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## Economic Commission for Europe

Committee on Environmental Policy

Conference of European Statisticians

### Joint Task Force on Environmental Statistics and Indicators

#### Twenty-first session

Geneva, 17 and 18 October 2024

Item 5 of the provisional agenda

**Guidelines for the Application  
of Environmental Indicators: 2023 Edition**

## Metadata sheets for selected non-priority indicators of the revised guidelines

Note by the Joint Task Force\*

### *Summary*

This document presents metadata sheets of selected non-priority indicators of the revised *Guidelines for the Application of Environmental Indicators: 2023 Edition*.

Members of the Joint Task Force on Environmental Statistics and Indicators are invited to provide feedback on the document. Once endorsed by the Joint Task Force, the metadata sheets will complement those of the priority indicators which have already been published.

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\* This document was not formally edited.



## I. Background

1. At its twentieth session (Geneva, 16–17 October 2023), the Joint Task Force on Environmental Statistics and Indicators welcomed the progress made towards finalizing the Guidelines for the Application of Environmental Indicators, requested the secretariat to continue work on the final version of the *Guidelines for the Application of Environmental Indicators: 2023 Edition*, taking into account discussions at the session, and requested the secretariat to prepare the final version of the Guidelines as an official publication in English, French and Russian in electronic and paper editions.
2. The Guidelines were published in August 2024 and include 230 environmental indicators, of which 74 were identified by the Joint Task Force as priority indicators.
3. It was agreed to gradually develop the metadata for the remaining indicators, and to publish them online after discussion with members of the Joint Task Force and approval through a silence procedure.
4. The secretariat of the United Nations Economic Commission for Europe (ECE) together with members of the Joint Task Force has developed metadata sheets for 11 non-priority indicators, which are presented in chapter II of this document. Members of the Joint Task Force are invited to review the metadata sheets and to provide feedback at the twenty-first session of the Joint Task Force.
5. The number of indicators for which metadata sheets can be produced and translated in each official document is limited, with only about 10,000 words available for this document. Therefore, it was decided to select indicators for areas under-represented by existing metadata and/or for which a robust internationally agreed methodology already exists.
6. Table 1 provides an overview of the indicators included in the *Guidelines for the Application of Environmental Indicators: 2023 Edition* and for which metadata are presented in this document (column “New metadata”). For all priority indicators, the metadata have been endorsed by the Joint Task Force and are already published.

Table 1

### Indicators included in the Guidelines for the Application of Environmental Indicators: 2023 Edition

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
<b>COMPONENT: ENVIRONMENTAL CONDITIONS AND QUALITY</b>			
<b>Sub-component: Physical conditions</b>			
<b>Topic: Atmosphere, climate and weather</b>			
B-1.1	Mean temperature anomaly (compared to climate normal 1961–1990)	Yes	
B-1.5	Mean temperature anomaly (compared to climate normal 1991–2020)		
B-1.2	Annual average temperature (in country, in capital, second major city, area or region)	Yes	
B-1.3	Maximum monthly average temperature (in country, in capital, second major city, area or region)		
B-1.4	Minimum monthly average temperature (in country, in capital, second major city, area or region)		
B-2.1	Annual deviation from the average precipitation (in country, in capital, second major city, area or region)		
B-2.2	Annual precipitation (in country, in capital, second major city, area or region)	Yes	
B-2.3	Maximum monthly precipitation (in country, in capital, second major city, area or region)		

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
B-2.4	Minimum monthly precipitation (in country, in capital, second major city, area or region)		
B-2.5	Percentage of land area suffering from unusually wet or dry conditions (Standard Precipitation Index)		Yes
B-2.6	Occurrence of extremes of temperatures and precipitation		
<b>Topic: Soil characteristics</b>			
E-2.1	Proportion of agricultural area affected by degradation through water erosion		Yes
E-2.2	Proportion of agricultural area affected by degradation through wind erosion		Yes
E-2.4	Proportion of land that is degraded over total land area (SDG indicator 15.3.1)	Yes	
E-3.1	Progress in management of contaminated sites (number of identified and remediated contaminated sites)		
<b>Subcomponent: Land cover, ecosystems and biodiversity</b>			
<b>Topic: Ecosystems and biodiversity</b>			
D-7.3	Red List of Ecosystems		Yes
D-1.1	Share of total protected areas (categories of the International Union for the Conservation of Nature (IUCN)) in the country area	Yes	
D-7.2	Extent of natural ecosystems		Yes
D-4.4	Red List Index (SDG indicator 15.5.1)	Yes	
D-5.3	Proportion of populations within species with an effective population size > 500		
D-1.7	Area under restoration		
D-1.8	Coverage of protected areas and OECMs		
D-6.1	Rate of invasive alien species establishment		
D-1.2	Share of total protected areas (national categories) in the country area		
D-1.3	Coverage of protected areas in relation to marine areas (SDG indicator 14.5.1)		
D-1.5	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (SDG indicator 15.1.2)		
D-4.2	Share of species threatened (mammals, birds, fishes, reptiles, amphibians, invertebrates, vascular plants, mosses, lichens, fungi, algae)	Yes	
D-5.1	Volume and distribution of selected species (keystone species, flagship species, endemic species and other species)		
D-2.2	Conservation status of habitats of high importance for biodiversity conservation (conservation status for habitats according to conservation status criteria)		
C-18.4	Hazardous substances in marine organisms		
D-2.3	Ecosystem coverage		
<b>Topic: Forests</b>			
D-3.1	Forest area as a proportion of total land area (SDG indicator 15.1.1)	Yes	
D-3.2	Share of other wooded land in country area		Yes
D-3.8	Forest fires (area burnt by forest fires)	Yes	

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
D-3.9	Deadwood in forests (volume of deadwood per forest area)		Yes
<b>Subcomponent: Environmental quality</b>			
<b>Topic "air quality"</b>			
A-2.10	PM <sub>10</sub> : Annual mean concentration in cities	Yes	
A-2.8	Annual mean level of PM <sub>10</sub> in cities (population weighted) (SDG indicator 11.6.2)	Yes	
A-2.1	PM <sub>10</sub> : Number of days with exceeded daily limit value		
A-2.9	PM <sub>2.5</sub> : Annual mean concentration in cities	Yes	
A-2.7	Annual mean level of PM <sub>2.5</sub> in cities (population weighted) (SDG indicator 11.6.2)	Yes	
A-2.5	PM <sub>2.5</sub> : Number of days with exceeded daily limit value		
A-2.11	SO <sub>x</sub> : Annual mean concentration in cities	Yes	
A-2.2	SO <sub>2</sub> : Number of days with exceeded daily limit value		
A-2.3	O <sub>3</sub> : Number of days with exceeded daily limit value		
A-2.12	NO <sub>x</sub> : Annual mean concentration in cities	Yes	
A-2.4	NO <sub>2</sub> : Number of days with exceeded daily limit value		
<b>Topic: Freshwater quality</b>			
C-10.1	BOD in rivers		
C-10.2	Ammonium (NH <sub>4</sub> ) in rivers		
C-11.1	Phosphates in freshwater (rivers, lakes, groundwater)		
C-11.2	Nitrates in freshwater (rivers, lakes, groundwater)		
C-17.2	Proportion of bodies of water with good ambient water quality (SDG indicator 6.3.2)	Yes	
<b>Topic: Marine water quality</b>			
C-12.1	Chlorophyll in transitional, coastal and marine waters (trends in chlorophyll-a concentrations)		
C-12.2	Phosphates in transitional, coastal and marine waters		
C-12.3	Nitrates in transitional, coastal and marine waters		
C-18.1	Number of items on beach per 100 m of shoreline		
C-18.2	Average marine acidity (pH) measured at agreed suite of sampling stations (SDG indicator 14.3.1)		
C-18.3	Average sea surface temperature anomaly		
C-12.4	Index of coastal eutrophication potential		
<b>COMPONENT: ENVIRONMENTAL RESOURCES AND THEIR USE</b>			
I-1.4	Material footprint, material footprint per capita, and material footprint per GDP (SDG indicator 12.2.1)	Yes	
I-1.5	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP (SDG indicator 12.2.2))	Yes	
<b>Subcomponent: Energy resources</b>			
<b>Topic: Production, trade and consumption of energy</b>			
G-1.1	Total final consumption (TFC) of energy		
G-1.2	Final energy consumption		
G-1.3	Total energy use by the national economy	Yes	

