Implementation of the Global Set of Climate Change Statistics and Indicators

Implementation support, methodology development and data collection

(3 May 2023)

Outline

1. Overview of the Global Set
2. Implementation Support
   - Implementation Guidelines
   - CISAT
3. Methodology Development
   - Prioritized topics
   - Gender
4. Data collection
   - Sources of data
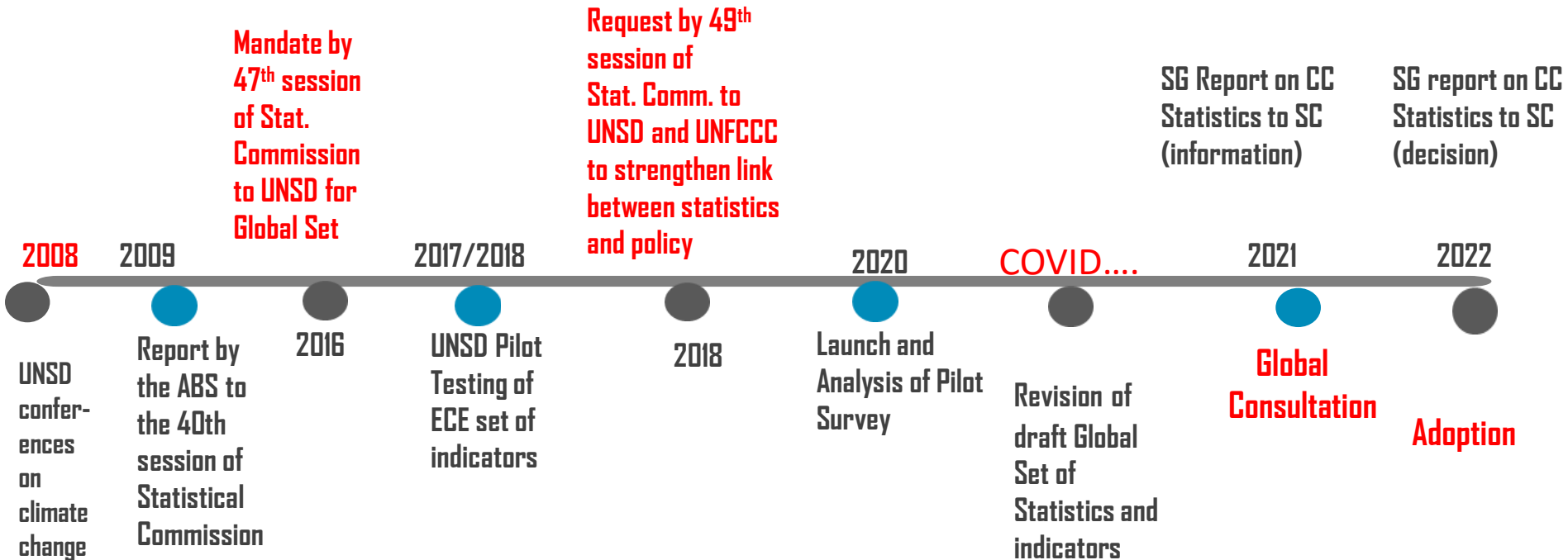   - Censuses
   - Surveys

Overview of the Global Set

The adoption of the Global Set of Climate Change Statistics and Indicators by the 53rd session of the Statistical Commission in March 2022 was highlighted in the Report of the Secretary-General on the Work of the Organization in 2022.

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

More than a decade long process: 2008 – present

Mandate by 47th session of Stat. Commission to UNSD for Global Set

Request by 49th session of Stat. Comm. to UNSD and UNFCCC to strengthen link between statistics and policy

SG Report on CC Statistics to SC (information)

SG report on CC Statistics to SC (decision)

2008   2009   2017/2018   2020   COVID....   2021   2022

2016   2018

UNSD confer-ences on climate change and official stats (Oslo and Seoul)

Report by the ABS to the 40th session of Statistical Commission

UNSD Pilot Testing of ECE set of indicators

Launch and Analysis of Pilot Survey

Revision of draft Global Set of Statistics and indicators

Global Consultation

Adoption

Decisions of the Statistical Commission:

Decision 47/112 (2016), UNSD requested to develop a global set of climate change statistics and indicators, applicable to countries at various stages of development:
http://unstats.un.org/unsd/statcom/47th-session/documents/Report-on-the-47th-session-of-the-statistical-commission-E.pdf
Decision: 49/113 (2018), UNSD and UNFCCC to strengthen the link between statistics and policy
https://unstats.un.org/unsd/statcom/49th-session/documents/Report-on-the-49th-session-E.pdf
Decision 53/116 (2022), the Global Set was adopted at the 53rd session of the Statistical Commission:
https://unstats.un.org/unsd/statcom/53rd-session/documents/2022-41-FinalReport-E.pdf

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Methodological foundation

- Given that there was no underlying framework linking the reporting requirements stemming from the Paris Agreement and the necessary statistics or indicators to support climate policy action, UNSD worked closely with UNFCCC to develop such a framework explicitly for climate change.

- The Global Set is structured according to the IPCC framework and FDES, with a tiering system as in the FDES and the SDG indicators.
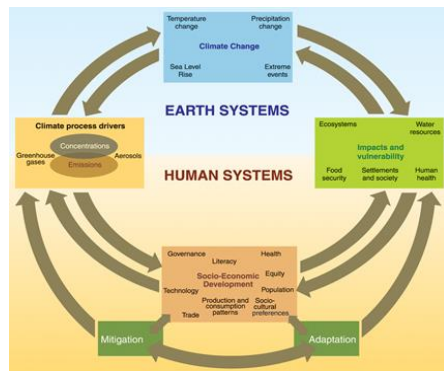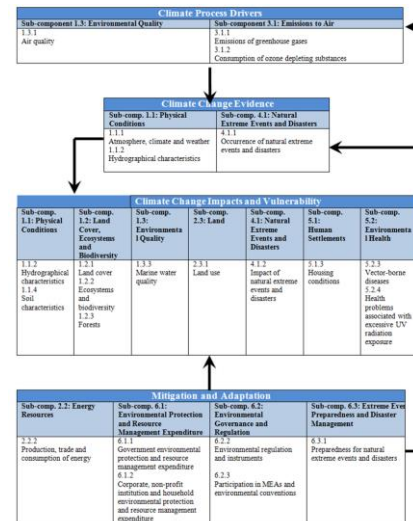

