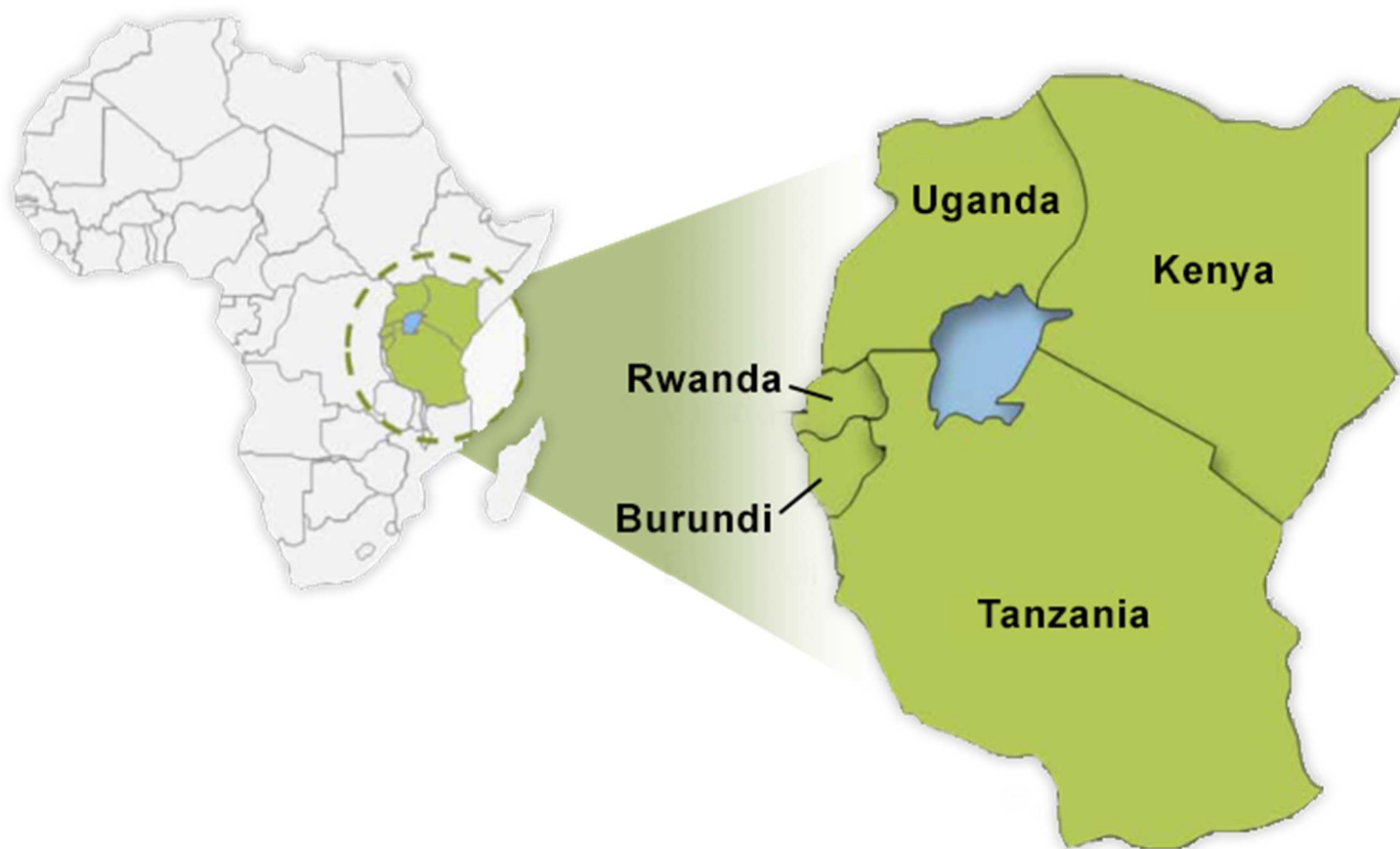# EAC Compendium of Environment Statistics

East African Community
26 March 2018

EAST AFRICAN COMMUNITY PARTNER STATES

South Sudan joined the East African Community in April 2016. Since they did not participate in the earlier part of the project, their data could not be included in this Compendium.

TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

BLI	Bird Life International
CDIAC	Carbon Dioxide Information Analysis Center
CIESIN	Center for International Earth Science Information Network
CRED	Centre for Research on the Epidemiology of Disasters
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DEM	Digital Elevation Model
DMC	Domestic Material Consumption
EAC	East African Community
EM-DAT	Emergency Events Database
FAO	Food and Agriculture Organization of the United Nations
FDES	Framework for the Development of Environment Statistics
FRA	Global Forest Resources Assessment
FSC	Forest Stewardship Council
GA	General Assembly
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GRUMP	Global Rural-Urban Mapping Project
IEA	International Energy Agency
IUCN	International Union for Conservation of Nature
IRWR	Internal Renewable Water Resources
IWRM	Integrated Water Resources Management
LECZ	Low Elevation Coastal Zone
LPG	Liquefied Petroleum Gas
LULUCF	Land Use, Land-Use Change, and Forestry
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreement
MFA	Material Flow Accounting
NA	Not Available
NSO	National Statistical Office
ODA	Official Development Assistance
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substance
OECD	Organisation for Economic Co-operation and Development
PEFC	Programme for the Endorsement of Forest Certification
POP	Persistent Organic Pollutant
PPP	Purchasing Power Parity
SEDAC	Socioeconomic Data and Applications Center
SEEA-CF	System of Environmental-Economic Accounting Central Framework
SDG	Sustainable Development Goal
SFM	Sustainable Forest Management
SSC	Species Survival Commission
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNEP-WCMC	United Nations Environment Programme's World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change
UN-Habitat	Nations Human Settlements Programme

UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNISDR	United Nations International Strategy for Disaster Reduction
UNSD	United Nations Statistics Division
WASH	Water, Sanitation and Hygiene for All
WDPA	World Database on Protected Areas
WHO	World Health Organization
WMO	World Meteorological Organization

UNITS OF MEASUREMENT

Area

ha	Hectare
10^3 ha	Thousand hectares
ha/yr	Hectares per year
km^2	Square kilometres

Currency

USD	US dollars

Degrees

^{o}C	Degrees Celsius

Energy unit

MJ	Megajoule
GJ	Gigajoule
PJ	Petajoule
MJ per USD	Megajoule per US dollar
MWh	Megawatt per hour
GWh	Gigawatt hour
kWh	Kilowatt hour

Height

mm/month	Millimetres per month
mm/yr	Millimetres per year

Mass

kg	Kilogram
metric ton	Tonne

Number

10^3	Thousand

Percentage

%	Percent

Volume

km^3/yr	Cubic kilometres per year

INTRODUCTION

Environment statistics provide information about the state and changes of environmental conditions, the quality and availability of environmental resources, the impact of human activities and natural events on the environment and the impact of changing environmental conditions. They also provide information about the social actions and economic measures that societies take to avoid or mitigate these impacts and to restore and maintain the capacity of the environment to provide the services that are essential for life and human well-being[1].

The EAC Compendium of Environment Statistics was prepared by the United Nations Statistics Division (UNSD), in collaboration with the East African Community (EAC), as part of the United Nations Development Account Project entitled "Supporting Member States in developing and strengthening environment statistics and integrated environmental-economic accounting for improved monitoring of sustainable development". The principal objective of the Compendium is to provide a first regional compilation of comparable data on short and long-term trends of environment statistics.

This project, which took place from 2015 to 2017, included two modules. Module A focused on strengthening environment statistics in the EAC Secretariat and its five member states, Burundi, Kenya, Rwanda, the United Republic of Tanzania and Uganda[2]. For Module A, the strategy adopted for the implementation of the project included the following elements: (i) an initial sub-regional workshop to build national capacities; (ii) national missions to each project country composed of meetings with key stakeholders and a training workshop; (iii) engaging national consultants for each project country to support the development of a national plan for environment statistics and a national compendium of environment statistics; and (iv) two further sub-regional workshops to review the progress in the implementation of the FDES and the Environment Statistics Self-Assessment Tool (ESSAT), and develop two additional outputs not originally included in the project, this regional EAC Compendium of Environment Statistics and a Regional Action Plan for Environment Statistics.

On 25 September 2015, countries adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years[3]. To monitor these targets, a global indicator framework was developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) and adopted by the United Nations Statistical Commission in March 2017 and by the United Nations General Assembly in July 2017. This set of indicators is intended for the review of progress at the global level[4]. The Compendium reflects this global indicator framework by including the environmentally-related SDG indicators for which there are data available. Data in the Compendium have also been sourced from the EAC Facts and Figures 2016[5] as well as from international and regional organizations.

Each chapter of the Compendium refers to one of the six components of the Framework for the Development of Environment Statistics (FDES 2013)[6]. Data availability per country varies among the different tables. For the complete time series for each table the original source should be consulted.

Metadata for the tables have been provided where available. Footnotes for the SDG indicator tables are described on the next page. Footnotes for other sources are indicated below each table. Description of notes and symbols are displayed below each table.

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[1] https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf
[2] https://unstats.un.org/unsd/envstats/EAC/
[3] http://www.un.org/sustainabledevelopment/sustainable-development-goals/
[4] https://unstats.un.org/sdgs/files/report/2017/TheSustainableDevelopmentGoalsReport2017.pdf
[5] https://www.eac.int/documents/category/key-documents
[6] https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Footnotes for SDG Indicator Tables

Footnotes in letters for data from the SDGs database indicate the datatypes, e.g. 45.87E, E stands for estimated. All data type footnotes in this book are listed as following:

Country Data (C): the figure is the one produced and disseminated by the country (including data adjusted BY THE COUNTRY to meet international standards).

Estimated (E): The figure is estimated by the international agency, when corresponding country data on a specific year or set of years are not available, or when multiple sources exist, or there are issues of data quality. Estimates are based on national data, such as surveys or administrative records, or other sources but on the same variable being estimated.

Global monitoring data (G): The figure is regularly produced by the designated agency for the global monitoring, based on country data. However, there is no corresponding figure at the country level, because the indicator is defined for international monitoring only (example: population below 1$ a day).

Modeled (M): The figure is modeled by the agency when there is a complete lack of data on the variable being estimated. The model is based on a set of covariates—other variables for which data are available and that can explain the phenomenon.

Data type not available (NA): A figure was not provided, or the "nature of data" is unknown.

FRAMEWORK

This Compendium is based on the structure of the Framework for the Development of Environment Statistics (FDES 2013)[7] developed by the United Nations Statistics Division (UNSD). The FDES 2013 is a flexible, multi-purpose conceptual and statistical framework that is comprehensive and integrative in nature. It marks out the scope of environment statistics and provides an organizing structure to guide their collection and compilation and to synthesize data from various subject areas and sources, covering the issues and aspects of the environment that are relevant for analysis, policy and decision making.

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

The figure below illustrates this concept with the arrows representing a variety of complex natural, demographic, social and economic processes and interactions within and between the environment and the human subsystem.

