

Global Set of Climate Change Statistics and Indicators



**UNECE Expert Forum for Producers and Users of Climate Change Related-Statistics
(31 August - 3 September 2021, online)**

Session 1: Setting the Scene

United Nations Statistics Division

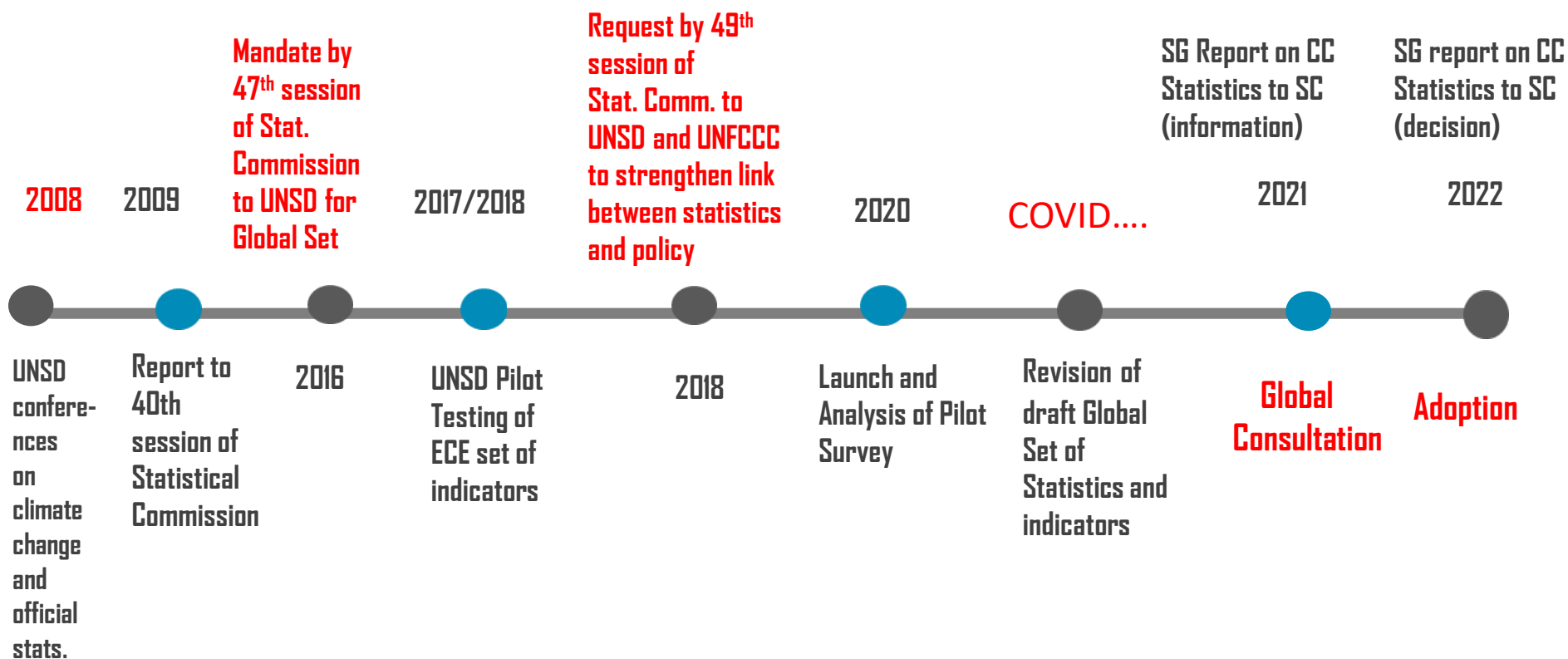


Outline

1. Background to UNSD work on Global Set of Climate Change Statistics and Indicators
2. Mandates of the Statistical Commission
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Background to UNSD work on development of Global Set of Climate Change Statistics and Indicators



More than a decade long process: 2008 - present



Report of the Secretary-General on Climate Change Statistics to the 47th session of the Statistical Commission in 2016

UNSD, in collaboration with UN-ECE, prepared the Report of the Secretary-General on Climate Change Statistics to the 47th session of the Statistical Commission (E/CN.3/2016/15) (New York, 8-10 March 2016).

http://unstats.un.org/unsd/environment/climatechange_docs_conf.html

Decision 47/112:

<http://unstats.un.org/unsd/statcom/47th-session/documents/Report-on-the-47th-session-of-the-statistical-commission-E.pdf>

Main decisions:

For countries: Use the FDES 2013 to guide the development of climate change statistics and indicators given the close interrelationship between environment statistics and climate change statistics.