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
G-1.4	Energy use by resident households per capita	Yes	
G-2.1	Total primary energy supply (TPES)	Yes	
G-3.1	Energy intensity measured in terms of primary energy and GDP (SDG indicator 7.3.1)	Yes	
G-3.2	Energy intensity measured in terms of final energy consumption and GDP		
G-4.1	Renewable energy share in the total primary energy supply	Yes	
G-4.2	Renewable energy share in the total final energy consumption within the national territory (SDG indicator 7.2.1)		
G-4.3	Share of fossil fuels in total primary energy supply (TPES)		
G-4.4	Use of renewable energy for transport (share of energy from renewable sources used in transport)		
<b>Subcomponent: Land</b>			
<b>Topic: Land use</b>			
D-7.1	Landscape fragmentation pressure and trends (density of unfragmented landscape elements (“meshes”) per unit area)		Yes
E-1.2	Total land uptake	Yes	
<b>Topic “use of forest land”</b>			
D-3.3	Share of natural forest of total forest area	Yes	
D-3.4	Share of planted forest of total forest area		
D-3.6	Share of forest area designated for protection of soil, water and ecosystem services of total forest area		
D-3.7	Share of forest area protected and designated for the conservation of biodiversity		
D-3.10	Forest: growing stock, increment and fellings		
D-3.11	Forest carbon stock		
D-3.12	Progress towards sustainable forest management (SDG indicator 15.2.1)	Yes	
<b>Subcomponent “soil resources”</b>			
<b>Topic “soil resources”</b>			
E-3.1	Proportion of area with improving or degrading soil organic carbon content)		
E-3.2	Soil organic carbon content		
<b>Subcomponent “biological resources”</b>			
<b>Topic “aquatic resources”</b>			
D-5.2	Proportion of fish stocks within biologically sustainable levels (SDG indicator 14.4.1)		
<b>Subcomponent “water resources”</b>			
<b>Topic “water resources”</b>			
C-1.1	Renewable freshwater resources		
<b>Topic “abstraction, use and returns of water”</b>			
C-2.1	Total freshwater abstracted by source	Yes	
C-2.3	Water exploitation index (WEI)	Yes	

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
C-2.4	Level of Water Stress: freshwater withdrawal as a proportion of available freshwater resources (SDG indicator 6.4.2)	Yes	
C-3.1	Total freshwater available for use		Yes
C-3.2	Total freshwater use	Yes	
C-3.4	Freshwater use per unit of GDP		Yes
C-3.6	Change in water use efficiency over time (SDG indicator 6.4.1)	Yes	
C-4.1	Households water use per capita of population connected to public water supply		
C-4.2	Total household water use per capita	Yes	
C-7.2	Percentage of water lost during transportation		
C-7.3	Share of water losses by different reasons (leakages, evaporation, burst mains and meter errors)		
C-8.1	Share of reused water in total freshwater use		
C-8.3	Percentage of reused water by economic activity		
<b>COMPONENT: RESIDUALS</b>			
<i>Subcomponent “emissions to air”</i>			
<i>Topic “emissions of greenhouse gases (GHGs)”</i>			
B-3.1	Total GHG emissions per capita	Yes	
B-3.4	Total GHG emissions by sector	Yes	
B-3.2	Total GHG emissions per km <sup>2</sup>		
B-3.3	Total GHG emissions per unit of GDP		
B-3.10	GHG emissions from LULUCF	Yes	
B-3.5	Total GHG emissions (excluding LULUCF) from the national territory		
B-3.16	GHG emissions (excluding LULUCF) per capita		
B-3.7	CO <sub>2</sub> emission per unit of value added (SDG indicator 9.4.1)	Yes	
B-3.8	Total GHG emissions from the national economy		
B-3.11	CO <sub>2</sub> emissions from fuel combustion within the national territory	Yes	
B-3.12	Total GHG emissions from production activities	Yes	
B-3.13	GHG emission intensity of production activities	Yes	
B-3.14	Direct GHG emissions from households		
B-3.15	Net emissions/removals of carbon dioxide by forest land		
A-1.19	Total emissions of SO <sub>x</sub>	Yes	
A-1.1	Emissions of SO <sub>x</sub> per capita	Yes	
A-1.2	Emissions of SO <sub>x</sub> per km <sup>2</sup>		
A-1.3	Emissions of SO <sub>x</sub> per unit of GDP		
A-1.20	Total emissions of NO <sub>x</sub>	Yes	
A-1.4	Emissions of NO <sub>x</sub> per capita		
A-1.5	Emissions of NO <sub>x</sub> per km <sup>2</sup>		
A-1.6	Emissions of NO <sub>x</sub> per unit of GDP		
A-1.22	Total emissions of NMVOCs		
A-1.7	Emissions of NMVOCs per capita	Yes	
A-1.8	Emissions of NMVOCs per km <sup>2</sup>		

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
A-1.9	Emissions of NMVOCs per unit of GDP		
A-1.10	Share of SO <sub>2</sub> emissions from stationary or mobile sources		
A-1.11	Share of NO <sub>x</sub> emissions from stationary or mobile sources		
A-1.12	Share of emissions of NMVOCs from stationary or mobile sources		
A-1.13	Share of ammonia emissions from stationary or mobile sources		
A-1.14	Share of carbon monoxide emissions from stationary or mobile sources		
A-1.15	Share of hydrocarbons emissions from stationary or mobile sources		
A-3.2	Hydrofluorocarbon phase-down		
B-3.17	Average CO <sub>2</sub> emissions from newly registered motor vehicles		
<b>Topic “consumption of ozone depleting substances (ODSs)”</b>			
A-3.1	Total consumption of ozone-depleting substances (ODS)		
A-3.9	Consumption of hydrochlorofluorocarbons (ozone depleting potential per capita)		
<b>Topic “emissions of other substances to air”</b>			
A-1.28	Emissions of ammonia per capita	Yes	
A-1.30	Emissions of ammonia per km <sup>2</sup>		
A-1.29	Emissions of ammonia per unit of GDP		
A-1.31	Emissions of PM <sub>10</sub> per capita		
A-1.23	Emissions of PM <sub>10</sub> per km <sup>2</sup>		
A-1.24	Emissions of PM <sub>10</sub> per unit of GDP		
A-1.21	Total emissions of PM <sub>2.5</sub>	Yes	
A-1.25	Emissions of PM <sub>2.5</sub> per capita		
A-1.26	Emissions of PM <sub>2.5</sub> per km <sup>2</sup>		
A-1.27	Emissions of PM <sub>2.5</sub> per unit of GDP		
A-1.16	Share of total suspended particles (TSP) emissions from stationary or mobile sources		
A-1.17	Share of PM <sub>10</sub> emissions from stationary or mobile sources	Yes	
A-1.18	Share of PM <sub>2.5</sub> emissions from stationary or mobile sources	Yes	
<b>Subcomponent “generation and management of wastewater”</b>			
<b>Topic “collection and treatment of wastewater”</b>			
C-15.1	Treatment capacity of urban wastewater-treatment plants in terms of population equivalent (p.e.)	Yes	
C-15.2	Treatment capacity of urban wastewater-treatment plants in terms of hydraulic capacity (1,000 m <sup>3</sup> /day)		Yes
C-15.3	Treatment capacity of individual wastewater-treatment facilities in terms of population equivalent (p.e.)		
C-15.4	Treatment capacity of individual wastewater-treatment facilities in terms of hydraulic capacity (1,000 m <sup>3</sup> /day)		
C-16.2	Proportion of domestic and industrial wastewater flows safely treated (SDG indicator 6.3.1)	Yes	
C-15.5	Percentage of BOD <sub>5</sub> removed from generated wastewater before discharge into the environment	Yes	
C-15.6	Percentage of total phosphorus removed from generated wastewater before discharge into the environment		

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
C-15.7	Percentage of total nitrogen removed from generated wastewater before discharge into the environment		
<b><i>Topic “discharge of wastewater to the environment”</i></b>			
C-16.1	Share of total wastewater discharged to the environment after treatment		
<b><i>Subcomponent “generation and management of waste”</i></b>			
<b><i>Topic “generation of waste”</i></b>			
I-1.2	Total waste generation	Yes	
I-1.8	Total waste generation per capita		
I-1.1	Municipal waste generated per capita	Yes	
I-1.3	Waste generation intensity per unit of GDP	Yes	
I-2.1	Hazardous waste generated per capita (SDG indicator 12.4.2)	Yes	
<b><i>Topic “management of waste”</i></b>			
I-3.2	National recycling rate, tons of material recycled (SDG indicator 12.5.1)	Yes	
I-3.3	Recovery rate of construction and demolition waste		
I-2.2	Proportion of hazardous waste treated, by type of treatment (SDG indicator 12.4.2)	Yes	
I-2.3	Stock of hazardous waste at the end of the year		
I-4.3	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban waste generated, by cities. (SDG indicator 11.6.1)		
I-4.2	Diversion of waste from landfill (amounts of waste deposited in landfills, by type of waste category)		
<b><i>Subcomponent “release of chemical substances”</i></b>			
<b><i>Topic “release of chemical substances”</i></b>			
F-2.1	Consumption of mineral fertilizers per unit of agricultural area	Yes	
F-2.2	Share of area treated with mineral fertilizers in total agricultural area		
F-2.3	Consumption of organic fertilizers per unit of agricultural area	Yes	
F-2.4	Share of area treated with organic fertilizers in total agricultural area		
F-2.5	Share of area under crop treated with fertilizers in total area		
F-2.6	Consumption of fertilizers per unit of area under crop		
F-4.1	Consumption of pesticides per unit of agricultural area		
F-4.2	Consumption of insecticides per unit of agricultural area		
F-4.3	Consumption of herbicides and desiccants per unit of agricultural area		
F-4.4	Consumption of fungicides and bactericides per unit of agricultural area		
F-4.5	Consumption of plant regulators per unit of agricultural area		
F-4.6	Consumption of rodenticides per unit of agricultural area		
F-4.7	Consumption of other pesticides (e.g., mineral oils) per unit of agricultural area		
<b>COMPONENT: EXTREME EVENTS AND DISASTERS</b>			
<b><i>Subcomponent “natural extreme events and disasters”</i></b>			
<b><i>Topic “Occurrence of natural extreme events and disasters”</i></b>			