The environment, the human sub-system, and interactions between them
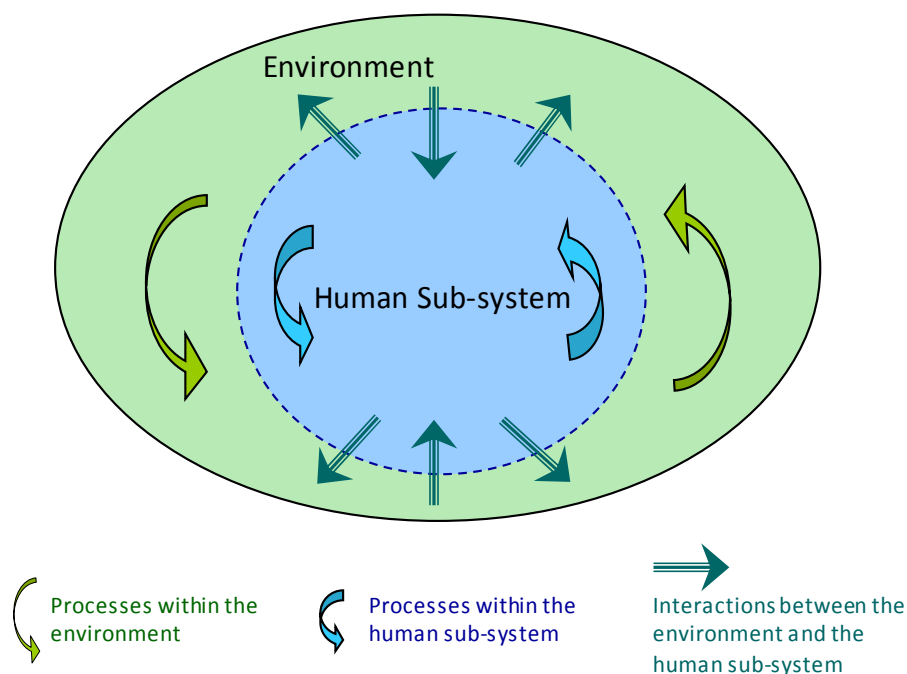
The FDES 2013 organizes environment statistics into six components and each of them is broken down into sub-components. The first component, Environmental Conditions and Quality, brings together statistics related to the conditions and quality of the natural environment and changes in those conditions and quality. The second component, Environmental Resources and their Use, includes statistics related to the availability and use of environmental resources (ecosystem provisioning services, land and sub-soil resources). The third component, Residuals, includes statistics related to the use of regulating services of the environment for the discharge of residuals from production and consumption

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processes. Statistics related to Extreme Events and Disasters (both natural and technological) and their impacts are covered by the fourth component. The fifth component brings together statistics related to Human settlements and Environmental Health. The sixth component, Environmental Protection, Management and Engagement, groups statistics relevant to societal responses and economic measures aimed at protecting the environment and managing environmental resources.

The components and sub-components of the FDES 2013

Component 1: Environmental Conditions and Quality	Sub-component 1.1: Physical Conditions Sub-component 1.2: Land Cover, Ecosystems and Biodiversity Sub-component 1.3: Environmental Quality
Component 2: Environmental Resources and their Use	Sub-component 2.1: Mineral Resources Sub-component 2.2: Energy Resources Sub-component 2.3: Land Sub-component 2.4: Soil Resources Sub-component 2.5: Biological Resources Sub-component 2.6: Water Resources
Component 3: Residuals	Sub-component 3.1: Emissions to Air Sub-component 3.2: Generation and Management of Wastewater Sub-component 3.3: Generation and Management of Waste Sub-component 3.4: Release of Chemical Substances
Component 4: Extreme Events and Disasters	Sub-component 4.1: Natural Extreme Events and Disasters Sub-component 4.2: Technological Disasters
Component 5: Human Settlements and Environmental Health	Sub-component 5.1: Human Settlements Sub-component 5.2: Environmental Health
Component 6: Environmental Protection, Management and Engagement	Sub-component 6.1: Environmental Protection and Resource Management Expenditure Sub-component 6.2: Environmental Governance and Regulation Sub-component 6.3: Extreme Event Preparedness and Disaster Management Sub-component 6.4: Environmental Information and Awareness

The statistics and indicators included in the Compendium have been structured as per the above-mentioned components and sub-components. Whenever it was possible, statistics were included for each sub-component. However, due to data unavailability or data uncertainty, some sub-components do not contain any statistics, and are therefore not included in this Compendium.

The description of the framework above and the introductory text contained in each chapter are also primarily based on the FDES 2013.

Chapter 1
Environmental Conditions and Quality

CHAPTER 1 ENVIRONMENTAL CONDITIONS AND QUALITY

This chapter based on the FDES Component 1 on Environmental Conditions and Quality includes statistics about the physical, biological and chemical characteristics of the environment and their changes over time. These conditions determine the ecosystems characteristics and will vary in space and time as a result of natural processes and/or human influence. These fundamental background conditions are strongly interrelated and determine the types, extent, conditions and health of ecosystems. Many of these natural conditions change very slowly as a result of natural processes or human influence. Others may show immediate and dramatic effects. Importantly, changes in environmental conditions and quality are the result of combined and accumulated impacts of natural and human processes. Connecting the changes with individual activities or events is thus not a straightforward process.

Physical Conditions

Physical conditions is designed to capture physical aspects of the environment which change relatively slowly because of human influence. Statistics on meteorological, hydrographical, and geographical characteristics are included below. These conditions are important as they help determine the scope of and influences on the environmental resources of a country.

Table 1.1 Average monthly rainfall of capitals (mm/month)

Partner States	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Burundi (Bujumbura)	16.0	85.7	117.5	111.9	56.6	8.9	2.7	13.4	33.0	59.0	97.1	99.6
Kenya (Nairobi)	64.1	56.5	92.8	219.4	176.6	35.0	17.5	23.5	28.3	55.3	154.2	101.0
Rwanda (Kigali)	76.9	91.0	114.2	154.2	88.1	18.6	11.4	31.1	69.6	105.7	112.7	77.4
Tanzania (Dodoma)	133.7	144.5	113.9	57.8	5.3	0.1	0.0	0.0	0.0	2.1	26.3	123.3
Uganda (Kampala)	68.4	63.0	131.5	169.3	117.5	69.2	63.1	95.7	108.4	138.0	148.7	91.5

Access date: 04 December 2017
Source: World Meteorological Organization (WMO)
http://www.worldweather.org/

Metadata for Table 1.1

Definition
Rainfall is defined as the quantity of rain falling within a given area in a given time. Table 1.1 gives rainfall information in terms of depth in the capital cities.

