Handout 3: The Basic Set of Environment Statistics

Source: FDES 2013, Annex A, Table A.1.

The tables containing the complete Basic Set include additional columns which provide further guidance. The fourth column in this table provides illustrations of possible temporal, spatial and subject-based disaggregations for the statistics. It should be noted that these are not mutually exclusive and may overlap. The fifth column refers to existing available methodological guidance from international sources that offer concepts, descriptions, specifications, lists, classifications and statistical methodologies for the given topic of the FDES.

BASIC SET LEGEND:
1. The first level in the tables, preceded by a lower-case letter, is the statistics group/category; in some cases where there are no statistics below the first level, this level may also describe a specific statistic.
2. The second level in the tables, preceded by a number, identifies specific statistics.
3. In the second column of the tables, **Bold text is Tier 1 (Core Set) statistics**; regular text is Tier 2 statistics; and *italicized text is Tier 3 statistics*.

Table A.1: The Basic Set of Environment Statistics

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; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.1.1: Atmosphere, climate and weather (CONTINUES ON NEXT PAGE)	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 averages**	Degrees		
	2. **Minimum monthly average**	Degrees		
	3. **Maximum monthly average**	Degrees		
	b. Precipitation (also in 2.6.1.a)			
	1. **Annual averages**	Height		
	2. **Long-term annual averages**	Height		
	3. Monthly averages	Height		
	4. Minimum monthly value	Height		
	5. Maximum monthly value	Height		
	c. Relative humidity			
	1. Minimum monthly value	Number		
	2. Maximum monthly value	Number		
	d. Pressure		▪ National ▪ Sub-national ▪ By station	
	1. *Minimum monthly value*	Pressure unit		
	2. *Maximum monthly value*	Pressure unit		
	e. Wind speed		▪ National ▪ Sub-national	
	1. *Minimum monthly value*	Speed		
	2. *Maximum monthly value*	Speed		

Table A.1: The Basic Set of Environment Statistics (continued)

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; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 1.1.1: Atmosphere, climate and weather (CONTINUED FROM PREVIOUS PAGE)	f. Solar radiation		▪ 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. *Average daily value*	Area, Energy unit		
	2. *Average monthly value*	Area, Energy unit		
	3. *Number of hours with sunshine*	Number	▪ National ▪ Sub-national ▪ By month and per year	
	g. UV radiation		▪ National ▪ Sub-national	▪ WHO-UV Radiation Index ▪ WMO-UV Radiation
	1. *Maximum daily value*	Area, Energy unit		
	2. *Average daily value*	Area, Energy unit		
	3. *Maximum monthly value*	Area, Energy unit		
	4. *Average monthly value*	Area, Energy unit		
	h. Occurrence of El Niño, La Niña events, when relevant			
	1. *Occurrence*	Number		
	2. *Location*	Location		
	3. *Time period*	Time period		

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; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.1.2: Hydrographical characteristics	a. Lakes		• By watershed/ river basin • National • Sub-national	• United Nations Statistics Division (UNSD): International Recommendations for Water Statistics (IRWS) • UN-Water
	1. *Surface area*	Area, Depth, Location		
	2. *Location*			
	b. Rivers			
	1. *Length*	Length		
	2. *Location*	Location		
	c. Reservoirs			
	1. *Surface area*	Area, Volume		
	2. *Location*	Location		
	d. Watersheds			
	1. **Description of main watersheds**	Area, Descriptive, Location		
	e. Seas		• National, within coastal waters or EEZ	
	1. Coastal waters	Area		
	2. Territorial sea	Area		
	3. Exclusive Economic Zone (EEZ) (also in 2.3.1.d)	Area		
	4. *Sea level*	Depth		
	5. *Location*	Location		
	6. *Area of sea ice*	Area		
	f. Groundwater		• By watershed • National • Sub-national • Renewable • Non-renewable • By salinity levels	
	1. *Aquifers*	Depth, Descriptive, Number, Volume		
	g. Glaciers	Area, Volume	• National • Sub-national	

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; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 1.1.3: **Geological and** **geographical** **information**	a. Geological, geographical and geomorphological conditions of terrestrial areas and islands		• National	• UNSD: Demographic Yearbook • UN Food and Agriculture Organization of the United Nations (FAO) • Center for International Earth Science Information Network (CIESIN)
	1. Length of border	Length		
	2. **Area of country or region**	Area		
	3. Geographical location	Location		
	4. Number of islands	Number		
	5. Area of islands	Area		
	6. Location of islands	Location		
	7. *Main geomorphological characteristics of islands*	Descriptive		
	8. *Spatial distribution of land relief*	Descriptive, Location		
	9. *Characteristics of landforms* (e.g., location, area and height, as applicable, for plains, hills, plateaus, dunes, volcanoes, mountains, sea mounts, etc.)	Descriptive		
	10. *Area of rock types*	Area		
	11. *Location of rock types*	Location		
	12. *Area of tectonic plates*	Area		
	13. *Location of tectonic plates*	Location		
	14. *Length of fault lines*	Length		
	15. *Location of fault lines*	Location		
	b. **Coastal area** (includes area of coral reefs, mangroves, etc.) (also in 2.3.1.c)	Area, Descriptive		
	c. **Length of marine coastline**	Length		
Topic 1.1.4: **Soil** **characteristics**	a. Soil characterization		• By location • By soil type • National • Sub-national	• FAO and the International Institute for Applied Systems Analysis (IIASA) Harmonized World Soil Database • International Soil Reference and Information Centre (ISRIC) World Data Centre for Soils • United Nations Convention to Combat Desertification (UNCCD) • FAO Global Assessment of Human-induced Soil Degradation (GLASOD)
	1. **Area of soil types**	Area		
	b. Degradation			
	1. **Area affected by soil erosion**	Area		
	2. **Area affected by desertification**	Area		
	3. Area affected by salinization	Area		
	4. Area affected by waterlogging	Area		
	5. Area affected by acidification	Area		
	6. *Area affected by compaction*	Area		
	c. Nutrient content of soil, measured in levels of:		• By soil type • By nutrient • National • Sub-national	
	1. Nitrogen (N)	Concentration		
	2. Phosphorus (P)	Concentration		
	3. *Calcium (Ca)*	Concentration		
	4. *Magnesium (Mg)*	Concentration		
	5. *Potassium (K)*	Concentration		
	6. *Zinc (Zn)*	Concentration		