IPCC, 2007, Fourth Assessment Report

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.cshtml

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

Goal 13

Statistical references

The main statistical references including the internationally accepted frameworks, standards and guidelines, are presented in abbreviated form in the last column (entitled Method):

- IPCC: the Intergovernmental Panel on Climate Change 2006 guidelines;
- FDES: the Framework for the Development of Environment Statistics and its Manual on the Basic Set of Environment Statistics (BSES);
- SDG: Sustainable Development Goal indicators metadata;
- Sendai: Sendai Framework for Disaster Risk Reduction 2015-2030;
- UN-ECE: the Conference of European Statisticians set of core climate change-related indicators metadata;
- IRES: the International Recommendations for Energy Statistics
- SEEA-CF: the System of Environmental-Economic Accounting Central Framework;
- SEEA-EA: the System of Environmental-Economic Accounting-Ecosystem Accounting.

Global set, metadata [covers 26 fields]

36. Renewable freshwater resources per capita

Field	Description			
Indicator	Renewable freshwater resources per capita			
Statistics		Precipitation	Evapotranspiration	Inflow
Area	Impacts			
Topic	Freshwater resources			
Themes	Water resources			
Paris Agreement article	7; 13.8	7; 13.8	7; 13.8	7; 13.8
PAWP-Katowice	Decision 18/CMA.1, chapter IV; Decision 9/CMA.1	Decision 18/CMA.1, chapter IV; Decision 9/CMA.1	Decision 18/CMA.1, chapter IV; Decision 9/CMA.1	Decision 18/CMA.1, chapter IV; Decision 9/CMA.1
FDES		1.1.1.b	2.6.1.b.1	2.6.1.a.2 [similar to]
SDG				
Sendai Framework				
Tier	2	1	2	2
Definition	The indicator measures the renewable freshwater resources divided by the population of the country. Renewable freshwater resources = Internal flow + Inflow of surface and groundwaters from neighbouring countries. Renewable freshwater (surface and groundwater) resources are replenished by precipitation (less evapotranspiration) falling over the territory of the country that ends up as runoff to rivers and recharge to aquifers (internal flow), and by surface waters and groundwater flowing in from	Total volume of atmospheric wet precipitation (rain, snow, hail, dew, etc.) falling on the territory of the country over one year, in millions of cubic metres. [UNSD/UNEP Questionnaire, https://unstats.un.org/unsd/envstats/Questionnaires/2020/q2020_Water_English.pdf] [FDES BSES manual, Water resources, p.11, https://unstats.un.org/unsd/environment/FDES/MS%202.6%20Water%20Resources.pdf]	Actual evapotranspiration: Total actual volume of evaporation from the ground, wetlands and natural water bodies and transpiration of plants. According to the definition of this concept in Hydrology, the evapotranspiration generated by all human interventions is excluded, except unirrigated agriculture and forestry. The 'actual evapotranspiration' is calculated using different types of mathematical models, ranging from very simple algorithms (Budyko, Turn Pyke, etc.) to schemes that represent the hydrological cycle in detail.	Total volume of river run-off and groundwater generated over the period of a year, in natural conditions, exclusively by precipitation into a country. The internal flow is equal to precipitation less actual evapotranspiration and can be calculated or measured. If the river and groundwater generation are measured separately, transfers between surface and groundwater should be

Growing engagement of countries

Global Consultation (May- Sept 2021) – 86 countries (68 on part 1 and 75 part 2) and 26 organizations

Status:

- Submitted
- Acknowledged
- NA
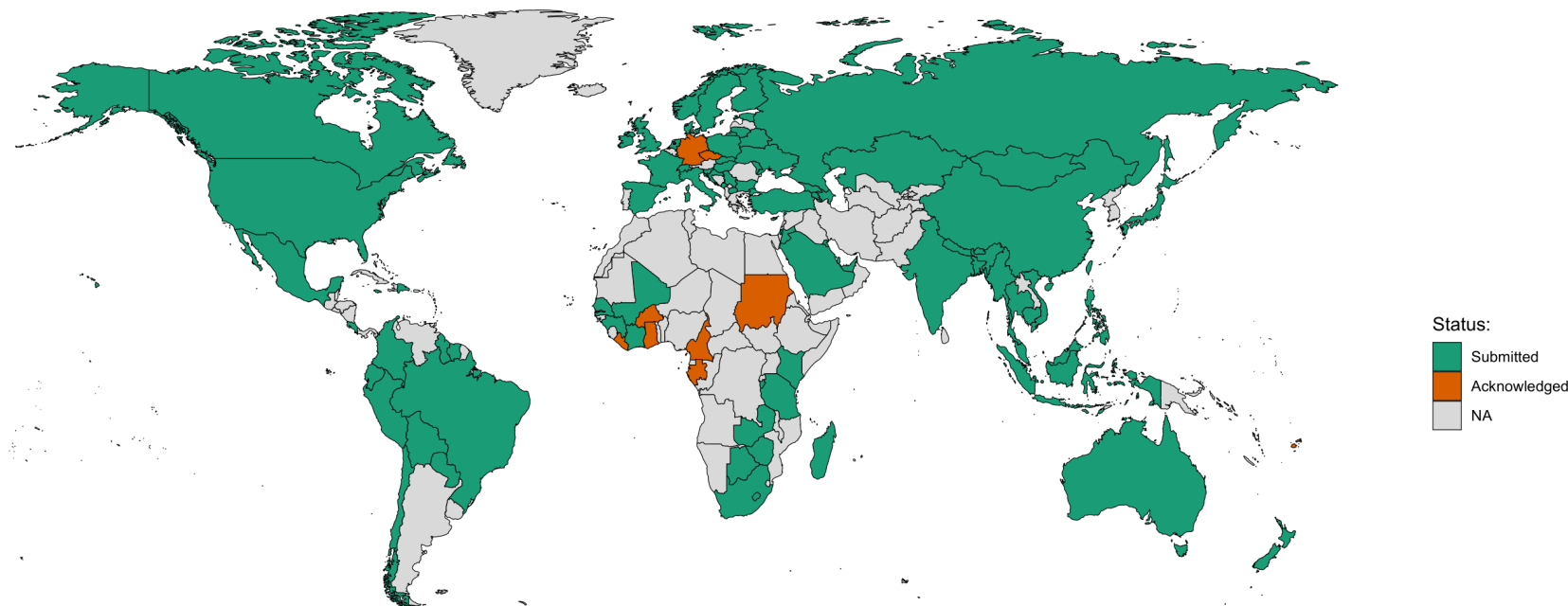
- The engagement is wider than that, e.g. 14 member states **acknowledged.**

- UNSD funded consultancies helped 2 more countries to do the assessment, another 9 countries to improve their earlier assessments in Africa

- Ongoing regional initiatives are also strengthening climate change statistics in countries

"Acknowledged" means that the national statistical offices of the countries (to whom we sent out the invitations to participate) communicated with us regarding the Global Consultation after we sent out our invitation, but that they did not submit a response.

