

Climate Change Statistics and Indicators



**UNFCCC Regional webinar on “embedding climate reporting in national statistics”
for the Latin America and Caribbean Region:
17 August 2021**



Outline

1. Climate change statistics
2. Coordination: role of NSOs
3. Data collection and dissemination: role of NSOs
4. Background to UNSD work on Global Set of Climate Change Statistics and Indicators
5. Mandates of the Statistical Commission
6. Collaboration between UNSD and UNFCCC to strengthen link between statistics and policy
7. Global Set: Foundation
8. Global Set: Methodology
9. Global Consultation on draft Global Set
10. Global Set: Structure
11. Global Set: Metadata
12. Global Set: Output
13. Capacity development in the region: UNSD



Climate change statistics

Climate change statistics – similar to environment statistics:

- Synthesize data originating from various types of sources.
- Involve large number of institutions or stakeholders and need collaboration.
- Overwhelming volume of data across various institutions.
- Different users need climate change statistics at different levels of aggregation and depths of information.
- Need underlying framework to organize, similar to the Framework for the Development of Environment Statistics (FDES).
 - The **Global Set of Climate Change Statistics and Indicators will provide a comprehensive statistical framework with statistics, indicators and metadata**, as well as support the reporting requirements of countries under the Enhanced Transparency Framework and the Global Stocktake of the Paris Agreement, as well as climate-related SDG indicators.



Coordination: role of NSOs

National Statistical Offices (NSOs):

- Can contribute to, or coordinate climate change statistics, based on their mandates to produce official statistics and their role in coordinating the national statistical system.
- Can contribute by improving information quality to mainstream climate change statistics into official statistics.
- Have stronger capacity to deal with multi-disciplinary and comprehensive information flows than specialized institutions.
- Provide activity data (economic statistics) for GHG emissions. **Can NSOs take the lead to coordinate production of statistics in other climate areas, in particular vulnerability and adaptation?**

Good practices

- Working group at national level e.g., Suriname, Grenada, and contribute to more effective reporting by NSOs and institutions providing climate change information to UNFCCC.
- A dedicated unit/section in the NSO. Some NSOs have established combined environment and climate change statistics units.

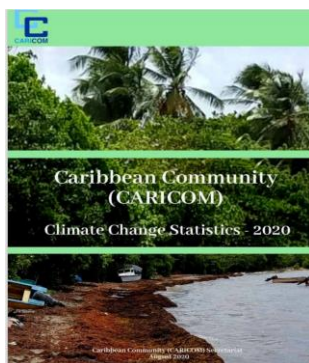
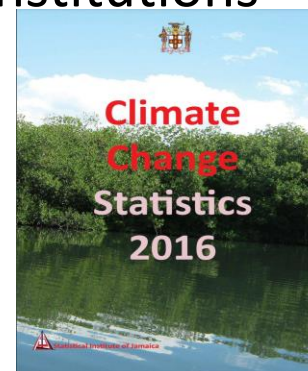


Data collection and dissemination: role of NSOs

- Importance of establishing routine, formalised, data collection by NSOs, through from existing national institutions, e.g., on **waste statistics** which leads to methane emissions, **water resources, access to energy/sanitation and building materials** (from population and housing census) for vulnerability to storms/adaptation (green buildings). Use of surveys/censuses.
- Climate change impact surveys have been conducted by NSOs in some regions and climate change-related questions are being included in the 2020 census round.
- There is a growing number of NSOs and regional institutions producing climate change statistics reports.

National: Jamaica – Climate Change Statistics Report (2016)

