

# Implementation of the Global Set of Climate Change Statistics and Indicators



Implementation support  
(24 August 2023)



# Outline

1. Background
2. Overview of the Global Set
3. Implementation Support tools:
  - Implementation Guidelines
  - CISAT
4. Capacity development activities



# Overview of the Global Set

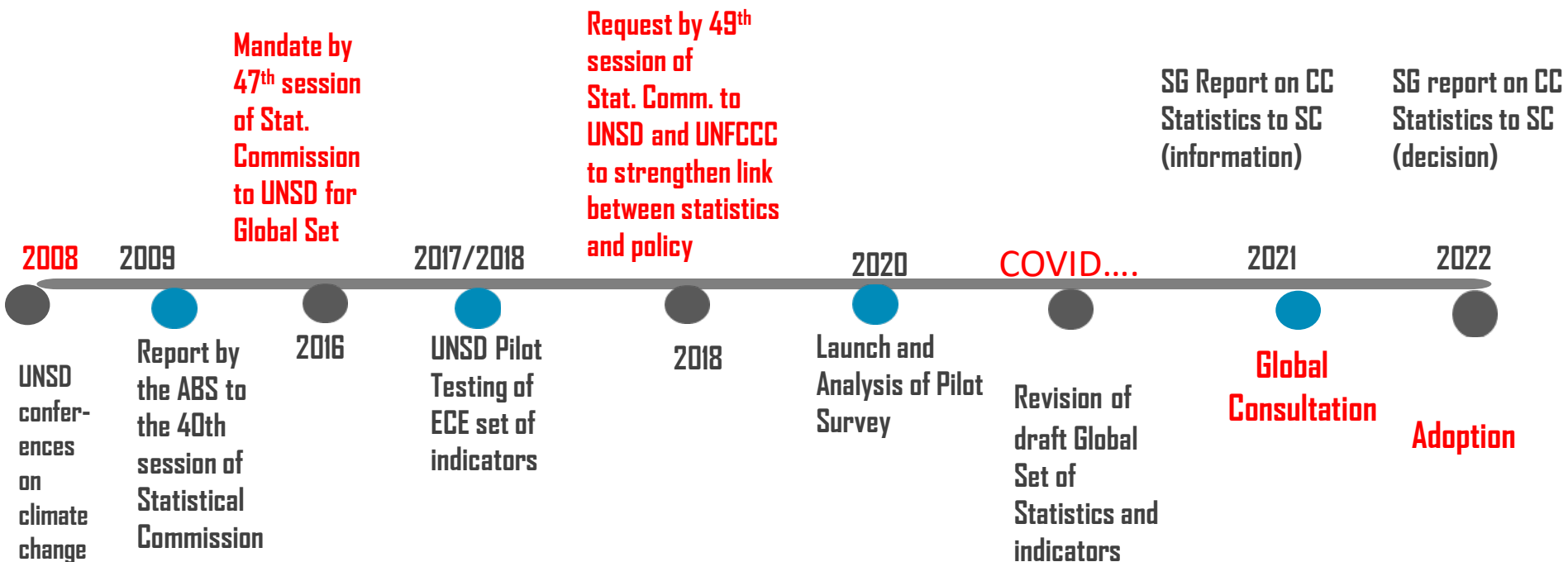


*The adoption of the Global Set of Climate Change Statistics and Indicators by the 53<sup>rd</sup> session of the Statistical Commission in March 2022 was highlighted in the Report of the Secretary-General on the Work of the Organization in 2022.*

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



# More than a decade long process: 2008 – present



## 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>

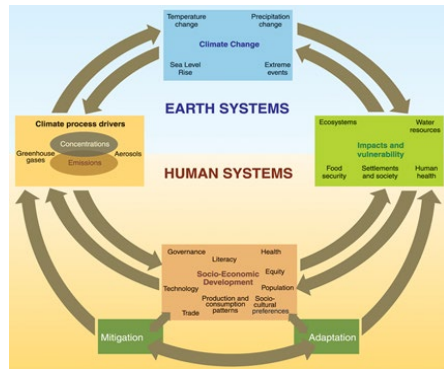
**Decision 53/116 (2022)**, the Global Set was adopted at the 53<sup>rd</sup> session of the Statistical Commission:

