Conference of European Statisticians' Core Set of Climate Change-Related Indicators and the upcoming Guidance on the Role of NSOs in Achieving National Climate Objectives

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Global Webinar on Strengthening Climate Change and Disaster-Related Statistics: Needs, Priorities, and Action, 3-4 May 2023

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Background

UNECE and Conference of European Statisticians (CES)

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United Nations Economic Commission for Europe (UNECE)

- One of five UN **regional commissions**
- Includes **56 member States** in Europe, North America and Asia
- Part of the **UN Secretariat**

Conference of European Statisticians (CES)

- Founded in 1953; stems from the first Conference of Statistics held under the League of Nations in 1928
- **Steered by the CES Bureau**, composed of Chief Statisticians from 8 countries and 6 international organizations
- In 1991 developed and adopted the **Fundamental Principles of Official Statistics**
- Establishes **teams of specialists** (Task Forces and Steering Groups) and **endorses** the outcomes of their work

UNECE work on climate change-related statistics

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UNSC programme review on CC and official statistics

CES Task Force on climate change related-statistics

CES recommendations on CCRS

CES initial indicator set

CES refined set of indicators and an in-depth review

Discussion in the CES plenary session

New Task Force on the Role of NSOs

2009
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

UNECE Expert Fora for Producers and Users of Climate Change-Related Statistics

Overseen by the CES Steering Group on CC-Related Statistics

CES Recommendations on Climate Change-Related Statistics

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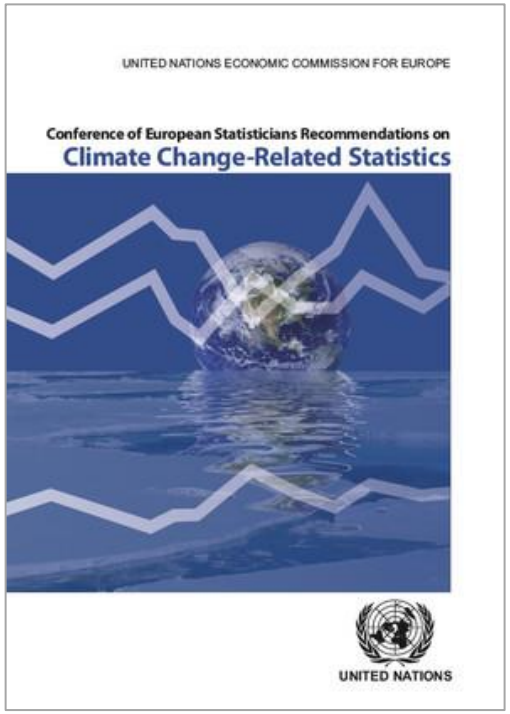
Mandate and background

- **Task Force on Climate Change-Related Statistics**: Canada (Chair), Finland, Italy, Mexico, Norway, Qatar, the United Kingdom and international organizations (e.g., EEA, Eurostat, DG Clima, IPCC, FAO, UNFCCC and the WMO) established by the CES Bureau in 2011

Objectives

- To improve the **contribution of the statistical community** to the work on **GHG reporting** under the Kyoto Protocol
- To **improve existing official statistics** for the purposes of climate change analysis building on the **key competencies of official statisticians**
- Focused on data relevant for climate change analysis but **not scientific or meteorological data**



Endorsed in 2014 by more than 60 countries and international organizations.

CES Recommendations on Climate Change-Related Statistics

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Three groups of recommendations

1. On supporting greenhouse gas inventories
2. On other climate change-related statistics (than GHG inventories)
3. On statistical infrastructure

1. On supporting GHG inventories

- NSOs should **improve data and statistics required for GHG inventories**
- NSOs, especially Annex I Parties, should **proactively reach out** to agencies responsible GHG inventories
- Ideally, NSOs should be considered **official institutions** in the national systems of greenhouse gas inventories
- The international statistical community should take **an active role in contributing to the global GHG inventory system**