For UNSD: Review and consider UN-ECE set of climate change-related statistics and indicators as a basis for **developing a global set of climate change statistics and indicators, applicable to countries at various stages of development.**



Report of the Secretary-General on Climate Change Statistics to the 49th session of the Statistical Commission in 2018

UNSD, in collaboration with UN-ECE and UNFCCC, prepared the Report of the Secretary-General on Climate Change Statistics to the 49th session of the Statistical Commission (E/CN.3/2018/14) (New York, 6-9 March 2018).

<https://unstats.un.org/unsd/statcom/49th-session/documents/2018-14-ClimateChange-E.pdf>

Decision: 49/113

<https://unstats.un.org/unsd/statcom/49th-session/documents/Report-on-the-49th-session-E.pdf>

Main decisions

For countries: (i) Participate in the Pilot Survey on Climate Change-related Statistics and Indicators currently being undertaken by UNSD, as well as in the planned Global Consultation on Climate Change Statistics and Indicators; (ii) Enhance collaboration between NSOs and national authorities responsible for reporting climate change related information to UNFCCC Secretariat;

For UNSD and UNFCCC: **Strengthen the link between statistics and policy**, for example, by: (i) undertaking joint initiatives in the development of climate change statistics and indicators; (ii) encouraging joint capacity building efforts and trainings with other partners, and exploring ways to encourage NSOs to be more involved in the preparation of data submissions to the UNFCCC secretariat, for supporting the implementation of the Paris Agreement.



Report of the Secretary-General on Climate Change Statistics to the 52nd session of the Statistical Commission in 2021 (information)

UNSD, in collaboration with UN-ECE and UNFCCC, prepared the Report of the Secretary-General on Climate Change Statistics to the 52nd session of the Statistical Commission (E/CN.3/2021/20) (New York, 1 to 3 and 5 March 2021).

<https://unstats.un.org/unsd/statcom/52nd-session/documents/2021-20-ClimateChange-E.pdf>

Agenda item 4(c)

Items for information: Climate change statistics

E/CN.3/2021/20

Report of the Secretary-General on climate change statistics

Arabic

Chinese

English

Español

Français

Russian



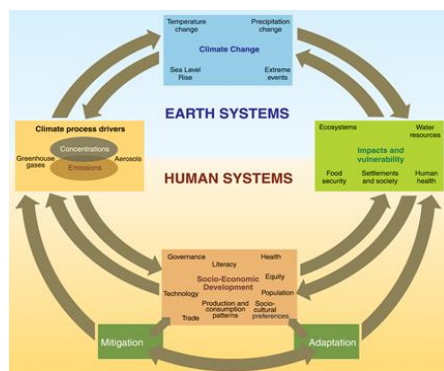
Collaboration between UNSD and UNFCCC to strengthen link between statistics and policy

- Joint reports on Climate Change Statistics to Statistical Commission
- Joint Side Events at the Statistical Commission
- UNFCCC participation in UNSD-led Expert Group on Env. Stats.
- UNSD participation in a Side Event at the High-Level Political Forum in July 2019 organized by UNFCCC, UNSD, etc.
- UNFCCC participation in UNSD organized regional workshops on environment (including climate change statistics) statistics [e.g. Arab region in 2018, CARICOM region in 2019]
- UNSD participation in UNFCCC stakeholders' dialogues on building the Enhanced Transparency Framework (2020)
- Online information sessions by UNSD/UNFCCC for the Global Consultation (June/July 2021).
- UNSD participation in UNFCCC organized regional webinars on “Embedding climate reporting in national statistics” (Aug-Sep 2021)



Global Set: Foundation

- Global Set, being developed in close collaboration with UNFCCC, is structured according to the IPCC framework and FDES.
- Relevant articles of the Paris Agreement (PA) and the decisions under the PA Work Programme adopted in Katowice, as well as related SDG and Sendai Framework indicators, are also referenced to strengthen the link between statistics and policy.