Relevance
Monthly rainfall measurements are important components of seasonal variability, which partly reflects the influence of climate change. In addition, rainfall information is particularly relevant for agriculture.

Computation/Collection Method
Data are collected from national governments and compiled by the World Meteorological Organization (WMO).

Source
World Meteorological Organization (WMO), http://www.worldweather.org/

Table 1.2 Long-term average precipitation in depth (mm/yr) and in volume (km³/yr)

Partner States/Years		1961-1990
Burundi	in depth (mm/year)	1,274.00 [E]
	in volume (km³/year)	35.46 [E]
Kenya	in depth (mm/year)	630.00 [E]
	in volume (km³/year)	365.60 [E]
Rwanda	in depth (mm/year)	1,212.00 [E]
	in volume (km³/year)	31.92 [E]
United Republic of Tanzania	in depth (mm/year)	1,071.00 [E]
	in volume (km³/year)	1,015.00 [E]
Uganda	in depth (mm/year)	1,180.00 [E]
	in volume (km³/year)	285.00 [E]

Access date: 04 December 2017
[E] External value (reported by another international agency)
Source: Food and Agriculture Organization of the United Nations (FAO)
http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en

Metadata for Table 1.2

Definition
Long-term average over space and time of precipitation (any kind of water that falls from clouds as liquid or a solid) in depth and in volume.

Relevance
Long-term average indicates the steady state. Variations from these values are indicators of climate change.

Computation/Collection Method
Volume is computed as [Annual average precipitation in volume] = [Total area of the country]*[Annual average precipitation in depth]/100000
Where annual average precipitation in volume and depth are calculated from meteorological stations in each country and collected and processed by FAO AQUASTAT Division.
In this table the time range for the long-term annual average is from 1961 to 1990.

Source
FAO's Information System on Water and Agriculture (AQUASTAT)
http://www.fao.org/nr/water/aquastat/data/glossary/search.html?termId=4150&submitBtn=s&cls=yes

Table 1.3 Average maximum and minimum temperature (°C) (EAC facts and figures 2016 table 1.1f)

Indicator	Partner States/ Years	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Minimum	Burundi	17	17	17	17	17	17	15	15	14	11	11
	Kenya	17	17	17	17	17	17					
	Rwanda	15	14	14	14	14	14	14	14	14	14	
	Tanzania	12	12	12	11	11	12	16	17	17	17	-
	Uganda	18	18	17	17	NA	18	18	17	19	19	19
	EAST AFRICA	16	16	15	15	15	16					
Maximum	Burundi	25	25	25	25	25	25	27	27	26	31	30
	Kenya	28	28	28	28	28	28	28	28	-	-	
	Rwanda	25	25	25	25	26	26	25	25	25	25	
	Tanzania	31	31	31	31	32	32	31	29	29	28	32
	Uganda	30	29	31	31	31	31	27	29	27	27	28
	EAST AFRICA	28	28	28	28	28	28	28	28			

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Sea level time series at Mombasa and Zanzibar from 1964 to 2017

Definition
Daily, de-trended sea level values from 1964 to 2017 extracted from tide gauge data in Mombasa, Kenya and Zanzibar, Tanzania.

Computation/Collection Method
Values in figure are estimated as the time series of hourly tide gauge data minus the 'mean sea level' over the time period of 1964 to 2017. (The term 'mean sea level' is arbitrary, as it refers to the average sea level over any given span of a time series). The station datum, or zero reference level for a tide gauge time series, is defined by its relationship to fixed, land-based benchmarks and depends on each station.
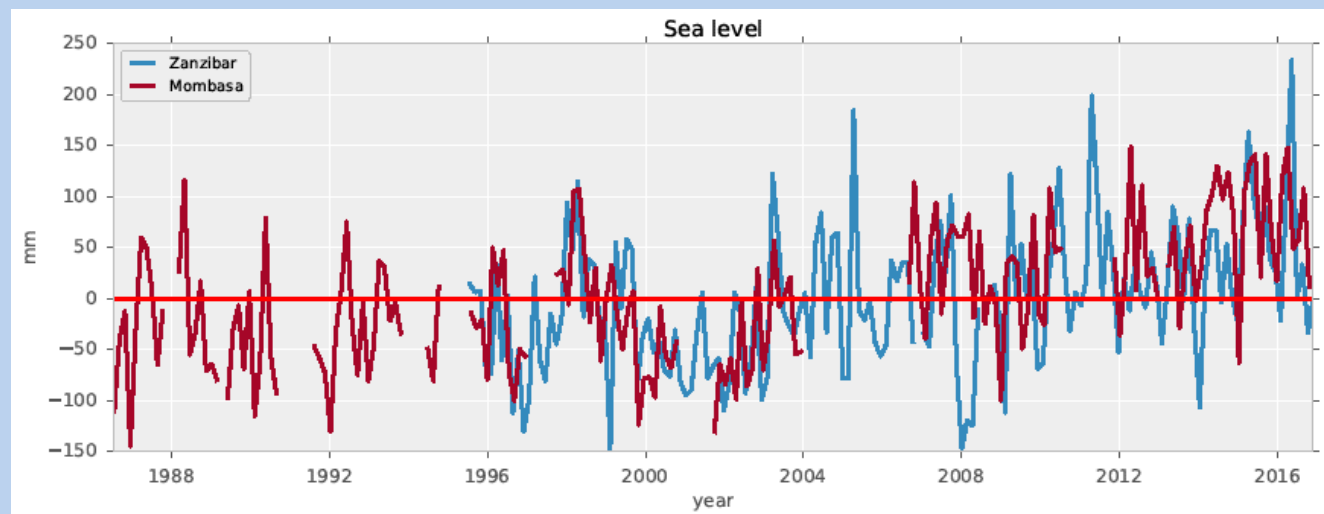
Source
University of Hawaii Sea Level Center, http://uhslc.soest.hawaii.edu/datainfo/