Component 1: Environmental Conditions and Quality

Sub-component 1.2: Land Cover, Ecosystems and Biodiversity

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.2.1: Land cover	a. Extent and spatial distribution of main land cover categories		▪ By type of land cover (e.g., artificial surfaces including urban and associated areas; herbaceous crops; woody crops; multiple or layered crops; grassland; tree covered areas; mangroves; shrub covered areas; shrubs and/or herbaceous vegetation, aquatic or regularly flooded; sparsely natural vegetated areas; terrestrial barren land; permanent snow and glaciers; inland water bodies; and coastal water bodies and inter-tidal areas)[a] ▪ National ▪ Sub-national	▪ FAO Land Cover Classification System ▪ System of Environmental-Economic Accounting (SEEA) Central Framework (2012) land cover categories ▪ European Environment Agency (EEA)
	1. **Area of land cover**	Area		
	2. **Location of land cover**	Location		
Topic 1.2.2: Ecosystems	a. General ecosystem characteristics, extent and pattern		▪ By ecosystem (e.g., Marine, Coastal, Inland Water, Forest, Dryland, Island, Mountain, Polar, Cultivated, Urban)[b] ▪ By biome ▪ By habitat ▪ By biogeographical region ▪ By river basin ▪ National ▪ Sub-national	Millennium Ecosystem Assessment ▪ UN Convention on Biological Diversity ▪ UNECE Standard Statistical Classification of Flora, Fauna and Biotopes (1996) ▪ The International Union for the Conservation of Nature (IUCN) Red List of Threatened Species ▪ Convention on Wetlands of International Importance, especially as Waterfowl Habitat (The Ramsar Convention)
	1. **Area of ecosystems**	Area		
	2. Location within country	Location		
	3. *Proximity of relevant ecosystem to urban areas and cropland*	Location		
	b. Ecosystems' chemical and physical characteristics			
	1. *Nutrients*	Concentration		
	2. *Carbon*	Concentration		
	3. *Pollutants*	Concentration		
	c. Biological components of ecosystems (also in 1.2.3.a-b)			
	1. Biota (flora and fauna)	Number		
	2. Endemic species	Number		
	3. Biodiversity (aggregated measure of diversity of flora and fauna)	Number		
	4. **Threatened species**	Number		

(a) SEEA land cover categories, based on FAO Land Cover Classification System (http://unstats.un.org/unsd/envaccounting/seearev/Chapters/cAnnex.pdf)

Component 1: Environmental Conditions and Quality

Sub-component 1.2: Land Cover, Ecosystems and Biodiversity

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.2.3: Biodiversity	a. Flora - terrestrial, freshwater and marine (also in 1.2.2.c)		• By class (e.g., mammals, fishes, birds, reptiles, etc.) • By ecosystem (Marine, Coastal, Inland Water, Forest, Dryland, Island, Mountain, Polar, Cultivated, Urban)[b]	• Millennium Ecosystem Assessment • UN Convention on Biological Diversity • IUCN Red List of Threatened Species • UN Economic Commission of Europe (ECE) Standard Statistical Classification of Flora, Fauna and Biotopes (1996) • FAO FISHSTAT (Species population and number of invasive alien species)
	1. **Number of known species by status category**	Number		
	2. Species population	Number		
	3. Number of endemic species	Number		
	4. Number of invasive alien species	Number		
	5. *Habitat fragmentation*	Area, Descriptive, Location, Number		
	b. Fauna - terrestrial, freshwater and marine (also in 1.2.2.c)		• By biome • By habitat • By status category (e.g., threatened) • National • Sub-national	
	1. **Number of known species by status category**	Number		
	2. Species population	Number		
	3. Number of endemic species	Number		
	4. Number of invasive alien species	Number		
	5. *Habitat fragmentation*	Area, Descriptive, Location, Number		
	c. Protected areas		• By management category [c] • By ecosystem • By biome • By habitat • National • Sub-national	• IUCN Protected Area Management Categories • UNSD: Millennium Development Goal (MDG) Indicator 7.6 Metadata
	1. **Protected terrestrial (including inland water) and marine area** (also in 1.2.4.a)	Area		
	d. Protected species		• By relevant species • By ecosystem • By biome • By habitat • By status category • National • Sub-national	• IUCN Red List of Threatened Species • UNSD: MDG Indicator 7.7 Metadata
	1. Number of terrestrial, freshwater and marine protected flora species	Number		
	2. Number of terrestrial, freshwater and marine protected fauna species	Number		
	e. Other		• By status category • National • Sub-national	• Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
	1. *Trade in wildlife and captive-bred species*	Descriptive, Mass, Number		

(b) Reporting categories used in the Millennium Ecosystem Assessment (http://www.maweb.org/documents/document.769.aspx.pdf)

(c) IUCN reporting categories: Strict natural reserves; Wilderness areas; National parks, Natural monuments and features; Habitat (species) protected areas; Protected landscapes; and Protected areas with sustainable use of natural resources (http://www.iucn.org/about/work/programmes/pa/pa_products/wcpa_categories/

Component 1: Environmental Conditions and Quality

Sub-component 1.2: Land Cover, Ecosystems and Biodiversity

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 1.2.4: Forests	a. Forest area (also in 1.2.1.a and 1.2.2.a)		▪ By forest type, as appropriate ▪ National ▪ Sub-national	▪ FAO Global Forest Resources Assessment (FRA) ▪ UN Forum on Forests (UNFF) Monitoring, Assessment and Reporting (MAR) ▪ UNSD: MDG Indicator 7.1 Metadata ▪ Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section)
	1. **Total**	Area		
	2. Natural	Area		
	3. Planted	Area		
	4. Protected forest area (also in 1.3.1.c)	Area		
	5. **Area deforested**	Area		
	6. Area reforested	Area		
	7. Area afforested	Area		
	8. Forest area affected by fire	Area		
	9. *Natural growth*	Area		
	b. Forest biomass			
	1. Total	Volume		
	2. *Carbon storage in living forest biomass*	Mass		

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Component 1: Environmental Conditions and Quality				
Sub-component 1.3: Environmental Quality				
Topic 1.3.1: Air quality	a. Breathable particles		▪ Sub-national	▪ World Health Organization (WHO)
	1. **Concentration levels of particulate matter (PM$_{10}$)**	Concentration	▪ Daily maximum	▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990)
	2. **Concentration levels of particulate matter (PM$_{2.5}$)**	Concentration	▪ Monthly maximum and average	
	3. Maximum allowable levels	Concentration	▪ Yearly maximum and average	
	4. Number of days where maximum allowable levels were surpassed per year	Number		
	b. Breathable gases			
	1. **Concentration levels of tropospheric ozone (O$_3$)**	Concentration		
	2. **Concentration levels of carbon monoxide (CO)**	Concentration		
	3. Maximum allowable levels	Concentration		
	4. Number of days where maximum allowable levels were surpassed per year	Number		
	c. Ambient concentrations of other relevant pollutants			
	1. **Concentration levels of sulphur dioxide (SO$_2$)**	Concentration		
	2. **Concentration levels of nitrogen oxides (NO$_X$)**	Concentration		
	3. Concentration levels of heavy metals	Concentration		
	4. Concentration levels of non-methane volatile organic compounds (NMVOCs)	Concentration		
	5. *Concentration levels of dioxins*	Concentration		
	6. *Concentration levels of furans*	Concentration		
	7. Other pollutants	Concentration		
	8. Maximum allowable levels	Concentration		
	9. Number of days where maximum allowable levels were surpassed per year	Number		
	d. Global atmospheric concentrations of climate process drivers			
	1. Global atmospheric concentration levels of carbon dioxide (CO$_2$)	Concentration		
	2. Global atmospheric concentration levels of methane (CH$_4$)	Concentration		

Table A.1: The Basic Set of Environment Statistics (continued)

