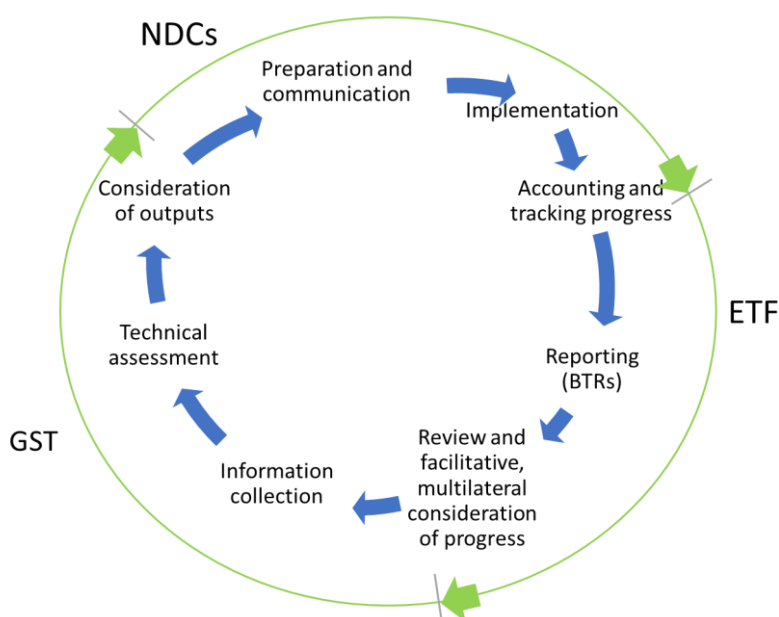
https://unfccc.int/sites/default/files/resource/cma2018_3_add1_advance.pdf#page=6.

² The least developed country Parties and small island developing States may submit the information referred to in Article 13, paragraphs 7, 8, 9 and 10, of the Paris Agreement at their discretion.

³ Detailed information on the modalities, procedures and guidelines for the ETF are contained in the MPGs and are available at

https://unfccc.int/sites/default/files/resource/cma2018_3_add2_new_advance.pdf.

Figure 1
Recurring processes under the Paris Agreement post-2020



II. Reporting of climate data and information under the Enhanced Transparency Framework (ETF)

6. Central to the ETF under the Paris Agreement are the Biennial transparency reports (BTR). They:

- must include for all countries a national inventory report on greenhouse gas (GHG) emissions;
- must include for all countries information necessary to track progress made in implementing and achieving NDCs;
- could include for all countries information related to climate change impacts and adaptation;
- must include for developed countries, and could include for other countries that provide support, information on financial, technology transfer and capacity-building support provided to developing countries;
- should include for developing countries information on the support needed and received;
- may include a technical annex with results from the implementation of REDD+ activities⁴ in developing countries.

7. The MPGs provide further details on the information elements that are to be reported under each of the thematic areas outlined above. To a large extent, many of the climate information and data needed for climate reporting can be drawn from the existing economic, social and environmental data that countries maintain as a part of their national statistics.

8. Table 1 below lists the climate information and data needed for climate reporting, together with a sample of information that is often available to national statistical offices.⁵

⁴ Reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70).

⁵ The United Nations Statistics Division (UNSD) is currently developing a Global Set of Climate Change Statistics and Indicators, as mandated by the United Nations Statistical Commission at its 47th

The information in the right-hand column is mainly drawn from the Conference of European Statisticians' (CES) Set of Core Climate Change-related Indicators and Statistics.

