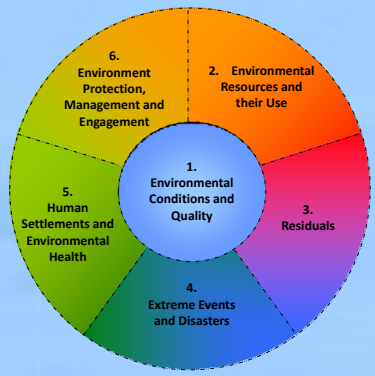
Strengthening Environment Statistics for Monitoring the SDGs

How the FDES can help countries compile environmentally-related SDG indicators

Environment Statistics Section

United Nations Statistics Division (UNSD)



New York, 2 July 2015

Outline

- Environment Statistics:
  - State of the art
  - FDES 2013 and the Basic Set of Environment Statistics
  - The need to develop ES to monitor environmentally-related SDG targets
- Examples of FDES- BSES correspondence with SDGs
- Countries using/implementing FDES to develop their environment statistics

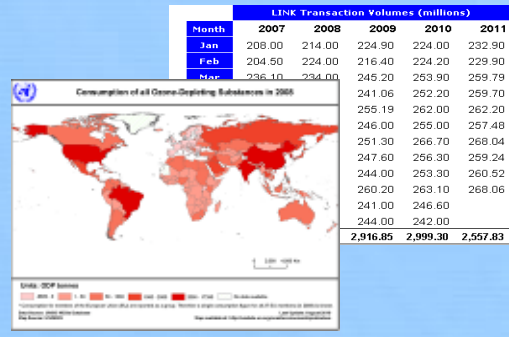
State of the art of environment statistics

- Environment statistics are multi-disciplinary, cross-cutting, and involve numerous stakeholders, actors and producers.
- **Insufficiency** of timely and reliable environment statistics worldwide.
- Development of environment statistics **has advanced** over the past decades, although very heterogeneously.
- Economic, social, demographic statistics have been regularly produced for longer periods of time.
- Environment statistics is **an emerging** and still underdeveloped domain within sustainable development, limiting monitoring and assessment capabilities.
- Meanwhile, **demand** for robust environment statistics keeps **growing**.
- The SDGs include many goals that are environmentally-related.

Environment statistics: weakest pillar of SD

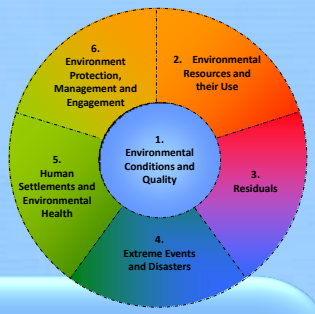
- Of the three pillars of sustainable development, monitoring/measurement of progress towards **environmental** sustainability is the weakest.
- Our capacity to inform about environmental sustainability is severely curtailed by the insufficient production of environment statistics.
- To inform about sustainable development, certain **environmental data** must be collected and **statistics need to be produced regularly**, as a key part of official statistics.
- Statistics can be further processed into indicators that support environment and sustainable development goals at the national level, as well as the emerging SDGs.

Contribution of environment statistics to sustainable development monitoring



- Any measure of **sustainable development** requires strong foundation in **environment statistics.**
- More importantly, given the **deterioration of environmental issues** (climate change, biodiversity loss, soil/land degradation, ecosystem health, natural disaster frequency and intensity, urban environment, pollution, and environmental health issues).
- Both **statistical and institutional capacities** for systematic production of environment statistics needs to be strengthened.
- Securing the **political will and resources** necessary to ensure the production of these statistics is a clear signal of determined intent to measure and monitor progress in sustainable development.
- **FDES** and its **Basic Set of Environment Statistics** are **tools** for developing/strengthening environment statistics at the national level.

What is the FDES 2013?



- The FDES 2013 is **a flexible, multi-purpose conceptual and statistical framework** that enables and facilitates the **compilation, collection and production of environment statistics.**

- It marks out the **scope of environment statistics** providing guidance on what statistics to collect and compile.

- It provides an **organizing structure** to guide the collection and compilation of environment statistics at the national level, **bringing together data** from the various relevant **subject areas and sources**.

- It is **broad, comprehensive and integrative**. It covers the issues and aspects of the environment that are relevant for policy analysis and decision making.

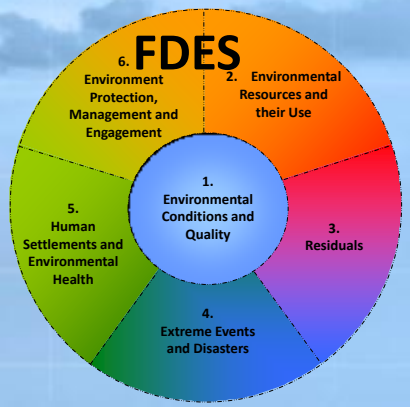
FDES: guidance for environment statistics development

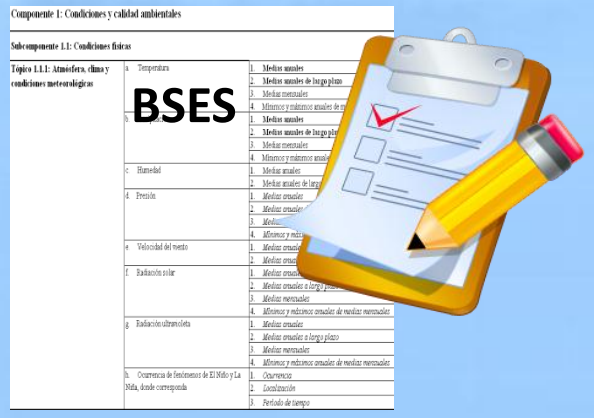
The UN Statistical Commission endorsed the revised FDES 2013 at its forty-fourth session in 2013 as the **framework for strengthening environment statistics programmes** in countries.