<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
K-1.4	Number of hazardous events per year (per type of hazard)		
K-1.5	Proportion of hazardous events with deaths per year (per type of hazard)		
<b>Topic “Impact of natural extreme events and disasters”</b>			
K-1.6	Direct economic loss attributed to disasters in relation to GDP (SDG indicator 1.5.2/11.5.2, Sendai Framework indicator C-1)	Yes	
K-1.7	Number of deaths attributed to disasters, per 100,000 population (Sendai Framework indicator A-2)	Yes	
K-1.8	Direct agricultural loss attributed to disasters (Sendai Framework indicator C-2)		
<b>Subcomponent “human settlements”</b>			
<b>Topic “access to selected basic services”</b>			
C-6.1	Share of total population (urban and rural) connected to the water supply industry	Yes	
C-6.2	Proportion of population using safely managed drinking water services (SDG indicator 6.1.1)	Yes	
C-6.3	Percentage of population using basic drinking water services by location		
C-9.7	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (SDG indicator 3.9.2)		
C-14.1	Percentage of total population connected to a wastewater collecting system	Yes	
C-14.2	Percentage of total population connected to wastewater treatment facilities		
C-14.3	Proportion of population using safely managed sanitation services (SDG indicator 6.2.1)		
C-14.4	Percentage of population using basic sanitation services by location		
I-4.1	Proportion of population served by municipal waste collection	Yes	
G-5.1	Percentage of population with access to electricity by location		
<b>Topic “exposure to ambient air pollution”</b>			
A-2.6	Mortality rate attributed to household and ambient air pollution (SDG indicator 3.9.1)		
K-1.9	Number of people exposed to unhealthy noise levels		
<b>Topic “environmental concerns specific to urban settlements”</b>			
H-1.1	Passenger and freight volumes, by mode of transport (SDG indicator 9.1.2)	Yes	
H-1.2	Total passenger transport demand per capita	Yes	
H-1.4	Share of road transport demand in total passenger transport		
H-1.5	Share of railway transport demand in total passenger transport		
H-1.6	Share of inland waterways demand in total passenger transport		
H-1.7	Share of maritime transport demand in total passenger transport		
H-1.8	Share of domestic aviation demand in total passenger transport		
H-2.1	Total Freight transport demand per unit of GDP		
H-2.3	Share of road transport in total freight transport demand		
H-2.4	Share of railway transport in total freight transport demand		

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
H-2.5	Share of inland waterways transport in total freight transport demand		
H-2.6	Share of maritime transport in total freight transport demand		
H-2.7	Share of domestic aviation in total freight transport demand		
H-3.1	Road vehicle fleet in the country by vehicle category (passenger cars, motor coaches and buses, trucks, trolleybuses, road tractors)		
H-3.2	Road vehicle fleet in the country by fuel type (gasoline, diesel, gas, electricity, biofuels, other)	Yes	
H-4.1	Share of road vehicle fleet in the country less/equal to 2 years old (passenger cars, motor coaches and buses, trucks, trolleybuses, road tractors)		
H-4.2	Share of road vehicle fleet in the country with the age from 2 years to 5 years (passenger cars, motor coaches and buses, trucks, trolleybuses, road tractors)		
H-4.3	Share of road vehicle fleet in the country with the age from 5 years to 10 years (passenger cars, motor coaches and buses, trucks, trolleybuses, road tractors)		
H-4.4	Share of road vehicle fleet in the country more than 10 years old (passenger cars, motor coaches and buses, trucks, trolleybuses, road tractors)		
H-3.3	New registrations of electric vehicles		
H-5.1	Motorway length		
H-5.2	Motor vehicle movements on national territory by vehicle-kilometres (millions)		
<b>COMPONENT: ENVIRONMENTAL PROTECTION, MANAGEMENT AND ENGAGEMENT</b>			
<b><i>Subcomponent “environmental protection and resource management expenditure”</i></b>			
J-1.1	National expenditure on environmental protection as percentage of GDP	Yes	
J-1.5	Contribution to the international \$100 billion commitment on climate-related expenditure		
J-1.7	Domestic public funding on conservation and sustainable use of biodiversity and ecosystems		
<b><i>Subcomponent “environmental governance and regulation”</i></b>			
<b><i>Topic “environmental regulation and instruments”</i></b>			
J-1.2	Environmental tax revenues as a proportion of GDP	Yes	
J-1.3	Environmentally related taxes, per cent of total tax revenue		
J-1.4	Share of energy and transport related taxes in total taxes and social contributions		
J-1.6	Amount of fossil-fuel subsidies (production and consumption) per unit of GDP (SDG indicator 12.c.1)	Yes	
J-1.8	Payments for use of natural resources		
<b><i>Topic “participation in multilateral environmental agreements and environmental conventions”</i></b>			
C-17.1	Proportion of transboundary basin area with an operational arrangement for water cooperation (SDG indicator 6.5.2)		
<b><i>Subcomponent “extreme event preparedness and disaster management”</i></b>			
<b><i>Topic “preparedness for natural extreme events and disasters”</i></b>			

<i>ID</i>	<i>Name of indicator</i>	<i>Priority indicator</i>	<i>New metadata</i>
K-1.1	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms (Sendai Framework indicator G-3)		
<i>Subcomponent “environmental information and awareness”</i>			
<i>Topic “environmental information”</i>			
K-1.2	Number of companies publishing sustainability reports (SDG indicator 12.6.1)		
<i>Topic “environmental education”</i>			
K-1.3	Proportion of students in lower secondary education showing adequate understanding of issues relating to global citizenship and sustainability, by sex		

*Abbreviations:* BOD, biochemical oxygen demand; BOD5, annual average BOD after five days of incubation; CO<sub>2</sub>, carbon dioxide; GDP, gross domestic product; LULUCF, land use, land-use change, and forestry; NMVOC, non-methane volatile organic compound; NO<sub>2</sub>, nitrogen dioxide; NO<sub>x</sub>, nitrogen oxides; OECM, other effective area-based conservation measure; O<sub>3</sub>, ozone; PM<sub>10</sub>, particulate matter 10 micrometres or less in diameter; PM<sub>2.5</sub>, fine particulate matter; SDG, Sustainable Development Goal; SO<sub>2</sub>, sulfur dioxide; SO<sub>x</sub>, sulfur oxides.

## II. Metadata for selected non-priority indicators

### A. B-2.5 Percentage of land area suffering from unusually wet or dry conditions (Standard Precipitation Index)

#### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	B: Climate change
Component (Framework for the Development of 1: Environment Statistics (FDES))	Environment Statistics (FDES)
Sub-component (FDES)	1.1: Physical Conditions
Indicator topic (FDES)	1.1.1: Atmosphere, climate and weather
ID and name in previous indicator guidelines	B2: Atmospheric precipitation
First publication	25/07/2024
Latest update	-
Indicator definition	Percentage of the land area where the standard precipitation index (SPI) is $\geq 1.5$ (very wet or extremely wet) or $\leq -1.5$ (severely dry or extremely dry).
Unit of measure	Per cent
Coverage	National territory (land areas)
Spatial aggregation	National territory
Reference period	Calendar year
Update frequency	Annual

<i>Parameter</i>	<i>Description</i>
Purpose	Climate change can cause changes in intensity and patterns of precipitation, and frequency and severity of droughts and dry spells. Unusual precipitation variations can affect agriculture, health, tourism and other important sectors. Standardisation applied in this indicator allows for comparing the “unusualness” of precipitation at stations from different climatic zones within a country and among countries.
Policy context	<p>Change of precipitation patterns is closely linked with change in air temperature. It is an evidence of one of climate change’s most serious effects, which has been especially noticeable in recent decades.</p> <p>Countries which are Parties to the United Nations Framework Convention on Climate Change have to carry out systematic observations of the climate change parameters, create databases and conduct research related to the climate system.</p>
Link with SDG indicators	-
Methodology for indicator calculation	<p>The Standard Precipitation Index (SPI) for any location is calculated based on the long-term precipitation record for a desired period. This long-term record is fitted to a probability distribution, which is then transformed into a normal distribution so that the mean SPI for the location and desired period is zero (Edwards, D.C. and McKee, T.B. (1997) Characteristics of 20th Century Drought in the United States at Multiple Times Scales. <i>Atmospheric Science Paper</i>, 634, 1–30.).</p> <p>Calculation: land areas where the standard precipitation index (SPI) is <math>\geq 1.5</math> (very wet or extremely wet) or <math>\leq -1.5</math> (severely dry or extremely dry divided by total land area</p>
Comments	This is the same indicator as indicator number 17 of the Conference of European Statisticians (CES) Core Set on Climate Change-related Indicators