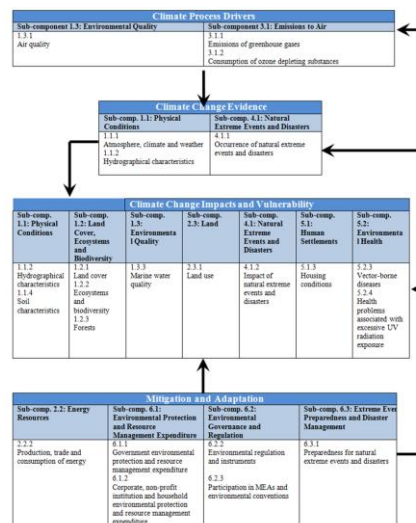


IPCC, 2007, Fourth Assessment Report



Framework for the Development of Environment Statistics (FDES 2013)

Relevant chapters of the Manual of the BSES
https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshml



FDES cross-cutting application (Chapter 5) links climate change and environment statistics based on the IPCC Framework



Goal 13

SENDI FRAMEWORK
 FOR DISASTER RISK REDUCTION 2015-2030



Global Set: Methodology

The Global Set is based on:

- systematic review of climate change statistics and indicators from 130 countries, with representative regional coverage, and identification of most commonly repeated statistics/indicators;
- discussions at several meetings of the UNSD-led Expert Group on Environment Statistics (EGES) – UNFCCC, ECLAC, CARICOM, Jamaica, Suriname, etc. are members;
- bilateral consultations with specialized agencies and in-depth discussions with selected countries; and
- inputs from an extensive Pilot Survey that took place in 2020.

More information:

<https://unstats.un.org/unsd/envstats/climatechange.cshtml> and

https://unstats.un.org/unsd/envstats/ClimateChange_StatAndInd_global.cshtml



Global Consultation on draft Global Set

Part I:

- **Institutional Dimension of Climate Change Statistics and Indicators** (in countries): aims at collecting general information on the institutional dimensions of climate change statistics through an online survey.
- **International Agency's Activities on Climate Change Statistics and Indicators**: aims at collecting general information on the main activities led by international Agencies (data collection, methodology development and capacity development), through an online survey.

Part II:

- **Draft Global Set of Climate Change Statistics and Indicators** (Excel file: *Part II_DraftGlobalSet.xls*) which allows respondents to provide comments on each individual indicator or statistic in the Excel file;
- **Metadata** (Word file: *Part II_Metadata.doc*) which allows respondents to provide detailed comments on the metadata in the Word file.

28 ECE submissions to date:

Armenia, Azerbaijan, Belarus, Bulgaria, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Georgia, Hungary, Ireland, Lithuania, Luxembourg, Montenegro, Netherlands, Macedonia, Poland, Moldova, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine.

7 ECE acknowledgements to date:

Czech Republic, Germany, Italy, Kazakhstan, Turkey, United Kingdom, United States of America.

United Nations Statistics Division



Draft Global Set of Climate Change Statistics and Indicators (sent to countries)

A	B	C	D	E	F	G	H	I
Area	Topic		Indicator	Statistics	Code	Preliminary Tier	Themes	National Data Sources
DRIVERS					1			
			Total greenhouse gas (GHG) emissions		101			
	1		Total greenhouse gas emissions per year (SDG 13.2.2)		1020	1	GHG emissions	Environment Agency/National climate change reporting authorities
			Total emissions of direct greenhouse gases (GHGs, excluding LULUCF) (FDES 3.1.1.a)		1021	1	GHG emissions	Environment Agency/National climate change reporting authorities
			Total emissions of indirect greenhouse gases (GHGs) (FDES 3.1.1.b)		1022	1	GHG emissions	Environment Agency/National climate change reporting authorities
			Greenhouse gas emissions from land use, land use change and forestry (LULUCF) (UN-ECE)		1023	1	GHG emissions	Environment Agency/National climate change reporting authorities
	2		Total greenhouse gas emissions from the national economy (UN-ECE 09a, excluding indirect GHGs)		1030	2	GHG emissions	NSO
					1031		GHG emissions	
			Atmospheric concentration of greenhouse gases		104			
	3		Global concentration of greenhouse gases		1040	2	GHG concentration	
					1041		GHG concentration	
			Energy production and supply		105			
	4		Total primary energy production from fossil fuels		1050	1	Energy	Ministry of Energy/Oil companies
					1051		Energy	
	5		Total energy supply from fossil fuels		1060	1	Energy	Ministry of Energy/Oil companies
					1061		Energy	
			Energy consumption		107			
	6		Energy consumption by households and enterprises		1070	1	Energy	Ministry of Energy
			Final energy consumption (FDES 2.2.2.c)		1071	1	Energy	Ministry of Energy
			Households		1072	1	Energy	NSO
	7		Energy intensity measured in terms of primary energy and GDP (SDG 7.3.1)		1080	2	Energy	
			Total energy supply (FDES 2.2.2.b)		1081	1	Energy	Ministry of Energy