The Statistical Commission also recognized the FDES 2013 as a **useful tool** in the context of Sustainable Development Goals and the post-2015 development agenda.

The FDES and the BSES contribute to the production of environment statistics needed for compiling SDG and other indicators.

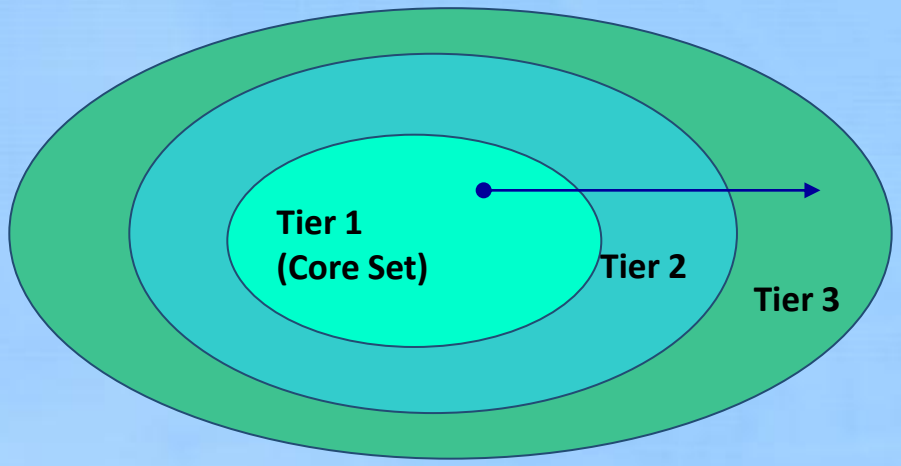
The BSES is a reference set of environment statistics corresponding to the 6 FDES components and its 60 statistical topics.





The Basic Set of Environment Statistics

- The **Basic Set of Environment Statistics** organizes a comprehensive (though not exhaustive) list of environment statistics
- The Basic Set is organized in **three tiers**, based on the level of relevance, availability and methodological development of the statistics.



- The **Core Set of Environment Statistics** correspond to **Tier 1**
- **Tier 2** includes environment statistics that are of priority and relevance to most countries but need more investment in time, resources or methodological development.
- **Tier 3** includes environment statistics which are either of less priority or require significant methodological development.

	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**

Number of Statistics
Core Set or Tier 1 = 100
Basic Set = 458

SDGs: how it is being developed

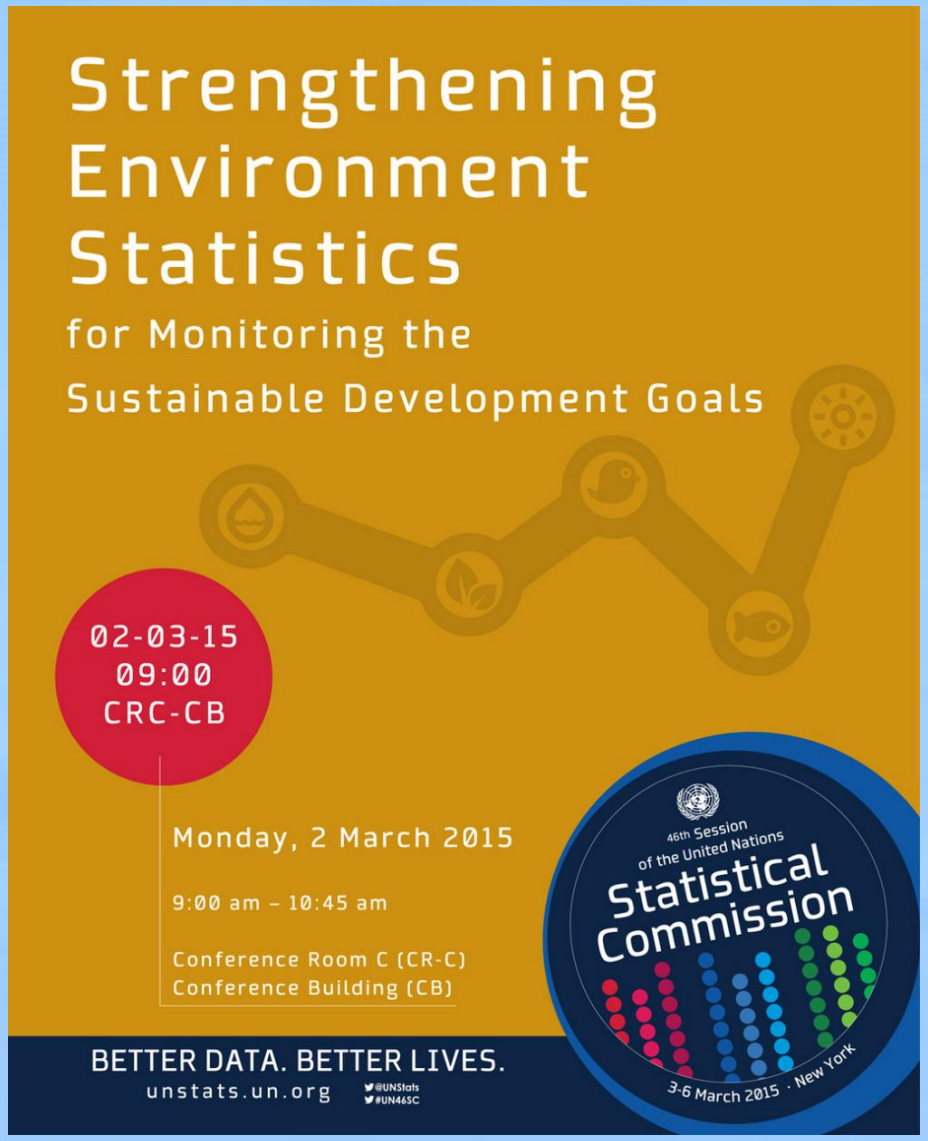
- The SDGs have been proposed through an intergovernmental process emanating from Rio+20: the Open Working Group on SDGs http://sustainabledevelopment.un.org/sdgsproposal.html
- SDG Goals & Targets proposed by OWG's outcome document

