

# Global Set of Climate Change Statistics and Indicators



**DA12 project Kick-off webinar:**

**Introduction to climate change and disaster statistics in the Caribbean**

**9, 10 and 11 March 2021**

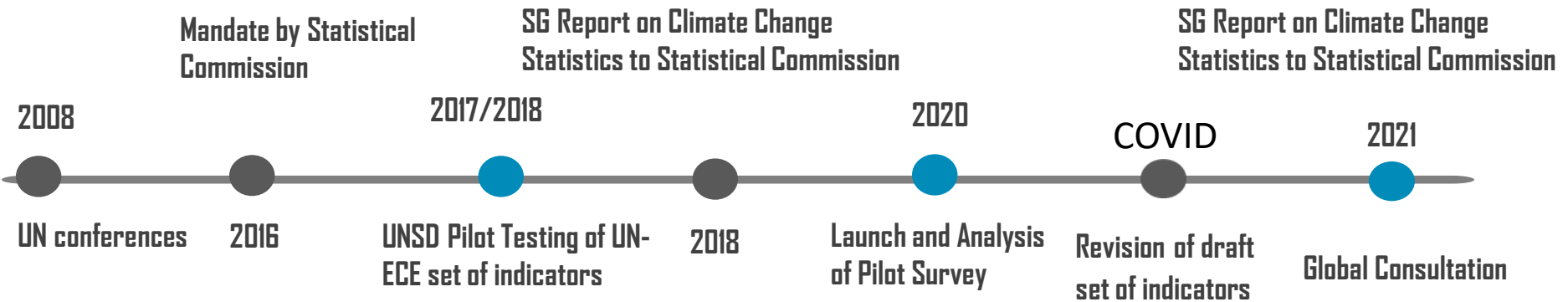


# Outline

1. Introduction/background
2. Mandate and objective
3. Methodology: towards a Global Set
4. Dissemination examples
5. Planned actions
6. Recommendations



# Background: More than a decade long process



- FDES cross-cutting application (Chapter 5) links climate change and environment statistics based on IPCC Framework (4<sup>th</sup> report in 2007)
- Collaboration with UNFCCC - Joint reports, side-events, capacity development workshops and UNFCCC participation in EGES since 2017
- Latest capacity development activities in the region
  - UNSD/CARICOM Regional Workshop on Environment Statistics and Climate Change Statistics (Grenada, Nov 2019) (<https://unstats.un.org/unsd/envstats/meetings/2019-Caricom%20Region/CaricomRegion.cshtml>)
  - National workshop on Environment Statistics and Climate Change Statistics organized by the CSO of Grenada (Grenada, Nov 2019) (<https://unstats.un.org/unsd/envstats/meetings/2019-Grenada/Grenada.cshtml>)



# 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 47<sup>th</sup> 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](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 49<sup>th</sup> 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

UNSD, in collaboration with UN-ECE and UNFCCC, prepared the Report of the Secretary-General on Climate Change Statistics to the 52<sup>nd</sup> 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