Component 1: Environmental Conditions and Quality				
Sub-component 1.3: Environmental Quality				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 1.3.2: Freshwater quality	a. Nutrients and chlorophyll		▪ By water body ▪ By watershed/river basin ▪ By point measurement ▪ By type of water resource	▪ UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) ▪ UN Environment Programme Global Environment Monitoring System - Water (UNEP GEMS-Water) ▪ WHO
	1. **Concentration of nitrates in freshwater bodies**	Concentration		
	2. **Concentration of phosphates in freshwater bodies**	Concentration		
	3. Concentration of chlorophyll A in freshwater bodies	Concentration		
	4. Maximum allowable levels	Concentration		
	b. Organic matter in freshwater bodies			
	1. **Biochemical oxygen demand (BOD) in freshwater bodies**	Concentration		
	2. Chemical oxygen demand (COD) in freshwater bodies	Concentration		
	3. Maximum allowable levels	Concentration		
	c. Pathogens			
	1. **Concentration of faecal coliforms in freshwater bodies**	Concentration		
	2. Maximum allowable levels	Concentration		
	d. Metals (e.g., mercury, lead, nickel, arsenic, cadmium)			
	1. Concentrations in the sediment and water	Concentration		
	2. Concentrations in freshwater organisms	Concentration		
	3. Maximum allowable levels	Concentration		
	e. Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, and radioactive waste)			▪ UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) ▪ UN Environment Programme Global Environment Monitoring System - Water (UNEP GEMS-Water) ▪ Stockholm Convention
	1. Concentrations in the sediment and water	Concentration		
	2. Concentrations in freshwater organisms	Concentration		
	3. Maximum allowable levels	Concentration		
	f. Physical and chemical characteristics			▪ UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992) ▪ UN Environment Programme Global Environment Monitoring System - Water (UNEP GEMS-Water)
	1. pH/Acidity/Alkalinity	Concentration, Level		
	2. Temperature	Degrees		
	3. *Total suspended solids (TSS)*	Concentration		
	4. Salinity	Concentration		
	5. Dissolved oxygen (DO) in freshwater bodies	Concentration		
	g. Plastic waste and other freshwater debris			
	1. Amount of plastic waste and other debris in freshwater	Area, Mass		

Component 1: Environmental Conditions and Quality				
Sub-component 1.3: Environmental Quality				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 1.3.3: Marine water quality (CONTINUES ON NEXT PAGE)	a. Nutrients and chlorophyll		▪ By coastal zone, delta, estuary or other local marine environment ▪ Sub-national ▪ National ▪ Supranational ▪ By point measurement ▪ By type of water resource	▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme
	1. **Concentration of nitrates in marine water bodies**	Concentration		
	2. **Concentration of phosphates in marine water bodies**	Concentration		
	3. Concentration of chlorophyll A in marine water bodies	Concentration		
	4. Maximum allowable levels	Concentration		
	b. Organic matter in marine water bodies			
	1. **Biochemical oxygen demand (BOD) in marine water bodies**	Concentration		
	2. Chemical oxygen demand (COD) in marine water bodies	Concentration		
	3. Maximum allowable levels	Concentration		
	c. Pathogens			
	1. Concentration of faecal coliforms in recreational marine waters	Concentration		
	2. Maximum allowable levels	Concentration		
	d. Metals (e.g., mercury, lead, nickel, arsenic, cadmium)			
	1. Concentrations in the sediment and water	Concentration		
	2. Concentrations in marine organisms	Concentration		
	3. Maximum allowable levels	Concentration		
	e. Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, and radioactive waste)			▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme ▪ Stockholm Convention
	1. *Concentrations in the sediment and water*	Concentration		
	2. *Concentrations in marine organisms*	Concentration		
	3. *Maximum allowable levels*	Concentration		
	f. Physical and chemical characteristics			▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme
	1. *pH/Acidity/Alkalinity*	Concentration, Level		
	2. Temperature	Degrees		
	3. *Total suspended solids (TSS)*	Concentration		
	4. *Salinity*	Concentration		
	5. Dissolved oxygen (DO) in marine water bodies	Concentration		
	6. *Density*	Density		
	g. Coral bleaching			
	1. **Area affected by coral bleaching**	Area		

Table A.1: The Basic Set of Environment Statistics (continued)

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Component 1: Environmental Conditions and Quality				
Sub-component 1.3: Environmental Quality				
Topic 1.3.3: Marine water quality (CONTINUED FROM PREVIOUS PAGE)	h. Plastic waste and other marine debris		▪ By coastal zone, delta, estuary or other local marine environment ▪ Sub-national ▪ National ▪ Supranational ▪ By point measurement	▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme
	1. *Amount of plastic waste and other debris in marine waters*	Area, Mass		
	i. Red tide			
	1. *Occurrence*	Number		
	2. *Impacted area*	Area		
	3. *Location*	Location		
	4. *Duration*	Duration		
	j. Oil pollution			
	1. *Area of oil slicks*	Area		
	2. *Amount of tar balls*	Area, Diameter, Number		
Topic 1.3.4: Soil pollution	a. Sites affected by pollution		▪ Sub-national ▪ By type of pollutant ▪ By source	
	1. Contaminated sites	Area, Number		
	2. Potentially contaminated sites	Area, Number		
	3. Remediated sites	Area, Number		
	4. Other sites	Area, Number		
Topic 1.3.5: Noise	a. Levels of noise from specific sources	Intensity, Level	▪ Sub-national	▪ WHO
	b. Levels of noise in specific locations	Intensity, Level		
	c. Maximum allowable levels from different sources or in specific surrounding locations	Intensity		

Component 2: Environmental Resources and their Use				
Sub-component 2.1: Non-energy Mineral Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.1.1: Stocks and changes of non-energy mineral resources	a. Non-energy mineral resources		▪ By mineral ▪ National ▪ Sub-national	▪ United Nations Framework Classification for Energy and Mineral Resources (UNFC) ▪ SEEA Central Framework (2012) Asset and physical flow accounts ▪ ISIC Rev. 4, Section B, Division 05-08
	1. **Stocks of commercially recoverable resources**	Mass, Volume		
	2. New discoveries	Mass, Volume		
	3. *Upward reappraisals*	Mass, Volume		
	4. *Upward reclassifications*	Mass, Volume		
	5. **Extraction**	Mass, Volume		
	6. *Catastrophic losses*	Mass, Volume		
	7. *Downward reappraisals*	Mass, Volume		
	8. *Downward reclassifications*	Mass, Volume		
	9. Stocks of potentially commercially recoverable resources	Mass, Volume		
	10. *Stocks of non-commercial and other known resources*	Mass, Volume		
Topic 2.1.2: Production and trade of non-energy minerals	a. Production of non-energy minerals	Mass, Volume		
	b. Imports of non-energy minerals	Currency, Mass, Volume		
	c. Exports of non-energy minerals	Currency, Mass, Volume		