Table 1.4 Total surface area (10^3 km^2) (EAC facts and figures 2016 table 1.1b)

Partner States	Including water bodies	Excluding water bodies
Burundi	27.8	25.0
Kenya	582.7	580.7
Rwanda	26.3	24.2
Tanzania	939.3	886.3
Uganda	241.6	200.5
EAST AFRICA	**1,817.7**	**1,716.7**

Access date: 08 February 2018

Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016

https://www.eac.int/documents/category/key-documents

Land Cover, Ecosystems and Biodiversity

Statistics on land cover, ecosystems and biodiversity, as well as their recordable changes over time and across locations, are included below. Land cover is defined by FAO as "the observed (bio) physical cover on the earth's surface." Changes in land cover are the result of natural processes and changes in land use. Ecosystems can be broadly defined as a community of organisms, together with their physical environment, viewed as a system of interacting and interdependent relationships. Biodiversity is the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, including diversity within species, between species and of ecosystems. It is also a measure of ecosystem health. Biodiversity is a fundamental characteristic of ecosystems, while variability among ecosystems is a fundamental driver of biodiversity.

To preserve the genetic and ecosystem inheritance of a country as well as its ecological productivity, it is necessary to maintain biodiversity and ecosystem health. Subsequently, this also protects the productivity of ecosystems for the use of economic and society, such as production, distribution and consumption of ecological systems.

Table 1.5 Total forest area (km^2)

Partner States/Years	1990	2000	2005	2010	2015
Burundi	2,890	1,980	1,810	2,530	2,760
Kenya	47,240	35,570	40,470	42,300	44,130
Rwanda	3,180	3,440	3,850	4,460	4,800
United R. of Tanzania	559,200	519,200	499,200	479,200	460,600
Uganda	47,510	38,690	34,290	27,530	20,770

Access date: 04 December 2017
Source: Food and Agriculture Organization of the United Nations (FAO), FRA
http://www.fao.org/3/a-i4808e.pdf

Metadata for Table 1.5

Definition
Forest area is defined by the FAO as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 %, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Relevance
Forests and trees support sustainable agriculture. Forests play key roles in the water cycle, soil conservation, carbon sequestration, and habitat protection, including for pollinators. Total forest area is also an important indicator for biodiversity loss and gain. The availability of accurate data on a country's forest area is a key element for forest policy and planning within the context of sustainable development.

Computation/Collection Method
Data are collected through FAO surveys as part of the Forest Resources Assessment (FRA). The data are aggregated at sub-regional, regional and global levels by the FRA team at FAO, and estimates are produced by straight summation.

Source
FAO, FRA, http://www.fao.org/docrep/017/ap862e/ap862e00.pdf
http://www.fao.org/publications/sofo/en/

Table 1.6 Annual change rate of forest cover (% and 10³ ha/yr)

Partner States/Years	1990-2000		2000-2010		2010-2015		1990-2015	
	10³ ha/yr	%	10³ ha/yr	%	10³ ha/yr	%	10³ ha/yr	%
Burundi	-9.1	-3.7	5.5	2.5	4.6	1.8	-0.5	-0.2
Kenya	-116.7	-2.8	67.3	1.7	36.6	0.9	-12.4	-0.3
Rwanda	2.6	0.8	10.2	2.6	6.8	1.5	6.5	1.7
Tanzania	-400.0	-0.7	-400.0	-0.8	-372.0	-0.8	-394.4	-0.8
Uganda	-88.2	-2.0	-111.6	-3.3	-135.2	-5.5	-107.0	-3.3

Access date: 04 December 2017

1 ha = 0.01 km²

Source: Food and Agriculture Organization of the United Nations (FAO), Global Forest Resources Assessments (FRA)

http://www.fao.org/3/a-i4808e.pdf

Metadata for Table 1.6

Definition

Forest area is by defined by the FAO as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10%, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Annual change rate of total forest cover refers to the average variation in hectares per year calculated over 5, 10 and 15 years of the total forest area.

Relevance

Forests and trees support sustainable agriculture. Forests play key roles in the water cycle, soil conservation, carbon sequestration, and habitat protection, including for pollinators. Total forest area is also an important indicator for biodiversity loss and gain, as forest area designated primarily for conservation of biological diversity. Annual change rate of forest cover shows the loss and gain in terms of whether there is deforestation or reforestation/afforestation.

Computation/Collection Method

Values are calculated from the annual differences of Total Forest Cover in the Forest Resources Assessment (FRA) reports and then averaged over 5, 10 and 15 years. Percentage indicates the average percentage of annual increase or decrease in total forest cover also calculated over a period of 5, 10 and 15 years. Negative values indicate an average decrease in forest area while positive values an increase.