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Paris Agreement	<a href="https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement">https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement</a>
Sendai Framework for Disaster Risk Reduction 2015–2030	<a href="https://www.unisdr.org/we/inform/publications/43291">https://www.unisdr.org/we/inform/publications/43291</a>
United Nations Convention to Combat Desertification in those Countries experiencing serious Drought and/or Desertification, particularly in Africa	<a href="https://www.unccd.int/">https://www.unccd.int/</a>

**3. Methodology references**

<i>Title of the reference document</i>	<i>Link</i>
World Meteorological Organization (WMO) Guidelines on the Calculation of Climate Normals	<a href="https://library.wmo.int/index.php?lvl=notice_display&amp;id=20130#.Ytas-5AzaUI">https://library.wmo.int/index.php?lvl=notice_display&amp;id=20130#.Ytas-5AzaUI</a>
WMO Guidelines on Generating a Defined Set of National Climate Monitoring Product	<a href="https://library.wmo.int/index.php?lvl=notice_display&amp;id=20166#.YtauEJAzaUI">https://library.wmo.int/index.php?lvl=notice_display&amp;id=20166#.YtauEJAzaUI</a>
WMO Standardized Precipitation Index User Guide (WMO-No. 1090)	<a href="https://library.wmo.int/records/item/39629-standardized-precipitation-index-user-guide">https://library.wmo.int/records/item/39629-standardized-precipitation-index-user-guide</a>
Characteristics of 20th Century Drought in the United States at Multiple Times Scales	<a href="https://apps.dtic.mil/sti/pdfs/ADA325595.pdf">https://apps.dtic.mil/sti/pdfs/ADA325595.pdf</a>
CES Set of Core Climate Change-Related Indicators and Statistics Using the United Nations System of Environmental Economic Accounting (SEEA)	<a href="https://unece.org/statistics/ces-set-core-climate-change-related-indicators-and-statistics-using-seea">https://unece.org/statistics/ces-set-core-climate-change-related-indicators-and-statistics-using-seea</a>

**4. Data and statistics needed to compile the indicator**

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
160	Precipitation	2.6.1: Water resources
265	Total land area	1.1.3: Geological and geographical information

**5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
International Research Institute for Climate and Society	<a href="https://iridl.ldeo.columbia.edu/maproom/Global/Precipitation/SPI.html">https://iridl.ldeo.columbia.edu/maproom/Global/Precipitation/SPI.html</a>

**B. E-2.1 Proportion of agricultural area affected by degradation through water erosion****1. General**

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	E: Land and soil
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.1: Physical Conditions
Indicator topic (FDES)	1.1.4: Soil characteristics
ID and name in previous indicator guidelines	E2: Area affected by soil erosion
First publication	26/07/2024
Latest update	-
Indicator definition	The indicator measures the share of agricultural area affected by degradation through water erosion.

<i>Parameter</i>	<i>Description</i>
Unit of measure	Per cent
Coverage	Agricultural area
Spatial aggregation	National territory
Reference period	Calendar year
Update frequency	At least every five years
Purpose	<p>The indicator provides a measure of the state of land in terms of the degree to which it is affected by soil erosion caused by water.</p> <p>Land erosion is a natural phenomenon, which, however, tends to be greatly accelerated by human activity. In most cases, erosion results from unsustainable agricultural land use, large-scale farming and over-grazing, and inappropriate irrigation and water management. Agricultural management systems are a primary factor affecting the quality of soil. In turn, erosion is an exemplary indicator of negative effects caused by unacceptable agricultural practices, which lead to declines in soil fertility and often to irreversible soil damage.</p>
Policy context	<p>United Nations Convention to Combat Desertification: Promotes practices to reduce soil erosion and land degradation</p> <p>Sustainable Development Goals (SDGs): Goal 15 (“Life on Land”) aims to 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 2 (“Zero Hunger”) emphasizes sustainable agricultural practices to ensure food security.</p> <p>Paris Agreement on Climate Change: Encourages countries to adopt sustainable practices to mitigate climate change, which includes reducing soil erosion through better land management</p> <p>European Union (EU): Common Agricultural Policy includes measures to prevent soil erosion and promote sustainable agriculture. The European Green Deal emphasizes the importance of maintaining healthy soils as part of climate action and biodiversity strategies.</p>
Link with SDG indicators	-
Methodology for indicator calculation	<p>Data are collected for agricultural area, which is the sum of areas under (a) arable land; (b) permanent crops; and (c) permanent meadows and pastures. Wind and water erosion (sheet, rill and gully) of soil can be measured as a net loss of soil (in tons per hectare or km<sup>2</sup> per year). It can be applied to one of five categories (same for both water and wind erosion; note: several soil erosion intensity classifications exist and the following one has also been used in the previous version of the ECE indicator guidelines):</p> <ul style="list-style-type: none"> <li>• No affect (tolerable): Net loss lower than 6 tons/hectare/year</li> </ul>

<i>Parameter</i>	<i>Description</i>
	<ul style="list-style-type: none"> <li>• Light affect: Net loss 6.0 – 10.9 tons/hectare/year</li> <li>• Moderate affect: Net loss 11.0 – 21.9 tons/hectare/year</li> <li>• Strong affect: Net loss 22.0 – 32.9 tons/hectare/year -</li> <li>• Extreme affect: Net loss higher than 33 tons/hectare/year</li> </ul> <p>The total agricultural area affected by erosion (separate for water and wind erosion) is calculated as the sum (km<sup>2</sup>) of light affect + moderate affect + strong affect + very strong affect.</p> <p>The share of agricultural area affected by erosion (per cent) = Agricultural area affected by erosion (wind or water erosion) / Total agricultural area</p> <p>Alternatively, erosion can be measured visually or derived on the basis of reduced productivity. These alternatives can also be applied to the same five categories, which are mutually exclusive. The area falling under the five different categories should be supplemented by the total agricultural area affected.</p> <p>This indicator does not take into account many important types of soil degradation, such as hardening, desertification, over-grazing, secondary salt pollution, and loss of fertility and biodiversity. It also does not take into account the effects of road construction and tourism.</p>
<i>Comments</i>	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>
United Nations Convention to Combat Desertification in those Countries experiencing serious Drought and/or Desertification, particularly in Africa	<a href="https://www.unccd.int/">https://www.unccd.int/</a>
EU Common Agricultural Policy 2023–2027	<a href="https://agriculture.ec.europa.eu/common-agricultural-policy_en">https://agriculture.ec.europa.eu/common-agricultural-policy_en</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Assessment and reporting on soil erosion, Technical report No 94	<a href="https://www.eea.europa.eu/publications/technical_report_2003_94">https://www.eea.europa.eu/publications/technical_report_2003_94</a>

**4. Data and statistics needed to compile the indicator**

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
358	Agricultural area	2.3.1: Land use
386	Agricultural area affected by water erosion	1.1.4: Soil characteristics

**5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
-	-

**C. E-2.2 Proportion of agricultural area affected by degradation through wind erosion****1. General**

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	E: Land and soil
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.1: Physical Conditions
Indicator topic (FDES)	1.1.4: Soil characteristics
ID and name in previous indicator guidelines	E2: Area affected by soil erosion
First publication	25/07/2024
Latest update	-
Indicator definition	The indicator measures the share of agricultural area affected by degradation through wind erosion.
Unit of measure	Per cent
Coverage	Agricultural area
Spatial aggregation	National territory
Reference period	Calendar year
Update frequency	At least every five years
Purpose	The indicator provides a measure of the state of land in terms of the degree to which it is affected by soil erosion caused by wind.  Land erosion is a natural phenomenon, which, however, tends to be greatly accelerated by human activity. In most cases, erosion results from unsustainable agricultural land use, large-scale farming and over-grazing, and inappropriate irrigation and water management. Agricultural management systems are a primary factor affecting the quality of soil. In turn, erosion is an exemplary indicator of negative effects caused by unacceptable agricultural practices, which lead to declines in soil fertility and often to irreversible soil damage.