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Implementation support

1. Following the adoption of the Global Set, UNSD has focused on completing and promoting a set of implementation support tools, including:

- Climate Change Statistics and Indicators Self-Assessment tool (CISAT) which was drafted and tested in a number of pilot countries in Africa, South America and the Caribbean regions

- Implementation guidelines, initially drafted before the adoption of the Global Set, then revised and improved, and discussed at the ninth meeting of the Expert Group on Environment Statistics (EGES)

- Training materials and presentations

Access and implementation support for the Global Set

- **The Global Set in its most detailed form, including the metadata, is presented in the [Climate Change Statistics and Indicators Self-Assessment Tool (CISAT)](#) Part II**.

- The full description of the Global Set and its metadata is also included in the Background document to the Report of the Secretary-General, entitled [Global Set and metadata](#).

- The Global Set is introduced and briefly described in the [Report of the Secretary-General on Climate Change Statistics to the Statistical Commission (E/CN.3/2022/17)](#) available in the six UN languages: https://unstats.un.org/unsd/envstats/climatechange_docs_conf.cshtml

- Implementation support materials including a self-assessment tool and e-learning materials are disseminated via UNSD website: https://unstats.un.org/unsd/envstats/climatechange.cshtml

- In addition, if implementation advice and support are required, please contact UNSD at: envstats@un.org

Implementation Guidelines

Global Set of Climate Change Statistics and Indicators

Implementation Guidelines

United Nations Statistics Division   31 January 2023
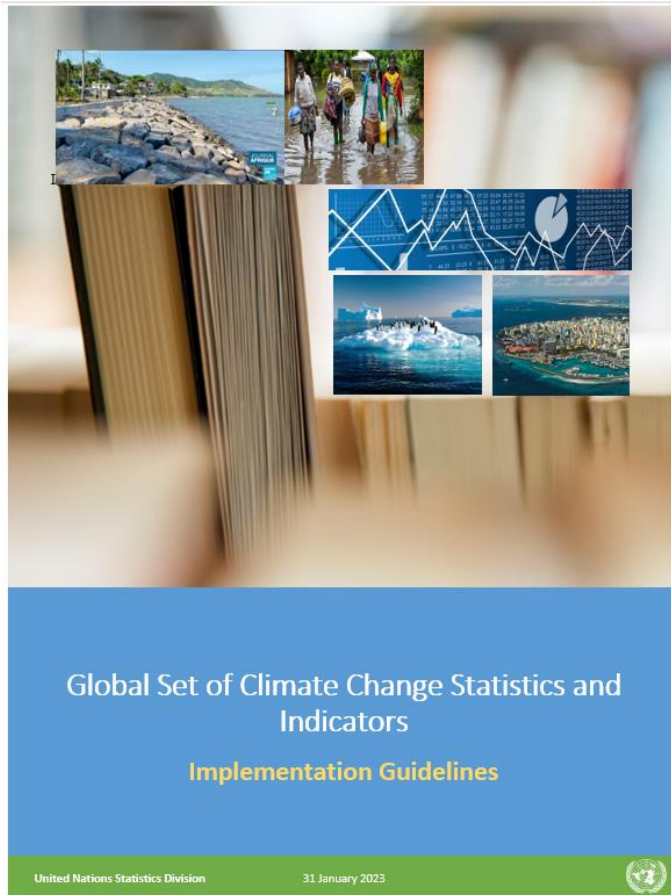
https://unstats.un.org/unsd/envstats/Climate%20Change/Implementation_Guidelines.pdf

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Implementation Guidelines

Aims and objectives

The Guidelines aim to help countries improve the monitoring of climate change, its impacts and response actions by better informing the UNFCCC-NFPs about the benefits of official statistics and by guiding the NSOs to increase their engagement in the area of climate change. The overall objectives of the Guidelines are to:

- help countries to set up the national consultation processes which can embrace this multidisciplinary statistical work in a way complementary to the ongoing and future reporting to UNFCCC;

- deepen countries' self-assessment activities using the Global Set; and

- provide the basis for countries to initiate the development of a national programme for sustained production of climate change statistics within the national statistical system (NSS).