Component 2: Environmental Resources and their Use				
Sub-component 2.2: Energy Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.2.1: Stocks and changes of mineral energy resources	a. Mineral energy resources		▪ By resource (e.g., natural gas, crude oil and natural gas liquids, oil shale, natural bitumen and extra heavy oil (includes oil extracted from oil sands), coal and lignite, peat, non-metallic minerals except for coal or peat, uranium and thorium ores, and other metallic minerals) ▪ National ▪ Sub-national	▪ UNSD: International Recommendations for Energy Statistics (IRES) ▪ Asset and physical flow accounts in SEEA Central Framework (2012) ▪ International Energy Agency (IEA) Energy Statistics Manual ▪ ISIC Rev. 4, Section B, Divisions 05-08 ▪ UNFC
	1. **Stocks of commercially recoverable resources**	Mass, Volume		
	2. New discoveries	Mass, Volume		
	3. *Upward reappraisals*	Mass, Volume		
	4. *Upward reclassifications*	Mass, Volume		
	5. **Extraction**	Mass, Volume		
	6. *Catastrophic losses*	Mass, Volume		
	7. *Downward reappraisals*	Mass, Volume		
	8. *Downward reclassifications*	Mass, Volume		
	9. Stocks of potentially commercially recoverable resources	Mass, Volume		
	10. *Stocks of non-commercial and other known resources*	Mass, Volume		
	11. **Imports of energy minerals**	Currency, Mass, Volume		
	12. **Exports of energy minerals**	Currency, Mass, Volume		

Component 2: Environmental Resources and their Use				
Sub-component 2.2: Energy Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.2.2: Production and use of energy from non-renewable and renewable sources	a. Production of energy from non-renewable and renewable sources		• By non-renewable resource (e.g., petroleum, natural gas, coal, fission fuels, non-sustainable firewood, waste, other non-renewables) • By renewable resource (e.g., solar, wind, geothermal, hydropower and ocean resources, solid biomass, biogas and liquid biofuels) • National • Sub-national	• IEA Energy Statistics Manual • UNSD: IRES • Joint Wood Energy Enquiry (UNECE-FAO Forestry and Timber Section)
	1. **Total**	Energy unit, Mass, Volume		
	2. **Non-renewable sources**	Energy unit, Mass, Volume		
	3. **Renewable sources**	Energy unit, Mass, Volume		
	b. Production of energy		• By primary energy resource (e.g., petroleum, natural gas, coal, hydroenergy, geothermal, fission fuels, cane products, other primary) • By secondary energy resource (e.g., electricity, liquefied petroleum gas, gasoline/alcohol, kerosene, diesel oil, fuel oil, coke, charcoal, gases, other secondary) • National • Sub-national	
	1. **Primary energy production**	Energy unit, Mass, Volume		
	2. **Secondary energy production**	Energy unit, Mass, Volume		
	c. **Total consumption of energy**	Energy unit, Mass, Volume	• By energy source • By household • By ISIC economic activity • National • Sub-national	
	d. Electric energy		• By energy source • National • Sub-national	
	1. **Electricity production**	Energy unit		
	2. **Installed capacities**	Energy unit		

	Component 2: Environmental Resources and their Use			
Sub-component 2.3: Land				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.3.1: Land use	a. **Land use area**	Area	▪ By land use category (e.g., agriculture, forestry, aquaculture, built up and related area, land used for maintenance and restoration of environmental functions, other land use not elsewhere classified, land not in use, aquaculture, maintenance and restoration of environmental functions, other inland water use not elsewhere classified, inland water not in use) ▪ National ▪ Sub-national	▪ FAO ▪ ECE Standard Classification of Land Use (1989) ▪ SEEA Central Framework (2012) Annex 1
	b. **Area of inland water use**	Area	▪ By inland use category (e.g., aquaculture, maintenance and restoration of environmental functions, other inland water use not elsewhere classified, inland water not in use) ▪ National ▪ Sub-national	
	c. **Coastal area** (includes area of coral reefs, mangroves, etc.) (also in 1.1.3.b)	Area	▪ National	
	d. Exclusive Economic Zone (EEZ) (also in 1.1.2.e and 1.1.3.c)	Area		
	e. Land ownership	Area	▪ By ownership category ▪ National ▪ Sub-national	▪ FAO
	f. *Area of land under organic farming*	Area	▪ National ▪ Sub-national	▪ FAO Inter-departmental Working Group on Organic Agriculture
	g. Area of land under sustainable forest management	Area		▪ Forest Stewardship Council
	h. *Area of land under agroforestry*	Area		
	i. Land use change		▪ By land use category (see 2.3.1.a above for examples) ▪ National ▪ Sub-national	▪ FAO ▪ ECE Standard Classification of Land Use (1989)
	1. Increase of area within category	Area		
	2. Decrease of area within category	Area		
	3. **Change of land use category by origin and destination**	Area		

Table A.1: The Basic Set of Environment Statistics (continued)

Component 2: Environmental Resources and their Use				
Sub-component 2.4: Soil Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.4.1: Soil resources	Statistics in this topic are under development.			
Sub-component 2.5: Biological Resources				
Topic 2.5.1: Timber resources and their use	a. Timber resources		▪ By type (e.g., natural or planted) ▪ National ▪ Sub-national	▪ FAO Forest Resources Assessment ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) ▪ UNECE/FAO Joint Working Party on Forest Statistics, Economics and Management ▪ ISIC Rev. 4, Section A, Division 02 ▪ FAOSTAT database
	1. **Stocks of timber resources**	Volume		
	2. Natural growth	Volume		
	3. Fellings	Volume		
	4. Removals	Volume		
	5. *Felling residues*	Volume		
	6. *Natural losses*	Volume		
	7. *Catastrophic losses*	Volume		
	8. *Reclassifications*	Volume		
	b. Amount used of:		▪ National ▪ Sub-national	
	1. Fertilizers	Area, Mass, Volume		
	2. Pesticides	Area, Mass, Volume		
	c. Forest production	Volume	▪ By type of product (e.g., timber, industrial roundwood, fuelwood, pulp, chips) ▪ National ▪ Sub-national	▪ Central Product Classification (CPC) ▪ Joint Forest Sector Questionnaire (UNECE/FAO/Eurostat International Tropical Timber Organization [ITTO]) ▪ FAO/ITTO/UNECE/Eurostat Inter-secretariat Working Group on Forest Sector Statistics ▪ UNECE Timber Committee ▪ UNECE/FAO Joint Working Party on Forest Statistics, Economics and Management ▪ ISIC Rev. 4, Section A, Division 02 ▪ FAOSTAT database
	d. Fuelwood consumption	Volume	▪ National	▪ FAO/ITTO/UNECE/Eurostat Inter-secretariat Working Group on Forest Sector Statistics ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) ▪ ISIC Rev. 4, Section A, Division 02 ▪ Harmonized System (HS) ▪ FAOSTAT database
	e. Imports of forest products	Currency, Mass, Volume	▪ By type of product	
	f. Exports of forest products	Currency, Mass, Volume		