- The draft Global Set contains statistics for most [106 out of 134] indicators. Overall, the statistics were included to facilitate the process of compiling the proposed Tier 1 and 2 indicators.
- Three indicators are global in nature but may still be routinely produced by some countries and serve as important background indicators to monitor climate change in other countries (indicators 3, 41 and 45).



Draft Global Set of Climate Change Statistics and Indicators (required responses from countries)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
Area	Topic	Indicator	Statistics	Code	Preliminary Tier	Themes	National Data Sources	Relevance	Methodological Soundness		Data Availability		General Comments			
								Yes/No	Reference/Link	Yes/No/Partially	Reference/Link	Yes/No	Reference/Link			
DRIVERS				1												
		Total greenhouse gas (GHG) emissions		101												
	1	Total greenhouse gas emissions per year (SDG 13.2.2)		1020	1	GHG emission	Environment Agency/Na									
			Total emissions of direct greenhouse gases (GHGs, exclud	1021	1	GHG emission	Environment Agency/Na									
			Total emissions of indirect greenhouse gases (GHGs) (FDE	1022	1	GHG emission	Environment Agency/Na									
			Greenhouse gas emissions from land use, land use change	1023	1	GHG emission	Environment Agency/Na									
	2	Total greenhouse gas emissions from the national economy (UN-ECE 09a, excluding		1030	2	GHG emission	NSO									
				1031		GHG emissions										
		Atmospheric concentration of greenhouse gases		104												
	3	Global concentration of greenhouse gases		1040	2	GHG concentration										
				1041		GHG concentration										
		Energy production and supply		105												
	4	Total primary energy production from fossil fuels		1050	1	Energy	Ministry of Energy/Oil c									
				1051		Energy										
	5	Total energy supply from fossil fuels		1060	1	Energy	Ministry of Energy/Oil c									
				1061		Energy										

Relevance - is the indicator/statistic relevant for your country? In column J: Yes/No; In column K, if yes, please provide reference/link to the national policies for which the data applies.

Methodological soundness - do you use the methodology as provided in the metadata? In column L: Yes/No/Partially; In column M, please provide reference/link to the methodology applied in your country.

Data availability - are national data/statistics/indicators available for the proposed global indicator/statistic? In column N: Yes/No; In column O: If yes, please provide reference/link to the available data.



Global Set: Metadata

Field	Description	
Code	1120	1121
Indicator	Population growth	
Statistics		Population
Area	Drivers	
Topic	Population	
Themes	Population	
Paris Agreement article		
PAWP-Katowice		
FDES		
SDG		
Sendai Framework		
Preliminary Tier	1	1
Definition	The average annual percentage rates of population growth are calculated using an exponential rate of increase. [UN Population Division, https://unstats.un.org/unsd/demographic-social/products/dyb/documents/dyb2019/Notes01.pdf]	Population presents estimated mid-year total population by country or area. [UNSD, https://unstats.un.org/unsd/demographic-social/products/vitstats/index.cshtml]
Relevance	Population growth aggravates worldwide growth of GHG emissions (high confidence). Global population has increased by 87% from 1970 reaching 6.9 billion in 2010. The population has increased mainly in Asia, Latin America, and Africa, but the emissions increase for an additional person varies widely, depending on geographical location, income, lifestyle, and the available energy resources and technologies. .. [IPCC, AR5, p. 355, https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter5.pdf]	
National data sources	NSO	NSO
Data collection methods	Census, survey, population register	
Update frequency		Annual
Category of measurement	Number	Number
Computation/compilation methods		
International primary data reference, institution		UNSD Demographic Yearbook – 2019
International primary data reference, description		Estimates of mid-year population: 2010-2019
International primary data reference, URL		https://unstats.un.org/unsd/demographic-social/products/dyb/documents/dyb2019/table05.pdf
Type of statistics		C
International secondary data references	OECD	
Other data references		
Potential aggregations and scales		
Methodological guidance	UNSD; https://unstats.un.org/unsd/demographic-social/products/dyb/documents/dyb2019/Notes01.pdf ; UN Population Division, https://unstats.un.org/unsd/demographic-social/products/dyb/documents/dyb2019/Notes01.pdf ; UNSD, https://unstats.un.org/unsd/demographic-social/products/vitstats/index.cshtml	