Source

FAO, FRA, http://www.fao.org/docrep/017/ap862e/ap862e00.pdf

http://www.fao.org/publications/sofo/en/

Table 1.7 Forest area within protected areas (km^2)

Partner States/ Years	Forest area within protected areas				
	1990	2000	2005	2010	2015
Burundi	1,030	1,030	1,030	1,400	1,560
Kenya	4,110	3,150	4,120	5,220	5,830
Rwanda	700	620	620	620	620
United R. of Tanzania	20,000	20,000	20,000	20,000	20,000
Uganda	7,310	7,310	7,310	7,310	7,310

Access date: 04 December 2017
Source: Food and Agriculture Organization of the United Nations (FAO), Global Forest Resources Assessments (FRA)
http://www.fao.org/3/a-i4808e.pdf

Metadata for Table 1.7

Definition
This indicator is defined as the forest area found only in protected areas. Protected areas are areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Relevance
Forest protected areas play important landscape roles by providing habitat, shelter, food and genetic materials, acting as buffers against disasters, and delivering stable supplies of many goods and environmental services. They will also be crucial in helping species, people and countries adapt to climate change.

Computation/Collection Method
Data are collected from Forest Resources Assessment (FRA)'s analysis on forest in protected areas and is based on a global map of protected forest areas developed for FAO in collaboration with the UNEC-WCMC. In addition, some countries reported on protected forest areas in response to questionnaires prepared by UNECE/FAO.

Source
FAO, FRA, http://www.fao.org/docrep/017/ap862e/ap862e00.pdf
http://www.fao.org/sustainable-forest-management/toolbox/modules/forest-protected-areas/basic-knowledge/en/

Table 1.8 Proportion of forest protected area to the total forest area (%)

Partner States/Years	1990	2000	2005	2010	2015
Burundi	35.6	52.0	56.9	55.3	56.5
Kenya	8.7	8.9	10.2	12.3	13.2
Rwanda	22.0	18.0	16.1	13.9	12.9
United R. of Tanzania	3.6	3.9	4.0	4.2	4.3
Uganda	15.4	18.9	21.3	26.6	35.2

Access date: 04 December 2017

Source: Food and Agriculture Organization of the United Nations (FAO), Global Forest Resources Assessments (FRA)

http://www.fao.org/3/a-i4808e.pdf

Metadata for Table 1.8

Definition

Proportion of forest protected area to the total forest area is the percentage of area falling into a protected area as defined in Table 1.7.

Relevance

Forest protected areas play important landscape roles by providing habitat, shelter, food and genetic materials, acting as buffers against disasters, and delivering stable supplies of many goods and environmental services. They will also be crucial in helping species, people and countries adapt to climate change.

Computation/Collection Method

Data is collected from Forest Resources Assessment (FRA)'s analysis on forest in protected areas and is based on a global map of protected forest areas developed for FAO in collaboration with the UNEC-WCMC. In addition, some countries reported on protected forest areas in response to questionnaires prepared by UNECE/FAO. The percentage is calculated as the ratio of forest area within protected area (Table 1.7) to the total forest area (Table 1.5) and multiplied by 100.

Source

FAO, FRA, http://www.fao.org/docrep/004/Y1997E/y1997e0c.htm

http://www.fao.org/sustainable-forest-management/toolbox/modules/forest-protected-areas/basic-knowledge/en/

Table 1.9 Forest area as a proportion of total land area (%) [SDG 15.1.1]

Partner States/Years	1990	2000	2005	2010	2015
Burundi	11.25 [NA, 1]	7.71 [NA, 1]	7.05 [NA, 1]	9.85 [NA, 1]	10.75 [NA, 1]
Kenya	8.30 [NA, 1]	6.25 [NA, 1]	7.11 [NA, 1]	7.43 [NA, 1]	7.75 [NA, 1]
Rwanda	12.89 [NA, 1]	13.94 [NA, 1]	15.61 [NA, 1]	18.08 [NA, 1]	19.46 [NA, 1]
United R. of Tanzania	63.13 [NA, 1]	58.61 [NA, 1]	56.36 [NA, 1]	54.10 [NA, 1]	52.00 [NA, 1]
Uganda	23.78 [NA, 1]	19.36 [NA, 1]	17.16 [NA, 1]	13.78 [NA, 1]	10.39 [NA, 1]

Access date: 04 December 2017

[NA] Data type not available

[1] Food and Agriculture Organization of the United Nations (FAO)

Source: Food and Agriculture Organization of the United Nations (FAO)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 1.9

Definition

Forest area is by defined by the FAO as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 %, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Relevance

Forests fulfil a number of functions that are vital for humanity, including the provision of goods (wood and non-wood forest products) and services such as habitat for biodiversity, carbon sequestration, coastal protection and soil and water conservation. The indicator provides a measure of the relative extent of forest in a country. The availability of accurate data on a country's forest area is a key element for forest policy and planning within the context of sustainable development.

Computation/Collection Method

The percentage of forest area to total land area per country is calculated as forest area (reference year) divided by land area (2015) multiplied by 100. This indicator can be aggregated to global or regional level by adding all country values globally or in a specific region.

Source

FAO, http://unstats.un.org/sdgs/metadata/files/Metadata-15-01-01.pdf

Table 1.10 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (%) [SDG 15.1.2]

Partner States/ Years		2000	2005	2010	2016
Burundi	Terrestrial	43.24 [C, 1]	45.51 [C, 1]	45.51 [C, 1]	51.19 [C, 1]
	Freshwater	40.96 [C, 1]	44.20 [C, 1]	44.20 [C, 1]	52.31 [C, 1]
Kenya	Terrestrial	34.65 [C, 1]	35.50 [C, 1]	36.80 [C, 1]	37.50 [C, 1]
	Freshwater	26.45 [C, 1]	31.00 [C, 1]	37.81 [C, 1]	38.39 [C, 1]
Rwanda	Terrestrial	41.04 [C, 1]	41.04 [C, 1]	41.04 [C, 1]	41.04 [C, 1]
	Freshwater	41.80 [C, 1]	41.80 [C, 1]	41.80 [C, 1]	41.80 [C, 1]
United R. of Tanzania	Terrestrial	49.50 [C, 1]	50.94 [C, 1]	53.61 [C, 1]	53.61 [C, 1]
	Freshwater	30.54 [C, 1]	30.95 [C, 1]	35.37 [C, 1]	35.37 [C, 1]
Uganda	Terrestrial	60.68 [C, 1]	62.37 [C, 1]	73.65 [C, 1]	73.65 [C, 1]
	Freshwater	42.21 [C, 1]	44.90 [C, 1]	62.97 [C, 1]	62.97 [C, 1]