  SDGs framework: Goals -> Targets -> indicators (pending)
- The SDGs proposal include 17 goals and 169 targets that are expected to be adopted by member States in the UN Summit 25-27 September, convened as a high-level plenary meeting of the GA https://sustainabledevelopment.un.org/post2015/summit
- To date, the indicators pertaining to each target are being analysed and discussed by the wider UN system and consulted with member States. The Statistical Commission mandated the formation of the IAEG-SDGs where UNSD is the secretariat held first meeting in June 2015 http://unstats.un.org/sdgs

Environment statistics and SDGs

- Environment domain is **expanded** in the proposed SDGs: environmental dimension of SD is fully fleshed out in the goals on oceans and marine resources, ecosystems and biodiversity, land degradation and desertification, and are also mainstreamed/embedded under all other goals. [MDG 7 only partially integrated the environmental dimension]
- Almost **half of the SDGs proposed target require environment statistics** in order to be able to compile its indicators and enable regular monitor of progress.
- Need for **improvement in data and statistics** to monitor progress on the SDGs and the associated need for statistical capacity building is key for developing countries.

Strengthening Environment Statistics for Monitoring the SDGs
discussed in a Side Event of the Statistical Commission on 2 March 2015 in NY.



See all presentations at:

http://unstats.un.org/unsd/statcom/statcom_2015/seminars/environment/default.html

Proposed SDGs 2015 – 2030:

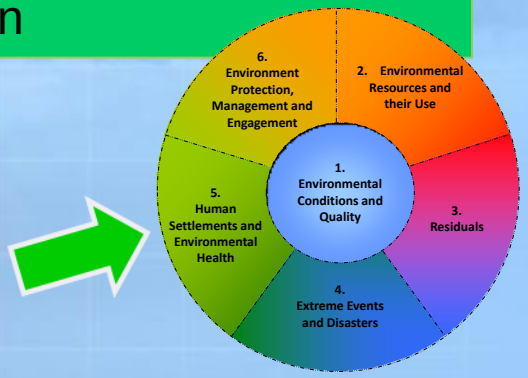
Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10	Reduce inequality within and among countries

Proposed SDGs 2015 – 2030, cont.

Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

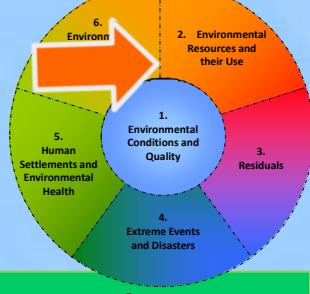
SDG Tg 2.4: By 2030, ensure sustainable food production … implement resilient agriculture… that helps maintain ecosystems … strengthens capacities for adaptation to climate change, extreme weather, drought, flooding and other disasters and…improve land and soil quality

SDG Tg 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination



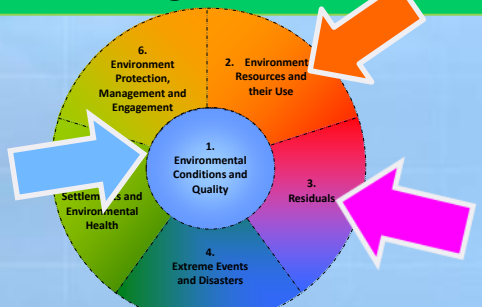

GOAL 6
6. Environment Protection, Management and Engagement
2. Environmental Resources and their Use
1. Environmental Conditions and Quality
5. Human Settlements and Environmental Health
3. Residuals
4. Extreme Events and Disasters
ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL
SUSTAINABLE DEVE
More at sustainabledevelopr


GOAL 7
6. Environment Protection, Management and Engagement
2. Environmental Resources and their Use
1. Environmental Conditions and Quality
5. Human Settlements and Environmental Health
3. Residuals
4. Extreme Events and Disasters
ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL
SUSTAINABLE DEVELOPMENT GOALS
More at sustainabledevelopment.un.org/sdgsproposal

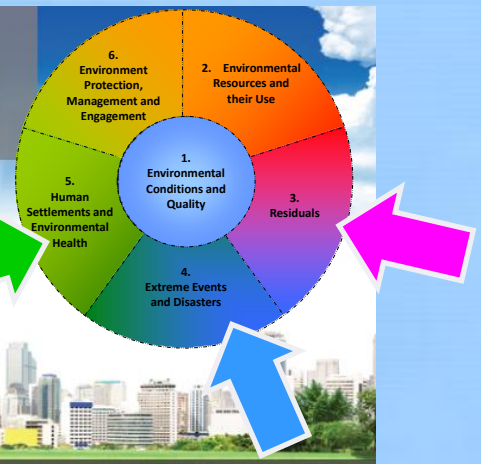


SDGTg 9.4: By 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and … clean and environmentally sound technologies…

SDGTg8.4: Improve…resource efficiency in consumption and production and … decouple economic growth from environmental degradation



GOAL 11



MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

SUSTAINABLE DEVELOP

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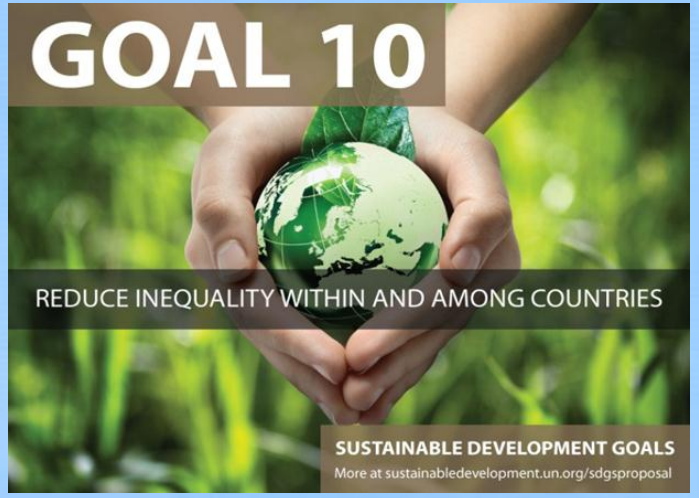
GOAL 10



REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

SUSTAINABLE DEVELOPMENT GOALS

More at sustainabledevelopment.un.org/sdgsproposal

GOAL 12

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

SUSTAINABLE DEVELOPMENT GOALS

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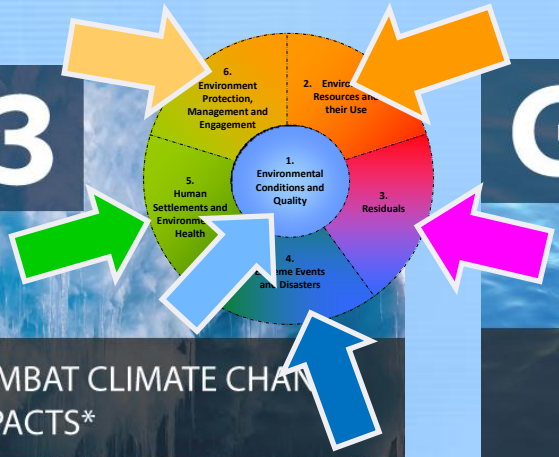
GOAL 13



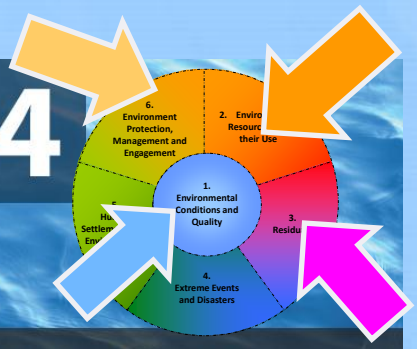
TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS*

Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change

SUSTAINABLE DEVELOPMENT GOALS

More at sustainabledevelopment.un.org/sdgsproposal

GOAL 14



CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT GOALS

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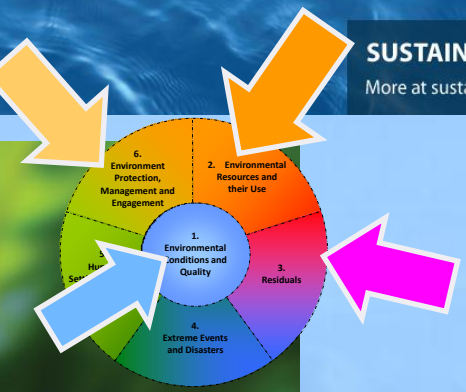
GOAL 15



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

SUSTAINABLE DEVELOPMENT GOALS

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GOAL 16
PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS
SUSTAINABLE DEVELOPMENT GOALS
More at sustainabledevelopment.un.org/sdgsproposal


GOAL 17
STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT
SUSTAINABLE DEVELOPMENT GOALS
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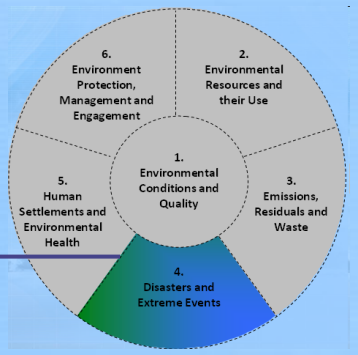
Sequence FDES Component…Topic …Statistics

Sub-component 4.1: Natural Extreme Events and Disasters	**Component 4: Extreme Events and Disasters**



Topic		Environment Statistic
Topic 4.1.1: Occurrence of natural extreme events and disasters	a.	Occurrence of natural extreme events and disasters
		1. **Type of natural extreme event and disaster** (geophysical, meteorological, hydrological, climatological, biological)
		2. **Location**
		3. Magnitude (where applicable)
		4. Date of occurrence
		5. Duration
Topic 4.1.2: Impact of natural extreme events and disasters	a.	People affected by natural extreme events and disasters
		1. **Number of people killed**
		2. Number of people injured
		3. Number of people homeless
		4. Number of people affected
	b.	**Economic losses due to natural extreme events and disasters** (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption, etc.)
	c.	Physical losses/damages due to natural extreme events and disasters (e.g., area and amount of crops, livestock, aquaculture, biomass etc.)
	d.	Effects of natural extreme events and disasters on integrity of ecosystems
		1. *Area affected by natural disasters*
		2. *Loss of vegetation cover*
		3. *Area of watershed affected*
		4. *Other*
	e.	*External assistance received*

Matching SDG targets with BSES of the FDES, example 1: disasters

GOAL	Target	Proposed Preliminary Indicators (wider UN System)	Location in the FDES: Component Sub-Component and Topic	Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics
Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable	**Target 11.5** By 2030, significantly reduce the number of deaths and the number of people affected and decrease by [x] per cent the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	**Proposed Indicator 1:** Number of people killed, injured, displaced, evacuated, relocated or otherwise affected by disasters **Proposed Indicator 2:** Number of housing units damaged and destroyed [by disasters]	Component 4: Extreme Events and Disasters Sub-component 4.1: Natural Extreme Events and Disasters **Topic 4.1.1: Occurrence of natural extreme events and disasters**	4.1.1.a. Occurrence of natural extreme events and disasters 4.1.1.a.1. **Type of natural extreme event and disaster** (geophysical, meteorological, hydrological, climatological, biological) 4.1.1.a.2. **Location** 4.1.1.a.3. Magnitude (where applicable) 4.1.1.a.4. Date of occurrence 4.1.1.a.5. Duration
			Topic 4.1.2: Impact of natural extreme events and disasters	4.1.2.a. People affected by natural extreme events and disasters 4.1.2.a.1. **Number of people killed** 4.1.2.a.2. Number of people injured 4.1.2.a.3. Number of people homeless 4.1.2.a.4. Number of people affected 4.1.2.b. **Economic losses due to natural extreme events and disasters** (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption, etc.)
			Component 5: Human Settlements and Environmental Health Sub-component 5.1: Human Settlements **Topic 5.1.3: Housing conditions**	5.1.3.c. Population living in hazard prone areas 5.1.3.d. Hazard prone areas 5.1.3.f. *Number of dwellings with adequacy of building materials defined by national or local standards*
			Component 6: Environment Protection, Management and Engagement Sub-component 6.3: Extreme Event Preparedness and Disaster Management **Topic 6.3.1: Preparedness for natural extreme events and disasters**	6.3.1.a. National natural extreme event and disaster preparedness and management systems 6.3.1.a.1. Existence of national disaster plans/programmes 6.3.1.a.2. Description (e.g., number of staff) of national disaster plans/programmes 6.3.1.a.3. Number and type of shelters in place or able to be deployed 6.3.1.a.4. *Number and type of internationally certified emergency and recovery management specialists* 6.3.1.a.5. *Number of volunteers* 6.3.1.a.6. *Quantity of first aid, emergency supplies and equipment stockpiles* 6.3.1.a.7. *Existence of early warning systems for all major hazards* 6.3.1.a.8. *Expenditure on disaster prevention, preparedness, clean-up and rehabilitation*