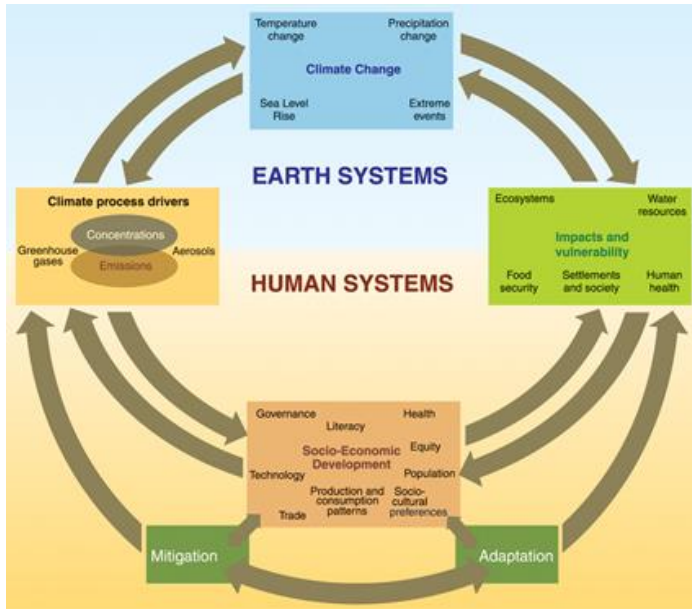
Russian

## Current work on climate change statistics in the Statistics Division

- A. Development of the global set of climate change statistics and indicators
- B. Pilot survey on the draft global set of climate change statistics and indicators
- C. Main outcomes of the pilot survey
- D. Review of the draft global set of climate change statistics and indicators at the seventh meeting of the Expert Group on Environment Statistics
- E. Capacity development activities
- F. Substantive activities on climate change statistics and indicators
- G. Planned actions of the Statistics Division

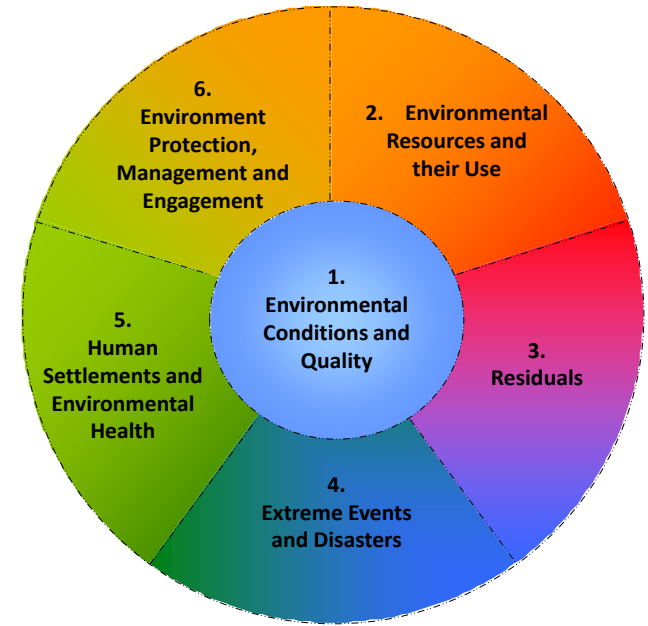


# Climate change statistics: methodology base for a Global Set



IPCC, 2007, Fourth Assessment Report

(drivers, evidence, impacts & vulnerability, mitigation and adaptation)



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)







# Towards a Global Set: criteria for selection of indicators

## References to international agreements and frameworks:

- relevant articles of the [Paris Agreement](#) and the [Katowice Package](#) are mentioned for each indicator thereby clearly demonstrating the link between statistics and policy.
- [SDGs](#), [FDES](#) and [Sendai Framework](#), as well as [UN-ECE set of indicators](#), have been considered to promote consistency and harmonize the wording of the indicators to the extent possible.

## Criteria for selection of indicators:

- [Consistency with existing thematic indicator](#) sets and guidance, namely from UNFCCC/IPCC, FAO, SDGs, UNDRR, UNCCD, UNCBD, as well as with the FDES statistics, has been promoted.
- [Complementarity](#) with existing regional climate change indicators, e.g. EEA, UN-ECE, and Eurostat, where applicable, as well as other relevant initiatives.
- Indicators for which [metadata can be developed](#).
- Balanced [coverage of the five IPCC areas](#) (drivers, impacts, vulnerability, adaptation and mitigation).



# UNSD: Globalizing climate change statistics and indicators

The [Expert Group on Environment Statistics](#) (EGES) has been **contributing to work on the draft set** through review of iterative versions and discussions at Expert Group meetings.

At its [sixth meeting](#) in May 2019, it was agreed that UNSD share the draft set with interested experts of the EGES, before **conducting a Pilot Survey**.

An **expert review** was completed in January 2020 based on feedback from six countries (Jamaica, Luxembourg, Suriname, Tanzania, The Netherlands and Zimbabwe) and four international and regional organizations (UNFCCC, FAO, ECLAC, EEA).