<https://unstats.un.org/unsd/statcom/53rd-session/documents/2022-41-FinalReport-E.pdf>



# 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.

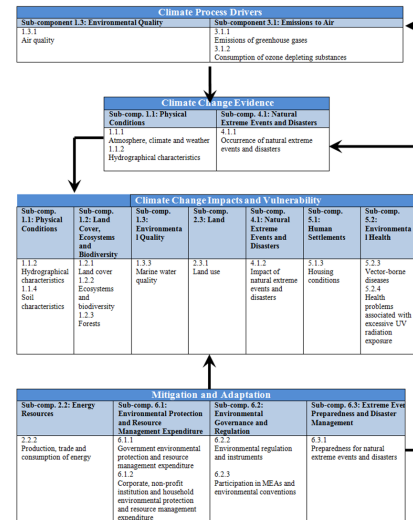


IPCC, 2007, Fourth Assessment Report



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.cshml](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



# 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	<p>The indicator measures the renewable freshwater resources divided by the population of the country.</p> <p>Renewable freshwater resources = Internal flow + Inflow of surface and groundwaters from neighbouring countries.</p> <p>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</p>	<p>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.</p> <p>[UNSD/UNEP Questionnaire, <a href="https://unstats.un.org/unsd/en/vstats/Questionnaires/2020/q2020_Water_English.pdf">https://unstats.un.org/unsd/en/vstats/Questionnaires/2020/q2020_Water_English.pdf</a>]</p> <p>[FDES BSES manual, Water resources, p.11, <a href="https://unstats.un.org/unsd/en/vironment/FDES/MS%202.6%20Water%20Resources.pdf">https://unstats.un.org/unsd/en/vironment/FDES/MS%202.6%20Water%20Resources.pdf</a>]</p>	<p>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.</p>	<p>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</p>



# 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



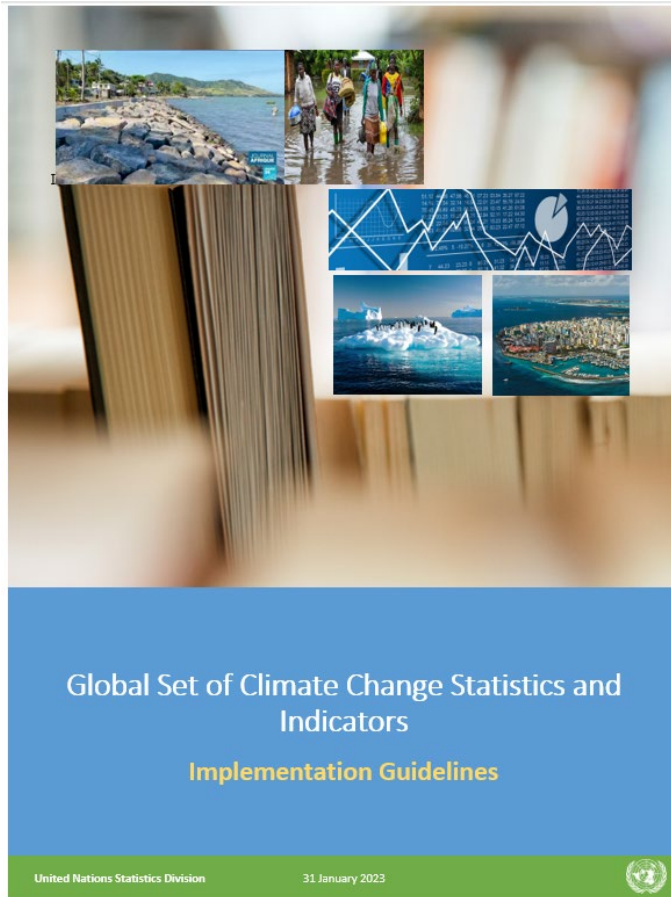


# Access and implementation support for the Global Set

- 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](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](mailto:envstats@un.org)