CES Recommendations on Climate Change-Related Statistics

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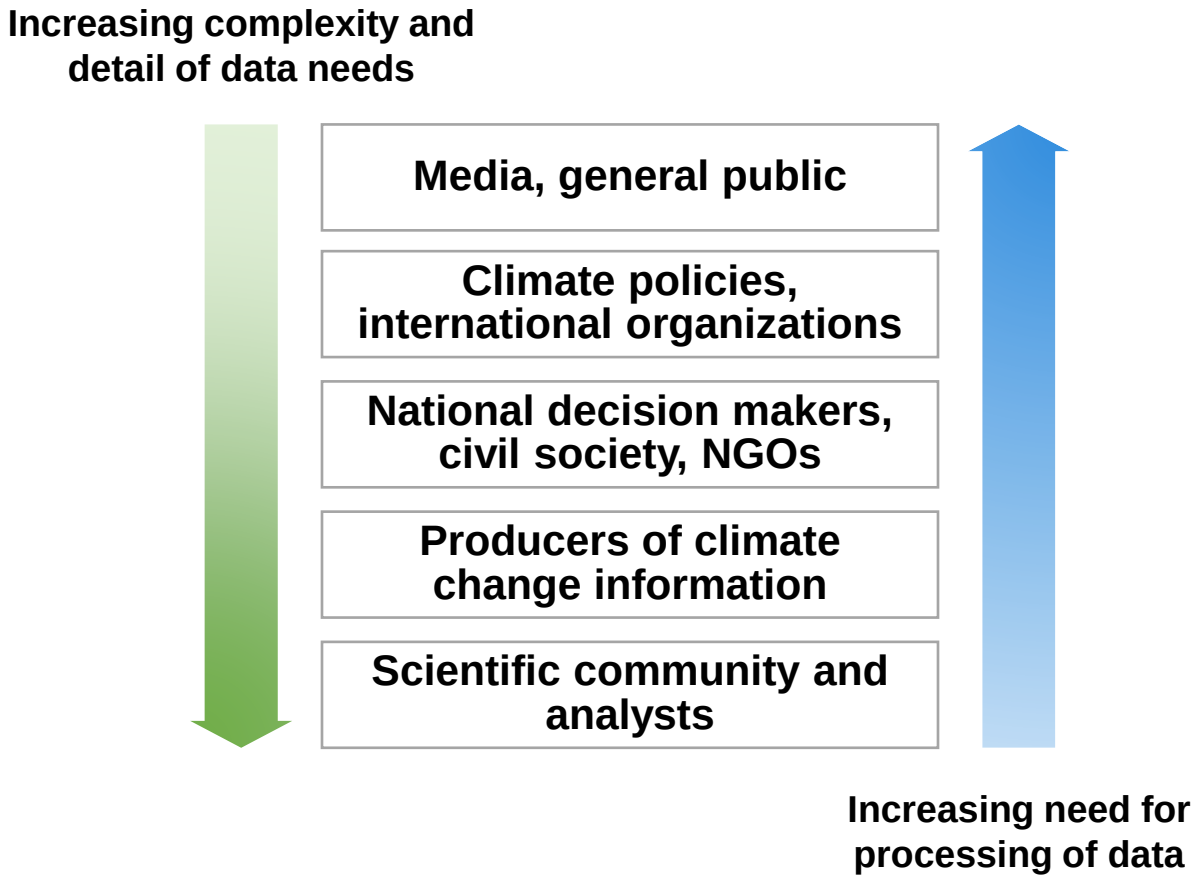
2. On other climate change-related statistics

- **Access** to existing statistics should be improved
- The **usefulness of existing statistics** for climate change analysis should be improved by **reviewing and improving** data collection systems
- **Development of new statistics can be considered**, where needed, e.g. impacts, vulnerability and adaptation



Adapted from: CES Recommendations on CCRS (UNECE, 2014)

CES Recommendations on Climate Change-Related Statistics

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3. On statistical infrastructure

- **Existing classification systems**, registers, **definitions**, frameworks, **products and services need to be reviewed**
- Statisticians should gradually **develop new partnerships, expertise and ability** to adopt new methodologies
- **Organizational changes may be needed** in NSOs, the national statistical system and the national system for greenhouse gas inventories

See here all the Recommendations on Climate Change-Related Statistics

Several practical resources are included in the annexes, e.g. United Kingdom's tool for reviewing sectoral details, methodologies and data sources of the greenhouse gas inventories

CES Set of Core Climate Change-Related Statistics and Indicators

CES Set of Core CC-Related Indicators and Statistics

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- **2014**: Creation of the CES Task Force, chaired by Italy
- **2017**: Initial 39 core indicators and a new of mandate to refine the set, add contextual and operational indicators and draft implementation guidelines
- **2020**: **Final set of 44 core indicators endorsed by more than 60 CES member countries**
  - Covering: **Drivers, Emissions, Mitigation, Adaptation, Impacts**
  - Out of 44: 27 SEEA-based, 8 SDG indicators and 4 Sendai Framework indicators
  - **Metadata sheets** (with contextual and operational indicators) for each indicator, a list of **core statistics** and **Implementation Guidelines**
- **2021:** Official publication

Final report, Implementation Guidelines and Metadata available for download and use

What are the core statistics and indicators? What are the contextual and operational indicators?