17

Component 2: Environmental Resources and their Use

Sub-component 2.5: Biological Resources

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 2.5.2: Aquatic resources and their use	a. **Fish capture production**	Mass	▪ By relevant species ▪ National ▪ Sub-national	▪ FAO ISCAAP ▪ ISIC Rev. 4, Section A, Division 03 ▪ The United Nations Convention on the Law of the Sea (UNCLOS) ▪ UNSD: MDG Indicator 7.4 Metadata
	b. **Aquaculture production**	Mass		
	c. Imports of fish and fishery products	Currency, Mass, Volume	▪ By relevant species ▪ By type of product ▪ By species	
	d. Exports of fish and fishery products	Currency, Mass, Volume	▪ National ▪ Sub-national	
	e. Amount used of:		▪ National ▪ Sub-national	
	1. *Pellets*	Mass, Volume		
	2. *Hormones*	Mass, Volume		
	3. *Colourants*	Mass, Volume		
	4. *Antibiotics*	Mass, Volume		
	5. *Fungicides*	Mass, Volume		
	f. Fish resources (natural; cultivated)		▪ By relevant species ▪ By type (e.g., cultivated or natural) ▪ By species ▪ National	
	1. Stocks of fish resources	Mass		
	2. *Additions to fish resources*	Mass		
	3. *Reductions in fish resources*	Mass		
Topic 2.5.3: Crops	a. Main annual and perennial crops		▪ By crop ▪ National ▪ Sub-national	▪ FAO Indicative Crop Classification (for 2010 round of agricultural censuses) ▪ FAO/WHO Specifications for Pesticides (2010) ▪ FAO Specifications for Commonly Used Fertilizers (2009) ▪ ISIC Rev. 4, Section A, Division 1 ▪ FAOSTAT database
	1. **Area harvested**	Area		
	2. **Area planted**	Area		
	3. **Amount produced**	Mass		
	4. *Amount of organic production*	Mass		
	5. *Amount of genetically modified crops produced*	Mass		
	b. Amount used of:		▪ By type of fertilizer ▪ By type of pesticide ▪ By crop ▪ National ▪ Sub-national	
	1. **Natural fertilizers** (e.g., manure, compost, lime)	Area, Mass, Volume		
	2. **Chemical fertilizers**	Area, Mass, Volume		
	3. **Pesticides**	Area, Mass, Volume		
	c. Monoculture / resource-intensive crops		▪ By crop ▪ National ▪ Sub-national	
	1. Area being used for production	Area		
	2. Amount produced	Mass		
	3. *Amount of genetically modified crops produced*	Mass		
	d. Imports of crops	Currency, Mass		
	e. Exports of crops	Currency, Mass		

Component 2: Environmental Resources and their Use				
Sub-component 2.5: Biological Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.5.4: Livestock	a. Livestock		▪ By type of animal	▪ FAOSTAT database
	1. **Number of live animals**	Number	▪ National	▪ ISIC Rev. 4, Section A, Division 1
	2. Number of animals slaughtered	Number	▪ Sub-national	
	b. Amount used of:			
	1. *Antibiotics*	Mass		
	2. *Hormones*	Mass		
	c. Imports of livestock	Currency, Number		
	d. Exports of livestock	Currency, Number		
Topic 2.5.5: Wild, uncultivated biological resources (other than fish and timber)	a. Permits for regulated hunting of wild animals			▪ ISIC Rev. 4, Section A, Division 1
	1. Number of permits issued per year	Number		
	2. Total number of animal kills allowed by permits	Number		
	b. Imports of endangered species	Currency, Number		▪ CITES
	c. Exports of endangered species	Currency, Number		
	d. *Reported wild animals killed or trapped for food or sale*	Number		▪ ISIC Rev. 4, Section A, Division 1
	e. *Non-wood forest products and other plants*	Mass, Volume	▪ By type of product ▪ National ▪ Sub-national	▪ ISIC Rev. 4, Section A, Group 0230

Component 2: Environmental Resources and their Use				
Sub-component 2.6: Water Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.6.1: Water resources	a. Inflow of water to inland water resources		• Inflow secured through treaties/not secured through treaties	• UNSD: IRWS
	1. **Precipitation** (also in 1.1.1.b)	Volume		• UNECE Standard Statistical Classification of Water Use (1989)
	2. **Inflow from neighbouring territories**	Volume		
	3. *Inflow subject to treaties*	Volume		• UNSD: MDG Indicator 7.5 Metadata
	b. Outflow of water from inland water resources		• National	• FAO AQUASTAT
	1. **Evapotranspiration**	Volume	• Sub-national	• SEEA Central Framework (2012) Asset accounts
	2. Outflow to neighbouring territories	Volume	• By territory of origin and destination	• SEEA Water
	3. Outflow subject to treaties	Volume		• UNSD: Environment Statistics Section - Water Questionnaire
	4. Outflow to the sea	Volume		
	c. Inland water stocks		• National	
	1. Surface water stocks in artificial reservoirs	Volume	• Sub-national	
	2. *Surface water stocks in lakes*	Volume		
	3. *Surface water stocks in rivers and streams*	Volume		
	4. *Surface water stocks in wetlands*	Volume		
	5. *Surface water stocks in snow, ice and glaciers*	Volume		
	6. Groundwater stocks	Volume		
	7. *Water rights*	Volume		

Component 2: Environmental Resources and their Use				
Sub-component 2.6: Water Resources				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 2.6.2: Abstraction, use and returns of water	a. **Total water abstraction**	Volume	▪ By type of source	▪ UNSD: IRWS
	b. **Water abstraction from surface water**	Volume	▪ National	▪ UNECE Standard Statistical Classification of Water Use (1989)
	c. Water abstraction from groundwater		▪ Sub-national	▪ FAO AQUASTAT
	1. **From renewable groundwater resources**	Volume		▪ SEEA Central Framework (2012)
	2. **From non-renewable groundwater resources**	Volume		▪ SEEA Water
	d. Water abstracted for own use	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	▪ UNSD: Environment Statistics Section - Water Questionnaire
	e. Water abstracted for distribution	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	
	f. Desalinated water	Volume	▪ National	
	g. Reused water	Volume	▪ Sub-national	
	h. Water use	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	
	i. *Rainwater collection*	Volume	▪ National	
	j. *Water abstraction from the sea*	Volume	▪ Sub-national	
	k. Losses in distribution	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	
	l. *Exports of water*	Volume	▪ National	
	m. *Imports of water*	Volume	▪ Sub-national	
	n. *Returns of water*	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	

Table A.1: The Basic Set of Environment Statistics (continued)

Component 3: Residuals				
Sub-component 3.1: Emissions to Air				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 3.1.1: Emissions of greenhouse gases	a. Total emissions of direct greenhouse gases (GHGs), by gas:		▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By IPCC Reporting Guidelines	▪ IPCC Emission Factor Database ▪ UN Framework Convention on Climate Change (UNFCCC) Reporting Guidelines) ▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) ▪ UNSD: MDG Indicator 7.2 Metadata ▪ WHO
	1. **Carbon dioxide (CO_2)**	Mass		
	2. **Methane (CH_4)**	Mass		
	3. **Nitrous oxide (N_2O)**	Mass		
	4. Perfluorocarbons (PFCs)	Mass		
	5. Hydrofluorocarbons (HFCs)	Mass		
	6. Sulphur hexafluoride (SF_6)	Mass		
	b. Total emissions of indirect greenhouse gases (GHGs), by gas:			
	1. **Sulphur dioxide (SO_2)**	Mass		
	2. **Nitrogen oxides (NO_x)**	Mass		
	3. Non-methane volatile organic compounds (NM-VOCs)	Mass		
	4. Other	Mass		
Topic 3.1.2: Consumption of ozone depleting substances	a. Consumption of ozone depleting substances (ODS), by substance:			▪ UNEP Ozone Secretariat ▪ IPCC Emission Factor Database ▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) ▪ UNSD: MDG Indicator 7.3 Metadata ▪ WHO
	1. Chlorofluorocarbons (CFCs)	Mass		
	2. Hydrochlorofluorocarbons (HCFCs)	Mass		
	3. Bromofluorocarbons	Mass		
	4. Methyl chloroform	Mass		
	5. Carbon tetrachloride	Mass		
	6. Methyl bromide	Mass		
	7. Other	Mass		
Topic 3.1.3. Emissions of other substances	a. Emissions of other substances:			▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) ▪ European Monitoring and Evaluation Programme (EMEP) is under the Convention on Long-range Transboundary Air Pollution
	1. Particulate matter (PM)	Mass		
	2. Heavy metals	Mass		
	3. *Other*	Mass		