# Implementation Guidelines



[https://unstats.un.org/unsd/envstats/Climate%20Change/Implementation\\_Guidelines.pdf](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

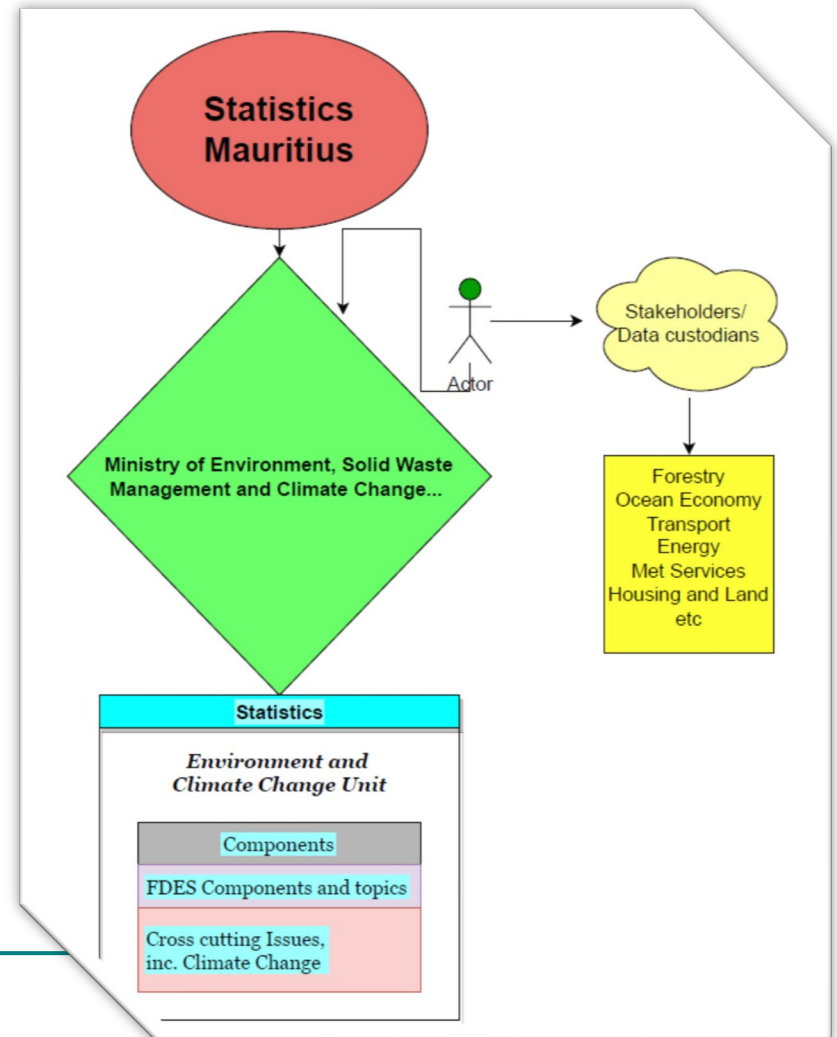
4.1.1 Role of NSOs

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												





# CISAT Package

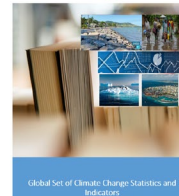
- **Introduction:** short introduction and guidance for completing the self-assessment;
- **Part I: Institutional Dimension of Climate Change Statistics and Indicators:** aims at collecting general information on the institutional dimensions of climate change statistics;
- **Part II: Statistics and Indicators 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.