Table 1

Reporting of climate data and information under the ETF

BTR information: national GHG inventory	Information and indicators typically contained in official statistics ⁶
<ul style="list-style-type: none"> - National circumstances and institutional arrangements; - Estimates of emissions and removals for all categories, gases and carbon pools considered in the GHG inventory; - Consistent annual time series; - Information on methods and cross-cutting elements (e.g. information on the category and gas, and the methodologies, emission factors and activity data used at the most disaggregated level; description of key categories; recalculations; uncertainty assessments; assessment of completeness; and QA/QC plan). 	<p>Statistics and information contributing to the production of greenhouse gas inventories often include but are not limited to:</p> <ul style="list-style-type: none"> - Energy statistics and energy balances; - EU/national Emissions Trading System (ETS) data or other plant specific data; - Transport statistics; - Production statistics; - External trade statistics; - National accounts; - Agricultural and forestry statistics; - Spatial/land use statistics; - Waste statistics/waste accounts; - Statistics on wastewater treatment. <p>Detailed information is available in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Prepared by the National Greenhouse Gas Inventories Programme:⁷</p> <ul style="list-style-type: none"> - Statistics on population, urbanization, housing, waste, globalisation and tourism are also relevant for analysing emission drivers.⁸
BTR information: tracking progress made in implementing and achieving NDCs	Information and indicators typically contained in official statistics
<ul style="list-style-type: none"> - National circumstances and institutional arrangements; - Description of the NDC; - Information necessary to track progress made in implementing and achieving its NDC, including on nationally defined indicators (more detailed information on the indicators is contained in table 2 below); 	<p>Relevant statistics include but are not limited to statistics on energy, air emissions, agriculture, forestry, land and land cover, economy, and national accounts. Examples come from the CES Set of Core Climate Change-related Indicators and Statistics.</p> <p>Examples of generally available relevant statistics:</p>

session in 2016, which will be applicable to countries at various stages of development. This Global Set is developed in close collaboration with the UNFCCC secretariat and structured according to the Framework for the Development of Environment Statistics and the Inter-governmental Panel on Climate Change framework. It will link the reporting requirements under the ETF and the Global Stocktake and support the overall monitoring of climate policy action. The Global Set will be submitted to the Statistical Commission in March 2022 for adoption after a Global Consultation which is being conducted in May 2021.

⁶ UNECE Steering Group on Climate Change-Related Statistics (2018). What do national statistical offices (NSOs) need to know about greenhouse gas (GHG) inventories? Geneva. http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2018/mtg7/What_NSOs_need_to_know_about_inventories_FORUM_Rfinal.pdf.

IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan. <https://www.ipcc-nggip.iges.or.jp/public/2006gl/>.

UNECE (2014). Conference of European Statisticians' Recommendations on Climate Change-Related Statistics. New York and Geneva. United Nations. https://www.unece.org/stats/publications/ces_climatechange.html and Eurostat (2008) *Using official statistics to calculate greenhouse gas emissions - A statistical guide*.

<ul style="list-style-type: none"> - Mitigation policies and measures, actions and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans; - Projections of GHG emissions and removals, as applicable; and - Other information relevant to tracking progress. 	<ul style="list-style-type: none"> - For national circumstances: statistics on population (total population, urban population, population density), economy (GDP per capita, GDP by main economic sectors, unemployment rate), poverty; - Energy statistics: <ul style="list-style-type: none"> o Energy supply and consumption o Share of fossil fuels in energy supply; o Share renewable energy in energy consumption; o Energy imports and exports; o Energy price. - Agriculture and forestry statistics: <ul style="list-style-type: none"> o Agricultural production by commodities; o Agricultural area by commodities. - Air emissions for national economy (complementary measure to the emissions for the territory from the GHG inventories): <ul style="list-style-type: none"> o GHG emissions from the economy; o GHG emission intensity of production activities; o GHG emissions from households. <p>Examples of statistics and indicators that are not widely available or there is no agreed methodology:</p> <ul style="list-style-type: none"> - Support for fossil fuels in relation to GDP; - Climate change related subsidies and similar transfers in relation to GDP; - Climate change mitigation expenditure in relation to GDP; - Carbon footprint; - Carbon intensity of energy supply.
<p>BTR information: climate change impacts and adaptation</p> <ul style="list-style-type: none"> - National circumstances, institutional arrangements and legal frameworks; - Impacts, risks and vulnerabilities, as appropriate (current and projected climate trends and hazards, observed and potential impacts of climate change, including sectoral, economic, social and/or environmental vulnerabilities); - Adaptation priorities and barriers; - Adaptation strategies, policies, plans, goals and actions to integrate adaptation into national policies and strategies; - Progress on implementation of adaptation; - Monitoring and evaluation of adaptation actions and processes; - Information related to averting, minimizing and addressing loss and damage associated with climate change impacts; 	<p>Information and indicators typically contained in official statistics</p> <p>Relevance of data on impacts, vulnerability and adaptation is highly country-, context-, locality-specific. The statistics and indicators listed below are by no means exhaustive and only illustrate data that can be useful in particular circumstances. Many of these indicators are not widely available or do not have internationally agreed methodology yet.</p> <p>Data on population, infrastructure, ecosystems vulnerable to relevant climate-related hazards e.g.:</p> <ul style="list-style-type: none"> - Share of population aged 65 and over; - Share of population living in cities; - Number of properties in areas at risk of flooding. <p>Data related to adaptation expenditure adaptation measures and resilience to relevant climate-related hazards, e.g.:</p>