Component 3: Residuals				
Sub-component 3.2: Generation and Management of Wastewater				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 3.2.1: Generation and pollutant content of wastewater	a. **Volume of wastewater generated**	Volume	▪ By ISIC economic activity ▪ National ▪ Sub-national	▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Division 35 and 36 ▪ SEEA Water ▪ UNSD: Environment Statistics Section - Water Questionnaire
	b. Emissions of pollutants to wastewater	Mass	▪ By pollutant or pollution parameter (e.g., BOD, COD, N, P, TSS) ▪ By ISIC economic activity ▪ National ▪ Sub-national	

Table A.1: The Basic Set of Environment Statistics (continued)

Component 3: Residuals				
Sub-component 3.2: Generation and Management of Wastewater				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 3.2.2: Collection and treatment of wastewater	a. **Volume of wastewater collected**	Volume	▪ National ▪ Sub-national	▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Division 35 and 36 ▪ UNSD: Environment Statistics Section - Water Questionnaire
	b. **Volume of wastewater treated**	Volume	▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Sub-national	
	c. Total urban wastewater treatment capacity			
	1. Number of plants	Number		
	2. Capacity of plants	Volume		
	d. Total industrial wastewater treatment capacity			
	1. Number of plants	Number		
	2. Capacity of plants	Volume		
Topic 3.2.3: Discharge of wastewater to the environment	a. Wastewater discharge		▪ By treatment type (e.g., primary, secondary, tertiary) ▪ By recipient (e.g., surface water, groundwater, wetland, sea, soil) ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By source (point / non-point source)	
	1. **Total volume of wastewater discharged to the environment after treatment**	Volume		
	2. **Total volume of wastewater discharged to the environment without treatment**	Volume		
	b. Pollutant content of discharged wastewater	Mass	▪ By pollutant or pollution parameter (e.g., BOD, COD, N, P) ▪ National ▪ Sub-national ▪ Net emission by ISIC economic activity ▪ By source (point / non-point source)	

Table A.1: The Basic Set of Environment Statistics (continued)

Component 3: Residuals				
Sub-component 3.3: Generation and Management of Waste				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 3.3.1: Generation of waste	a. **Amount of waste generated by economic activity**	Mass	• By ISIC economic activity • National • Sub-national	• European Commission: European List of Waste, pursuant to European Waste Framework Directive • Eurostat: Data Centre on Waste • Eurostat: European Waste Classification for Statistics, version 4 (Waste categories) • Basel Convention: Waste categories and hazardous characteristics • Eurostat: Manual on Waste Statistics • Eurostat: Guidance on classification of waste according to EWC-Stat categories • SEEA Central Framework (2012) • UNSD: Environment Statistics Section - Waste Questionnaire
	b. Amount of waste generated by waste category	Mass	• By waste category (e.g., chemical waste, municipal waste, combustion waste, etc.) • National • Sub-national	
	c. Generation of hazardous waste		• By ISIC economic activity • National • Sub-national	
	1. **Amount of hazardous waste generated**	Mass		

25

Component 3: Residuals

Sub-component 3.3: Generation and Management of Waste

Topic	Statistics and Related Information (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 3.3.2: Management of waste	a. Municipal waste		▪ By type of treatment or disposal (e.g., recycling, composting, incineration, landfilling) ▪ By type of waste, when possible ▪ National ▪ Sub-national	▪ Eurostat: Data Centre on Waste ▪ Eurostat metadata: OECD/Eurostat definition of municipal waste ▪ UNSD: Environment Statistics Section - Waste Questionnaire ▪ Basel Convention: Waste categories and hazardous characteristics ▪ Eurostat: European Waste Classification for Statistics, version 4 (Waste categories) ▪ European Commission: European Waste Framework Directive (Waste treatment operations) ▪ Eurostat: Manual on Waste Statistics ▪ Eurostat: Guidance on classification of waste according to EWC-Stat categories ▪ Rotterdam Convention
	1. **Total municipal waste collected**	Mass		
	2. **Amount of municipal waste treated by type of treatment**	Mass		
	3. **Number of municipal waste treatment and disposal facilities**	Number		
	4. Capacity of municipal waste treatment and disposal facilities	Volume		
	b. Hazardous waste			
	1. **Total hazardous waste collected**	Mass		
	2. **Amount of hazardous waste treated by type of treatment**	Mass		
	3. **Number of hazardous waste treatment and disposal facilities**	Number		
	4. Capacity of hazardous waste treatment and disposal facilities	Volume		
	c. Other/industrial waste			
	1. Total other/industrial waste collected	Mass		
	2. Amount of other/industrial waste treated by type of treatment	Mass		
	3. Number of treatment and disposal facilities by type of treatment	Number		
	4. Capacity of industrial waste treatment and disposal facilities	Volume		
	d. **Amount of recycled waste**	Mass	▪ By specific waste streams (e.g., e-waste, packaging waste, end of life vehicles) ▪ By waste category ▪ National ▪ Sub-national	
	e. Imports of waste	Mass	▪ By waste category (e.g., chemical waste, municipal waste, combustion waste, etc.)	
	f. Exports of waste	Mass		
	g. Imports of hazardous waste	Mass		
	h. Exports of hazardous waste	Mass		

Component 3: Residuals				
Sub-component 3.4: Application of Biochemicals				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 3.4.1: Application of biochemicals	a. Total amount of fertilizers used (also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume	▪ National ▪ Sub-national ▪ By ISIC economic activity (forestry, agriculture)	▪ FAOSTAT database
	b. Total amount of pesticides used (also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		▪ FAOSTAT database
	c. *Total amount of pellets used (also in 2.5.2.e)*	Mass, Volume	▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture)	
	d. *Total amount of hormones used (also in 2.5.2.e and 2.5.4.b)*	Mass, Volume	▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture, livestock production)	
	e. *Total amount of colourants used (also in 2.5.2.e)*	Mass, Volume	▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture)	
	f. *Total amount of antibiotics used (also in 2.5.2.e and 2.5.4.b)*	Mass, Volume	▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture, livestock production)	

