



FDES AND ITS IMPLEMENTATION TOOLS

**DA12 project Kick-off webinar:
Introduction to climate change and disaster statistics in the Caribbean
9, 10 and 11 March 2021**



OUTLINE

1. Framework for the Development of Environment Statistics (FDES 2013)
2. Basic Set of Environment Statistics (BSES) and BSES manual
3. Environment Statistics Self-Assessment Tool (ESSAT)
4. SDG indicators + Basic Set (FDES) matrix
5. Concluding remarks



FRAMEWORK FOR THE DEVELOPMENT OF ENVIRONMENT STATISTICS (FDES 2013)



United Nations

- The UN Statistical Commission endorsed the revised FDES 2013 at its 44th session in 2013 as the framework for strengthening environment statistics programmes in countries.
- The Statistical Commission also recognized the FDES 2013 as a useful tool in the context of **sustainable development goals (SDGs)** and the post-2015 development agenda.
- The objectives are:
 - Help international and regional institutions to **support strengthening capacity in countries** to develop environment statistics
 - Enhance **comparability** and availability of environment statistics using a common framework
 - Better inform policy making decisions

<https://unstats.un.org/unsd/envstats/fdes.cshtml> in English, Arabic, Portuguese, Spanish and Russian



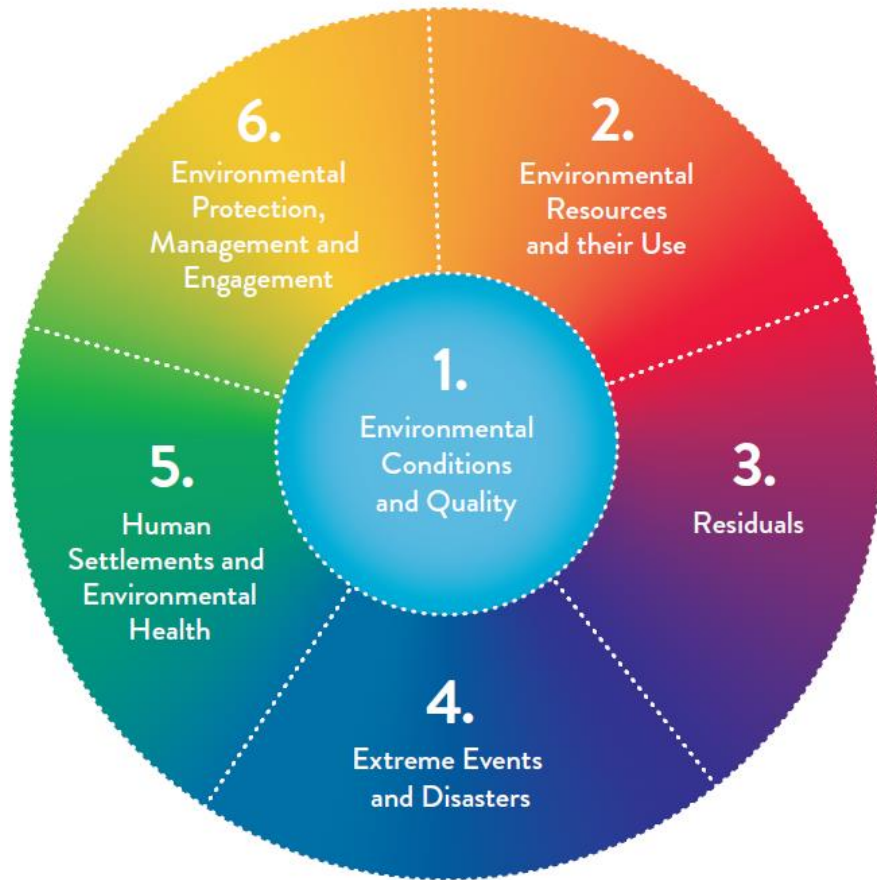
Countries applying the FDES to environment statistics and climate change statistics compendia



All compendia available at: <https://unstats.un.org/unsd/envstats/fdescompendia.cshtml>