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



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

Part I: Institutional Dimensions of Climate Change Statistics and Indicators



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



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



Prepared by the United Nations Statistics Division  
Version 3.0

(Extracted from the MAIN REPORT OF THE HIGH LEVEL PANEL OF EXPERTS ON CLIMATE CHANGE STATISTICS AND INDICATORS  
SECRETARIAT OF THE UNITED NATIONS  
New York, New York, 2015. Available from: <http://www.un.org/News/Press/docs/2015/05/150501.html>

## Introduction

The Climate Change Statistics and Indicators Self-Assessment Tool (CISAT) gives United Nations member states an opportunity to undertake a thorough and detailed assessment of the statistics and indicators in the Global Set of Climate Change Statistics and Indicators (Global Set). The United Nations Statistical Commission, at its fifty-third session in 2012, adopted the Global Set of Climate Change Statistics and Indicators as the framework for climate change statistics and indicators to be used by countries when preparing their own sets. Similar to the Base Set of Environment Statistics in the Framework for the Development of Environment Statistics (BSES), the Global Set is comprehensive, but not exhaustive, and designed to support countries according to their individual needs, concerns, priorities and resources.

The Global Set serves as the statistical framework for monitoring and reporting climate action with available indicators to serve as a guidance for countries to prepare their own sets. It covers the five priority areas of the PCIC: drivers, impacts, vulnerability, mitigation and adaptation which are broken down into 84 topics. In each area, the most important indicators to describe the topics are listed, thus providing guidance to countries developing national climate change statistics programmes in a comprehensive and balanced manner. Also included are statistics for which latest methodologies are identified. In this way, the Global Set contains 158 indicators and 390 statistics. The purpose of this structure is to ensure balanced coverage of indicators and statistics, and to provide direction to parties (e.g., on drivers, mitigation, adaptation, etc.). In addition, the vision is designed to help countries to select and prioritize the statistics and indicators most relevant to their national context.

The list of indicators and statistics included in the Global Set, as well as the Metadata are best accessed through the online tool: <http://www.un.org/News/Press/docs/2015/05/150501.html>

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GLOBAL SET (ADOPTED IN MARCH 2012)	GLOBAL INDICATOR REFERENCE	INDICATOR REFERENCE	STATISTICAL REFERENCE	UNIT	RELEVANCE	SOUNDNESS	DATA AVAILABILITY	SELF-ASSESSMENT	
								RELEVANCE	SOUNDNESS
1. Total greenhouse gas emissions per year	1.1	1.1	1.1	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
2. Total emissions of other greenhouse gases	1.2	1.2	1.2	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
3. Greenhouse gas emissions from land use, land-use change and forestry	1.3	1.3	1.3	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
4. Total greenhouse gas emissions from the national economy	1.4	1.4	1.4	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
5. Greenhouse gas emissions per capita	1.5	1.5	1.5	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
6. Greenhouse gas emissions in gross fixed capital formation of direct investment	1.6	1.6	1.6	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
7. Greenhouse gas emissions in value added of foreign-controlled multinational enterprises	1.7	1.7	1.7	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
8. Carbon footprint	1.8	1.8	1.8	kt of CO <sub>2</sub> equivalent	High	High	High	High	High
9. Global concentration of greenhouse gases	1.9	1.9	1.9	ppm	High	High	High	High	High
10. Total primary energy production from fossil fuels	2.1	2.1	2.1	kt of oil equivalent	High	High	High	High	High
11. Total energy supply from fossil fuels	2.2	2.2	2.2	kt of oil equivalent	High	High	High	High	High
12. Share of fossil fuels in total energy supply	2.3	2.3	2.3	%	High	High	High	High	High
13. Total energy consumption per capita	2.4	2.4	2.4	kt of oil equivalent	High	High	High	High	High
14. Energy intensity measured in terms of primary energy and gross domestic product	2.5	2.5	2.5	kt of oil equivalent per \$1,000 of GDP	High	High	High	High	High
15. Fossil fuel dependency	2.6	2.6	2.6	%	High	High	High	High	High
16. Amount of fossil fuel subsidies (production and consumption) per unit of gross domestic product	2.7	2.7	2.7	\$/kt of oil equivalent	High	High	High	High	High
17. Population growth	3.1	3.1	3.1	%	High	High	High	High	High
18. Urban population as a proportion of total population	3.2	3.2	3.2	%	High	High	High	High	High
19. Number of (road) transport vehicles per capita	3.3	3.3	3.3	per 1,000 population	High	High	High	High	High
20. Vehicle miles travelled per capita	3.4	3.4	3.4	per 1,000 population	High	High	High	High	High
21. Intensity of use of forest resources	3.5	3.5	3.5	per 1,000 population	High	High	High	High	High
22. Deforested area as a proportion of total forest area	3.6	3.6	3.6	%	High	High	High	High	High
23. Ratio of area of organic soils drained for agriculture to total area of organic soils	3.7	3.7	3.7	%	High	High	High	High	High
24. Livestock units per agricultural area	3.8	3.8	3.8	per ha	High	High	High	High	High
25. Use of nitrogen fertilizers per hectare of total agricultural area (cropland and pastures)	3.9	3.9	3.9	kg/ha	High	High	High	High	High
26. Growth in built-up area	4.1	4.1	4.1	%	High	High	High	High	High
27. Direct agricultural loss attributed to disasters	4.2	4.2	4.2	%	High	High	High	High	High
28. Crop loss due to climate extremes	4.3	4.3	4.3	%	High	High	High	High	High
29. Impact of climate change on livestock productivity	4.4	4.4	4.4	%	High	High	High	High	High
30. Growing degree days	4.5	4.5	4.5	°C days	High	High	High	High	High
31. Forest area as a proportion of total land area	4.6	4.6	4.6	%	High	High	High	High	High