Access date: 04 December 2017

[C] Country Data

[1] BirdLife International, IUCN and UNEP-WCMC (2017). Based on spatial overlap between polygons for Key Biodiversity Areas from the World Database of Key Biodiveristy Areas (www.keybiodiversityareas.org) and polygons for protected areas from the World Database on Protected Areas (www.protectedplanet.net)

Source: BirdLife International, International Union for Conservation of Nature (IUCN) and UN Environment World Conservation Monitoring Centre (UNEP-WCMC)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 1.10

Definition

Proportion of important sites for terrestrial and freshwater biodiversity (those that contribute significantly to the global persistence of biodiversity) that are covered by protected areas, by ecosystem type (%).

Relevance

This indicator serves as means of measuring progress toward the conservation, restoration and sustainable use of terrestrial and freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

Computation/Collection Method

This indicator is calculated from data derived from a spatial overlap between digital polygons for protected areas from the World Database on Protected Areas (IUCN & UNEP-WCMC 2017) and digital polygons for terrestrial and freshwater Key Biodiversity Areas (from the World Database of Key Biodiversity Areas, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and other Key Biodiversity Areas; available through the Integrated Biodiversity Assessment Tool). The value of the indicator at a given point in time, based on data on the year of protected area establishment recorded in the World Database on Protected Areas, is computed as the mean percentage of each Key Biodiversity Area currently recognised that it covered by protected areas.

Source

UNEP, BLI, IUCN, http://unstats.un.org/sdgs/metadata/files/Metadata-15-01-02.pdf

Table 1.11 Coverage by protected areas of important sites for mountain biodiversity (%) [SDG 15.4.1]

Partner States/Years	2000	2005	2010	2016
Burundi	81.38 [C, 1]	81.38 [C, 1]	81.38 [C, 1]	81.38 [NA, 1]
Kenya	41.86 [C, 1]	41.86 [C, 1]	41.86 [C, 1]	41.86 [NA, 1]
Rwanda	51.09 [C, 1]	51.09 [C, 1]	51.09 [C, 1]	51.09 [NA, 1]
United R. of Tanzania	68.37 [C, 1]	68.37 [C, 1]	68.37 [C, 1]	68.37 [NA, 1]
Uganda	82.70 [C, 1]	82.70 [C, 1]	82.70 [C, 1]	82.70 [NA, 1]

Access date: 04 December 2017

[C] Country Data

[1] BirdLife International, IUCN and UNEP-WCMC (2017). Based on spatial overlap between polygons for Key Biodiversity Areas from the World Database of Key Biodiveristy Areas (www.keybiodiversityareas.org) and polygons for protected areas from the World Database on Protected Areas (www.protectedplanet.net)

Source: BirdLife International, International Union for Conservation of Nature (IUCN) and UN Environment World Conservation Monitoring Centre (UNEP-WCMC)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 1.11

Definition
Coverage by protected areas of important sites for mountain biodiversity (i.e., those that contribute significantly to the global persistence of biodiversity and are found in mountains areas) indicates areas that are wholly covered by designated protected areas.

Relevance
The safeguard of important sites is vital for stemming the decline in biodiversity and ensuring long term and sustainable use of mountain natural resources. The establishment of protected areas is an important mechanism for achieving this aim, and this indicator serves as a means of measuring progress toward the conservation, restoration and sustainable use of mountain ecosystems and their services, in line with obligations under international agreements.

Computation/Collection Method
This indicator is calculated from data derived from a spatial overlap between protected areas from the WDPA, Key Biodiversity Areas and mountains. Any mountain Key Biodiversity Areas for which >98% of their area is overlapped by one or more protected areas was defined as completely protected (to allow for resolution and digitisation errors in the underlying spatial datasets).

Source
UNEP, BLI, IUCN, https://unstats.un.org/sdgs/metadata/files/Metadata-15-04-01.pdf

Table 1.12 Red List Index (mean, lower and upper bound) [SDG 15.5.1]