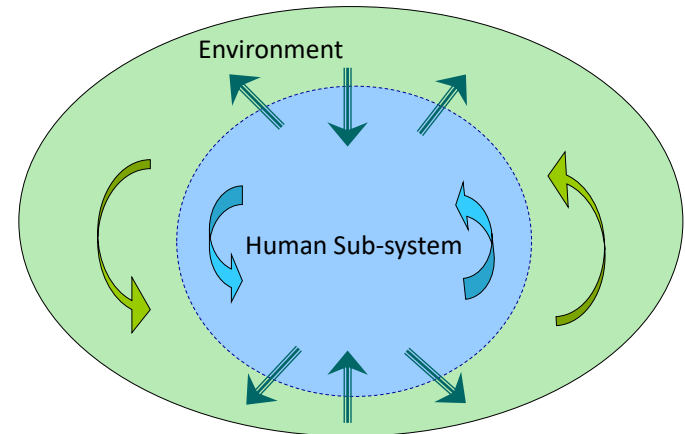


FDES is structured into 6 components



- ❖ FDES covers **biophysical** aspects of the environment; aspects of the **human sub-system** that directly influence the state and quality of the environment, and the **impacts** of the changing environment on the human sub-system.
- ❖ It includes interactions within and among the environment, human activities and natural events.

- ❖ The FDES can be applied to inform about cross-cutting policy issues important to countries at any given time.
- ❖ Examples:
 - ❖ Water and the environment
 - ❖ Energy and the environment
 - ❖ Climate change
 - ❖ Agriculture and the environment



Processes within the environment

Processes within the human sub-system

Interactions between the environment and the human sub-system

Main Attributes of the Components of the FDES

FDES Component	Description	Types of Data	Main Sources and Institutions	Relation to DPSIR and the SEEA
1 Environmental Conditions and Quality	Meteorological, hydrographical, geological, geographical, biological, physical and chemical conditions and characteristics of the environment that determine ecosystems and environmental quality	<ul style="list-style-type: none"> • Geospatial • Physical • Qualitative 	<ul style="list-style-type: none"> • Monitoring and remote sensing data • Environmental, meteorological, hydrological, geological and geographical authorities or institutions 	<ul style="list-style-type: none"> • <i>State and Impact element in DPSIR</i> • <i>Experimental ecosystem accounts of the SEEA</i>
2 Environmental Resources and their Use	Quantities of environmental resources and their changes, and statistics on activities related to their use and management	<ul style="list-style-type: none"> • Physical • Geospatial 	<ul style="list-style-type: none"> • Statistical surveys, administrative records, field surveys, land registers • Sector statistics on production and consumption activities, infrastructure • Remote sensing data • Statistics databases of respective national authorities and institutions such as mining, energy, agriculture, water and forest 	<ul style="list-style-type: none"> • <i>Driving force, Pressure and State elements in DPSIR</i> • <i>Asset and physical flow accounts of the SEEA-CF</i>
3 Residuals	Generation, management and discharge of residuals to air, water and soil	<ul style="list-style-type: none"> • Physical 	<ul style="list-style-type: none"> • Administrative records • Estimates based on activity statistics and technical coefficients • Sector statistics • Monitoring data 	<ul style="list-style-type: none"> • <i>Pressure and Response elements in DPSIR</i> • <i>Physical flow accounts of the SEEA-CF</i>



Main Attributes of the Components of the FDES (cont.)