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Core indicators

- Needed to respond to **main policy questions** in an internationally **comparable** way
- Help to paint **the big picture**
- **Resilient** over time
- Use of indicators from **existing frameworks** where useful (e.g., SDG indicators, Sendai Framework)
- (With some exceptions) not disaggregated (e.g., by economic activity)

Core statistics

- **Statistics needed to compile indicators** + statistics needed for **GHG** inventories (e.g., energy statistics)

Contextual indicators

- Provide **additional information** relevant for the national context (e.g., consumption of fossil fuels to **better understand** a core indicator on GHG emissions)

Operational indicators

- Sectorial, spatial or temporal **breakdown** of a core indicator (e.g., GHG emissions per economic activity)

Core indicators selection procedure, criteria and result

Selection procedure

- **Starting point:** 5 areas of the CES Recommendations (Drivers, Emissions, Impacts, Mitigation, Adaptation)
- Identification of the first set of **policy questions** and related indicators
- **Grouping** and assigning policy questions to 5 areas
- Selection of a preliminary set based on the **selection criteria**
- **Split into sub-areas** to improve the comprehensiveness and coherence
- **Filling of gaps, revision and refinement** based on the **pilot** (in the second phase)

Selection criteria

- **Relevance** in the UNECE region
- Methodological **soundness**
- **Data availability**
- Priority given to **SEEA-based** indicators

Result: Core indicators per area

44 indicators, of which **27 from SEEA**:

- Drivers: 9 (7 from SEEA)
- Emissions: 9 (7 from SEEA)
- Impacts: 13 (4 from SEEA)
- Mitigation: 8 (5 from SEEA)
- Adaptation: 5 (4 from SEEA)

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Areas and sub-areas of the set of CC-related indicators

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Sub-area	Area				
	Drivers	Emissions	Impacts	Mitigation	Adaptation
National total	x	x	x		
Production	x	x			
Consumption	x	x			
Physical conditions			x		
Water resources			x		x
Land, land cover, ecosystems and biodiversity			x		
Human settlements and human health			x		x
Agriculture, forestry and fishery	*	*	x	x	x
Energy resources				x	

*** Breakdown by economic sector is reflected via operational indicators**

Inclusion of both SEEA-based and other indicators

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Some relevant areas are not related to SEEA, e.g.

- Physical conditions of the atmosphere
- Human health

Some (territory-based) indicators are well established in climate policies or SDGs, e.g.:

- Total GHG emissions from the national territory
- CO2 emissions from fuel combustion within the national territory
- Renewable energy share in the total final energy consumption within the national territory (SDG 7.2.1)

Decision to introduce some "dual" indicators after consultation with UNCEEA in 2018:

- For well-established non-SEEA indicators of high policy relevance use territory-based approach, existing methodologies and data sources
- Recommend use of SEEA-based indicators if relevant, even if the methodology still needs to be further developed or SEEA account is not established in many countries

Examples of “dual” indicators

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Residential approach	Territorial approach
1a – Total energy use by the national economy (SEEA-based)	**1b – Total primary energy supply (TPES)** (territory-based)
2a – Share of fossil fuels in total energy use by the national economy (SEEA-based)	**2b – Share of fossil fuels in total primary energy supply** (territory-based)
9a – Total GHG emissions from the national economy (SEEA-based)	**9b – Total GHG emissions from the national territory** (territory-based)

Tier approach

Tier approach

- **Tier 1**:
  - + Indicator conceptually clear
  - + Established methodology
  - + Data regularly produced
- **Tier 2:**
  - + Indicator conceptually clear
  - + Established methodology
  - – Data not regularly produced
- **Tier 3**:
  - – Indicator without established methodology

Indicators per tier (SDG indicators in brackets)