## Pilot Survey and impact of pandemic and follow-up

The Pilot Survey was launched on 23 February 2020 to test and assess the relevance, soundness and measurability of the proposed indicators in two ways:

- (1) by inviting the national statistical offices (NSOs) and/or ministries of environment from 42 countries to assess their preparedness to compile the suggested indicators in collaboration with relevant partners according to their national priorities as well as the development stage of the country;
  - 17 countries responded - 7 developed and 10 developing;
  - Another 12 developing countries communicated some progress but could not complete the survey.
- (2) 30 international/regional organizations were invited to assess the indicators from a thematic and methodological point of view to ensure that the selected indicators are relevant, correctly named, and supported by definitions, references and data.
  - 13 organizations provided feedback.

While further responses were awaited from, UNSD set up a **small group** of (developing) countries that were faced with the most challenges due to the pandemic as well as with the completion of the survey in general, along with the Chair of the EGES, to examine in detail the structure of the draft Global Set and **provide inputs towards a product** for the planned Global Consultation in 2021.

# Main outcomes of the Pilot Survey and follow-up

- (a) Most of the proposed indicators were considered applicable, although some needed further methodological work;
- (b) For several indicators, the relevance to climate change was not clear [metadata are being prepared];
- (c) Several new indicators were suggested;
- (d) The links to the Intergovernmental Panel on Climate Change and to the ECE core set of indicators were appreciated;
- (e) Several of the indicators originally proposed were considered to be overlapping [redundancies will be eliminated];
- (f) There is a need to reduce the number of indicators [multi-tiering system will assist with prioritization];
- (g) **There is a need to clarify the difference between indicators and statistics [a new structure with both indicators and the underlying basic statistics was prepared and presented to the 7<sup>th</sup> EGES meeting];**
- (h) Some of the proposed indicators needed to be simplified, as they were considered too complex or requiring modelling in their present form;
- (i) **References to the System of Environmental-Economic Accounting were encouraged where applicable [several ECE indicators include such references, and references will be provided in metadata as necessary];**
- (j) **Data availability was mentioned as a concern for some indicators, especially in the area of adaptation [recent work with consultants is being undertaken in adaptation, impacts and vulnerability in CARICOM SIDS and African countries];**
- (k) **Several indicators were considered to be outside the mandate of national statistical offices or national statistical systems [additional efforts are being undertaken with the specialized agencies];**
- (l) **There is inadequate capacity in developing countries to compile some of the indicators that are relevant in those countries.**

# Main conclusions of the 7<sup>th</sup> EGES

- (a) The global set of climate change statistics and indicators is a comprehensive, but not exhaustive, set of indicators and statistics designed to support countries according to their individual concerns, priorities and resources;
- (b) The pilot survey clearly demonstrates that most of the proposed indicators in the global set are applicable, although some indicators need further methodological work;
- (c) The matrix-based structure of the global set that links indicators and underlying statistics helps to promote transparency and comprehensiveness and **is flexible enough for countries to select relevant indicators and statistics for compilation, depending on their level of development;**
- (d) Comprehensive metadata for the global set can be used as a guiding tool for countries to compile climate change statistics;
- (e) International and regional organizations should continue to collaborate to streamline, inter alia, concepts, definitions and methodologies;
- (f) Complementarity should be promoted, to the extent possible, among global, regional and national sets of climate indicators;
- (g) **UNSD and UNFCCC should continue** to: undertake joint initiatives to develop climate change statistics and indicators; strengthen the link between policy and statistics and between NSO and climate change reporting agencies at the national level; and collaborate on capacity development with support from other partners;
- (h) The role of **NSOs as providers of activity data** (economic statistics) was highlighted, including the need to include such offices in the greenhouse gas compilation processes and reporting under UNFCCC;
- (i) **NSO can contribute to or coordinate** climate change statistics, as is done in environment statistics, on the basis of their mandates to produce official statistics and role in coordinating the national statistical system