example 2: waste generation and management

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 12 Ensure sustainable consumption and production patterns	**Target 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse**	**Proposed Indicator 1: National waste generation (solid waste to landfill and incineration and disaggregated data for e-waste) in kg per capita/year** **Proposed Indicator 2: National recycling rate, tonnes of material recycled**	Component 3: Residuals Sub-component 3.3: Generation and Management of Waste **Topic 3.3.1: Generation of waste**	3.3.1.a. **Amount of waste generated by source** 3.3.1.b. Amount of waste generated by waste category 3.3.1.c. **Amount of hazardous waste generated**
			Topic 3.3.2: Management of waste	3.3.2.a. Municipal waste 3.3.2.a.1. **Total municipal waste collected** 3.3.2.a.2. **Amount of municipal waste treated by type of treatment and disposal** 3.3.2.a.3. **Number of municipal waste treatment and disposal facilities** 3.3.2.a.4. Capacity of municipal waste treatment and disposal facilities 3.3.2.b. Hazardous waste 3.3.2.b.1. **Total hazardous waste collected** 3.3.2.b.2. **Amount of hazardous waste treated by type of treatment and disposal** 3.3.2.b.3. **Number of hazardous waste treatment and disposal facilities** 3.3.2.b.4. Capacity of hazardous waste treatment and disposal facilities 3.3.2.c. Other/industrial waste 3.3.2.c.1. Total other/industrial waste collected 3.3.2.c.2. Amount of other/industrial waste treated by type of treatment and disposal 3.3.2.c.3. Number of treatment and disposal facilities 3.3.2.c.4. Capacity of industrial waste treatment and disposal facilities 3.3.2.d. **Amount of recycled waste** 3.3.2.g. Imports of hazardous waste

example 3: terrestrial and freshwater ecosystems

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Target 15.1 By 2020, ensure the **conservation, restoration** and **sustainable use** of **terrestrial** and **inland freshwater ecosystems** and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Proposed Indicator 1: Coverage of protected areas broken down by ecosystem type, including total area of forests in protected areas (thousands of hectares) Proposed Indicator 2: Forest area as a percentage of total land area	Component 1: Environmental Conditions and Quality Sub-component 1.2: Land Cover, Ecosystems and Biodiversity **Topic 1.2.2: Ecosystems and biodiversity [terrestrial]**	1.2.2.a. General ecosystem characteristics, extent and pattern [mountains, forests, wetlands, rivers, aquifers and lakes] 1.2.2.a.1. **Area of ecosystems** 1.2.2.a.2. *Proximity of relevant ecosystem to urban areas and cropland* 1.2.2.b. Ecosystems' chemical and physical characteristics 1.2.2.b.1. *Nutrients* 1.2.2.b.2. *Carbon* 1.2.2.b.3. *Pollutants* 1.2.2.c. Biodiversity 1.2.2.c.1. **Known flora and fauna species** 1.2.2.c.2. Endemic flora and fauna species 1.2.2.c.3. Invasive alien flora and fauna species 1.2.2.c.4. Species population 1.2.2.c.5. *Habitat fragmentation* 1.2.2.d.. Protected areas and species 1.2.2.d.1. **Protected terrestrial and marine area** [marine only] 1.2.2.d.2. Protected flora and fauna species
			Component 2: Environmental Resources and their Use Sub-component 2.3: Land Topic 2.3.1: Land use	2.3.1.a. Area under land use categories [e.g., agriculture; forestry; land used for aquaculture; use of built-up and related areas; land used for maintenance and restoration of environmental functions; other uses of land not elsewhere classified; land not in use; inland waters used for aquaculture or holding facilities; inland waters used for maintenance and restoration of environmental functions; other uses of inland waters not elsewhere classified; inland water not in use; coastal waters (includes area of coral reefs, mangroves, etc.); Exclusive Economic Zone (EEZ))] 2.3.1.b. Other aspects of land use 2.3.1.b.1. *Area of land under organic farming* 2.3.1.b.2. Area of land under irrigation 2.3.1.b.3. Area of land under sustainable forest management 2.3.1.b.4. *Area of land under agroforestry*