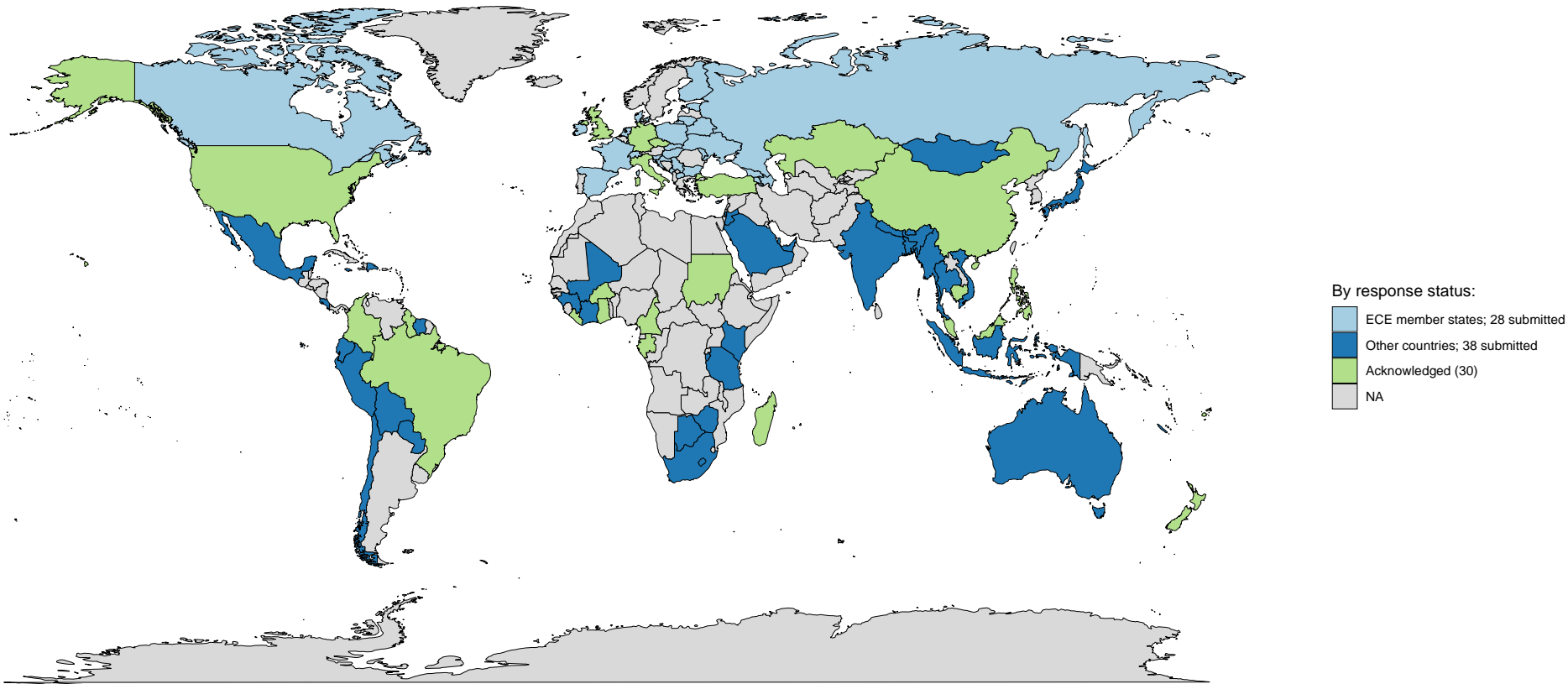


Global Set: Output

- The Global Set will:
 - provide a **comprehensive statistical framework with statistics, indicators and metadata**, designed to support countries in preparing their own sets of climate change statistics and indicators according to their individual concerns, priorities and resources; and
 - support the reporting requirements of countries under the Enhanced Transparency Framework and the Global Stocktake of the Paris Agreement, as well as climate-related SDG indicators.
- The Global Set is flexible enough, with a tiering system, to be applied based on regions', as well as countries', priorities and data availability. It is recommended to promote complementarity among global, regional and national sets of climate indicators, to encourage harmonization across all levels.