Implementation Guidelines

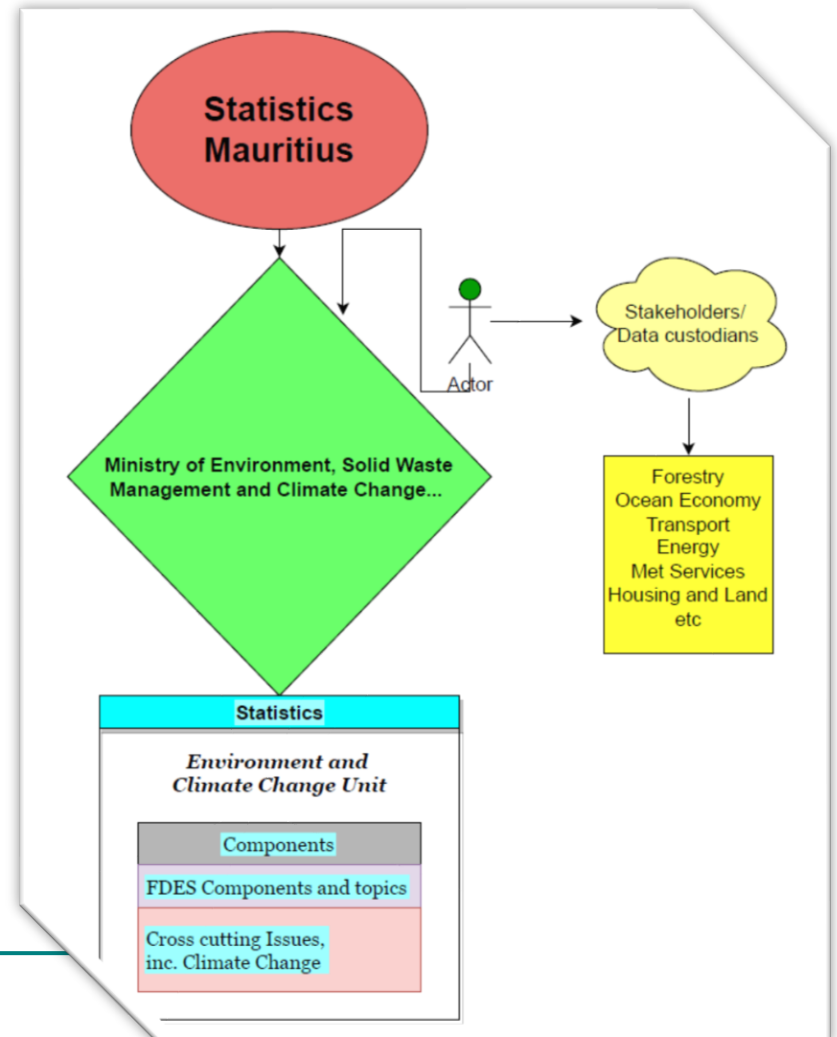## Role of NSOs, NFPs and key stakeholders

4.1.1 Role of NSOs

4.1.2 Role of UNFCCC-NFPs

4.1.3 Role of other key stakeholders

4.1.4 Collaboration between NSO, UNFCCC-NFPs and key stakeholders

National examples

Implementation Guidelines

Self-assessment for building a National action plan on climate change statistics

The self-assessment will produce the needed understanding of what are the available resources (human and technical), available data, data gaps and what is (still) needed to support national climate policies and activities. Prioritisation of the needed data-related activities should be done taking into account the suitability of data collection methods including costs and reliability

Steps	Activities	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Establish/strengthen relationship between NSO and UNFCCC-NFP	■											
2	Engage stakeholders and complete the self-assessment using the CISAT	■	■	■									
3	Establish a committee, inter-institutional working group or task force or expand an existing one			■	■								
4	Define an institution with a legal mandate				■								
5	Establish collaboration/communication channels between stakeholders and make institutional arrangements				■	■	■						
	Designate national thematic experts				■	■							
	Develop ToRs/MoUs				■	■							
6	Engage high-level support for TWG - data collection/formation of unit / mobilizing resources				■	■							
	Conduct institutional review and skills capacity assessment				■								
	Develop project proposals/applications				■	■							
7	Strengthen human resources				■		■		■		■		
	Provide training and capacity building						■		■		■		
	Designate desk officers/core team				■		■						
	Hire staff/consultants							■					
8	Improve technical resources					■							
	Improve IT infrastructure (software and hardware)					■							
9	Develop a national programme/national action plan on climate statistics				■								
	Develop national set of climate indicators (consistent/complementary with NDCs/NAPs/NCs) and metadata				■								
	Map the data sources and assess data quality				■								
	Define gaps and prioritize work on methods and data collection				■								
	Develop data collection methods (such as climate change surveys)					■							
	Integrate the programme/plan into NSDS and national climate policies					■							
10	Undertake data collection/database building						■	■		■	■		
	Establish data exchange protocols						■						
	Compile statistics/indicators							■			■		
	Prepare analysis of key findings and draft a report										■		
	Organize a validation workshop/TWG and stakeholders										■		
11	Prepare contributions to national policies and the reports for UNFCCC								■				■
12	Disseminate statistics and indicators												■
13	Conduct user surveys												■
14	Evaluate and define priorities for future improvements												■

Climate Change Statistics and Indicators Self-Assessment Tool (CISAT)

The Self-Assessment Tool was prepared by building on the experience of countries applying the FDES (Framework for the Development of Environment Statistics) Environment Statistics Self-Assessment Tool (ESSAT) and the Global Consultation Part I and Part II.

FDES ESSAT

Global Consultation

CISAT

CISAT Package

- **Introduction**: short introduction and guidance for completing the self-assessment;

- **Part I: Institutional Dimension of Climate Change Statistics and Indicators**: aims at collecting general information on the institutional dimensions of climate change statistics;

- **Part II: Statistics and Indicators Assessment:** each individual indicator and statistic can be assessed in terms of relevance, methodological soundness and data availability.

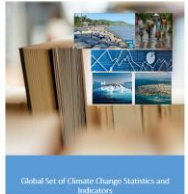- **Metadata sheets** in a Word file are linked to each indicator in the Excel file (Part II) via hyperlinks.

CISAT Part I

Part I: Institutional Dimension of Climate Change Statistics and Indicators

Part I focuses on the overall institutional and organizational structure of national statistics in the country and on specific information regarding climate change statistics in terms of, inter alia, policy frameworks, mandates, institutional setup, organization, collaboration, resources, international cooperation and uses.

It is divided into the following sections:

a)   Identification of institutions

b)   National policies/strategies

c)   Mandate and organization of climate change statistics

d)   Production and reporting of climate change statistics

e)   Inter-institutional collaboration

f)   Technical assistance and training and

g)   The way forward in climate change statistics

CISAT Part II

Part II of the CISAT lists all 158 indicators and 190 statistics included in the Global Set, followed by the main Global Climate Policy References, Statistical References and Self-Assessment questions organised in separate sections in an Excel spreadsheet.