example 4: forest

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Target 15.2 By 2020, promote the implementation of **sustainable management** of all types of **forests**, halt **deforestation**, restore **degraded** forests and increase **afforestation** and **reforestation** by [x] per cent globally	Proposed Indicator 1: Net forest emissions Proposed Indicator 2: Forest cover under sustainable forest management	Component 1: Environmental Conditions and Quality Sub-component 1.2: Land Cover, Ecosystems and Biodiversity **Topic 1.2.3: Forests**	1.2.3.a. Forest area 1.2.3.a.1. **Total** 1.2.3.a.2. Natural 1.2.3.a.3. Planted 1.2.3.a.4. Protected forest area 1.2.3.a.5. Forest area affected by fire 1.2.3.b. Forest biomass 1.2.3.b.1. Total 1.2.3.b.2. *Carbon storage in living forest biomass*
			Component 2: Environmental Resources and their Use Sub-component 2.3: Land **Topic 2.3.2: Use of forest land**	2.3.2.a. Use of forest land 2.3.2.a.1. **Area deforested** 2.3.2.a.2. Area reforested 2.3.2.a.3. Area afforested 2.3.2.a.4. *Natural growth* 2.3.2.b. Forest area by primary designated function
			Sub-component 2.5: Biological Resources **Topic 2.5.1: Timber resources**	2.5.1.a. Timber resources 2.5.1.a.1. **Stocks of timber resources** 2.5.1.c. Forest production 2.5.1.d. Fuelwood production

example 5: water quality, wastewater

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 6 Ensure availability and sustainable management of water and sanitation for all	Target 6.3 By 2030, improve **water quality** by **reducing pollution**, eliminating dumping and minimizing release of **hazardous chemicals** and materials, halving the proportion of untreated **wastewater** and increasing recycling and safe reuse by [x] per cent globally	Proposed Indicator 1: Percentage of waste water safely treated Proposed Indicator 2: Percentage of receiving water bodies with ambient water quality not presenting risk to the environment or human health	Component 1: Environmental Conditions and Quality Sub-component 1.3: Environmental Quality **Topic 1.3.2: Freshwater quality**	1.3.2.a. Nutrients and chlorophyll 1.3.2.a.1. **Concentration level of nitrogen** 1.3.2.a.2. **Concentration level of phosphorous** 1.3.2.a.3. Concentration level of chlorophyll A 1.3.2.b. Organic matter 1.3.2.b.1. **Biochemical oxygen demand (BOD)** 1.3.2.b.2. Chemical oxygen demand (COD) 1.3.2.c. Pathogens 1.3.2.c.1. **Concentration levels of faecal coliforms** 1.3.2.d. Metals (e.g., mercury, lead, nickel, arsenic, cadmium) 1.3.2.d.1. Concentration levels in the sediment and freshwater 1.3.2.d.2. Concentration levels in freshwater organisms 1.3.2.e. Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, and radioactive waste) 1.3.2.e.1. Concentrations level in the sediment and freshwater 1.3.2.e.2. Concentrations level in freshwater organisms 1.3.2.f. Physical and chemical characteristics 1.3.2.f.1. pH/Acidity/Alkalinity 1.3.2.f.2. Temperature 1.3.2.f.3. *Total suspended solids (TSS)* 1.3.2.f.4. Salinity 1.3.2.f.5. Dissolved oxygen (DO) 1.3.2.g. Plastic waste and other freshwater debris 1.3.2.g.1. Amount of plastic waste and other debris
			Component 3: Residuals Sub-component 3.2: Generation and Management of Wastewater **Topic 3.2.1: Generation and pollutant content of wastewater**	3.2.1.a. **Volume of wastewater generated**
			Topic 3.2.2: Collection and treatment of wastewater	3.2.2.a. **Volume of wastewater collected** 3.2.2.b. **Volume of wastewater treated** 3.2.2.c. Total urban wastewater treatment capacity
			Topic 3.2.3: Discharge of wastewater to the environment	3.2.3.a. Wastewater discharge 3.2.3.a.1. **Total volume of wastewater discharged to the environment after treatment** 3.2.3.a.2. **Total volume of wastewater discharged to the environment without treatment** 3.2.3.b. Pollutant content of discharged wastewater
			Sub-component 3.4: Release of Chemical Substances **Topic 3.4.1: Release of chemical substances**	3.4.1.a. Total amount of fertilizers used 3.4.1.a.1. Natural fertilizers 3.4.1.a.2. Chemical fertilizers 3.4.1.b. Total amount of pesticides used 3.4.1.c. *Total amount of pellets used* 3.4.1.d. *Total amount of hormones used* 3.4.1.e. *Total amount of colourants used* 3.4.1.f. *Total amount of antibiotics used*
			Component 5: Human Settlements and Environmental Health Sub-component 5.1: Human Settlements **Topic 5.1.2: Access to selected basic services**	5.1.2.d. *Population connected to wastewater collecting system* 5.1.2.e. **Population connected to wastewater treatment** **5.1.2.f. Population supplied by water supply industry**