Area	Tier I	Tier II	Tier III	Place-holder
Drivers	**3**	**3**	**3**	
Emissions	**7**	**1**	**1**	
Impacts	**5 (2)**	**5 (2)**	**2**	1
Mitigation	**4 (1)**	**1 (1)**	**3**	
Adaptation	**1 (1)**	**1 (1)**	**2**	1

Area: Drivers

No	Indicator	Tier
Sub-area: National total		
1a	Total energy use by the national economy	II
1b	Total primary energy supply (TPES)	I
2a	Share of fossil fuels in total energy use by the national economy	III
2b	Share of fossil fuels in total primary energy supply (TPES)	I
3	Losses of land covered by (semi-) natural vegetation	III
4	Total support for fossil fuels in relation to GDP	III
Sub-area: Production		
5a	Total energy intensity of production activities of the national economy	II
6a	Total CO2 intensity of energy used in production activities of the national economy	II
Sub-area: Consumption		
8a	Energy use by resident households per capita	I

Area: GHG Emissions

No	Indicator	Tier
Sub-area: National total		
9a	Total greenhouse gas emissions from the national economy	I
9b	Total greenhouse gas emissions from the national territory	I
10a	CO2 emissions from fuel combustion attributable to the national economy	III
10b	CO2 emissions from fuel combustion within the national territory	I
11	Greenhouse gas emissions from land use change (LULUCF)	I
Sub-area: Production		
12	Total greenhouse gas emissions from production activities	I
13	Greenhouse gas emission intensity of production activities	I
Sub-area: Consumption		
14	Direct greenhouse gas emissions from households	I
15	Carbon footprint	II

Area: Climate change impacts

No	Indicator	Tier
Sub-area: National total		
24	Direct economic loss attributed to hydro-meteorological disasters in relation to GDP (SDG, Sendai FW)	II
Sub-area: Physical conditions		
16	Mean temperature anomaly (compared to climate normal 1961 - 1990)	I
17	Percentage of land area suffering from unusually wet or dry conditions (Standard Precipitation Index)	I
23	Occurrence of extremes of temperatures and precipitation	I
Sub-area: Land, land cover, ecosystems, biodiversity		
	Placeholder for indicator on CC impact on biodiversity	
20	Carbon stock in soil	III
21	Proportion of land that is degraded over total land area (SDG)	I
Sub-area: Water resources		
18	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (SDG)	I
Sub-area: Human settlements, human health		
22	Number of deaths and missing persons attributed to hydro-meteorological disasters, per 100,000 population (SDG, Sendai FW)	II
25	Number of people whose destroyed dwellings were attributed to hydro-meteorological disasters (Sendai FW)	II
26	Incidence of climate-related vector-borne diseases	II
27	Excess mortality related to heat	III
Sub-area: Agriculture, forestry, fishery		
28	Direct agricultural loss attributed to hydro-meteorological disasters (Sendai FW)	II

Area: Climate change mitigation

No	Indicator	Tier
Sub-area: Energy resources		
29a	Renewable energy share in total energy use by the national economy	III
29b	Renewable energy share in the total final energy consumption within the national territory (SDG)	I
Sub-area: Expenditures		
30	Share of climate change mitigation expenditure in relation to GDP	III
Sub-area: Environmental governance, regulation		
31	Share of energy and transport related taxes in total taxes and social contributions	I
32	Total climate change related subsidies and similar transfers in relation to GDP	III
33	Average trading carbon price	I
34	Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the $100 billion commitment through to 2025 (SDG)	II
Sub-area: Agriculture, forestry, fishery		
81	Net emissions/removals of carbon dioxide by forest land	I

Area: Climate change adaptation

No	Indicator	Tier
Sub-area: Expenditure		
35	Share of government adaptation expenditure in relation to GDP	III
Sub-area: Water resources		
36	Change in water use efficiency over time (SDG)	I
Sub-area: Human settlements, human health		
82	Share of green urban areas in the total area of cities	III
Sub-area: Agriculture, forestry, fishery		
	Placeholder for indicator on CC adaptation by forests	
39	Proportion of agricultural area under productive and sustainable agriculture (SDG)	II

But: more work is needed on adaptation indicators. An internal paper summarizing the analysis conducted in the process was prepared.