Part II template:

Area	Topic	Number	Indicator	Statistic	Tier	Theme	Paris Agreement article	PAWP-Katowice	Method (frameworks, standards, guidelines)	FDES reference	SDG reference	Sendai Framework reference	UN-ECE reference	National Data Sources	National focal institution
DRIVERS															
	Total greenhouse gas emissions														
		1	Total greenhouse gas emissions per year		1	GHG emissi	13.7a	Decision 18/	IPCC; SDG; UN-ECE		13.2.2 Total greenhous	[Similar to] U		Environment Agency/Na	
				Total emissions of direct greenhouse gases (e	1	GHG emissi	13.7a	Decision 18/	IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct g			Environment Agency/Na	
		2	Total emissions of indirect greenhouse gases	Equivalent to the indicator	1	GHG emissi	13.7a	Decision 18/	IPCC; FDES	[Similar to] FDES 3.1.1.b Total emissions of indirect			Environment Agency/Na	
		3	Greenhouse gas emissions from land use, land use change and forestry	Equivalent to the indicator	1	GHG emissi	13.7a	Decision 18/	IPCC; FDES; UN	[Similar to] FDES 3.1.1.a Total emissi	[Similar to] U		Environment Agency/Na	
		4	Total greenhouse gas emissions from the national economy	Equivalent to the indicator	2	GHG emissions			SEEA-CF; UN-E			UN-ECE 09a:	NSO	
		5	Greenhouse gas emissions per capita		1	GHG emissions			IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct g			Environment Agency/Na	
				Total emissions of direct greenhouse gases (e	1	GHG emissi	13.7a	Decision 18/	IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct g			Environment Agency/Na	
		6	Greenhouse gas emissions in gross fixed capital formation of direct investment		3	GHG emissions			SEEA-CF					NSOs and Central Banks	
		7	Greenhouse gas emissions in value added of foreign controlled multinational enterprises		3	GHG emissions			SEEA-CF					NSOs and Central Banks	
				GHG emissions in output of foreign-controlle	3	GHG emissions			SEEA-CF					NSOs and Central Banks	

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CISAT Part II Self-Assessment

		1 Relevance							2 Data/statistic/indicator characteristics																						3 Methodological soundness							
Focal Institutions and data sources		1.1 Relevance/priority for climate change-related policies			1.2 Requirements or user requests for this indicator/statistic				2.1 Data characteristics and availability						2.2 Institution(s) collecting data on this statistic/indicator			2.3 Format and characteristics of statistic/indicator			2.4 Institution(s) compiling this statistic/indicator			2.5 Main reasons why the statistic/indicator is not available or not updated						3.1 International comparability			3.2 Methodology characteristics					
National Data Sources	National focal institution	1.1.1 Relevance of indicator/statistic at the national level	1.1.2 Reference/ link	1.1.3 Priority for national data collection	1.2.1 Sub-national	1.2.2 National	1.2.3 Regional	1.2.4 International	1.2.5 Specification	2.1.1 Data availability	2.1.2 Reference/ link	2.1.3 Data type	2.1.4 Periodicity	2.1.5 Earliest year available	2.1.6 Latest year available	2.2.1 Collected by NSO	2.2.2 Collected by Ministry of Environment or equivalent institution	2.2.3 Collected by Other (specify)	2.3.1 Similarity of statistic/indicator at the national level to the international one	2.3.2 Format of statistic/indicator	2.4.1 Compiled by NSO	2.4.2 Compiled by Ministry of Environment or equivalent institution	2.4.3 Compiled by Other (specify)	2.5.1 Resource constraints	2.5.2 Methodological/technical difficulty in data collection	2.5.3 Insufficient quality	2.5.4 Inaccessibility	2.5.5 Lack of institutional set-up/coordination	2.5.6 Other (specify)	3.1.1 Methodology	3.1.2 Reference/ link	3.1.3 Main reason why the methodology used is not sound	3.2.1 Type of data source	3.2.2 Category of measurement	3.2.3 Unit of measurement	3.2.4 Potential aggregations and scales	3.2.5 Classifications/groupings	4 Future Plans
Environment Agency	National climate change reporting authorities																																					
Environment Agency	National climate change reporting authorities																																					
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Environment Agency	National climate change reporting authorities																																					
NSO																																						
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NSOs and Central Banks																																						
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Instructions

The Global Set of Climate Change Statistics and Indicators was recommended as the framework for climate change statistics and indicators to be used by countries when preparing their own sets. It is designed with enough flexibility to be adapted to individual countries' climate change concerns, priorities and resources. A country's national set may require additional indicators and statistics to be included as well as the possible exclusion of those indicators and statistics which are defined as not relevant or not applicable (see 1.1.1 below). There may also be a need to modify some indicators and statistics to better reflect the national circumstances.

Global Set

Part II of the CISAT lists all 158 indicators and 190 statistics included in the Global Set, followed by the main Global Climate Policy References, Statistical References and Self-Assessment questions organised in separate sections in an Excel spreadsheet. The following definitions apply:

Area [column B]: A schematic framework developed by the IPCC summarises the complexity of climate change as a sequence of events: drivers, impacts, vulnerability, mitigation and adaptation. These events are applied as five top-level areas in the Global Set. Each indicator is assigned to one of the five IPCC areas as a primary belonging, while some indicators were also assigned as applicable in one or more additional areas.

Topic [column C]: As in the FDES (p. 3), the statistical topics represent the quantifiable aspects of the areas taking into account the types and sources of the statistics needed to describe them.

Number [column D]: Each indicator is numbered from 1 to 158.

Indicator [column E]: As in the FDES (p. 7), environmental indicators are used to synthesize and present complex environment and other statistics in a simple, direct, clear and relevant way... may take various

1. Total greenhouse gas emissions per year

Field	Description	
Indicator	Total greenhouse gas emissions per year	
Statistics		Total emissions of direct greenhouse gases (excluding LULUCF)
Area	Drivers	
Topic	Total greenhouse gas emissions	Total greenhouse gas emissions
Themes	GHG emissions	GHG emissions
Paris Agreement article	13.7a	13.7a
PAWP-Katowice	Decision 18/CMA.1, chapter II, para. 47-49	Decision 18/CMA.1, chapter II, para. 47-49
FDES		3.1.1.a [similar to]
SDG	13.2.2	
Sendai Framework		
Tier	1	1
Definition	Greenhouse gases (GHG) are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds, [IPCC, p. 550, https://www.ipcc.ch/sr15/chapter/glossary/] Emissions are the release of GHGs and/or their precursors into the atmosphere over a specified area and period of time. Removals conversely are the absorption of atmospheric GHGs by a sink. CO_2 is the only gas for which removals are estimated in the national GHG inventory. [FDES BSES 1.3.1 and 3.1.1, p.8, https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHGemissions.pdf]	Direct GHG emissions are those directly emitted into the atmosphere by a source. It includes CO_2, CH_4, N_2O, HFC, SF_6, PFC, NF_3 from agriculture, energy, industry waste, excluding LULUCF. GHG inventories under the UNFCCC cover estimation and reporting of anthropogenic GHG emissions and removals occurring on 'managed land'. Emissions resulting from fires in unmanaged forests would be considered as 'anthropogenic' if after burning the land use is changed, for example to pasture, and the land is accordingly re-categorized as 'managed'. [FDES BSES 1.3.1 and 3.1.1, p.8, https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHGemissions.pdf]
Relevance		Causes of climate change: Greenhouse gases cause the greenhouse gas effect which leads to global warming, as a result of long-wave (infrared) energy capture by the GHGs in the atmosphere and its downward re-emitting which causes warming at the lower atmosphere and land/ocean surface. [IPCC, https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter9-1.pdf]