Component 4: Extreme Events and Disasters

Sub-component 4.1: Natural Extreme Events and Disasters

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 4.1.1: Occurrence of natural extreme events and disasters	a. Occurrence of natural extreme events and disasters:		▪ By event ▪ National ▪ Sub-national	▪ Centre for Research on the Epidemiology of Disasters Emergency Events Database (CRED EM-DAT) ▪ Economic Commission for Latin America and the Caribbean (UNECLAC) Handbook for Estimating the Socio-economic and Environmental Effects of Disasters
	1. **Type of natural disaster** (geophysical, meteorological, hydrological, climatological, biological)	Descriptive		
	2. **Location**	Location		
	3. Magnitude (where applicable)	Intensity		
	4. Date of occurrence	Date		
	5. Duration	Time period		
	6. Hazard prone areas	Area		
	7. Population living in hazard prone areas	Number		
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**	Number		
	2. Number of people injured	Number		
	3. Number of people homeless	Number		
	4. Number of people affected	Number		
	b. **Economic loss due to natural extreme events and disasters** (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption, etc.)	Currency	▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By direct and indirect damage	
	c. Physical loss/damage due to natural extreme events and disasters (e.g., area and amount of crops, livestock, aquaculture, biomass etc.)	Area, Descriptive, Number		
	d. Effects of natural extreme events and disasters on integrity of ecosystems		▪ By event ▪ By ecosystem ▪ National ▪ Sub-national	
	1. *Area affected by natural disasters*	Area		
	2. *Loss of vegetation cover*	Area		
	3. *Area of watershed affected*	Area		
	4. *Other*	Descriptive		
	e. *External assistance received*	Currency	▪ By event ▪ National	

Topic	Statistics and Related Information	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Component 4: Extreme Events and Disasters				
Sub-component 4.2: Technological Disasters				
Topic 4.2.1: Occurrence of technological disasters	a. Occurrence of technological disasters		▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national	▪ CRED EM-DAT ▪ UNECLAC: Handbook for Estimating the Socio-economic and Environmental Effects of Disasters
	1. Type of technological disaster (industrial, transportation, miscellaneous)	Descriptive		
	2. *Location*	Location		
	3. *Date of occurrence*	Date		
	4. *Duration*	Time period		
Topic 4.2.2: Impact of technological disasters	a. People affected by technological disasters		▪ By event ▪ National ▪ Sub-national	
	1. Number of people killed	Number		
	2. *Number of people injured*	Number		
	3. *Number of people homeless*	Number		
	4. *Number of people affected*	Number		
	b. Economic loss due to technological disasters (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption, etc.)	Currency	▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By direct and indirect	
	c. Physical loss/damage due to technological disasters (e.g., area and amount of crops, livestock, aquaculture, biomass etc.)	Area, Descriptive, Number		
	d. Effects of technological disasters on integrity of ecosystems		▪ By event ▪ National ▪ Sub-national	
	1. *Area affected by technological disasters*	Area		
	2. *Loss of vegetation cover*	Area		
	3. *Area of watershed affected*	Area		
	4. *Other (e.g., for oil spills: volume of oil released into the environment, impact on ecosystem)*	Descriptive		
	e. *External assistance received*	Currency	▪ By event ▪ National	

Component 5: Human Settlements and Environmental Health				
Sub-component 5.1: Human Settlements				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 5.1.1: Urban and rural population	a. Total population living in urban areas	Number	▪ Urban ▪ Rural	▪ UN Population Division ▪ UN Population Fund (UNFPA)
	b. Total population living in rural areas	Number		
	c. Total urban area	Number		
	d. Total rural area	Number		
Topic 5.1.2: Access to water, sanitation and energy	a. **Population using an improved drinking water source**	Number	▪ Urban ▪ Rural ▪ National ▪ Sub-national	▪ UNSD: MDG Indicator 7.8 and 7.9 Metadata ▪ UN-Water ▪ UNSD: Environment Statistics Section - Water Questionnaire ▪ WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation
	b. **Population using an improved sanitation facility**	Number		
	c. Population served by municipal waste collection	Number		
	d. **Population connected to wastewater collection**	Number	▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Sub-national	▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Division 35 and 36 ▪ UNSD: Environment Statistics Section -Water Questionnaire
	e. **Population connected to wastewater treatment**	Number		
	f. Population served by water supply industry	Number		
	g. Population with access to electricity	Number		
Topic 5.1.3: Housing conditions	a. Urban population living in slums	Number		▪ UN Habitat ▪ UNSD: MDG Indicator 7.10 Metadata
	b. *Houses in zones vulnerable to particular environmental health issues, natural extreme events and disasters*	Number	▪ Urban ▪ Rural ▪ National ▪ Sub-national	
	c. *Population living in a precarious dwelling*	Number		
	d. *Population living in informal settlements*	Number		
	e. *Homeless population*	Number		
	f. *Number of dwellings with adequacy of building materials defined by national or local standards*	Number		

	Component 5: Human Settlements and Environmental Health			
	Sub-component 5.1: Human Settlements			
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 5.1.4: Exposure to ambient pollution related to spatial location of population	a. Population exposed to air pollution (e.g., SO_2, NO_X, O_3) in main cities	Number	▪ By pollutant (e.g., SO_2, NOx, O_3)	▪ WHO
	b. *Population exposed to noise pollution in main cities*	Number		
Topic 5.1.5: Environmental concerns specific to urban settlements	a. Extent of urban sprawl	Area		▪ UN Habitat
	b. Available green areas	Area		▪ WHO
	c. **Number of private and public vehicles**	Number	▪ By type of engine or type of fuel	▪ UNEP Urban Environment Unit
	d. Population using public modes of transportation	Number		
	e. *Population using hybrid and electric modes of transportation*	Number		
	f. Extent of the roadways	Length		
	g. *Existence of urban planning and zoning regulations and instruments in main cities*	Descriptive		
	h. *Effectiveness of urban planning and zoning regulations and instruments in main cities*	Descriptive		

Component 5: Human Settlements and Environmental Health				
Sub-component 5.2: Environmental Health				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 5.2.1: Airborne diseases and conditions	a. Airborne diseases and conditions (e.g., upper and lower respiratory disease, obstructive pulmonary disease, asthma and allergic rhinitis):		▪ By disease or condition ▪ National ▪ Sub-national ▪ Urban ▪ Rural ▪ By gender ▪ By age group ▪ By time period	▪ WHO
	1. Incidence	Number		
	2. Prevalence	Number		
	3. *Loss of work days*	Number		
	4. *Estimates of economic cost in monetary terms*	Currency		
Topic 5.2.2: Water-related diseases and conditions	a. Water-related diseases and conditions (e.g., diarrhoeal disease, gastroenteritis and water borne parasite infections):			
	1. **Incidence**	Number		
	2. **Prevalence**	Number		
	3. **Mortality**	Number		
	4. *Loss of work days*	Number		
	5. *Estimates of economic cost in monetary terms*	Currency		
Topic 5.2.3: Vector borne diseases	a. Vector borne diseases (e.g., malaria, dengue fever, yellow fever and Lyme disease):			
	1. **Incidence**	Number		
	2. **Prevalence**	Number		
	3. **Mortality**	Number		
	4. *Loss of work days*	Number		
	5. *Estimates of economic cost in monetary terms*	Currency		
Topic 5.2.4: Health problems associated with excessive UV radiation exposure	a. Problems associated with excessive UV radiation exposure (e.g., skin cancer, cataracts):			
	1. *Incidence*	Number		
	2. *Prevalence*	Number		
	3. *Loss of work days*	Number		
	4. *Estimates of economic cost in monetary terms*	Currency		