# Conclusions from Group Work during the 7<sup>th</sup> EGES

- Some 50 experts took part in the group work and were well familiarized with the structure of the global set and the objectives of its development. The individual statistics and indicators, the overall structure and metadata examples were reviewed in each area.
- The participants concluded that the **areas of adaptation and vulnerability were especially important to small island developing States, developing and least developed countries, as well as the most challenging areas** to advance the production of internationally comparable statistics and indicators.
- They also concluded that the **areas of drivers and mitigation were of more importance to developed countries and contained statistically better-defined indicators.**
- The experts recognized the **importance of applying the relevant Sustainable Development Goals in the global set**, even if some indicators needed further work to relate them to climate change. Missing, weak or insufficiently defined statistics and indicators were identified in all areas. It was also noted that there was a need to identify a core set of indicators applicable to all countries.



# Global set structure

Indicators and statistics side-by-side, main metadata details

Area	Topic	Indicators	Statistics (FDES Statistic)	Themes	Definition reference	Relevance	Methodological Guidance	Update frequency	potential aggregations and	Category of Measurement	Data collection methods	National	Comput	Data re	Data ty	Paris Ag	Katowit	SDG	FDES	Sendal	Tier (UN	
Impacts		<b>Reduction of glaciers extent and mass</b>		Snow and ice			WMO report (pg 8,		By region; b	Area, rate												
Impacts			Glaciers extent (FDES 1.1.1.g)	Snow and ice							remd											
Impacts			Glaciers mass	Snow and ice							? Wc											
Impacts		<b>Freshwater resources</b>		Water resources																		
Impacts		<b>Renewable freshwater resources per capita</b>		Water resources			FDES-BSES manual (water resou		Volume													
Impacts			Precipitation (FDES 1.1.1.b/2.6.1.a)	Water resources				monthly	National	Volume	moni											
Impacts			Evapotranspiration (FDES 2.6.1.6.1)	Water resources					National	Volume	moni											
Impacts			Inflow (FDES 2.6.1.b.2)	Water resources					National	Volume	moni											
Impacts			Population	Water resources				annual	National	Volume	Cens-											
Impacts		<b>Freshwater abstraction, supply and use</b>		Water resources																		
Impacts		<b>Freshwater abstracted as proportion of renewable freshwater</b>		Water resources			FDES-BSES manual (water resou		Percent													
Impacts			Freshwater abstracted	Water resources				monthly, annual			admi											
Impacts			Renewable freshwater resources	Water resources				annual			? mo											
Impacts		<b>Water quality</b>		Water resources																		
Impacts		<b>Loss of quality of water bodies [similar to SDG 6.3.2]</b>		Water quality			FDES BSES draft manual (marine water quality															
Impacts			Water turbidity	Water quality					By water bc	Concentra	moni											
Impacts			Water pH (FDES 1.3.2.f.1)	Water quality			FDES BSES annual		By water bc	Level	moni											

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 Search

- Administrative records; Sample surv
- Census, survey, population register
- censuses
- censuses, proxy from import & proc
- censuses, surveys
- censuses, surveys, pop registers
- inventory
- inventory; monitoring systems
- monitoring
- monitoring systems
- monitoring, inventory, modelling
- monitoring, surveys
- remote sensing

OK Cancel

The set contains:

- 5 areas (IPCC)
- 41 topics
- 140 indicators
- 253 statistics
- Key metadata





# Global set: metadata example

	Indicator	Statistic 1	Statistic 2	Statistic 3
<b>Codes and titles:</b>	<a href="#">41. Renewable freshwater resources per capita</a>	<a href="#">41.1 Precipitation</a>	<a href="#">41.2 Evapotranspiration</a>	<a href="#">41.3 Inflows</a>
<b>Area, topic</b>	Impacts, Freshwater resources			
<b>Themes</b>	Water			
<b>Correspondences</b> SDGs FDES Paris Agreement articles Katowice Package decisions Sendai	Related to SDG 6.4.2  Paris agreement articles 7; 13.8 Decision 18/CMA.1, chapter IV; Decision 9/CMA.1	FDES 1.1.1.b/2.6.1.a Paris agreement articles 7; 13.8	FDES 2.6.1.b.1 Paris agreement articles 7; 13.8	FDES 2.6.1.b.2 Paris agreement articles 7; 13.8
<b>Tier</b>	1	1	1	1
<b>Definitions</b>	Renewable water resources are replenished by precipitation and are represented by the annual flow of surface water and groundwater. (BSES manual)	The volume of water that flows from the atmosphere to inland water resources via rain, snow, sleet, hail, dew, mist, etc., per year. (BSES manual)	The volume of water that enters the atmosphere by vaporization of water into a gas through evaporation from land and water surfaces and transpiration from plants, per year. (BSES manual)	The volume of surface water and groundwater that moves into a territory from other territories, during a year. (BSES manual)
<b>Relevance</b>	<ul style="list-style-type: none"> <li>Water resources management</li> <li>International data collection (UNSD/UNEP, Eurostat/OECD, AQUASTAT, SDG)</li> </ul>			
<b>Update frequency</b>	annual	annual	annual	annual
<b>Category of Measurement</b>	Percent	Volume	Volume	Volume
<b>Data collection methods</b>	Monitoring systems	Monitoring systems	Monitoring systems	Monitoring systems
<b>Data sources</b>	hydro meteorological institutions			
<b>Computation/compilation methods</b>	Precipitation plus inflows minus evapotranspiration divided over population number	Interpolation of point measurements over a geographic area (SEEA water pg71). GIS modelling of precipitation.	Residual of precipitation less surface and sub-surface run-off (SEEA water pg71).	sum of inflows from other territories
<b>Reference to examples of statistics</b> / Type of statistics	UNSD Environmental Indicators (Inland water resources) / Country	UNSD Environmental Indicators (Inland water resources) / Country	UNSD Environmental Indicators (Inland water resources) / Country	UNSD Environmental Indicators (Inland water resources) / Country
<b>Potential aggregations and scales</b>	National; Sub-national; By territory of origin and destination			
<b>Methodological Guidance</b>	<a href="#">UNSD/UNEP Questionnaire on Environment Statistics</a> (Water); <a href="#">Manual on the Basic Set of Environment Statistics (BSES) (Water Resources)</a> ; <a href="#">International Recommendations for Water Statistics</a> ; <a href="#">Compilation Guidelines for Water Accounts and Statistics</a>			



# Dissemination Examples

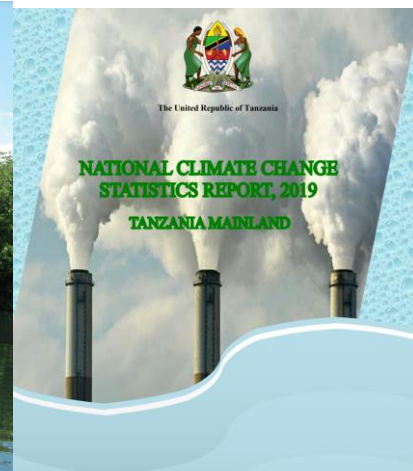
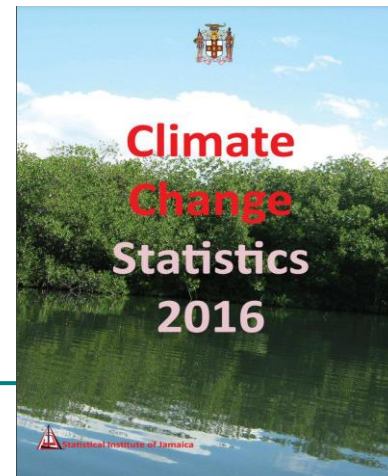
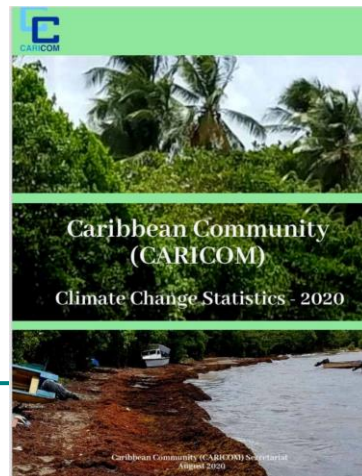
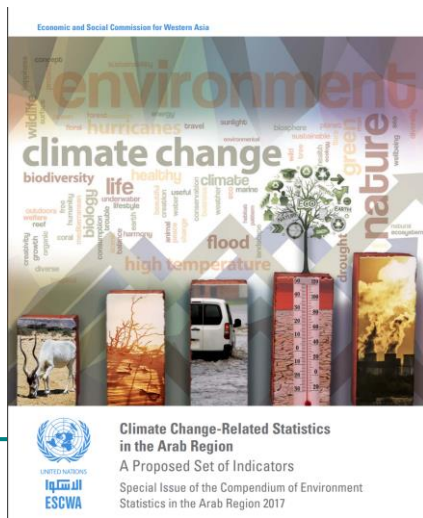
There is a growing number of NSOs producing separate climate change statistics report [outputs/events] to illustrate the importance of this topic.