<i>Parameter</i>	<i>Description</i>
Policy context	<p>It is estimated that about 28 per cent of the global land area experiencing land degradation suffers from this wind-driven soil erosion process. In agricultural lands, soil erosion by wind mainly results from the removal of the finest and most biological active part of the soil richest in organic matter and nutrients. Repeated exposure to wind erosion can have permanent effects on agricultural soil degradation, making it difficult to maintain favourable soil conditions in the long run. Wind erosion is also a European phenomenon. According to the European Environment Agency, about 42 million ha of European agricultural land may be affected by wind erosion. Local studies reported that wind erosion can affect both the semi-arid areas of the Mediterranean region and the temperate climate areas of the northern European countries. However, little is known about the extent and magnitude of wind erosion throughout Europe. (see <a href="https://esdac.jrc.ec.europa.eu/themes/wind-erosion1">https://esdac.jrc.ec.europa.eu/themes/wind-erosion1</a>)</p> <p>United Nations Convention to Combat Desertification: Promotes practices to reduce soil erosion and land degradation</p> <p>Sustainable Development Goals (SDGs): Goal 15 (“Life on Land”) aims to 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 2 (“Zero Hunger”) emphasizes sustainable agricultural practices to ensure food security.</p> <p>Paris Agreement on Climate Change: Encourages countries to adopt sustainable practices to mitigate climate change, which includes reducing soil erosion through better land management.</p> <p>European Union (EU): Common Agricultural Policy includes measures to prevent soil erosion and promote sustainable agriculture. The European Green Deal emphasizes the importance of maintaining healthy soils as part of climate action and biodiversity strategies.</p>
Link with SDG indicators	-
Methodology for indicator calculation	<p>Data are collected for agricultural area, which is the sum of areas under (a) arable land; (b) permanent crops; and (c) permanent meadows and pastures. Wind and water erosion (sheet, rill and gully) of soil can be measured as a net loss of soil (in tons per hectare or km<sup>2</sup> per year). It can be applied to one of five categories (same for both water and wind erosion; note: several soil erosion intensity classifications exist, the following one has also been used in the previous version of the ECE indicator guidelines):</p> <ul style="list-style-type: none"> <li>• No affect (tolerable): Net loss lower than 6 tons/hectare/year</li> <li>• Light affect: Net loss 6.0 – 10.9 tons/hectare/year</li> <li>• Moderate affect: Net loss 11.0 – 21.9 tons/hectare/year</li> </ul>

<i>Parameter</i>	<i>Description</i>
	<ul style="list-style-type: none"> <li>• Strong affect: Net loss 22.0 – 32.9 tons/hectare/year -</li> <li>• Extreme affect: Net loss higher than 33 tons/hectare/year</li> </ul> <p>The total agricultural area affected by erosion (separate for water and wind erosion) is calculated as the sum (km<sup>2</sup>) of light affect + moderate affect + strong affect + very strong affect.</p> <p>The share of agricultural area affected by erosion (per cent) = Agricultural area affected by erosion (wind or water erosion) / Total agricultural area</p> <p>Alternatively, erosion can be measured visually or derived on the basis of reduced productivity. These alternatives can also be applied to the same five categories, which are mutually exclusive. The area falling under the five different categories should be supplemented by the total agricultural area affected.</p> <p>This indicator does not take into account many important types of soil degradation, such as hardening, desertification, over-grazing, secondary salt pollution, and loss of fertility and biodiversity. It also does not take into account the effects of road construction and tourism.</p>
<i>Comments</i>	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>
United Nations Convention to Combat Desertification in those Countries experiencing serious Drought and/or Desertification, particularly in Africa	<a href="https://www.unccd.int/">https://www.unccd.int/</a>
EU Common Agricultural Policy 2023–2027	<a href="https://agriculture.ec.europa.eu/common-agricultural-policy_en">https://agriculture.ec.europa.eu/common-agricultural-policy_en</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Assessment and reporting on soil erosion, Technical report No 94	<a href="https://www.eea.europa.eu/publications/technical_report_2003_94">https://www.eea.europa.eu/publications/technical_report_2003_94</a>

## 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
358	Agricultural area	2.3.1: Land use
385	Agricultural area affected by wind erosion	1.1.4: Soil characteristics

## 5. International databases containing this indicator

<i>Name of the database</i>	<i>Link</i>
-	-

## D. D-7.3 Red list of ecosystems

### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	D: Biodiversity
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.2: Land Cover, Ecosystems and Biodiversity
Indicator topic (FDES)	1.2.2: Ecosystems and biodiversity
ID and name in previous indicator guidelines	D4: Threatened and protected species
First publication	26/07/2024
Latest update	-
Indicator definition	<p>This Red List Index of ecosystems (RLIe) summarises risk status across sets of ecosystem types, based on the proportion of ecosystems in each Red List risk category. A decrease in the RLIe (towards 0) means more ecosystems are threatened or at heightened risk of collapse. An increase in the RLIe (towards 1) means that ecosystems are becoming less threatened.</p>
Unit of measure	Index ranging from 0 to 1
Coverage	Ecosystems
Spatial aggregation	National territory
Reference period	Point in time
Update frequency	Every five years
Purpose	<p>Headline indicator A.1 of the Kunming-Montreal Global Biodiversity Framework: Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.</p> <p>This indicator addresses the following elements of Goal A of the Kunming-Montreal Global Biodiversity Framework: The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050.</p> <p>The indicator measures the average risk of ecosystem collapse of a group of ecosystems, and tracks change in this over time based on genuine change in the risk category of each ecosystem (i.e. excluding changes in</p>

<i>Parameter</i>	<i>Description</i>
Policy context	<p>categories owing to improved knowledge or better data).</p> <p>Convention on Biological Biodiversity (1992): The Convention emphasizes the need for the creation and maintenance of protected areas, the restoration of degraded ecosystems, and the support of indigenous and local communities. It also highlights the importance of access to genetic resources and related technologies, along with the financial and scientific cooperation necessary to achieve these goals. It provides a robust framework for addressing biodiversity loss and promoting sustainable development worldwide.</p> <p>Kunming-Montreal Global Biodiversity Framework (2022): Building upon the objectives of the Convention, this framework outlines ambitious targets, including protecting 30 per cent of the world's land and marine areas, restoring 30 per cent of degraded ecosystems, and reducing pollution from plastics and excess nutrients. It emphasizes the importance of integrating biodiversity considerations across all sectors of society and economies, mobilizing significant financial resources, and enhancing the roles of indigenous peoples and local communities in conservation efforts. The framework also sets measurable goals for reducing the rate of species extinction and ensuring sustainable use of biodiversity, aiming for a nature-positive world that benefits both people and the planet.</p> <p>EU Biodiversity Strategy for 2030: The strategy is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put the EU's biodiversity on a path to recovery by 2030, and contains specific actions and commitments.</p>
Link with SDG indicators	-
Methodology for indicator calculation	<p>The reported data will come from Red List of Ecosystems assessments. The data reported will be the number of ecosystems in each risk category, per ecosystem functional group (see IUCN Global Ecosystem Typology)</p> <p>Risk categories (IUCN) are:</p> <ul style="list-style-type: none"> <li>• Critically Endangered (CR): Ecosystems facing an extremely high risk of collapse in the immediate future.</li> <li>• Endangered (EN): Ecosystems facing a very high risk of collapse in the near future.</li> <li>• Vulnerable (VU): Ecosystems facing a high risk of collapse in the medium-term future.</li> <li>• Near Threatened (NT): Ecosystems close to qualifying for or are likely to qualify for a threatened category in the near future.</li> <li>• Least Concern (LC): Ecosystems at low risk of collapse and not qualifying for a more at-risk category.</li> </ul>

<i>Parameter</i>	<i>Description</i>
	<ul style="list-style-type: none"> <li>• Data Deficient (DD): Ecosystems for which there is inadequate information to make a direct or indirect assessment of their risk of collapse.</li> <li>• Not Evaluated (E): Ecosystems that have not yet been assessed.</li> </ul> <p>Only the categories of risk (Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, and Collapsed) will be used for calculation of RLie.</p> <p>The RLie measures trends in ecosystem collapse risk based on the proportion of ecosystem types in each risk category. The RLie is the weighted mean of ordinal ranks assigned to each risk category. The formula and calculation examples can be found in the metadata of this Convention indicator.</p>
<i>Comments</i>	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
United Nations Convention on Biological Diversity	<a href="https://www.cbd.int/">https://www.cbd.int/</a>
United Nations Convention on Biological Biodiversity: Post-2020 Global Biodiversity Framework	<a href="https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf">https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf</a>
Monitoring framework for the Kunming-Montreal Global Biodiversity Framework	<a href="https://www.gbf-indicators.org/">https://www.gbf-indicators.org/</a>
Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. EU Biodiversity Strategy for 2030. Bringing nature back into our lives.	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0380">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0380</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Metadata of indicator A.1 Red List of Ecosystems of the Kunming-Montreal Global Biodiversity Framework	<a href="https://www.gbf-indicators.org/metadata/headline/A-1">https://www.gbf-indicators.org/metadata/headline/A-1</a>
IUCN Global Ecosystem Typology 2.0	<a href="https://portals.iucn.org/library/node/49250">https://portals.iucn.org/library/node/49250</a>

## 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
387	Number of ecosystems in each risk category, per ecosystem functional group	1.2.2: Ecosystems and biodiversity

## 5. International databases containing this indicator

<i>Name of the database</i>	<i>Link</i>
IUCN Red List of Ecosystems Database	<a href="https://assessments.iucnrle.org/">https://assessments.iucnrle.org/</a>