<ul style="list-style-type: none"> - Cooperation, good practices, experience and lessons learned. 	<ul style="list-style-type: none"> - Share of government adaptation expenditure in relation to GDP; - Change in water use efficiency over time; - Share of green spaces in the total area of cities. <p>Data on impacts – population, infrastructure, ecosystems affected, e.g.:</p> <ul style="list-style-type: none"> - Number of deaths and missing persons attributed to hydro-meteorological disasters; - Direct economic loss attributed to hydro-meteorological disasters in relation to GDP; - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources; - Proportion of land that is degraded over total land area.
BTR information: support	Information and indicators typically contained in official statistics
<ul style="list-style-type: none"> - National circumstances, institutional arrangements and country-driven strategies; - Description of underlying assumptions, definitions and methodologies used to provide information on support provided, mobilized, needed and received; - Information on financial support provided, mobilized, needed and received; - Information on technology development and transfer provided, needed and received; - Information on capacity-building support provided, needed and received; - Information on support needed and received for the implementation of ETF and transparency-related activities, including capacity-building. 	<p>An example of information on financial support provided and mobilized:</p> <ul style="list-style-type: none"> - Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the \$100 billion commitment through to 2025 (SDG 13a.1).

III. Focus on tracking of progress in implementing and achieving the nationally determined contributions (NDCs)

9. A key element of the reporting under the ETF is providing the information necessary to track progress made in implementing and achieving the NDC. Tracking of progress made in implementing and achieving the NDC will be done using a set of indicators, identified and selected by governments themselves, that may be qualitative or quantitative and must be relevant to the NDC. Table 2 lists examples of possible indicators for tracking progress of NDCs, together with a sample of information that is often available to NSOs.

Table 2

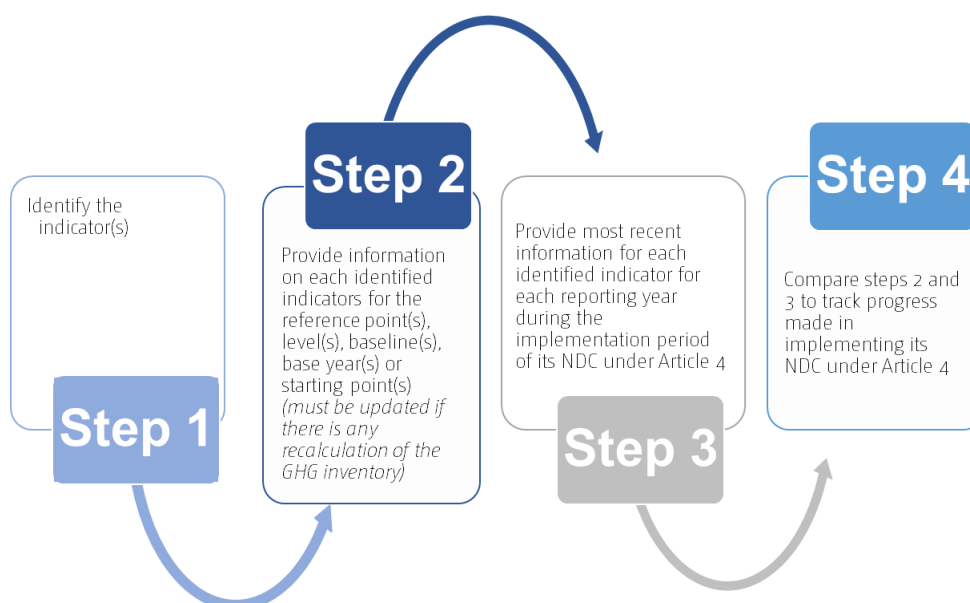
Examples of possible indicators for tracking progress of NDCs

Examples of possible indicators for tracking progress of NDCs (relevant to the respective NDC)
<ul style="list-style-type: none"> - Net GHG emissions and removals; - Percentage reduction of GHG intensity; - Relevant qualitative indicators for a specific policy or measure; - Mitigation co-benefits of adaptation actions and/or economic diversification plans; - Hectares of reforestation; - Percentage of renewable energy use or production; - Carbon neutrality; - Share of non-fossil fuel in primary energy consumption; - Non-GHG related indicators.