CES Set of Core CC-Related Indicators and Statistics
Implementation Guidelines

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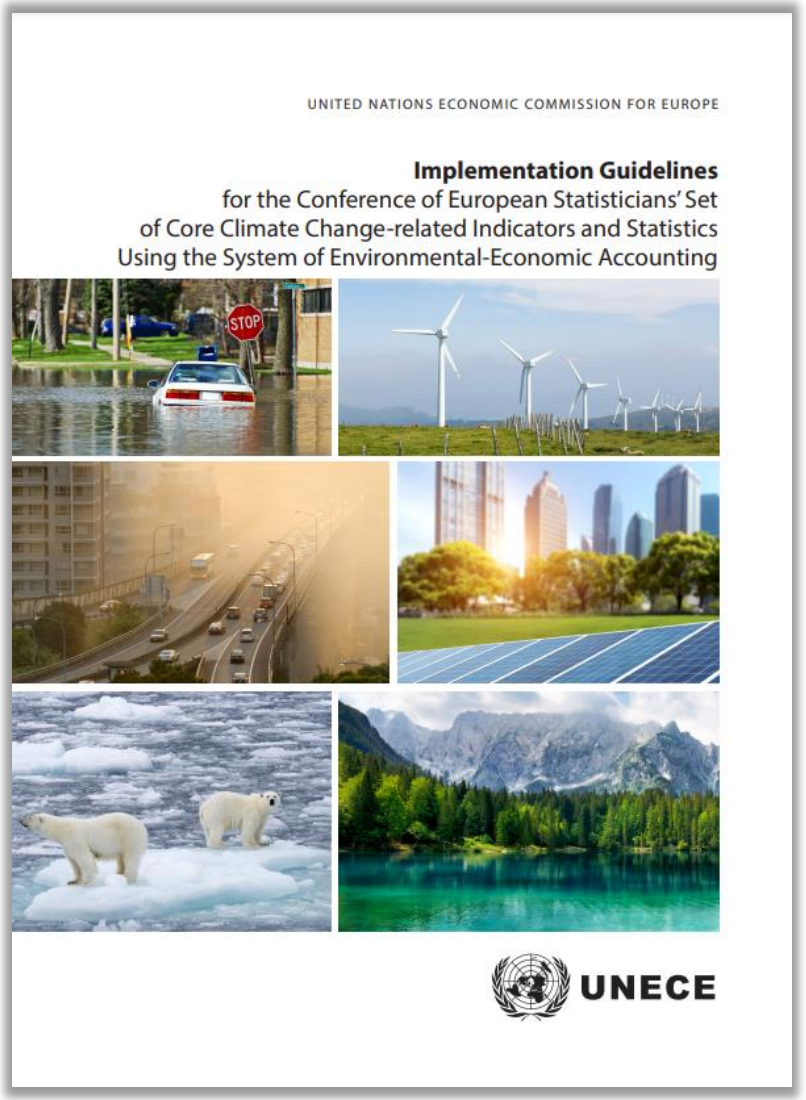
Step-by-step implementation process

1. **Initiating the process**
   a. Getting the mandate and obtaining the support of main stakeholders
   b. Creating a stakeholder platform
   c. Developing a road map
2. **Forming a technical working group**
3. **Developing an action plan with a timeline**
4. **Selecting the indicators and statistics for the national set**
   a. Analysing the core set
   b. Selecting the indicators
5. **Planning the production with available data**
6. **Implementing the plan**
7. **Evaluating the production plan, process and outputs**
8. **Following-up on the evaluation**

Including practical examples from Kyrgyzstan, Luxembourg, Russian Federation and Switzerland



Work in progress: Guidance on the role of NSOs in achieving national climate objectives

New UNECE Task Force

on the Role of NSOs in Achieving National Climate Objectives

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Active Members (± 30)

- **National statistical offices**: Netherlands (Chair), Armenia, Azerbaijan, Belarus, Canada, Costa Rica, Denmark, Ireland, Italy, Poland, Serbia, Spain, Türkiye, United Kingdom, Ukraine, …
- **Ministry of Environment / GHG inventory**: Armenia, Belarus, Poland, Costa Rica …
- **International organizations**: UNFCCC, UNSD, UNEP, UNECE, ECLAC, ESCAP, ECA, IMF, IEA, EEA, Eurostat, PARIS21, …

Objective

Develop guidance on **how NSOs can contribute to achieving national climate objectives** – identify **concrete ways** in which NSOs can be involved and **showcase what the statistical system already offers** to support climate action.