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# 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:

GLOBAL SET (ADOPTED in MARCH 2022)					GLOBAL CLIMATE POLICY REFERENCES		STATISTICAL REFERENCES				Focal Institutions and data sources			
Area	Topic	Number	Indicator	Statistic	Tier	Theme	Paris Agreement article	PAWP-Katowice	Method (frameworks, standards, guidelines)	Global		Regional	National Data Sources	National focal Institution
										FDES reference	SDG reference	Sendai Framework reference	UN-ECE reference	
<b>DRIVERS</b>														
			<a href="#">Total greenhouse gas emissions</a>											
1			<a href="#">Total greenhouse gas emissions per year</a>	Total emissions of direct greenhouse gases (Equivalent to the indicator)	1	GHG emissions	13.7a	Decision 18/	IPCC; SDG; UN-ECE		13.2.2 Total greenhouse gas emissions	[Similar to] UN-ECE 09a	Environment Agency/NSOs	Environment Agency/NSOs
2			<a href="#">Total emissions of indirect greenhouse gases</a>	Equivalent to the indicator	1	GHG emissions	13.7a	Decision 18/	IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct greenhouse gases			Environment Agency/NSOs	Environment Agency/NSOs
3			<a href="#">Greenhouse gas emissions from land use, land use change and forestry</a>	Equivalent to the indicator	1	GHG emissions	13.7a	Decision 18/	IPCC; FDES; UN-ECE	[Similar to] FDES 3.1.1.a Total emissions of direct greenhouse gases			Environment Agency/NSOs	Environment Agency/NSOs
4			<a href="#">Total greenhouse gas emissions from the national economy</a>	Equivalent to the indicator	2	GHG emissions			SEEA-CF; UN-ECE			UN-ECE 09a	NSO	
5			<a href="#">Greenhouse gas emissions per capita</a>		1	GHG emissions			IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct greenhouse gases			Environment Agency/NSOs	Environment Agency/NSOs
6			<a href="#">Greenhouse gas emissions in gross fixed capital formation of direct investment</a>	Total emissions of direct greenhouse gases (Equivalent to the indicator)	1	GHG emissions	13.7a	Decision 18/	IPCC; FDES	[Similar to] FDES 3.1.1.a Total emissions of direct greenhouse gases			Environment Agency/NSOs	Environment Agency/NSOs
7			<a href="#">Greenhouse gas emissions in value added of foreign controlled multinational enterprises</a>		3	GHG emissions			SEEA-CF				NSOs and Central Banks	NSOs and Central Banks
				GHG emissions in output of foreign-controlled enterprises	3	GHG emissions			SEEA-CF				NSOs and Central Banks	NSOs and Central Banks