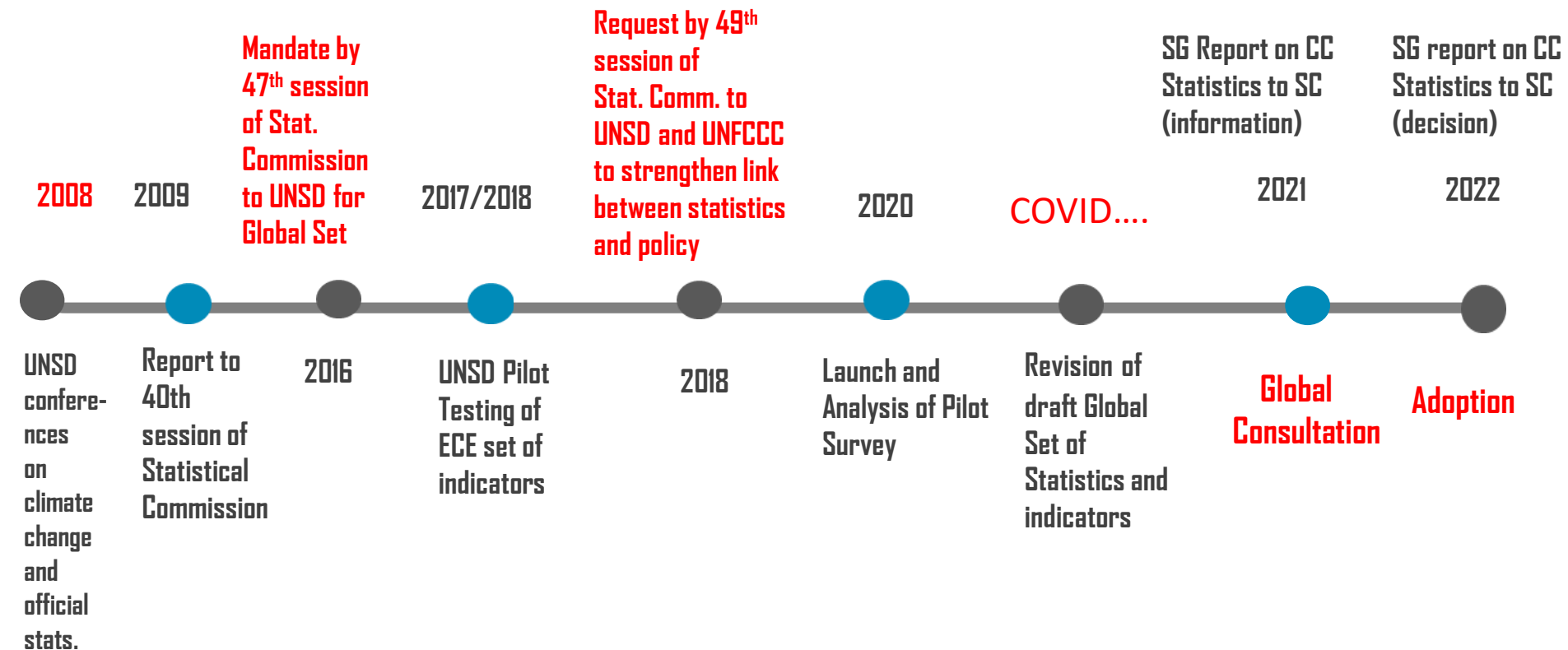
Suriname – **report being planned**



Regional: Caribbean Community (CARICOM) – Climate Change Statistics (2020)



Background to UNSD work on development of Global Set of Climate Change Statistics and Indicators



More than a decade long process: 2008 - present



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

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

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

Decision 47/112:

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

Main decisions:

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

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



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

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

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

Decision: 49/113

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

Main decisions

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

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



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

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

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

Agenda item 4(c)

Items for information: Climate change statistics

E/CN.3/2021/20

Report of the Secretary-General on climate change statistics

Arabic

Chinese

English

Español

Français

Russian



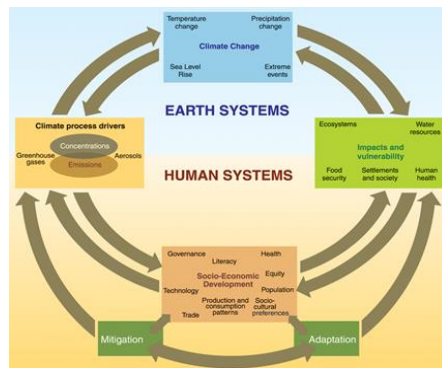
Collaboration between UNSD and UNFCCC to strengthen link between statistics and policy

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

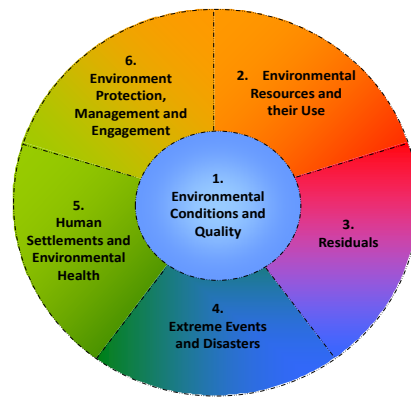


Global Set: Foundation

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

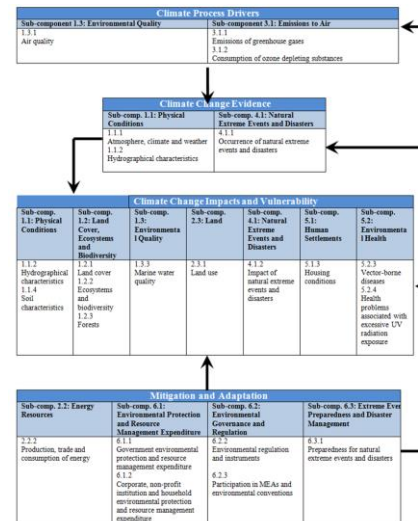


IPCC, 2007, Fourth Assessment Report



Framework for the Development of Environment Statistics (FDES 2013)

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



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



Goal 13

SENDI FRAMEWORK
 FOR DISASTER RISK REDUCTION 2015-2030



Global Set: Methodology

The Global Set is based on:

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

More information:

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

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



Global Consultation on draft Global Set

Part I:

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

Part II:

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

Current responses from the LAC region (13 Aug): Bolivia, Costa Rica, Chile, Dominican Republic, Ecuador, Grenada, Jamaica, Mexico, Paraguay, Peru, Suriname



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

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

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



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

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

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

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

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



Global Set: Metadata

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



Global Set: Output

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



Capacity Development in the region: UNSD

- Long relationship with Caribbean Community (CARICOM) on env. stats. since 2000 via UNSD/CARICOM Development Account (DA) Project to strengthen capacity, resulting in first regional publication “CARICOM Env. In Figures” and several member states producing national compendia on env. Stat. After Project, transformation into CARICOM Programme, regional env. stats. report continued, and first regional climate change statistics report produced by CARICOM.
- Latest UNSD activities/support in the region include:
 - UNSD/CARICOM Regional Workshop on Environment Statistics and Climate Change Statistics (Grenada, Nov 2019) [in which UNFCCC/ECLAC] participated (<https://unstats.un.org/unsd/envstats/meetings/2019-Caricom%20Region/CaricomRegion.cshtml>)
 - Resources persons to support 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>)
 - Resource person to support National Workshop on Environment Statistics organized by General Bureau of Statistics (GBS) of Suriname (Aug 2020)
 - Resource persons to support ECLAC-organized National workshop on Generating Climate Change and Disasters Indicators for Policy Decision-making in Suriname (July 2021)
- Collaborate with ECLAC on their regional DA12 project on climate change statistics (supported by UNSD and CARICOM).
- General support to member states on environment and climate change statistics (also via data collection on water/waste stats)

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