Global Consultation Responses



- Globally, 66 countries have submitted Part 1 and/or 2 (as of 24 August 2021). Many more are still working on them. Pandemic has contributed to delays.
- 15 agencies have also submitted responses and others are working on them.
- For ECE member states: 28 countries have submitted Part 1 and/or Part 2. Seven have acknowledged receipt.



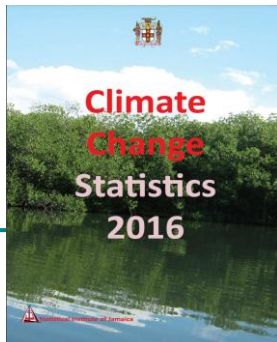
General remarks on Part 1

B. National policies/strategies

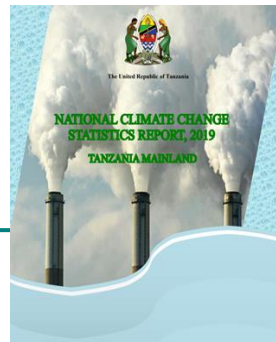
- B2. Most countries have a national statistical plan/programme/strategy in place, but not many includes climate change components.
- B4. Most don't currently have a national climate change statistics plan/programme/ strategy.

D. Production and reporting of climate change statistics

- D1. Most NSOs collaborate with UNFCCC focal points on compilation of GHG inventory.
- D3. For data requests from the GHG compiler, some of the countries stated that they cannot provide data requested, for various reasons.
- D4. Adaptation information provided by NSOs: local level data, population, housing, agricultural, sectoral, energy, etc.
- D5. Climate change surveys developed by NSO are rare. But countries are making an effort, e.g., Bangladesh and Nepal. Lack of resources is among one of the challenges.
- D7. About half of the respondents, including Netherlands, France, Spain, Bangladesh, Jamaica, Tanzania provided links to their climate change statistics dissemination online. Jamaica and Tanzania NSOs have published climate change statistics reports.



Jamaica



Tanzania

United Nations Statistics Division



General remarks on Part 1 (cont.)

E. Inter-institutional collaboration

- E1. Most NSOs collaborate with UNFCCC national focal points; however, the nature of the collaboration varies – with some specified as ad-hoc.
- E2. Some NSOs established inter-institutional relationship with other stakeholders in environment statistics.
- E5. Main barriers to collaboration among institutions for climate change statistics are:
 - Lack of resources for regular meetings
 - Lack of time
 - Insufficient visibility of benefits of collaborating
 - Lack of an organized committee

F. Technical assistance and training

- F1. Not all countries who have requested technical assistance received one. Most common resource is external to that organization or country.
- F2. Types of assistance received: Grants for European Statistical System; GHG data and information review; Training and capacity building, etc.
- F3. Assistance provided: Spain, Netherlands, Denmark, Finland, Estonia, Costa Rica, etc.



General remarks on Part 1 (cont.)

G. The way forward in climate change statistics

- G2. Main vehicles through which the country requires technical assistance and capacity development for climate change statistics:
 - Regional/sub-regional workshops
 - National workshops
 - Country visits/study tours
 - Bilateral consultations
 - E-learning
 - Networking
- G3. Most important needs for the development of climate change statistics are:
 - Climate change surveys
 - Capacity building
 - Methodological guidance
 - Human resources
 - Financial resources



Examples of key findings from a selected set of questions in Part I



Question C2. Is there a department, division or unit responsible for climate change statistics in the National Statistical Office (NSO)?