# CISAT Part II Self-Assessment

SELF-ASSESSMENT																				4 Future Plans																			
Focal Institutions and data sources		1 Relevance				2 Data/statistic/indicator characteristics										3 Methodological soundness																							
		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 Latest year available	2.1.3 Earliest year available	2.1.4 Periodicity	2.1.5 Data type	2.1.6 Reference/link	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 Inherent in 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 Classification/groupings	
Environment Agency	National climate change reporting authorities																																						
Environment Agency	National climate change reporting authorities																																						
Environment Agency	National climate change reporting authorities																																						
Environment Agency	National climate change reporting authorities																																						
NSO																																							
Environment Agency	National climate change reporting authorities																																						
Environment Agency	National climate change reporting authorities																																						
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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.

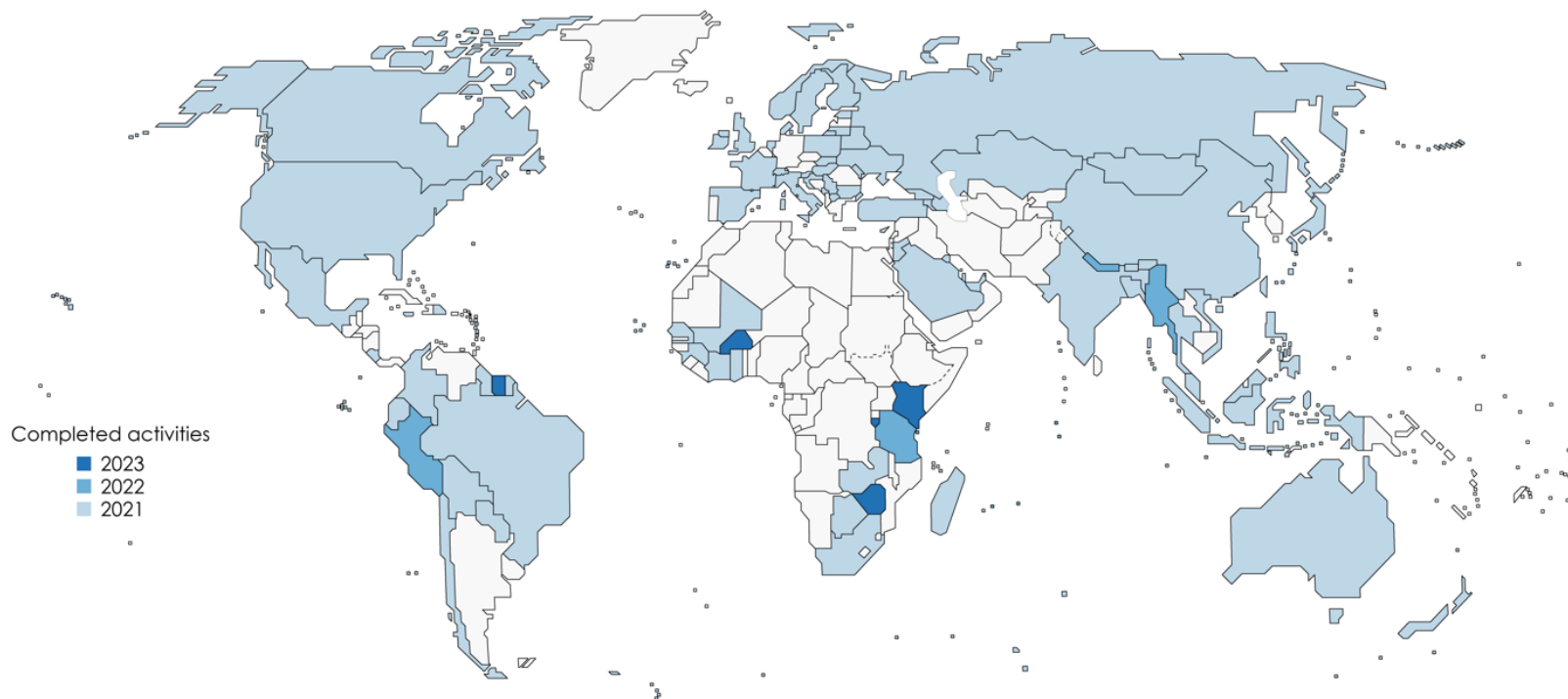
**Indicator [column E]:** As in the FDES (p. 7), environmental indicators are used to synthesize and present complex environment and other statistics in a simple, direct, clear and relevant way... may take various