Methodology development: Work on Tier 3 indicators

1. The Global Set has proven useful, not only for capacity building and application in countries, but also for supporting methodological development in several topics, including:

   - Gender,

   - Health,

   - Disasters.

2. Further work is needed on the:

   - structure of the Global Set – closer links to policies,

   - reflecting the advances in methodology, such as the adoption of the Monitoring framework for the Kunming-Montreal Global Biodiversity Framework,

   - metadata.

ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS

ECE/CES/BUR/2023/FEB/18
27 January 2023

For decision

Meeting of the 2022/2023 Bureau
Geneva (Switzerland), 15-16 February 2023

Item 6(d) of the Provisional Agenda

MEASURING HAZARDOUS EVENTS AND DISASTERS:
SET OF CORE DISASTER-RISK-RELATED INDICATORS

Prepared by the Task Force

ADVANCE UNEDITED

UN environment programme

CBD

Convention on Biological Diversity

Distr.
GENERAL

CBD/COP/DEC/15/5
19 December 2022

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Fifteenth meeting – Part II
Montreal, Canada, 7-19 December 2022
Agenda item 9B

DECISION ADOPTED BY THE CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY

15/5. Monitoring framework for the Kunming-Montreal Global Biodiversity Framework

Gender and climate change

UNSD has a mandate to fully integrate gender into all statistical areas and climate change has been prioritized:

- Working methods of the Statistical Commission, Report of the Bureau on the working methods of the Statistical Commission: Reassessing the terms of reference and review of other initiatives of the Bureau during the inter-sessional period, 2021-2022

- *In response to decision 51/115 and in support of the ongoing work of the Bureau, initial efforts at integrating a gender perspective into the work of the Commission were undertaken by the Statistics Division. To support the process and review, the Inter-Agency and Expert Group on Gender Statistics offered to take on the task of investigating how to integrate a gender perspective across the work of the Commission. At its meeting from 6 to 8 December 2021, the Inter-Agency and Expert Group brainstormed ideas on the way forward. The resulting proposal is contained in the background document to item 3 (h) of the agenda, on gender statistics.*

- The background document *explains that 'Concrete steps for pilot work will then be identified by the Advisory Group in collaboration with the relevant groups working under the auspices of the Commission (e.g. initially with groups working on trade statistics, business registers, and environment statistics). It is proposed that the results of such pilot work on concrete examples, and lessons learned thereof, will be reported back to the Commission in 2024.'*

- The Report on the fifty-third session under 53/105 Working methods of the Statistical Commission: *(d) Welcomed the initial work on mainstreaming a gender perspective into the work of the Commission, and agreed with the proposal that the Bureau should work closely with the Inter-Agency and Expert Group on Gender Statistics on this topic.*

Gender in the Global Set

- Mostly addressed via disaggregation, however the Global Set includes 2 gender-explicit indicators – SDGs (tier 1) and 2 statistics

- Several tier 3 indicators and statistics require further methodological work on gender

Area	Number	Indi	Statistic	Tier	Gender	Themes	Method	([possible] National	Type of Data Source
DRIVERS	8	Carl	Equivalent to the indicator	2	3	GHG emissions	SEEA-CF; UN-ECE		
DRIVERS	18		Urban population as a proportion of total population	1	3	Population		NSO	Census, survey, population register
IMPACTS	39		Frequency of hazardous events and disasters	2	3	Disasters		Disaster agency/Ministry responsible for disaster coordinatio	
IMPACTS			Occurrence of hazardous events and disasters	2	3	Disasters	FDES	Disaster agency/Mi	Administrative records
IMPACTS			Occurrence of extremes of temperatures and precipitation	1	3	Disasters	UN-ECE	Meteorological offic	Monitoring systems, administrative recor
IMPACTS	42	Nun	Refer to original source in metadata	1	3	Disasters	Sendai; SDG;	Disaster Agency/Mi	Administrative records
IMPACTS	43		Number of climate refugees, climate migrants and persons displaced by climate change	3	3	Disasters		Disaster preparedne	Administrative records
IMPACTS			Number of people whose destroyed dwellings were attributed to hydro-meteorological disasters	2	3	Disasters	UN-ECE; Send	Ministry responsible for disaster coordination	
IMPACTS	44		Incidence of cases of climate-related diseases	3	3	Health			
IMPACTS			Airborne diseases and conditions	2	3	Health	FDES	Ministry of Health	Administrative records
IMPACTS			Water-related diseases and conditions	2	3	Health	FDES	Ministry of Health	Administrative records
IMPACTS			Incidence of climate-related vector-borne diseases	2	3	Health	FDES; UN-ECE	Ministry of Health	Administrative records
IMPACTS	45		Incidence of heat- and cold-related illnesses or excess mortality	3	3	Health		Ministry of Health	
IMPACTS			Excess mortality related to heat	3	3	Health	UN-ECE	Ministry of Health	Administrative records
IMPACTS			Excess mortality related to cold	3	3	Health			
VULNERABILITY	81		Prevalence of undernourishment	2	3	Food	SDG	Ministry of Health/NSO	
VULNERABILITY			Number, sex and age of undernourished people	3	2, 3	Food		Ministry of Health/N	Administrative records
VULNERABILITY	86		Population relying on subsistence and pastoral farming	3	3	Agriculture			
VULNERABILITY			Population using an improved drinking water source	2	3	Water resources	FDES	NSO/Ministries of w	Household surveys and censuses;Adminis
VULNERABILITY	99		Proportion of population with access to heating/cooling	3	3	Energy			
VULNERABILITY			Population with access to heating	2	3	Energy	SDG	NSO	Surveys, censuses
VULNERABILITY			Population with access to cooling	3	3	Energy	SDG	NSO	Surveys, censuses
VULNERABILITY	101		Proportion of the population living below the international poverty line by sex, age, employment stat	2	1, 3	Poverty	SDG	NSO	
VULNERABILITY	103		Proportion of urban population living in slums, informal settlements or inadequate housing	2	3	Poverty	SDG	NSO/Ministry of Lands or Human Settlement	
VULNERABILITY			Population living in informal settlements	2	3	Poverty	FDES		Surveys, censuses
VULNERABILITY	105		Proportion of population with disability	3	3	Disability	SDG	NSO	
MITIGATION	112	Prog	Refer to original source in metadata	2	3	Energy	SDG	NSO	
ADAPTATION, mitigation	128		Proportion of women in managerial positions	1	1	Governance	SDG	NSO, labour ministr	Labour force surveys, household surveys,
ADAPTATION, mitigation			Women's participation in sector-specific environmental governance bodies	3	2	Governance		NSO, labour ministr	Labour force surveys, household surveys,
ADAPTATION, drivers, impacts, vulnerability,	138		Proportion of population with access to climate information	3	3	Education		NSO/Environment Agency/National climate change reporting	
ADAPTATION, drivers, impacts, vulnerability, mitigation			Number of households with timely access to climate information	3	3	Education		NSO/Environment A	Surveys, censuses
ADAPTATION, drivers, impacts, vulnerability, mitigation			Number of people reached through climate change public awareness campaigns	3	3	Education		NSO/Environment A	Administrative records
ADAPTATION, drivers, impacts, vulnerability, mitigation			Number of children deprived of education	2	3	Education		Ministry of Educatic	Surveys