Timeline

- **Established in Feb 2022 by the CES Bureau (Terms of reference)**
- **Draft for consultation to be available for the 2023 Expert Forum on Climate Change-related Statistics**

In 2024 review and planned endorsement by CES

New UNECE Task Force

The new Guidance (to be finalized in 2024)

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Target audience

- **Primary audience: NSOs** which want to start or develop their work in this area
- Document may also be useful to **data users** (to inform about what NSOs can offer) and **international organizations** as custodians of the frameworks used in the context of CCRS.

The Guidance will:

- **Showcase how NSOs can contribute through,** e.g.: producing data and indicators, helping standardize data produced by others, building up data inventories, coordinating within the statistical office and with other agencies and ministries, knowledge sharing, and improving the accessibility and use of data for informing the public
- Build on **existing resources and materials**
- **Help to bridge the gap between producers and users**
- **Provide a portfolio of real country examples**, **including statistical activities and products, collaborations,** institutional arrangements etc.
- **Not:** Reinvent the wheel, develop new indicators, classifications or frameworks

…

New UNECE Task Force

Scope of the Guidance

Outline

- **Introduction**
- **Institutional landscape**
- Role of NSOs in:
  - **Reporting under the Paris Agreement**
  - **Informing national policymaking in the areas of mitigation, adaptation and just transition**
  - **Informing the broad public**
- Cross-cutting issues, e.g., **coordination with other producers, user-producer dialogue**
- **Conclusions/recommendations and future work**

Each section will examine policy context and identify how NSOs can contribute

Organization of work

- Parallel groups established to expedite the work on thematic chapters
- Most of the work carried out by e-mails and videoconferences

First findings from interviews with climate journalists were presented at the Expert Forum

Key resources

- **Pages of the past Expert Fora 2012-2022**
- **Climate Change-Related Statistics in Practice 2022 (September 2022)**
- **Climate Change-Related Statistics in Practice 2021 (August 2021)**
- **CES Set of Core Climate Change-Related Indicators and Statistics Using SEEA (August 2021)**
- **Reporting on climate data and information under the Paris Agreement: A potential opportunity for national statistical offices to get involved (UNFCCC, June 2021)**
- **In-depth review on the role of the statistical community in climate action (February 2020)**
- Road maps to improve climate change-related statistics Word Russian (March 2017)
- Leaflet summarizing the CES Recommendations also in Russian (October 2016)
- **CES Recommendations on Climate Change-related Statistics (December 2014)**

All the resources available on the web

Climate Change-Related Statistics in Practice 2021

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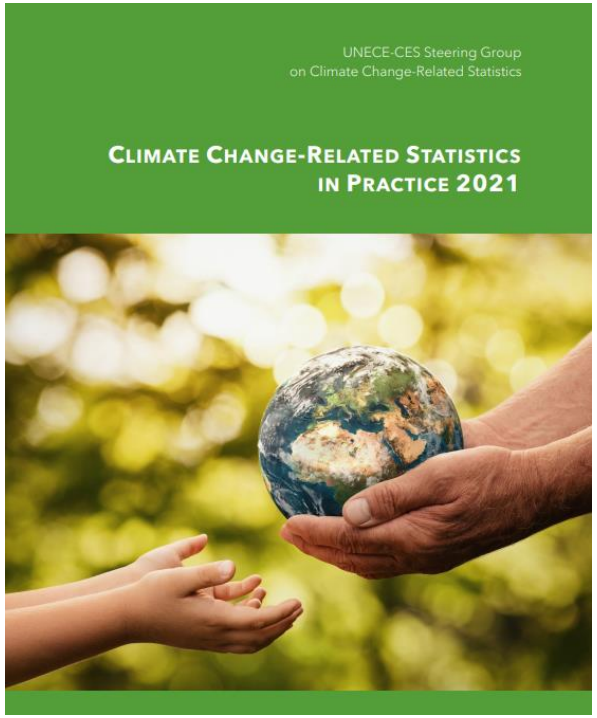
- **Regional summary –** national indicators, facilitating access and use, carbon footprints and green finance
- **Achievements and plans** of **23** countries and **4** organizations – ▶**source of practical examples**