Component 5: Human Settlements and Environmental Health				
Sub-component 5.2: Environmental Health				
Topic	**Statistics and Related Information** (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 5.2.5: Toxic substance- and nuclear radiation-related diseases and conditions	a. Toxic substance- and nuclear radiation-related diseases and conditions		▪ By category of toxic substance	▪ WHO
	1. Incidence	Number	▪ By disease or	
	2. Prevalence	Number	condition	
	3. *Loss of work days*	Number	▪ National	
	4. *Estimates of economic cost in monetary terms*	Currency	▪ Sub-national	
			▪ Urban	
			▪ Rural	
			▪ By gender	
			▪ By age group	

Component 6: Environment Protection, Management and Engagement				
Sub-component 6.1: Environment Protection and Resource Management Expenditure				
Topic	**Statistics and Related Information** (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; Italicized Text - Tier 3)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 6.1.1: Government environment protection and resource management expenditure	a. Government environment protection and resource management expenditure		▪ By environmental activity ▪ By ministry ▪ National ▪ Sub-national ▪ By funding	▪ Classification of Environmental Activities (CEA) ▪ SEEA Central Framework (2012) Annex 1 ▪ Eurostat - SERIEE Environmental Protection Expenditure Accounts Compilation Guide
	1. **Annual government environment protection expenditure**	Currency		
	2. Annual government resource management expenditure	Currency		
Topic 6.1.2: Corporate, non-profit institution and household environment protection and resource management expenditure	a. Private sector environment protection and resource management expenditure		▪ By environmental activity ▪ By ISIC economic activity ▪ National ▪ Sub-national	
	1. Annual corporate environment protection expenditure	Currency		
	2. *Annual corporate resource management expenditure*	Currency		
	3. *Annual non-profit institution environment protection expenditure*	Currency		
	4. *Annual non-profit institution resource management expenditure*	Currency		
	5. *Annual household environment protection expenditure*	Currency		
	6. *Annual household resource management expenditure*	Currency		

Component 6: Environment Protection, Management and Engagement				
Sub-component 6.2: Environmental Governance and Regulation				
Topic	**Statistics and Related Information** (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; Italicized Text - Tier 3)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 6.2.1: Institutional strength	a. Environmental institutions and their resources		▪ National ▪ Sub-national	
	1. Name of the main environmental authority/agency and year of establishment	Descriptive		
	2. Annual budget of main environmental authority/agency	Currency		
	3. Number of staff of main environmental authority/agency	Number		
	4. List of environmental departments in other ministries/agencies and year of establishment	Descriptive		
	5. Annual budget of environmental departments in other ministries/agencies	Currency		
	6. Number of staff of environmental departments in other ministries/agencies	Number		
Topic 6.2.2: Environmental regulation and instruments	a. Direct regulation		▪ Per media (e.g., water, air, land, soil, oceans) ▪ By ISIC economic activity ▪ National ▪ Sub-national	
	1. **List of regulated pollutants and description** (e.g., by year of adoption and maximum allowable levels)	Descriptive, Number		
	2. Description (e.g., name, year established) of licensing system to ensure compliance with environmental standards for businesses or other new facilities	Descriptive		
	3. Number of applications for licences received and approved per year	Number		
	4. List of quotas for biological resource extraction	Number		
	5. Budget and number of staff dedicated to enforcement of environmental regulations	Currency, Number		
	b. Economic instruments			
	1. *List and description (e.g., year of establishment) of green/environmental taxes*	Descriptive, Value		
	2. *List and description (e.g., year of establishment) of environmentally relevant subsidies*	Descriptive, Value		
	3. *List of eco-labelling and environmental certification programmes*	Descriptive		
	4. Emission permits traded	Number, Value		
Topic 6.2.3: Participation in MEAs and environmental conventions	a. Participation in MEAs and other global environmental conventions			▪ Secretariats of MEAs
	1. **List and description (e.g., year of participation[(d)] of country) of MEAs and other global environmental conventions**	Descriptive, Number		

(d) Participation means the country or area has become party to the agreements under the treaty or convention, which is achieved through a variety of means depending on country circumstances, namely: accession, acceptance, approval, formal confirmation, ratification, and succession. Countries or areas who have signed but not become party to the agreements under a given convention or treaty are not considered to be participating.

Table A.1: The Basic Set of Environment Statistics (continued)

Component 6: Environment Protection, Management and Engagement

Sub-component 6.3: Extreme Event Preparedness and Disaster Management

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; Italicized Text - Tier 3)	Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 6.3.1: Preparedness for natural extreme events and disasters	a. National natural extreme event and disaster preparedness and management systems		▪ National ▪ Sub-national	▪ International Emergency Management Organization (IMEO) ▪ The United Nations Office for Disaster Risk Reduction (UNISDR) ▪ Hyogo Framework for Action
	1. Existence of national disaster plans/programmes	Descriptive		
	2. Description (e.g., number of staff) of national disaster plans/programmes	Descriptive		
	3. Number and type of shelters in place or able to be deployed	Descriptive, Number		
	4. *Number and type of internationally certified emergency and recovery management specialists*	Descriptive, Number		
	5. *Number of volunteers*	Number		
	6. *Quantity of first aid, emergency supplies and equipment stockpiles*	Number		
	7. *Existence of early warning systems for all major hazards*	Descriptive		
	8. *Expenditure on disaster prevention, preparedness, clean-up and rehabilitation*	Currency		
Topic 6.3.2: Preparedness for technological disasters	a. National technological disaster preparedness and management systems			
	1. *Existence and description (e.g., number of staff) of public disaster management plans/programmes (and private when available)*	Descriptive		
	2. *Expenditure on disaster preparedness, clean-up and rehabilitation*	Currency		

Component 6: Environment Protection, Management and Engagement				
Sub-component 6.4: Environmental Information and Awareness				
Topic	**Statistics and Related Information** (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; Italicized Text - Tier 3)	**Category of Measurement**	**Potential Aggregations and Scales**	**Methodological Guidance**
Topic 6.4.1: Environmental information	a. Environmental information systems		▪ National ▪ Sub-national	
	1. Existence of publicly accessible environmental information system	Descriptive		
	2. Annual number of visits/users of specific environmental information programmes or environmental information systems	Number		
	b. Environment statistics			
	1. Description of national environment statistics programmes (e.g., existence, year of establishment, lead agency, human and financial resources)	Descriptive		
	2. *Number and type of environment statistics products and periodicity of updates*	Descriptive, Number		
	3. Existence and number of participant institutions in interagency environment statistics platforms or committees	Number		
Topic 6.4.2: Environmental education	a. Environmental education			
	1. *Allocation of resources by central and local authorities for environmental education*	Currency		
	2. *Number and description of environmental education programmes in schools*	Descriptive, Number		
	3. *Number of students pursuing environment-related higher education (e.g., science, management, education, engineering)*	Number		
Topic 6.4.3 Environmental engagement	a. Environmental engagement			
	1. Existence of pro-environmental NGOs (number of, human and financial resources)	Currency, number		
	2. *Number of people participating in pro-environmental activities*	Number		
	3. *Number of pro-environmental programmes*	Number		
Topic 6.4.4: Environmental perception and awareness	a. Public environmental perception and awareness			
	1. *Knowledge and attitudes about environmental issues or concerns*	Descriptive		
	2. *Knowledge and attitudes about environmental policies*	Descriptive		