Gender and Climate Change at the Expert Group on Environment Statistics (Oct 2022) and the Inter-agency and Expert Group on Gender statistics (Dec 2022)

- Ensuring concepts, definitions and data collection methods are mindful of such phenomena is paramount.

- Environment-related crime and violence (including that against women and girls) should be added to the Global Set of Climate Change Statistics and Indicators.

- Where location characteristics are sought, geospatial information and administrative data sets may be the preferred source. E.g. *Proportion of population whose dwelling unit or land is located in high environmental-risk areas.*

- Gender statistics is a complex field. NSOs involved in the coordination of such work may wish to spend time and resources to research on this topic.

Data collection: Sources of Data

1. **Statistical surveys** (e.g., censuses or sample surveys of population, housing, agriculture, enterprises, households, employment, and different aspects of environment management)

2. **Administrative records** (of government ministries, departments and agencies, utility companies, authorities of related areas such as water, land, energy, forest, fisheries, education, health, budget, etc.)

3. **Remote sensing and thematic mapping** (satellite imagery, forests or land use and/or coverage, water pollution levels in lakes and lagoons)

4. **Monitoring systems** (field monitoring stations for water quality, precipitation, air pollution, climate, soils, etc.)

FDES 2013, pg. 8

Sources of Data (2)

5. **Scientific research**, special projects and studies undertaken to fulfill domestic or international demand

FDES 2013, pg. 8

Other sources include **Estimation, projections and modeling** (e.g. regressions, simulation, extrapolation and interpolation).

Inventories applicable to GHG emissions and forest-related indicators and statistics

Exploring New Areas of data collection in Environment and Climate Change Statistics

UNSD has been reviewing existing Censuses and surveys for many years to support countries in adding new or expanding existing questions. There has been:

- Substantial increase in the number of surveys and censuses available online (over 100).
- Better outreach to countries who have provided surveys in several languages other than English (e.g. Arabic, French, Portuguese, Spanish).
- Filterable by themes (13) separately or combined, country and year.
- A range of 27 countries spanning six regions (Africa, Asia, Europe, North America, Latin America and the Caribbean, Oceania).
- Relatively heavy focus on the themes of waste and water (32/90 surveys) but efforts are afoot to expand this selection to cover more themes including climate change

Exploring New Areas of data collection in Environment and Climate Change Statistics (2)

- The Environment Statistics Section (EVSS) has been collaborating with the Secretariat of the Pacific Community (SPC) who are in the process of developing a module aimed at collecting Climate Change data. https://www.spc.int/

- The Section is working in close collaboration internally with the Demographic Statistics Section in reviewing environment-related questions in the population and housing censuses(PHC).

  https://unstats.un.org/unsd/demographic-social/census/document-resources/

Environment as a Separate Section in Population and Housing Censuses

Censuses have traditionally included questions, and in some cases a separate section, on environmentally-related issues such as disposal of waste, water quality, toilet facility, source of energy, type of fuels used, etc.

Unique questions or separate sections, however, are still in the developmental stage or are very rare.

Although not exhaustive some examples of countries having separate Environment sections or unique questions are:

- In 2000 round of PHC Belize was the only country in the world found to have a separate section on environment in the census;

- In 2010 round Belize and Trinidad and Tobago each had a separate section on the Environment.

- In 2020 round Grenada and Tanzania each had a separate section on the Environment. Tanzania added several new questions, including on climate change, in this round.

The 2022 Population and Housing Census

Environment/Climate Change related questions used in the Community Questionnaire (*New questions, including on Climate Change)

i.   What is the main source of drinking water used by this facility (Education/Health facilities/Special Centres)?
ii. What kind of toilet facility do pupils/students/customers usually use?
iii. How many toilet stances/drop holes used by pupils/students?
iv. Does this facility have permanent/temporary hand washing facilities?
v.   What is the main source of electricity used by the facility?
vi. **Which methods used by your health facility to dispose waste?**
vii. **Does this Hamlet/Mtaa/Shehia have/bordered with the following environment? (River or Stream; Lake; Sea/Ocean; Dam; Forest; Grazing land; Land for Cultivation; National Park/Game Reserve/Reserved Area/Tourism/antiquities)**
viii. **Does this community have any knowledge about climate change? (Yes or No)**
ix. **How does the current climate change differ from that of over past 10 years? (Temperature increases; Temperature decreases; Rain increases; Rain decreases; Change in rain seasons; Increased sea level; Increased lake/Dam level; No change)**
x.   **Did this Hamlet/Mtaa/Shehia experience any of the following in the past 5 years? (Drought; Floods; Cyclones; Earthquakes; Landslides)**

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Specialised Surveys

Surveys are an additional method of data collection

Questions/module on the environment can be added to existing surveys e.g. Labour Force Survey (LFS), Household Survey (HHS), Multiple Indicator Cluster Survey (MICS), etc.