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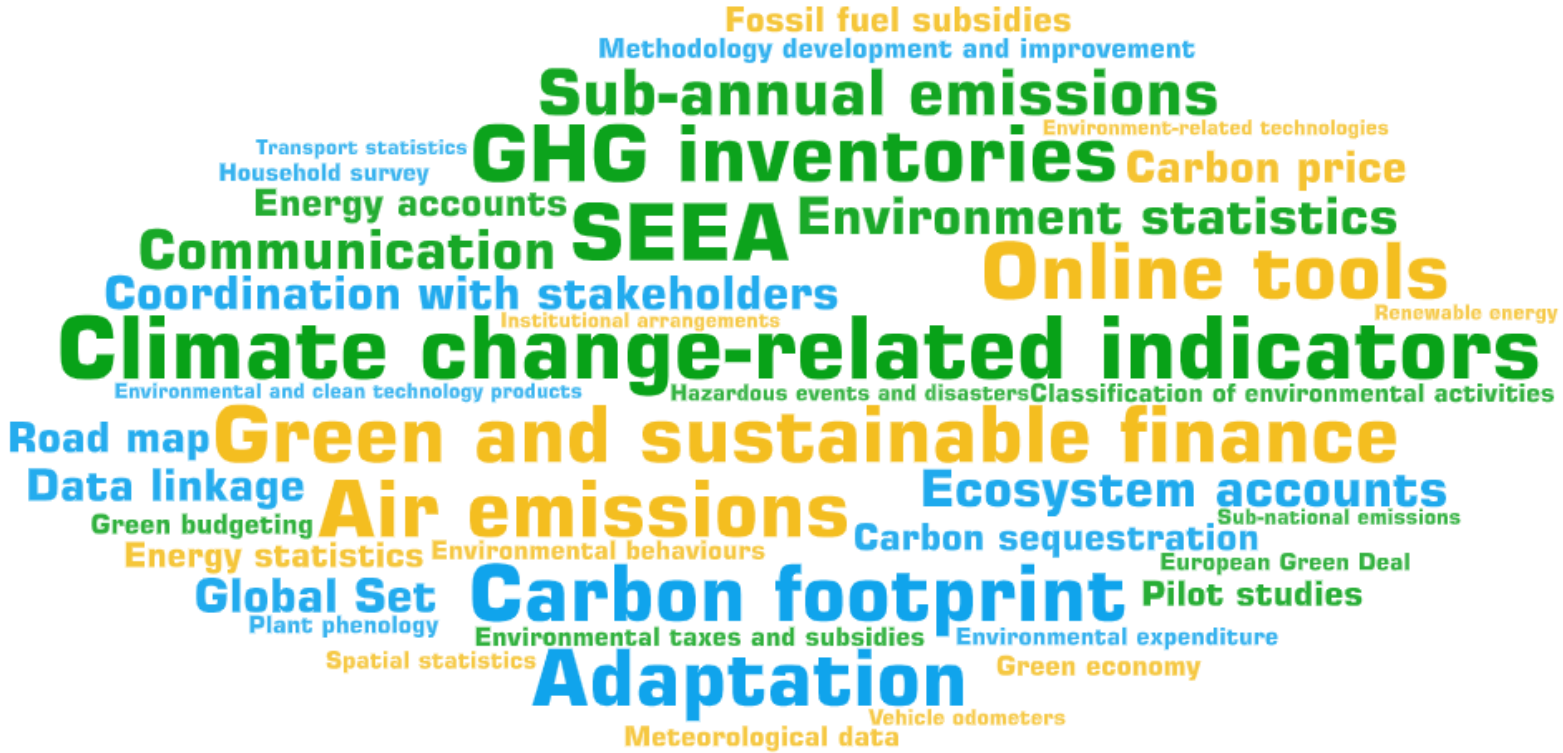