FDES Component	Description	Types of Data	Main Sources and Institutions	Relation to DPSIR and the SEEA
4 Extreme Events and Disasters	Occurrence and impact of natural extreme events and disasters, and technological disasters	<ul style="list-style-type: none"> • Physical • Monetary • Geospatial • Qualitative 	<ul style="list-style-type: none"> • Administrative records • Remote sensing • National emergency and disaster authorities • Seismic, meteorological monitoring and research centres • Industrial complexes that work with hazardous substances and processes • Insurance companies 	<ul style="list-style-type: none"> • <i>Pressure, Impact and Response elements in DPSIR</i> • <i>Asset accounts of the SEEA-CF</i>
5 Human Settlements and Environmental Health	The built environment in which humans live, particularly with regard to population, housing, living conditions, basic services and environmental health	<ul style="list-style-type: none"> • Geospatial • Physical 	<ul style="list-style-type: none"> • Population and housing censuses, household surveys, administrative records, and remote sensing • Health and administrative records • Housing and urban planning and oversight authorities • Cartographic authorities • Transport authorities • Health authority 	<ul style="list-style-type: none"> • <i>Driving force, Pressure and Impact elements in DPSIR</i>
6 Environmental Protection, Management and Engagement	Environmental protection and resource management expenditure, environmental regulation, both direct and via market instruments, disaster preparedness, environmental perception, awareness and engagement of the society	<ul style="list-style-type: none"> • Monetary • Qualitative 	<ul style="list-style-type: none"> • Administrative records • Surveys • Entity producing government expenditure statistics • Statistical entity in charge of national or sub-national surveys • Environmental authority and other sector authorities 	<ul style="list-style-type: none"> • <i>Response element in DPSIR</i> • <i>Environmental activity accounts and related flows of the SEEA-CF</i>

Methodological Development and Dissemination of Knowhow on UNSD website

Climate Change Statistics

- ▶ Climate Change and the FDES
- ▶ Global Set of Climate Change Statistics and Indicators
- ▶ Areas and topics included in the Global Set

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

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

Methodology

Methodological work includes the elaboration of frameworks, concepts, methods, definitions, and data compilation guidelines to support the development and harmonization of national and international statistics on the environment.

- ▶ FDES 2013
- ▶ Basic Set of Environment Statistics
- ▶ Environment Statistics Self-Assessment Tool
- ▶ Expert Group on Environment Statistics
- ▶ Manual on the Basic Set of Environment Statistics
- ▶ International Recommendations for Water Statistics
- ▶ Environmental surveys
- ▶ Concepts and Methods of Environment Statistics
- ▶ Glossary

Capacity Development

Technical cooperation, training and capacity building is provided through regional and sub-regional projects, international training workshops, fellowship arrangements and assistance to countries. Recent projects covered the countries of the CARICOM, ESCWA, ECOWAS and EAC regions.

- ▶ COMESA
- ▶ EAC project
- ▶ ECOWAS project
- ▶ ESCWA project
- ▶ CARICOM project
- ▶ Workshops

Basic Set of Environment Statistics

- BSES is available in all UN official languages:
<https://unstats.un.org/unsd/envstats/fdes/basicset.cshtml>
- All statistical tables from chapter 3 included, on 44 pages document
- From Basic set to core set in chapter 4

Basic Set of Environment Statistics

28 August 2018

Component 1: Environmental Conditions and Quality				
Sub-component 1.1: Physical Conditions				
Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1, Regular Text - Tier 2, <i>Italicized Text - Tier 3</i>)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.1.1: Atmosphere, climate and weather	a. Temperature		• National • Sub-national	• World Meteorological Organization (WMO) • Intergovernmental Panel on Climate Change (IPCC) • National Oceanic and Atmospheric Administration (NOAA)/National Aeronautics and Space Administration (NASA)
	1. Monthly average	Degrees		
	2. Minimum monthly average	Degrees		
	3. Maximum monthly average	Degrees		
	b. Precipitation (also in 2.6.1.a)			
	1. Annual average	Height		
	2. Long-term annual average	Height		
	3. Monthly average	Height		
	4. Minimum monthly value	Height		
	5. Maximum monthly value	Height		
	c. Relative humidity		• National • Sub-national	
	1. Minimum monthly value	Number		
	2. Maximum monthly value	Number		
	d. Pressure			
	1. Minimum monthly value	Pressure unit	• National • Sub-national • By station	
	2. Maximum monthly value	Pressure unit		
	e. Wind speed		• National • Sub-national	
1. Minimum monthly value	Speed			
2. Maximum monthly value	Speed			
f. Solar radiation			• WMO • IPCC • NOAA/NASA	
1. Average daily value	Area, Energy unit			
2. Average monthly value	Area, Energy unit			















- generating national sets or databases of environment statistics.
- reporting on environment (MEAs) or sustainable development (SDGs).
- calculating environmental indicators.
- generating environmental-economic accounts.