## E. D-7.2 Extent of natural ecosystems

### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	D: Biodiversity
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.2: Land Cover, Ecosystems and Biodiversity
Indicator topic (FDES)	1.2.2: Ecosystems and biodiversity
ID and name in previous indicator guidelines	N/A
First publication	26/07/2024
Latest update	-
Indicator definition	<p>The indicator, at the national level, is defined as the extent of natural and semi-natural ecosystems as a proportion of total area of the country at a particular point in time, expressed as a percentage.</p> <p>The point in time is the closing date of the accounting period for which the ecosystem accounts were compiled. Trends over time will be evident from changes in the proportion of total area over successive accounting periods.</p>
Unit of measure	Per cent
Coverage	Natural and semi-natural ecosystems
Spatial aggregation	National territory; disaggregation by natural ecosystem types is recommended
Reference period	Point in time
Update frequency	Every three-five years
Purpose	<p>Headline indicator A.2 of the Kunming-Montreal Global Biodiversity Framework aims to show the extent of natural ecosystems as a proportion of overall area, and to track changes in this proportion over time. This responds to the element of Goal A of the Kunming-Montreal Global Biodiversity Framework that refers to “substantially increasing the area of natural ecosystems by 2050”. The indicator also responds to the elements of Target 1 that refer to “addressing land and sea use change”, “to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030”. The indicator can be disaggregated into different natural ecosystem types, providing insights into the relative abundance or scarcity of different natural ecosystem types as well as their relative rates of loss or gain over time.</p>

<i>Parameter</i>	<i>Description</i>
Policy context	<p>Convention on Biological Biodiversity (1992): The Convention emphasizes the need for the creation and maintenance of protected areas, the restoration of degraded ecosystems, and the support of indigenous and local communities. It also highlights the importance of access to genetic resources and related technologies, along with the financial and scientific cooperation necessary to achieve these goals. It provides a robust framework for addressing biodiversity loss and promoting sustainable development worldwide.</p> <p>Kunming-Montreal Global Biodiversity Framework (2022): Building upon the objectives of the Convention, this framework outlines ambitious targets, including protecting 30 per cent of the world's land and marine areas, restoring 30 per cent of degraded ecosystems, and reducing pollution from plastics and excess nutrients. It emphasizes the importance of integrating biodiversity considerations across all sectors of society and economies, mobilizing significant financial resources, and enhancing the roles of indigenous peoples and local communities in conservation efforts. The framework also sets measurable goals for reducing the rate of species extinction and ensuring sustainable use of biodiversity, aiming for a nature-positive world that benefits both people and the planet.</p> <p>Sustainable Development Goals (SDGs): Goal 15 ("Life on Land") aims to 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 2 ("Zero Hunger") emphasizes sustainable agricultural practices to ensure food security.</p> <p>EU Biodiversity Strategy for 2030: The strategy is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put the EU's biodiversity on a path to recovery by 2030, and contains specific actions and commitments.</p>
Link with SDG indicators	-
Methodology for indicator calculation	The indicator is drawn directly from ecosystem extent accounts compiled based on the SEEA Ecosystem Accounting framework, which organize data on the extent of different ecosystem types. An ecosystem extent account records the extent (area) and changes in extent, for all ecosystem types within an ecosystem accounting area (in this case a country), including natural, semi-natural and anthropogenic ecosystem types.
Comments	-

**2. Policy references**

<i>Title of the reference document</i>	<i>Link</i>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>
United Nations Convention on Biological Diversity	<a href="https://www.cbd.int/">https://www.cbd.int/</a>
United Nations Convention on Biological Biodiversity: Post-2020 Global Biodiversity Framework	<a href="https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf">https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf</a>
Monitoring framework for the Kunming-Montreal Global Biodiversity Framework	<a href="https://www.gbf-indicators.org/">https://www.gbf-indicators.org/</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. EU Biodiversity Strategy for 2030. Bringing nature back into our lives.	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0380">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0380</a>

**3. Methodology references**

<i>Title of the reference document</i>	<i>Link</i>
Metadata of indicator A.2 Extent of natural ecosystems of the Kunming-Montreal Global Biodiversity Framework	<a href="https://www.gbf-indicators.org/metadata/headline/A-2">https://www.gbf-indicators.org/metadata/headline/A-2</a>
SEEA Ecosystem Accounting	<a href="https://seea.un.org/ecosystem-accounting">https://seea.un.org/ecosystem-accounting</a>

**4. Data and statistics needed to compile the indicator**

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
388	Area of ecosystem types	1.2.2: Ecosystems and biodiversity
66	Country area	1.1.3: Geological and geographical information

**5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
-	-

**F. D-3.2 Share of other wooded land in country area****1. General**

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	D: Biodiversity
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.2: Land Cover, Ecosystems and Biodiversity
Indicator topic (FDES)	1.2.3: Forests



<i>Parameter</i>	<i>Description</i>
ID and name in previous indicator guidelines	D3: Forests and other wooded land
First publication	22/09/2021
Latest update	-
Indicator definition	The indicator measures the percentage of other wooded land in the total country area.
Unit of measure	Per cent
Coverage	Other wooded land (land with a canopy cover of 5-10 percent of trees able to reach a height of 5 m in situ; or a canopy cover of more than 10 percent when smaller trees, shrubs and bushes are included).
Spatial aggregation	National territory
Reference period	End of each calendar year or nearest date within that calendar year
Update frequency	Annual
Purpose	The indicator provides a measure of the extent of other wooded land in a country and shows trends therein. It complements a related indicator on share of forest in the country area.
Policy context	<p>Forests – and also other wooded lands – are among the most diverse and widespread ecosystems on earth. They have strong intrinsic values, provide multiple ecosystem services (provision of timber and other products, recreation, regulatory ecosystem services related to soil and water) to human societies, and thereby support sustainable development and human wellbeing on Earth. They also enable nature-based solutions to a wide range of challenges to Society (e. g. carbon sequestration, flood protection).</p> <p>Overexploitation, fragmentation, environmental degradation and conversion into other types of land use threaten many forest resources.</p> <p>This indicator is relevant to SDG 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</p>
Link with SDG indicators	<p>15.1.1 Forest area as a proportion of total land area (indirectly related)</p> <p>15.2.1 Progress towards sustainable forest management (indirectly related)</p>
Methodology for indicator calculation	<p>Other Wooded Land is land with a canopy cover of 5-10 percent of trees able to reach a height of 5 m in situ; or a canopy cover of more than 10 percent when smaller trees, shrubs and bushes are included.</p> <p>Share of other wooded land in country area (per cent) = (total wooded land area in thousands of hectares or km<sup>2</sup> / the total area of the country in thousands of hectares or km<sup>2</sup>) x 100 per cent.</p>

<i>Parameter</i>	<i>Description</i>
	Data on the area of other wooded land are sourced from national reporting, e. g. as summarized in the Global Forest Resources Assessment of the Food and Agriculture Organization of the United Nations.
<i>Comments</i>	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
United Nations Convention on Biological Diversity	<a href="https://www.cbd.int/">https://www.cbd.int/</a>
United Nations Convention on Biological Diversity: Post-2020 Global Biodiversity Framework	<a href="https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf">https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: Our life insurance, our natural capital: an EU biodiversity strategy to 2020	<a href="https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy">https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions New EU Forest Strategy for 2030	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0572">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0572</a>
Forest Resources Assessment 2025 Supporting Documents	<a href="https://www.fao.org/forest-resources-assessment/en/Documents">https://www.fao.org/forest-resources-assessment/en/Documents</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Forest Resources Assessment 2025 Supporting Documents	<a href="https://www.fao.org/forest-resources-assessment/en/Supporting Documents">https://www.fao.org/forest-resources-assessment/en/Supporting Documents</a>

## 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
66	Country area	1.1.3: Geological and geographical information
231	Area of other wooded land	1.2.2: Ecosystems and biodiversity

## 5. International databases containing this indicator

<i>Name of the database</i>	<i>Link</i>
-	-

## G. D-3.9 Deadwood in forests (volume of deadwood per forest area)

### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	D: Biodiversity
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.2: Land Cover, Ecosystems and Biodiversity
Indicator topic (FDES)	1.2.3: Forests
ID and name in previous indicator guidelines	D3: Forests and other wooded land
First publication	05/10/2021
Latest update	-
Indicator definition	The indicator measures the mass or volume of standing and lying deadwood per unit area of forest and other wooded land. Data can be based on nationwide statistics or sample areas.
Unit of measure	Tonnes/hectare or cubic metres/hectare
Coverage	Deadwood in forests and other wooded lands
Spatial aggregation	National territory
Reference period	End of each calendar year or nearest date within that calendar year
Update frequency	Every five years
Purpose	This indicator measures the amount of deadwood in forests and other wooded lands, which is indicative of both the application of biodiversity-friendly forest management practices, and the incidence of large-scale disturbance events such as storms.
Policy context	<p>Forests are among the most diverse and widespread ecosystems on earth. They have strong intrinsic values, provide multiple ecosystem services (provision of timber and other products, recreation, regulatory ecosystem services related to soil and water) to human societies, and thereby support sustainable development and human wellbeing on Earth. They also enable nature-based solutions to a wide range of challenges to Society (e. g. carbon sequestration, flood protection).</p> <p>The capacity of forests and wooded lands to support biodiversity conservation, provide ecosystem services and enable nature-based solutions depends on their functional resilience and therefore also on the degree to which natural forest dynamics can take their course there. Deadwood plays a crucial role for natural forest dynamics and the indicator therefore measures a key variable in this context.</p>
Link with SDG indicators	15.2.1 Progress towards sustainable forest management (indirectly related)