## 1. Total greenhouse gas emissions per year

Field	Description	
<b>Indicator</b>	Total greenhouse gas emissions per year	
<b>Statistics</b>		Total emissions of direct greenhouse gases (excluding LULUCF)
<b>Area</b>	Drivers	
<b>Topic</b>	Total greenhouse gas emissions	Total greenhouse gas emissions
<b>Themes</b>	GHG emissions	GHG emissions
<b>Paris Agreement article</b>	13.7a	13.7a
<b>PAWP-Katowice</b>	Decision 18/CMA.1, chapter II, para. 47-49	Decision 18/CMA.1, chapter II, para. 47-49
<b>FDES</b>		3.1.1.a [similar to]
<b>SDG</b>	13.2.2	
<b>Sendai Framework</b>		
<b>Tier</b>	1	1
<b>Definition</b>	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, <a href="https://www.ipcc.ch/sr15/chapter/glossary/">https://www.ipcc.ch/sr15/chapter/glossary/</a> ] 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 <sub>2</sub> 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, <a href="https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHG_missions.pdf">https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHG_missions.pdf</a> ]	Direct GHG emissions are those directly emitted into the atmosphere by a source. It includes CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFC, SF <sub>6</sub> , PFC, NF <sub>3</sub> 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, <a href="https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHG_missions.pdf">https://unstats.un.org/unsd/envstats/fdes/MS1.3.1_GHG_missions.pdf</a> ]
<b>Relevance</b>	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, <a href="https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter9-1.pdf">https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter9-1.pdf</a> ]	

# Growing engagement of countries

Climate Change Statistics



- Global Consultation (May- Sept 2021) – 86 countries (68 on part 1 and 75 part 2) and 26 organizations
- The engagement is wider than that, 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



# Capacity development activities

## 1. Africa (funded by the African Development Bank)

- COMESA initiated a new capacity development project addressing 37 African countries and key regional entities involved in reporting to UNFCCC
- COMESA Workshop on Environment and Climate Change Statistics for the African Development Fund Countries (Nairobi, Kenya, 28 November – 1 December 2022)
- The following countries were engaged in CISAT pilot-testing: Burkina Faso, Burundi, Cameroon, Ghana, Togo, Zimbabwe, etc.
- The following countries were assisted to develop national programmes and roadmaps for climate change statistics in 2023: Burkina Faso, Burundi, Kenya, Zimbabwe

## 2. CISAT pilot-testing in Caribbean SIDS (RPTC funded activity): Antigua and Barbuda, Belize, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname

## 3. National mission and workshop on Environment and Climate Change Statistics in Peru, Lima, 12 - 16 December 2022), with a main objective to initiate the development of a national programme and mobilize resources

## 4. Climate Change and Disaster-related statistics under the DA 14 project



# Thank you for your attention!

For more information please contact the Environment Statistics Section  
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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](https://unstats.un.org/unsd/envstats/ClimateChange_StatAndInd_global.cshtml)