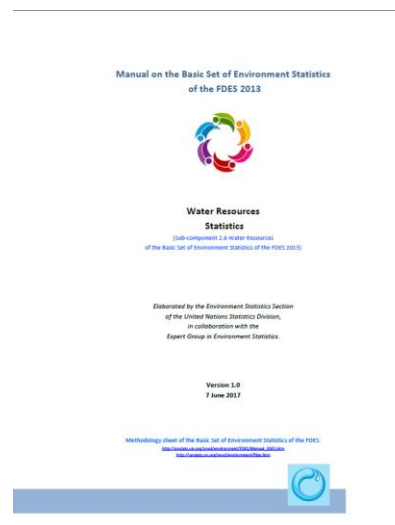
Number of Statistics	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Total
Tier 1	32	30	19	4	12	3	100
Tier 2	58	51	34	11	22	24	200
Tier 3	51	43	5	16	20	23	158
Total	141	124	58	31	54	50	458



Manual on the Basic Set of Environment Statistics

https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshtml

-  [MS 1.1.4 Soils](#)
-  [MS 1.2.2 Ecosystems and Biodiversity Statistics](#)
-  [MS 1.2.1 & 2.3.1 Land Cover and Land Use](#)
-  [MS 1.2.3, 2.3.2, 2.5.1 & 2.5.5 Forests](#)
-  [MS 1.3.1 Air Quality](#)
-  [MS 1.3.1 and 3.1.1 GHG Statistics](#) **new**
-  [MS 1.3.3 Marine Water Quality Statistics](#) **new**
-  [MS 2.1 Mineral Resources](#)
-  [MS 2.2 Energy Resources](#)
-  [MS 2.5 Crops and Livestock Statistics](#)
-  [MS 2.6 Water Resources](#)
-  [MS 3.3.1 & 3.3.2 Generation and Management of Waste](#)
-  [MS 5.1 Human Settlements](#)
-  [MS 6.1.1 Environmental Protection Expenditures](#)



Includes: definitions, classifications, statistical methods for collection and/or compilation, dissemination and main uses of the sets of the respective environment statistics.

Forthcoming: Wastewater, Environmental Health, Disasters



Environment Statistics Self-Assessment Tool

- Introduction

[English](#) [Arabic*](#) [Chinese*](#) [French*](#) [Portuguese*](#) [new](#) [Russian*](#) [Spanish*](#)

- Part I: Institutional Dimension of Environment Statistics

[English](#) [Arabic*](#) [Chinese*](#) [French*](#) [Portuguese*](#) [new](#) [Russian*](#) [Spanish*](#)

- Part II: Statistics Level Assessment

English [excel](#) [pdf](#), Arabic* [excel](#) [pdf](#), Chinese* [excel](#) [pdf](#),

French* [excel](#) [pdf](#), Portuguese* [excel](#) [pdf](#), Russian* [excel](#) [pdf](#),

Spanish* [excel](#) [pdf](#)



SDG indicators + Basic Set (FDES) matrix

https://unstats.un.org/unsd/envstats/fdes/SDGsInd_BasicSetMatrix.pdf

SDG Indicators	Location in the FDES: Component Sub-Component and Topic	Statistics used in the SDG Indicator corresponding to BSES (SDG Indicator can be compiled either fully or partially from BSES statistics)	Statistics related to but not directly used in SDG Indicators OR Statistics related to Tier III indicators (either fully or partially linked to BSES)	Supporting Information
15.3.1 Proportion of land that is degraded over total land area (Tier II)	Component 1: Environmental Conditions and Quality, Sub-component 1.1: Physical Conditions, Topic 1.1.4: Soil characteristics	1.1.4.a. Soil characterization 1.1.4.a.1. Area by soil types 1.1.4.b. Soil degradation 1.1.4.b.1. Area affected by soil erosion 1.1.4.b.2. Area affected by desertification 1.1.4.b.3. Area affected by salinization 1.1.4.b.4. Area affected by waterlogging 1.1.4.b.5. Area affected by acidification 1.1.4.b.6. Area affected by compaction 1.1.4.c. Nutrient content of soil, measured in levels of: 1.1.4.c.1. Nitrogen (N) 1.1.4.c.2. Phosphorous (P) 1.1.4.c.3. Calcium (Ca) 1.1.4.c.4. Magnesium (Mg) 1.1.4.c.5. Potassium (K) 1.1.4.c.6. Zinc (Zn) 1.1.4.c.7. Other		The indicator proposes sub-indicators of land cover and land cover change; land productivity and carbon stocks above and below ground.
	Component 1: Environmental Conditions and Quality, Sub-component 1.2: Land Cover, Ecosystems and Biodiversity, Topic 1.2.1: Land cover	1.2.1.a. Area under land cover categories		