<i>Parameter</i>	<i>Description</i>
Methodology for indicator calculation	The amount (in t/ha or m3/ha) of deadwood is inventoried by ground survey in sampling plots and integrated at the national level as part of broader national forest inventories (NFIs). This comprises type classification (standing, bending, lying) and additional parameters, e. g. relating to state of decay.
Comments	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
United Nations Convention on Biological Diversity	<a href="https://www.cbd.int/">https://www.cbd.int/</a>
United Nations Convention on Biological Diversity: Post-2020 Global Biodiversity Framework	<a href="https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf">https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: Our life insurance, our natural capital: an EU biodiversity strategy to 2020	<a href="https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy">https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions New EU Forest Strategy for 2030	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0572">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0572</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Supporting information on European Environment Agency (EEA) indicator on deadwood	<a href="https://www.eea.europa.eu/data-and-maps/indicators/forest-deadwood-1/assessment-1">https://www.eea.europa.eu/data-and-maps/indicators/forest-deadwood-1/assessment-1</a>

## 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
233	Amount of deadwood per sample area of forest and wooded lands	1.2.3: Forests

## 5. International databases containing this indicator

<i>Name of the database</i>	<i>Link</i>
-	-

## H. D-7.1 Landscape fragmentation pressure and trends (density of unfragmented landscape elements (“meshes”) per unit area)

### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	D: Biodiversity
Component (FDES)	1: Environmental conditions and quality
Sub-component (FDES)	1.2: Land Cover, Ecosystems and Biodiversity
Indicator topic (FDES)	1.2.2: Ecosystems and biodiversity
ID and name in previous indicator guidelines	N/A
First publication	22/09/2021
Latest update	-
Indicator definition	The indicator provides a measure of large-scale connectivity and permeability of the landscape outside major urban centres, which is critical to the conservation of mobile biodiversity, as well as the functionality of large-scale ecosystem processes and their ability to adapt to climate change by allowing adaptive range adjustments of flora and fauna.
Unit of measure	Meshes per km <sup>2</sup>
Coverage	Landscape fragmentation
Spatial aggregation	National territory
Reference period	End of reporting year or nearest date within that calendar year
Update frequency	Every three years
Purpose	The indicator provides a measure of large-scale connectivity and permeability of the landscape outside major urban centres, which is critical to the conservation of mobile biodiversity, as well as the functionality of large-scale ecosystem processes and their ability to adapt to climate change by allowing adaptive range adjustments of flora and fauna.
Policy context	<p>Natural and near-natural ecosystems with their biodiversity have strong intrinsic values, provide multiple ecosystem services to human societies, and thereby support sustainable development and human wellbeing on Earth. They enable nature-based solutions to a wide range of challenges to Society. Their capacity to provide these services depends partly on their connectivity, which – as the inverse of fragmentation – is measured by this indicator.</p> <p>The indicator is relevant to SDG target 15.5 (“Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species”). Because of its link to transport infrastructure, it is also relevant to SDG target 15.9 (“Integrate ecosystem and biodiversity values into national and</p>

<i>Parameter</i>	<i>Description</i>
	local planning, development processes, poverty reduction strategies and accounts”
Link with SDG indicators	15.3.1 Proportion of land that is degraded over total land area (indirectly related)  15.4.2 Mountain Green Cover Index (indirectly related)
Methodology for indicator calculation	Effective mesh density is the density of unfragmented landscape elements (“meshes”) per unit area, in this case square km. Fragmentation occurs when parts of the landscape are divided by “fragmentation geometry”, i.e. sealed surfaces or transport infrastructure.  Effective mesh size is calculated from available electronic map data (e.g., Tele Atlas Multinet, Open Street Map). <sup>11</sup> The calculation of the effective mesh size (meff) is based on three spatial data sets: (i) the landscape extent, (ii) the fragmentation geometry (landscape elements representing man-made barriers) and (iii) reporting units (spatial units for which meff is calculated). The following steps are followed in computing the indicator.  For a detailed description of the methodology please see supporting information on European Environment Agency (EEA) indicator “Landscape fragmentation pressure and trends in Europe”
Comments	The indicator corresponds to the EEA indicator on “Landscape fragmentation pressure and trends in Europe”, which is already being used by EU countries. Other countries are encouraged to introduce similar ecosystem classification and monitoring systems, to be able to produce data to feed into this indicator.

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
United Nations Convention on Biological Diversity	<a href="https://www.cbd.int/">https://www.cbd.int/</a>
United Nations Convention on Biological Biodiversity: Post-2020 Global Biodiversity Framework	<a href="https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf">https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-1-02-en.pdf</a>
Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: Our life insurance, our natural capital: an EU biodiversity strategy to 2020	<a href="https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy">https://www.eea.europa.eu/policy-documents/eu-2020-biodiversity-strategy</a>
Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora	<a href="http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm">http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm</a>

<sup>1</sup> Reference to a commercial company or product does not imply endorsement by the United Nations or its Member States.

<i>Title of the reference document</i>	<i>Link</i>
Recommendation No. 16 (1989) of the standing committee on areas of special conservation interest of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	<a href="https://search.coe.int/bern-convention/Pages/result_details.aspx?ObjectId=0900001680746c25">https://search.coe.int/bern-convention/Pages/result_details.aspx?ObjectId=0900001680746c25</a>
Council of Europe Landscape Convention	<a href="https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/176?module=treaty-detail&amp;treaty-num=176">https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/176?module=treaty-detail&amp;treaty-num=176</a>

### 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
Landscape division, splitting index, and effective mesh size: new measures of landscape fragmentation	<a href="https://link.springer.com/article/10.1023/A:1008129329289">https://link.springer.com/article/10.1023/A:1008129329289</a>
Implementing Landscape Fragmentation as an Indicator in the Swiss Monitoring System of Sustainable Development (Monet)	<a href="https://www.sciencedirect.com/science/article/pii/S0301479707001387">https://www.sciencedirect.com/science/article/pii/S0301479707001387</a>
Supporting information on EEA indicator “Landscape fragmentation pressure and trends in Europe”	<a href="https://www.eea.europa.eu/data-and-maps/indicators/mobility-and-urbanisation-pressure-on-ecosystems-2/assessment">https://www.eea.europa.eu/data-and-maps/indicators/mobility-and-urbanisation-pressure-on-ecosystems-2/assessment</a>

### 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
228	Amount and geographical distribution of fragmentation geometry	1.2.2: Ecosystems and biodiversity

### 5. International databases containing this indicator

<i>Name of the database</i>	<i>Link</i>
EEA Indicators	<a href="https://www.eea.europa.eu/en/analysis/indicators">https://www.eea.europa.eu/en/analysis/indicators</a>

## I. C-3.1 Total freshwater available for use

### 1. General

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	C: Water
Component (FDES)	2: Environmental resources and their use
Sub-component (FDES)	2.6: Water Resources
Indicator topic (FDES)	2.6.2: Abstraction, use and returns of water
ID and name in previous indicator guidelines	C3: Total freshwater use
First publication	15/10/2019
Latest update	02/08/2024

<i>Parameter</i>	<i>Description</i>
Indicator definition	This indicator shows the availability of freshwater from various sources (freshwater abstracted, desalinated water, reused water, net imports of water)
Unit of measure	Million m <sup>3</sup>
Coverage	Freshwater
Spatial aggregation	National territory
Reference period	Calendar year
Update frequency	Annual
Purpose	The indicator provides a measure of the pressure on the environment in terms of water abstraction from different sources (including freshwater abstracted, desalinated water, reused water, and with regard to water losses).
Policy context	<p>The availability of water for meeting basic human needs is a prerequisite for life, health and economic development. This indicator is important for defining the level of development of water economy services and the degree of water accessibility to cover the needs of population and society. The indicator also helps to identify trends in water use.</p> <p>SDGs target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.</p>
Link with SDG indicators	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (indirectly related)
Methodology for indicator calculation	Total freshwater available for use = Freshwater abstracted + Desalinated water + Reused water + Imports of water - Exports of water
Comments	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	<a href="https://www.unece.org/env/water/text/text.html">https://www.unece.org/env/water/text/text.html</a>
Integrated Water Resources Management	<a href="http://www.gwp.org/the-challenge/what-is-iwrm/">http://www.gwp.org/the-challenge/what-is-iwrm/</a>
Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy	<a href="https://ec.europa.eu/environment/water/water-framework/index_en.html">https://ec.europa.eu/environment/water/water-framework/index_en.html</a>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>



**3. Methodology references**

<i>Title of the reference document</i>	<i>Link</i>
United Nations Statistics Division (UNSD)/United Nations Environment Programme Questionnaire 2022 on Environment Statistics – section “Water”	<a href="https://unstats.un.org/unsd/envstats/questionnaire">https://unstats.un.org/unsd/envstats/questionnaire</a>
International Recommendations for Water Statistics	<a href="https://seea.un.org/content/seea-water">https://seea.un.org/content/seea-water</a>
System of Environmental-Economic Accounting for Water	<a href="https://seea.un.org/content/seea-water">https://seea.un.org/content/seea-water</a>