example 6: pollution/environmental health 1/2

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 3 Ensure healthy lives and promote well-being for all at all ages	Target 3.9 By 2030, substantially reduce the number of **deaths and illnesses** from **hazardous chemicals** and **air**, **water** and **soil pollution** and contamination	Proposed Indicator 1: Population in urban areas exposed to outdoor air pollution levels above WHO guideline values	Component 1: Environmental Conditions and Quality Sub-component 1.3: Environmental Quality **Topic 1.3.1: Air quality**	1.3.1.a. Local air quality 1.3.1.a.1. **Concentration level of particulate matter (PM_{10})** 1.3.1.a.2. **Concentration level of particulate matter ($PM_{2.5}$)** 1.3.1.a.3. **Concentration level of tropospheric ozone (O_3)** 1.3.1.a.4. **Concentration level of carbon monoxide (CO)** 1.3.1.a.5. **Concentration level of sulphur dioxide (SO_2)** 1.3.1.a.6. **Concentration levels of nitrogen oxides (NO_X)** 1.3.1.a.7. Concentration levels of heavy metals 1.3.1.a.8. Concentration levels of non-methane volatile organic compounds (NMVOCs) 1.3.1.a.9. *Concentration levels of dioxins* 1.3.1.a.10. *Concentration levels of furans* 1.3.1.a.11. Concentration levels of other pollutants 1.3.1.a.12. Number of days where maximum allowable levels were surpassed per year
			Topic 1.3.2: Freshwater quality	1.3.2.a. Nutrients and chlorophyll 1.3.2.a.1. **Concentration level of nitrogen** 1.3.2.a.2. **Concentration level of phosphorous** 1.3.2.a.3. Concentration of chlorophyll A 1.3.2.b. Organic matter 1.3.2.b.1. **Biochemical oxygen demand (BOD)** 1.3.2.b.2. Chemical oxygen demand (COD) 1.3.2.c. Pathogens 1.3.2.c.1. **Concentration levels of faecal coliforms** 1.3.2.d. Metals (e.g., mercury, lead, nickel, arsenic, cadmium) 1.3.2.d.1. Concentrations levels in the sediment and freshwater 1.3.2.d.2. Concentrations levels in freshwater organisms 1.3.2.e. Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, and radioactive waste) 1.3.2.e.1. Concentrations levels in the sediment and freshwater 1.3.2.e.2. Concentrations levels in freshwater organisms 1.3.2.f. Physical and chemical characteristics 1.3.2.f.1. pH/Acidity/Alkalinity 1.3.2.f.2. Temperature. 1.3.2.f.3. *Total suspended solids (TSS)* 1.3.2.f.4. Salinity 1.3.2.f.5. Dissolved oxygen (DO) 1.3.2.g. Plastic waste and other freshwater debris 1.3.2.g.1. Amount of plastic waste and other freshwater debris
			Topic 1.3.3: Marine water quality	1.3.2.a. Nutrients and chlorophyll 1.3.2.a.1. **Concentration level of nitrogen** 1.3.2.a.2. **Concentration level of phosphorous** 1.3.2.a.3. Concentration of chlorophyll A 1.3.2.b. Organic matter 1.3.2.b.1. **Biochemical oxygen demand (BOD)** 1.3.2.b.2. Chemical oxygen demand (COD) 1.3.2.c. Pathogens 1.3.2.c.1. Concentration levels of faecal coliforms in recreational marine water 1.3.3.d. Metals (e.g., mercury, lead, nickel, arsenic, cadmium) 1.3.3.d.1. Concentrations levels in the sediment and marine water 1.3.3.d.2. Concentrations levels in marine organisms 1.3.3.e. Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, and radioactive waste) 1.3.3.e.1. *Concentrations* levels *in the sediment and marine water* 1.3.3.e.2. *Concentrations* levels *in marine organisms* 1.3.3.i. Red tide 1.3.3.i.1. *Occurrence* 1.3.3.i.2. *Impacted area* 1.3.3.i.3. *Duration*

example 6: pollution/environmental health 2/2

SDGs			FDES	
GOAL	**Target**	**Proposed Preliminary Indicators** (wider UN System)	**Location in the FDES: Component Sub-Component and Topic**	**Underlying statistics needed to compile the indicator FDES – Basic Set of Environment Statistics**
Goal 3 Ensure healthy lives and promote well-being for all at all ages	Target 3.9 By 2030, substantially reduce the number of **deaths and illnesses** from **hazardous chemicals** and **air**, **water** and **soil pollution** and contamination	Proposed Indicator 1: Population in urban areas exposed to outdoor air pollution levels above WHO guideline values	**Topic 1.3.4: Soil pollution**	1.3.4.a. Sites affected by pollution 1.3.4.a.1. Contaminated sites 1.3.4.a.2. Potentially contaminated sites 1.3.4.a.3. Remediated sites 1.3.4.a.4. Other sites
			Component 5: Human Settlements and Environmental Health Sub-component 5.1: Human Settlements **Topic 5.1.4: Exposure to ambient pollution**	5.1.4.a. Population exposed to air pollution in main cities 5.1.4.b. *Population exposed to noise pollution in main cities*
			Sub-component 5.2: Environmental Health **Topic 5.2.1: Airborne diseases and conditions**	5.2.1.a. Airborne diseases and conditions 5.2.1.a.1. Incidence 5.2.1.a.2. Prevalence 5.2.1.a.3. Mortality 5.2.1.a.4. *Loss of work days* 5.2.1.a.5. *Estimates of economic cost in monetary terms*
			Topic 5.2.2: Water-related diseases and conditions	5.2.2.a. Water-related diseases and conditions 5.2.2.a.1. **Incidence** 5.2.2.a.2. **Prevalence** 5.2.2.a.3. **Mortality** 5.2.2.a.4. *Loss of work days* 5.2.2.a.5. *Estimates of economic cost in monetary terms*
			Topic 5.2.5: Toxic substance- and nuclear radiation-related diseases and conditions	5.2.5.a. Toxic substance- and nuclear radiation-related diseases and conditions 5.2.5.a.1. Incidence 5.2.5.a.2. Prevalence 5.2.5.a.3. *Loss of work days* 5.2.5.a.4. *Estimates of economic cost in monetary terms*
			Component 6: Environment Protection, Management and Engagement Sub-component 6.2: Environmental Governance and Regulation **Topic 6.2.2: Environmental regulation and instruments**	6.2.2.a. Direct regulation 6.2.2.a.1. **List of regulated pollutants and description** (e.g., by year of adoption and maximum allowable levels) 6.2.2.a.5. Budget and number of staff dedicated to enforcement of environmental regulations

Thank you for your attention!

Please contact us:
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E-mail: envstats@un.org
website: http://unstats.un.org/unsd/ENVIRONMENT/

Framework for the Development of Environment Statistics

A guide for the development and organization of environment statistics

The Framework for the Development of Environment Statistics (FDES) 2013, including the Core Set of Environment Statistics, as well as an Action Plan for putting the FDES to work, were endorsed by the 44th session of the Statistical Commission (New York, 26 February–1 March 2013)*

Environment statistics for policymaking

The demand for environment statistics is increasing in step with the continued environmental challenges faced by modern society. The recognition that human well-being depends on the environment has led to an increasing emphasis on environmental and sustainability concerns on which decisions and actions need to be taken. Paramount to these actions is the regular production of environment statistics of the highest possible quality to support evidence-based policymaking by enabling the identification of environmental policy issues and allowing their objective quantification.