## National

- Jamaica – Climate Change Statistics Report (2016)
- Tanzania – National Climate Change Statistics Report (2020)
- Nepal – Climate Change Impact Survey (2016)
- Slovenia – Statistical Day 2020: Climate Crisis – Hot Data

## Regional

- Caribbean Community (CARICOM) – Climate Change Statistics (2020)
- ESCWA – Climate change-related statistics in the Arab region (2017)



# Planned actions of UNSD

- Completion of the analysis of the pilot survey and of the feedback from the Expert Group on Environment Statistics, and completion of the metadata for tier I and II indicators;
- Participation in and following of the relevant processes for **developing international standards, guidelines and frameworks** to ensure that the related indicators and statistics are included in the global set to the extent possible, with the best references included in the metadata;
- Undertaking of pilot projects or case studies on climate change indicators and statistics, especially in developing countries;
- Expansion of the dissemination of climate change statistics and indicators on the UNSD website;
- **Further widening of the scope of the Expert Group on Environment Statistics** to cover all topics related to climate change drivers, impacts, vulnerability, mitigation and adaptation and to ensure continuous technical support from the experts for the global set;
- Setting up of an advisory group to assist in the revision and refinement of the draft global set;
- Holding of an extraordinary meeting on climate change statistics of the Expert Group on Environment Statistics to discuss the revised draft global set and discuss a long-term workplan;
- **Further exploration of ways to strengthen the relationship between national statistical offices and national authorities reporting climate change information;**
- Further investigation of the linkages between data producers and data users, and engagement with the wider statistical community;
- Holding of side events on climate change statistics on the margins of the sessions of the Statistical Commission and the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement;



# Planned actions of UNSD: Global Consultation

- Conduct of a **consultation on the Global Set** around March [**more likely April**] 2021 with **all countries and relevant agencies**, accompanied by an **inventory of related activities**;
- Analysis of the results of the global consultation and development of implementation guidelines;
- Submission of the Global Set to the **53<sup>rd</sup> session of the Statistical Commission, in 2022**, for adoption;



# Recommendations

- Participate in the **Global Consultation on the draft Global Set of Climate Change Statistics and Indicators** (April 2021) and engage all stakeholders involved in climate change data reporting and policy.
- Establish inter-agency working committees on climate change (environment) statistics to facilitate data coordination and reporting.
- Promote complementarity among global, regional and national sets of climate indicators, to encourage harmonization across all levels. The Global Set is flexible enough, with a tiering system, to be applied based on regions', as well as countries', priorities and data availability.
- Seek support for capacity development through international and regional funding opportunities such as the Green Climate Fund, the Global Environment Facility, the United Nations and bilateral donors.



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

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

Climate Change Statistics Website

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