**4. Data and statistics needed to compile the indicator**

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
166	Fresh surface water abstracted: total	2.6.2: Abstraction, use and returns of water
167	Fresh groundwater abstracted: total	2.6.2: Abstraction, use and returns of water
179	Desalinated water	2.6.2: Abstraction, use and returns of water
180	Wastewater re-used after treatment	2.6.2: Abstraction, use and returns of water
181	Imports of water	2.6.2: Abstraction, use and returns of water
182	Exports of water	2.6.2: Abstraction, use and returns of water

**5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
Eurostat database	<a href="https://ec.europa.eu/eurostat/data/database">https://ec.europa.eu/eurostat/data/database</a>

**J. C-3.4 Freshwater use per unit of GDP****1. General**

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	C: Water
Component (FDES)	2: Environmental resources and their use
Sub-component (FDES)	2.6: Water Resources
Indicator topic (FDES)	2.6.2: Abstraction, use and returns of water
ID and name in previous indicator guidelines	C3: Total freshwater use
First publication	15/10/2019
Latest update	26/07/2024
Indicator definition	Total water use per unit of GDP
Unit of measure	m <sup>3</sup> per international dollar (constant prices, purchasing power parity)
Coverage	All freshwater uses
Spatial aggregation	National territory

<i>Parameter</i>	<i>Description</i>
Reference period	Calendar year
Update frequency	Annual
Purpose	It provides a measure for the decoupling of economic growth (in terms of GDP) from water use
Policy context	The availability of water for meeting basic human needs is a prerequisite for life, health and economic development. This indicator is important for measuring water use efficiency of the society and the economy.  SDGs target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
Link with SDG indicators	6.4.1 Change in water-use efficiency over time (indirectly related)
Methodology for indicator calculation	Freshwater use per unit of GDP = Total fresh water available for use divided by GDP (purchasing power parity at constant prices)  Total freshwater available for use = Freshwater abstracted + Desalinated water + Reused water + Imports of water - Exports of water.
Comments	-

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	<a href="https://www.unece.org/env/water/text/text.html">https://www.unece.org/env/water/text/text.html</a>
Integrated Water Resources Management	<a href="http://www.gwp.org/the-challenge/what-is-iwrm/">http://www.gwp.org/the-challenge/what-is-iwrm/</a>
Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy	<a href="https://ec.europa.eu/environment/water/water-framework/index_en.html">https://ec.europa.eu/environment/water/water-framework/index_en.html</a>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
UNSD/United Nations Environment Programme Questionnaire 2022 on Environment Statistics – section “Water”	<a href="https://unstats.un.org/unsd/envstats/questionnaire">https://unstats.un.org/unsd/envstats/questionnaire</a>
International Recommendations for Water Statistics	<a href="https://seea.un.org/content/seea-water">https://seea.un.org/content/seea-water</a>
System of Environmental-Economic Accounting for Water	<a href="https://seea.un.org/content/seea-water">https://seea.un.org/content/seea-water</a>

**4. Data and statistics needed to compile the indicator**

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
55	GDP at constant prices	
166	Fresh surface water abstracted: total	2.6.2: Abstraction, use and returns of water
167	Fresh groundwater abstracted: total	2.6.2: Abstraction, use and returns of water
179	Desalinated water	2.6.2: Abstraction, use and returns of water
180	Wastewater re-used after treatment	2.6.2: Abstraction, use and returns of water
181	Imports of water	2.6.2: Abstraction, use and returns of water
182	Exports of water	2.6.2: Abstraction, use and returns of water

**5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
-	-

**K. C-15.2 Treatment capacity of urban wastewater-treatment plants in terms of hydraulic capacity (1,000 m<sup>3</sup>/day)****1. General**

<i>Parameter</i>	<i>Description</i>
Indicator theme (Indicator Guidelines version 2009)	C: Water
Component (FDES)	3: Residuals
Sub-component (FDES)	3.2: Generation and Management of Wastewater
Indicator topic (FDES)	3.2.2: Collection and treatment of wastewater
ID and name in previous indicator guidelines	C15: Wastewater treatment facilities
First publication	26/07/2024
Latest update	-
Indicator definition	Measures the design capacity of urban wastewater treatment plants in terms of m <sup>3</sup> /day
Unit of measure	1000 m <sup>3</sup> /day
Coverage	Urban wastewater treatment plants
Spatial aggregation	National territory
Reference period	Reference date
Update frequency	Annual
Purpose	The indicator provides a measure of response for the protection of water bodies and human health from urban wastewater. It also allows to evaluate the measures taken to improve the efficiency of the wastewater management system.

<i>Parameter</i>	<i>Description</i>
Policy context	<p>Wastewater treatment is a basic prerequisite for minimizing pressure on both surface and groundwaters in terms of freshwater pollution by discharged waters. As both groundwaters and surface waters are abstracted for the production of drinking water or even for direct use as drinking water (self-supply), the reduction of water pollution represents one of the basic preconditions for human health and the prevention of water related diseases.</p> <p>In the European Union the requirements for urban wastewater treatment are laid down in the EU Urban Wastewater Treatment Directive, and the need for achieving good water quality status in the EU Water Framework Directive.</p> <p>Global policy context:</p> <p>SDG Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.</p> <p>SDG 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 substantially increasing recycling and safe reuse globally</p>
Link with SDG indicators	<p>6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water (indirectly related)</p> <p>6.3.1 Proportion of domestic and industrial wastewater flows safely treated</p>
Methodology for indicator calculation	<p>Urban wastewater treatment is all treatment of wastewater in urban wastewater treatment plants (UWWTPs). UWWTPs are usually operated by public authorities or by private companies working by order of public authorities. Includes wastewater delivered to treatment plants by trucks. UWWTPs are classified under International Standard Industrial Classification of All Economic Activities number 37 (Sewerage).</p> <p>For disaggregation of the indicator by treatment type, the follow criteria should be applied (to avoid double counting, water subjected to more than one type of treatment should be reported under the highest level of treatment only):</p> <p>Primary wastewater treatment: Treatment of wastewater by a physical and/or chemical process involving settlement of suspended solids, or other process in which the Biochemical Oxygen Demand (BOD<sub>5</sub>) of the incoming wastewater is reduced by at least 20 per cent before discharge and the total suspended solids of the incoming wastewater are reduced by at least 50 per cent.</p>

<i>Parameter</i>	<i>Description</i>
	<p>Secondary wastewater treatment: Post-primary treatment of wastewater by a process generally involving biological or other treatment with a secondary settlement or other process, resulting in a Biochemical Oxygen Demand (BOD<sub>5</sub>) removal of at least 70 per cent and a Chemical Oxygen Demand (COD) removal of at least 75 per cent.</p> <p>Tertiary wastewater treatment: Treatment (additional to secondary treatment) of nitrogen and/or phosphorous and/or any other pollutant affecting the quality or a specific use of water: microbiological pollution, colour etc. The different possible treatment efficiencies (organic pollution removal of at least 95 per cent for BOD<sub>5</sub> and 85 per cent for COD, nitrogen removal of at least 70 per cent, phosphorous removal of at least 80 per cent and microbiological removal) cannot be added and are exclusive.</p>
Comments	To cover the full range of urban wastewater treatment in a country, it is recommended to present the capacity of independent treatment facilities and other treatment facilities (i.e. industrial plants also treating urban wastewater) in addition.

## 2. Policy references

<i>Title of the reference document</i>	<i>Link</i>
Transforming our world: the 2030 Agenda for Sustainable Development	<a href="https://sdgs.un.org/2030agenda">https://sdgs.un.org/2030agenda</a>
Council Directive of 21 May 1991 concerning urban waste water treatment (91/271/EEC)	<a href="http://data.europa.eu/eli/dir/1991/271/2014-01-01">http://data.europa.eu/eli/dir/1991/271/2014-01-01</a>
Integrated Water Resources Management	<a href="http://www.gwp.org/the-challenge/what-is-iwrm/">http://www.gwp.org/the-challenge/what-is-iwrm/</a>
Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy	<a href="https://ec.europa.eu/environment/water/water-framework/index_en.html">https://ec.europa.eu/environment/water/water-framework/index_en.html</a>

## 3. Methodology references

<i>Title of the reference document</i>	<i>Link</i>
UNSD/United Nations Environment Programme Questionnaire 2022 on Environment Statistics – section “Water”	<a href="https://unstats.un.org/unsd/envstats/questionnaire">https://unstats.un.org/unsd/envstats/questionnaire</a>

## 4. Data and statistics needed to compile the indicator

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
389	Wastewater treatment: UWWTPs with primary treatment – hydraulic design capacity	3.2.2: Collection and treatment of wastewater

<i>ID</i>	<i>Data item</i>	<i>FDES topic</i>
390	Wastewater treatment: UWWTPs with secondary treatment – hydraulic design capacity	3.2.2: Collection and treatment of wastewater
391	Wastewater treatment: UWWTPs with tertiary treatment – hydraulic design capacity	3.2.2: Collection and treatment of wastewater

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## **5. International databases containing this indicator**

<i>Name of the database</i>	<i>Link</i>
UNSD Environmental Indicators	<a href="https://unstats.un.org/unsd/envstats/qindicators.cshtml">https://unstats.un.org/unsd/envstats/qindicators.cshtml</a>

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