10. For each selected indicator, the country needs to report in each BTR information on the reference point(s), level(s), baseline(s), base year(s) or starting point(s) of the indicator, as well as the most recent information for each reporting year during the implementation period of its NDC.

11. On the basis of these indicators, governments track the progress of NDCs in two stages: tracking of progress made in implementing the NDC, and tracking progress made in the achievement of the NDC or assessing whether it has achieved the target(s) for the NDC. The tracking of progress made in implementing NDCs involves the four steps illustrated in figure 2.

Figure 2

Tracking of progress in implementing and achieving the NDC

IV. Institutional arrangements for Enhanced Transparency Framework reporting: an opportunity for national statistical offices

12. For many governments, in particular in developing countries, the adoption of the Paris Agreement and the transition from the existing MRV arrangements to the ETF will introduce enhanced scope and depth of climate reporting and necessitate a fundamental change in how they respond to their new international obligations.

13. What was often project-based and sometimes ad hoc preparation of climate reports and communications will now require an enhanced scope of reporting and a continuous process of improvement, collection, processing, analysis, compilation, reporting and review of data throughout a two-year reporting cycle. This constitutes a significant challenge to governments, institutions and experts and underscores the importance of strong and sustainable institutional arrangements.

14. Strong institutional arrangements will be vital to a reliable, consistent and continuous flow of data and information that meets the enhanced reporting requirements under the Paris Agreement. More importantly, however, strong institutional arrangements and reliable climate data serves national decision makers and action-implementing stakeholders.

15. When transitioning to the ETF under the Paris Agreement, many countries will need to revisit their existing institutional arrangements and establish a way for diverse organizations to work together in the longer term. This moment also presents an opportunity for governments to reexamine and assess how domestic entities collaborate to produce and manage information and data relevant for climate reporting and decision-making.

16. The ETF does not prescribe the institutional set-up and arrangements for implementing climate reporting and transparency provisions. Governments have the flexibility to design and tailor their institutional arrangements for climate reporting to their national circumstances, existing organizational mandates, priorities for action and demands for informing stakeholders involved in the implementation of action and reporting.

17. The transparency system relies on a consistent and continuous flow of data on climate action and support. Adapting existing institutional arrangements for data collection and provision of expertise (e.g. statistical, economic or environmental data) to the requirements of climate reporting will help to mainstream the transparency system in ongoing data collection and analysis activities, including by national government departments and statistical offices, regional and local governments, private sector organizations, academia and non-governmental organizations.

18. While the United Nations Statistical Commission highlights the importance of collaboration between NSOs and national authorities responsible for climate reporting under the UNFCCC,⁹ the level of NSO participation in the institutional arrangements for climate reporting and transparency may vary considerably among countries. In some countries, NSOs are already involved throughout the climate reporting process, from data collection and management to coordinating the final reporting stage, whereas in other countries the NSO is feeding data into the reporting process. In most cases NSOs are already generating relevant information and data, including data on national circumstances or population, energy production and consumption, agriculture, forestry, mining, waste generation, manufacturing, transportation and land cover as well as on activity data for other economic activities relevant for the preparation of GHG inventories. Further, some NSOs have started producing climate change statistics reports (see example in box 1).

⁹ At its 49th session, the United Nations Statistical Commission reiterated the importance of enhancing collaboration between NSOs and national authorities responsible for reporting climate change-related information to the UNFCCC secretariat (<https://unstats.un.org/unsd/statcom/49th-session/documents/Report-on-the-49th-session-E.pdf>).