Specialized Surveys can be developed -

- Several surveys can be found on UNSD's website e.g. on water and waste and more are expected to be added including on Climate change.

- The Global Consultation conducted by UNSD in 2021 on the draft Global Set revealed information from a wide range of countries on specialised surveys or modules added to existing surveys.

- NSOs of Nepal and Bangladesh have conducted specialised surveys on climate change

Statistics/Indicators in the Global Set that can be derived from Censuses and Surveys

	Drivers	Impacts	Vulnerability	Mitigation	Adaptation
Statistics	7 (from 39)	6 (from 90)	19 (49)	5 (42)	11 (42)

Area: Drivers

17. Population growth
18. Urban population as a proportion of total population
24. Livestock units per agricultural area

Area: Vulnerability

83. Customer price of drinking water
84. Water production cost
85. Area of biofuels (and other non-food crops) as a proportion of total agricultural area
86. Population relying on subsistence and pastoral farming
92. Buildings (settlements) vulnerable to climate change
93. Coverage of essential public health services
98. Proportion of population using safely managed drinking water services
99. Proportion of population with access to heating/cooling
101. Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)
103. Proportion of urban population living in slums, informal settlements or inadequate housing

25. Use of nitrogen fertilizers per hectare of total agricultural area (cropland and pastures)

Areas: Adaptation, mitigation

147. Buildings adapted to climate change

Area: Adaptation
155. Water use per capita

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Specialized Surveys - Global Consultation 2021, Part 1

From Section D, Production and reporting of climate change statistics, Question D5: Has the NSO developed any specialized climate change surveys, or modules in existing censuses/surveys revealed the following -
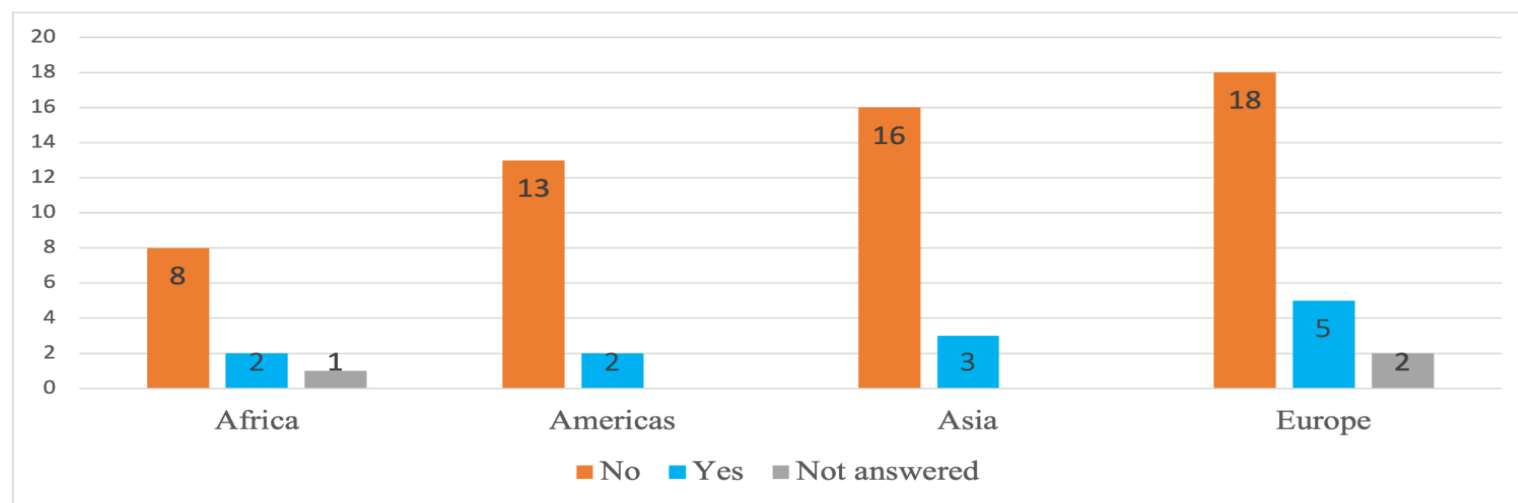
Twelve responses referenced an NSO's development of a specialized climate change survey, or module within an existing census or survey. Knowing full well that historically, NSOs have rarely incorporated measurement of climate change into their work programmes, these 12 responses demonstrate likely movement in the direction whereby, increasingly, NSOs may be more closely involved in data collection on climate change statistics in future.

Specialized Surveys dedicated to Climate Change
Global Consultation 2021, Part 1 (2)

From Section D, Production and reporting of climate change statistics Question D6. If D5 is yes, list the names of these surveys revealed that Countries mentioned various surveys and censuses they have developed including the following:

- Agencia Nacional de Transito
- Climate Adaption Financing Survey
- Climate Change and Natural Disaster Perspectives
- Environmental Expenditure Survey
- Forestry surveys
- Household Environmental Survey
- Living Standards Survey
- Low Carbon and Renewable Energy Economy Survey

- National Climate Change Impact Survey
- National Climate Statistic Report
- Pilot Survey on Sex, Age and Disability Disaggregated Data (SADDD) for Climate Change Adaptation (CCA) and Disaster Risk Reduction
- Rural, Agricultural and Fishery Census
- Omnibus Survey: Environmental Quality and Behaviour
- Waste Generation Survey

Those highlighted appear to be dedicated to Climate Change.

Conclusion

The PHC could be a major source of Environment/ Climate Change data.

Where feasible, it is advisable as some countries are doing, to

- expand existing sections on Environment/ Climate Change in the PHC questionnaire by adding more relevant questions

- explore inclusion of a separate section in the PHC

- include a module on the environment/climate change in existing surveys

- develop specialised surveys as many countries have successfully done.

UNSD urges countries to use the search tool on our website and send us feedback; also feel free to send us any survey instruments you have used or are aware of to envstats@un.org

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