Other matrices

<https://www.oceanaccounts.org/technical-guidance-on-ocean-accounting-2/>

6.4 Potential FDES (2013) topics and statistics applicable to Ocean Accounts

538. The table provides a basic indication of FDES (2013) topics and statistics which may be relevant to the proposed set of Ocean Accounts. This is a broad indication given that the ocean accounts are in development and is thus subject to further refinement. It draws particularly on the August 2018 workshop concept note²⁰⁹.

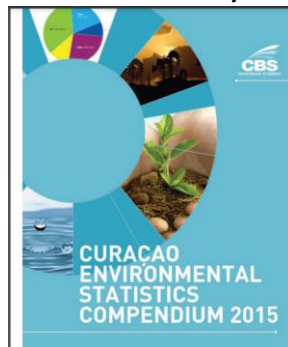
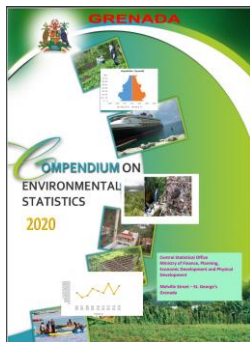
	Proposed Ocean Accounts	Disaggregation	FDES Component, Sub-component and Topic	FDES Statistic	Notes
	Source: Annex 1 Concept Note ESCAP Expert Workshop on Ocean Accounts 1-3 August 2018	National, international waters, sub-national (bay, coastline). In general, FDES would need to be more specific about the spatial areas to cover.	Further work is necessary to identify the ocean related spatial areas.	Statistics have been proposed where possible, otherwise only the FDES (2013) Topic level is provided and the statistics cell is not yet completed.	
	Drivers/Pressures				
1	Air emissions (GHGs and others)		Component 3: Residuals, Sub-component 3.1: Emissions to Air, Topic 3.1.1: Emissions of greenhouse gases		
2	<u>Effluents</u> Water flows to the ocean Solid wastes Plastics Hazardous waste		Component 3: Residuals, Sub-component 3.2: Generation and Management of Wastewater, Topic 3.2.3: Discharge of wastewater to the environment	• 3.2.3.a.2: Wastewater discharge: Total volume of wastewater discharged to the environment without treatment	Would need to specify at risk areas.
			Component 3: Residuals, Sub-component 3.3: Generation and Management of Waste: Topic 3.3.1 Generation of Waste and Topic 3.3.2: Management of Waste		
			Component 2: Environmental Resources and their Use, Sub-component 2.2: Energy Resources, Topic 2.2.2:		HS Chapter Code 39 Plastics and articles thereof. Plastics



Concluding remarks

1. FDES offers guidance to countries to develop stand-alone environment statistics

- Applied to support national policies on environmental management
- Assisting international reporting requirements (MEA, SDGs, Sendai)
- Countries have developed their own frameworks based on the FDES
- Countries are encouraged to publish compendia and other dissemination outputs according to the FDES as several have done in the region (Grenada, Jamaica, Suriname, Curaçao, Montserrat)



2. Component 4 (on disasters), however remains challenging to complete because of very dynamic developments on terminology and classifications

- Disasters: Hazard Definition Classification Review has been launched, <https://www.undrr.org/publication/hazard-definition-and-classification-review>

3. Cross cutting themes, as climate change (in chapter 5) are continuously evolving therefore UNSD initiated its work on the Global Set