Climate Change-Related Statistics in Practice 2022

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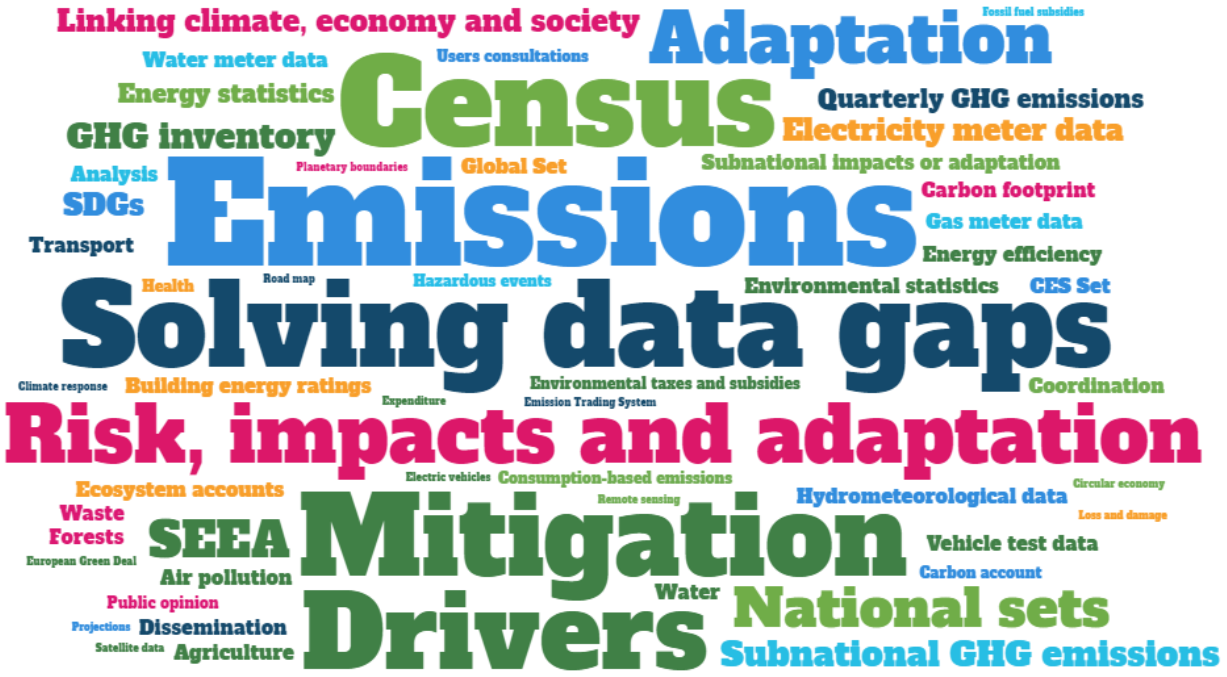
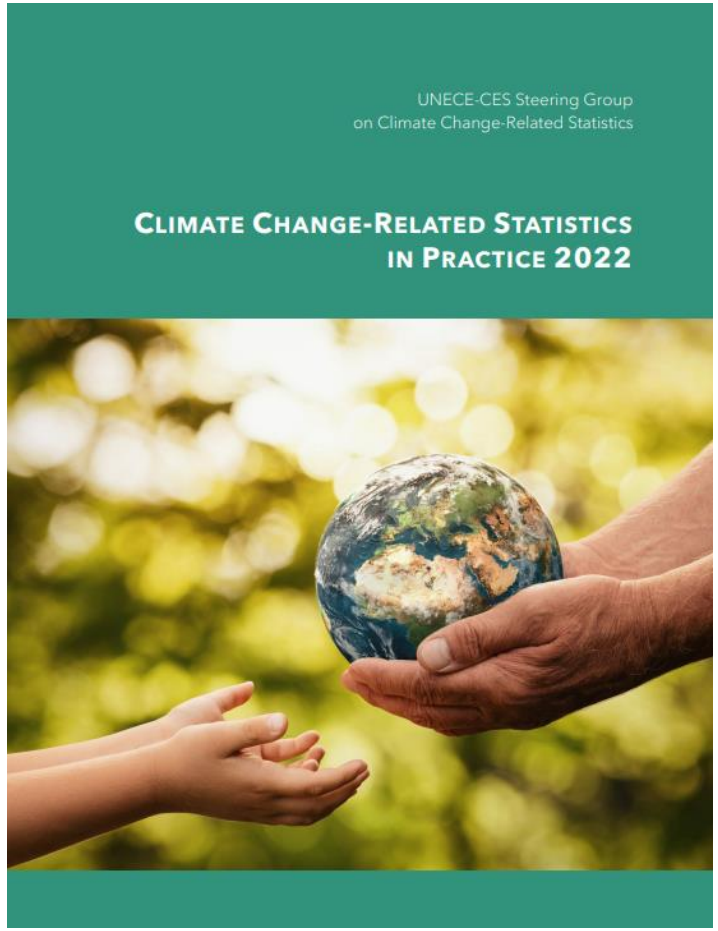
- **Regional summary –** risk, impacts and adaptation; solving data gaps; censuses; microdata; improving granularity
- **Achievements and plans** of 33 countries and 1 organization – **source of practical examples**





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Thank you!

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3 May 2023

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