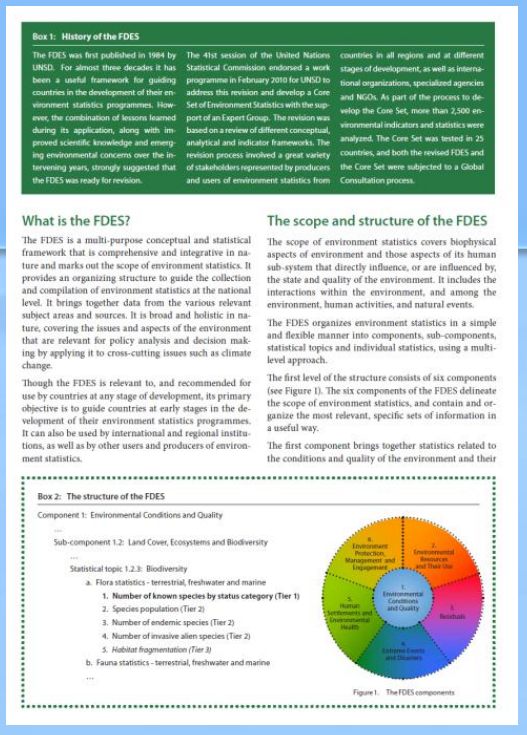
Environment statistics portray key information about the state of the environment and its most relevant changes through space and time. They strengthen assessments through quantitative techniques, making analyses more robust, timely and progressively harmonized at the international level. Environment statistics are necessary for producing environmental assessments, state of the environment reports, environmental compendia, environmental indicators, indicators of sustainable development, as well as to facilitate environmental-economic accounting.

The member States of the United Nations have addressed this challenging area during the Rio+20 Conference in June 2012. The outcome document, "The Future We Want" contains various references that are relevant to the work of the United Nations Statistics Division (UNSD) in this regard. This document frequently mentions the importance of data, in particular, environmental data, as well as information and indicators. The Framework for the Development of Environment Statistics (FDES 2013), including the Core Set of Environment Statistics, provides an appropriate means for addressing these information needs as they relate to the environmental dimension of sustainable development. The FDES has been recognized by the 44th session of the Statistical Commission as a useful tool to adequately respond to the increasing demand for information in the follow-up to Rio+20 and the post-2015 development agenda (including Sustainable Development Goals).

The challenge of producing environment statistics

Environment statistics cover a wide range of information and are interdisciplinary in nature. Their sources are dispersed over a variety of data producers, and similarly numerous methods are applied in their compilation. To effectively produce environment statistics, specific statistical and environmental expertise, scientific knowledge, institutional development capabilities, and adequate resources are equally necessary. Many countries still require substantial technical assistance and capacity building. Environment statistics therefore require a proper framework to guide their development, coordination and organization at all levels.

* The United Nations Statistical Commission is the apex entity of the global statistical system bringing together the Chief Statisticians from member states from around the world. It is the highest decision making body for international statistical activities especially the setting of statistical standards, the development of concepts and methods and their implementation at the national and international level.



Box 1: History of the FDES

The FDES was first published in 1984 by UNSD. For almost three decades it has been a useful framework for guiding countries in the development of their environment statistics programmes. However, the combination of lessons learned during its application, along with improved scientific knowledge and emerging environmental concerns over the intervening years, strongly suggested that the FDES was ready for revision.

The 41st session of the United Nations Statistical Commission endorsed a work programme in February 2010 for UNSD to address this revision and develop a Core Set of Environment Statistics with the support of an Expert Group. The revision was based on a review of different conceptual, analytical and indicator frameworks. The revision process involved a great variety of stakeholders represented by producers and users of environment statistics from countries in all regions and at different stages of development, as well as international organizations, specialized agencies and NGOs. As part of the process to develop the Core Set, more than 2,500 environmental indicators and statistics were analyzed. The Core Set was tested in 25 countries, and both the revised FDES and the Core Set were subjected to a Global Consultation process.

What is the FDES?

The FDES is a multi-purpose conceptual and statistical framework that is comprehensive and integrative in nature and marks out the scope of environment statistics. It provides an organizing structure to guide the collection and compilation of environment statistics at the national level. It brings together data from the various relevant subject areas and sources. It is broad and holistic in nature, covering the issues and aspects of the environment that are relevant for policy analysis and decision making by applying it to cross-cutting issues such as climate change.

Though the FDES is relevant to, and recommended for use by countries at any stage of development, its primary objective is to guide countries at early stages in the development of their environment statistics programmes. It can also be used by international and regional institutions, as well as by other users and producers of environment statistics.

The scope and structure of the FDES

The scope of environment statistics covers biophysical aspects of environment and those aspects of its human sub-system that directly influence, or are influenced by, the state and quality of the environment. It includes the interactions within the environment, and among the environment, human activities, and natural events.

The FDES organizes environment statistics in a simple and flexible manner into components, sub-components, statistical topics and individual statistics, using a multi-level approach.

The first level of the structure consists of six components (see Figure 1). The six components of the FDES delineate the scope of environment statistics, and contain and organize the most relevant, specific sets of information in a useful way.

The first component brings together statistics related to the conditions and quality of the environment and their

Box 2: The structure of the FDES

Component 1: Environmental Conditions and Quality

...

Sub-component 1.2: Land Cover, Ecosystems and Biodiversity

...

Statistical topic 1.2.3: Biodiversity

a. Flora statistics - terrestrial, freshwater and marine
   1. **Number of known species by status category (Tier 1)**
   2. Species population (Tier 2)
   3. Number of endemic species (Tier 2)
   4. Number of invasive alien species (Tier 2)
   5. *Habitat fragmentation (Tier 3)*

b. Fauna statistics - terrestrial, freshwater and marine

...

Figure 1. The FDES components