Box 1**Climate Change Statistics in Jamaica**


In 2017, the Statistical Institute of Jamaica published its Climate Change Statistics 2016.¹⁰ In this report, the Statistical Institute of Jamaica brought together all available data on climate-change related statistics mainly in line with statistics and indicators included in the United Nations' Sustainable Development Goals and the Framework for the Development of Environment Statistics (FDES). The report provides information along the FDES topics on primary drivers and impact of climate change as well as on the efforts to mitigate and adapt to climate change. Detailed information and activity data is provided on:

Climate information provided in the report "Climate Change Statistics 2016"	Framework for the Development of Environment Statistics (FDES)
- Direct GHG emissions, incl. CO ₂ , CH ₄ , N ₂ O, SO ₂ , NO _x , NM-VOCs.	- FDES Topic 3.1.1: Emissions of Greenhouse Gases.
- Ozone depleting substances.	- FDES Topic 3.1.2: Consumption of ozone depleting substances.
- Climate change evidence, including on physical conditions, precipitation and drought.	- FDES Topic 1.1.1: Atmosphere, climate and weather.
- Sea level rise.	- FDES Topic 1.2: Hydrological characteristics.
- Climate change impacts and vulnerability, including on ecosystems and biodiversity.	- FDES Topic 1.2.2: Ecosystems and biodiversity.
- Land use and forestry.	- FDES Topic 2.3.2: Use of forest land.
- Mitigation activities related to energy resources and renewable energies.	- FDES Topic 2.2.2: Production, trade and consumption of energy.
- Participation in international environmental conventions.	- FDES Topic 6.2.3: Participation in MEAs.

Further, the Statistical Institute of Jamaica contributes to Jamaica's climate change reporting under the UNFCCC by providing data and information inter alia in relation to population, socio-economic development, economic activities, energy, agricultural and fisheries.¹¹


Annex

Infographic – Guidance on information to facilitate clarity, transparency and understanding (ICTU)




ICTU Elements for NDCs

as applicable to the NDC










Under the Paris Agreement, governments have to prepare their NDCs in a manner that allows for clarity, transparency and understanding of the NDCs. To this end, governments agreed on a set of information that has to be provided in NDCs to the extent these information elements are applicable.

Decision 4/CMA.1 and its annex contains the official language [OR code]



VOLUNTARY FOR first NDC; MANDATORY FOR second AND subsequent NDC

	QUANTIFIABLE INFORMATION ON THE REFERENCE POINT (INCLUDING, AS APPROPRIATE, A BASE YEAR)	INFORMATION ON THE REFERENCE POINT USED FOR THE "TARGET", INCLUDING DATA, ASSUMPTIONS AND APPROACHES.
	TIME FRAMES AND/OR PERIODS FOR IMPLEMENTATION	INFORMATION ON THE IMPLEMENTATION TIME OF THE NDC
	SCOPE AND COVERAGE	INFORMATION ON WHAT IS COVERED BY THE TARGET, INCLUDING SECTORS, GASES, CATEGORIES AND POOLS AS WELL AS MITIGATION CO-BENEFITS RESULTING FROM PARTIES' ADAPTATION ACTIONS AND/OR ECONOMIC DIVERSIFICATION PLANS.
	PLANNING PROCESSES	INFORMATION ON THE RELEVANT PLANNING PROCESSES, INSTITUTIONAL ARRANGEMENTS, NATIONAL CIRCUMSTANCES, STAKEHOLDER ENGAGEMENT OR OTHER CONTEXTUAL MATTERS THAT ARE "BEHIND" AN NDC.
	ASSUMPTIONS AND METHODOLOGICAL APPROACHES, INCLUDING THOSE FOR ESTIMATING AND ACCOUNTING FOR ANTHROPOGENIC GHG EMISSIONS AND, AS APPROPRIATE, REMOVALS	INFORMATION ON THE ACCOUNTING FOR NDCS, INCLUDING ON UNDERLYING ASSUMPTIONS AND METHODOLOGIES THAT HAVE BEEN USED TO ESTIMATE EMISSIONS COVERED BY NDCS.
	HOW THE PARTY CONSIDERS ITS NDC IS FAIR AND AMBITIOUS IN THE LIGHT OF ITS NATIONAL CIRCUMSTANCES	INFORMATION ON WHY OR HOW THE NDC IS FAIR, AMBITIOUS AND BETTER THAN THE LAST ONE.
	HOW THE NDC CONTRIBUTES TOWARDS ACHIEVING THE OBJECTIVE OF THE CONVENTION AS SET OUT IN ITS ARTICLE 2	INFORMATION ON HOW THE NDC CONTRIBUTES TO ACHIEVE GLOBAL CARBON NEUTRALITY, CLIMATE RESILIENCE AND SUSTAINABLE FINANCIAL FLOWS.

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UNFCCC United Nations Framework Convention for Climate Change
ndc@unfccc.int