With regard to the status of the climate change statistics department, division or unit in the NSO, the answers diverse greatly and responses include:

- Environment, energy
- Under Social Statistics
- Satellite accounts
- Directorate of Social Resilience
- Social Statistics Division
- Agriculture, livestock & fishery and forestry section
- Spatial and Environmental Surveys Department
- Territory and Environment division
- Agriculture and Environmental Statistics department

Some NSOs have established 'combined' environment and climate change statistics units e.g., Bangladesh, Cameroon, Ireland.



Question D1. Is the NSO currently involved in the preparation of the country's GHG inventory, as part of the reporting obligations of the UNFCCC and/or in the preparation of national reports to UNFCCC [NC, BR, BUR]?

- Most NSOs collaborate with the UNFCCC focal points, usually the Ministries of Environment or Climate Change, in one way or another, on the compilation of GHG inventory.
- Involvement could be direct or indirect.
- Sometime, formal institutional agreement does not exist.
- Sectoral data in collaboration include:
 - Energy balance
 - Agriculture, animal production
 - Economic activities, housing, transport, etc.
- NSO sometimes are also in charge of the quality of the data and validate.

*NSOs do provide activity data (economic statistics) for the GHG inventory.
Can NSOs take the lead to coordinate production of statistics in other climate areas, in particular vulnerability and adaptation?*



Question D3. Has the NSO received requests from GHG inventory compilers about specific data needs for inventory compilation that could NOT be met by NSOs?

There are many specific data needs mentioned, but most common ones are:

- Industry, Industrial Processes and Product Use (IPPU)
- Agricultural, livestock, forest area
- Waste, industrial liquid waste
- Population, rural and urban, income
- Energy, firewood, biofuel
- Transport
- F-Gas

This has showcased the complexity of climate change information, and the need for a Global Set of Indicators which a country can adapt nationally and where all institutions can work on collaboratively.



Question E1. Does the NSO currently collaborate with the national focal points to the UNFCCC?

- Some collaboration is following the legal obligation established through the governments.
- Some are not legal, but formal, institutional arrangements.
- Some are on ad-hoc, mutual understanding, or voluntary basis for statistical purposes.
- In cases, NSO also serve as statistical technical advisor or expert to the UNFCCC focal points.



Preliminary, general remarks on Part 2 (indicators/statistics)

- The draft Global Set is clear to understand by the countries.
- Relevance is assessed across all five areas of the draft Global Set, underlining the cross-cutting nature of climate change data.
- Relevance varies across the countries (tropical vs. temperate, land-locked vs. island states, etc.).
- Most countries provided reference links to data, methodology, and relevance.
- The Global Set is expansive, and tiering is very useful for countries to focus on their priority indicators.
- Countries and agencies have provided suggestions for improvement, and proxies for some of the indicators. UNSD is in the process of consolidation and analyses.



Examples of indicators in the draft Global Set that go beyond the scope of the ECE set of climate-related indicators

- **Drivers**
 - Deforested area as a proportion of total forest area
 - Livestock number per agricultural area
- **Impacts**
 - Reduction of glaciers extent and mass
 - Sea level rise
- **Vulnerability**
 - Indigenous population living in isolated areas
 - Proportion of population living in coastal areas [below 5m]
- **Mitigation**
 - GHG removals (carbon sequestration)
 - Increase in forest area
- **Adaptation**
 - Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas
 - Proportion of municipal waste treated



Planned actions of UNSD

- Further explore ways, in collaboration with UNFCCC, to strengthen the relationship between NSOs and national authorities reporting climate change information;
- Continue capacity development/information sessions on climate change statistics online;
- Follow up with non-respondents to the Global Consultation and validate incoming responses;
- Continue analysis of Global Consultation and discuss at 8th meeting of the Expert Group on Env. Stats. (Oct. 2021);
- Update Global Set and related metadata;
- Submit the Global Set to the 53rd session of the Statistical Commission, in March 2022, for adoption;
- Develop implementation guidelines/strategy for capacity dev.



Thank you for your attention!

For more information please contact the Environment Statistics Section
at the United Nations Statistics Division:

E-mail: envstats@un.org

Website: <https://unstats.un.org/unsd/envstats/>

Climate Change Statistics Website

<https://unstats.un.org/unsd/envstats/climatechange.cshtml>

and

https://unstats.un.org/unsd/envstats/ClimateChange_StatAndInd_global.cshtml