Partner States/Years	Red List Index	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015	2016
Burundi	Mean	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]
	Lower	0.90 [E,1]	0.89 [E,1]	0.89 [E,1]	0.89 [E,1]	0.89 [E,1]	0.89 [E,1]	0.88 [E,1]	0.88 [E,1]	0.88 [E,1]	0.87 [E,1]	0.87 [E,1]	0.86 [E,1]	0.86 [E,1]
	Upper	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.92 [E,1]	0.93 [E,1]	0.93 [E,1]	0.93 [E,1]	0.94 [E,1]	0.94 [E,1]	0.94 [E,1]
Kenya	Mean	0.87 [E,1]	0.87 [E,1]	0.86 [E,1]	0.86 [E,1]	0.85 [E,1]	0.84 [E,1]	0.84 [E,1]	0.83 [E,1]	0.83 [E,1]	0.82 [E,1]	0.81 [E,1]	0.81 [E,1]	0.80 [E,1]
	Lower	0.86 [E,1]	0.86 [E,1]	0.86 [E,1]	0.85 [E,1]	0.84 [E,1]	0.84 [E,1]	0.83 [E,1]	0.82 [E,1]	0.81 [E,1]	0.80 [E,1]	0.79 [E,1]	0.78 [E,1]	0.77 [E,1]
	Upper	0.87 [E,1]	0.87 [E,1]	0.87 [E,1]	0.87 [E,1]	0.86 [E,1]	0.85 [E,1]	0.85 [E,1]	0.84 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]
Rwanda	Mean	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]
	Lower	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.83 [E,1]	0.82 [E,1]	0.82 [E,1]	0.82 [E,1]	0.82 [E,1]	0.82 [E,1]
	Upper	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.85 [E,1]	0.86 [E,1]	0.86 [E,1]	0.86 [E,1]
United R. of Tanzania	Mean	0.81 [E,1]	0.81 [E,1]	0.80 [E,1]	0.79 [E,1]	0.78 [E,1]	0.77 [E,1]	0.76 [E,1]	0.75 [E,1]	0.74 [E,1]	0.73 [E,1]	0.71 [E,1]	0.70 [E,1]	0.70 [E,1]
	Lower	0.79 [E,1]	0.79 [E,1]	0.78 [E,1]	0.78 [E,1]	0.77 [E,1]	0.76 [E,1]	0.75 [E,1]	0.74 [E,1]	0.72 [E,1]	0.71 [E,1]	0.69 [E,1]	0.68 [E,1]	0.67 [E,1]
	Upper	0.84 [E,1]	0.83 [E,1]	0.82 [E,1]	0.80 [E,1]	0.79 [E,1]	0.78 [E,1]	0.77 [E,1]	0.76 [E,1]	0.75 [E,1]	0.74 [E,1]	0.73 [E,1]	0.72 [E,1]	0.73 [E,1]
Uganda	Mean	0.82 [E,1]	0.82 [E,1]	0.81 [E,1]	0.81 [E,1]	0.80 [E,1]	0.79 [E,1]	0.79 [E,1]	0.78 [E,1]	0.78 [E,1]	0.77 [E,1]	0.76 [E,1]	0.76 [E,1]	0.76 [E,1]
	Lower	0.79 [E,1]	0.79 [E,1]	0.79 [E,1]	0.79 [E,1]	0.79 [E,1]	0.78 [E,1]	0.78 [E,1]	0.77 [E,1]	0.76 [E,1]	0.75 [E,1]	0.75 [E,1]	0.74 [E,1]	0.73 [E,1]
	Upper	0.86 [E,1]	0.85 [E,1]	0.83 [E,1]	0.82 [E,1]	0.81 [E,1]	0.80 [E,1]	0.80 [E,1]	0.79 [E,1]	0.79 [E,1]	0.78 [E,1]	0.77 [E,1]	0.77 [E,1]	0.77 [E,1]

Access date: 04 December 2017

[E] Estimated

[1] BirdLife International, IUCN and UNEP-WCMC (2017). Based on spatial overlap between polygons for Key Biodiversity Areas from the World Database of Key Biodiversity Areas (www.keybiodiversityareas.org) and polygons for protected areas from the World Database on Protected Areas (www.protectedplanet.net)
Source: International Union for Conservation of Nature (IUCN) and BirdLife International
http://unstats.un.org/sdgs/indicators/database/

Table 1.13 Number of threatened species by taxonomic group (number) [SDG 15.5.1]

Partner States/ Years	Mammals	Birds	Reptiles*	Amphibians	Fishes*	Molluscs*	Other Inverts*	Plants*	Fungi & Protists*	Total*
Burundi	14	14	0	1	17	4	3	8	0	61
Kenya	27	41	11	11	72	19	67	232	0	480
Rwanda	24	17	0	2	7	0	4	8	0	62
United R. of Tanzania	37	48	34	61	175	11	114	602	0	1,082
Uganda	28	26	3	2	60	13	11	53	0	196

Access date: 04 December 2017

* Reptiles, fishes, molluscs, other invertebrates, plants, fungi & protists: please note that for these groups, there are still many species that have not yet been assessed for the IUCN Red List and therefore their status is not known (i.e., these groups have not yet been completely assessed). Therefore the figures presented below for these groups should be interpreted as the number of species known to be threatened within those species that have been assessed to date, and not as the overall total number of threatened species for each group.

Source: International Union for Conservation of Nature (IUCN) and BirdLife International

http://unstats.un.org/sdgs/indicators/database/

Table 1.14 Number of animals in each Red List Category (number)

Partner States	EX	EW	Subtotal	CR	EN	VU	Subtotal	NT	LR/cd	DD	LC	Total
Burundi	0	0	0	6	13	34	53	43	0	33	1,053	1,182
Kenya	2	0	2	42	54	152	248	188	2	235	2,926	3,601
Rwanda	1	0	1	11	10	33	54	36	0	18	990	1,099
United R. of Tanzania	1	1	2	113	123	244	480	203	0	319	3,444	4,448
Uganda	1	0	1	47	27	69	143	66	0	122	1,781	2,113

Access date: 04 December 2017

IUCN Red List Categories: EX - Extinct, EW - Extinct in the Wild, CR - Critically Endangered, EN - Endangered, VU - Vulnerable, LR/cd - Lower Risk/conservation dependent, NT - Near Threatened (includes LR/nt - Lower Risk/near threatened), DD - Data Deficient, LC - Least Concern (includes LR/lc - Lower Risk, least concern).

Source: International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC)

http://www.iucnredlist.org/about/summary-statistics

Table 1.15 Number of plants in each Red List Category (number)

Partner States/Years	EX	EW	Subtotal	CR	EN	VU	Subtotal	NT	LR/cd	DD	LC	Total
Burundi	0	0	0	2	2	4	8	2	1	2	180	193
Kenya	0	0	0	18	74	140	232	49	1	11	468	761
Rwanda	0	1	1	0	3	5	8	2	1	3	180	195
United R. of Tanzania	0	0	0	55	246	301	602	54	2	25	591	1,274
Uganda	0	0	0	6	8	39	53	13	1	9	339	415

Access date: 04 December 2017

IUCN Red List Categories: EX - Extinct, EW - Extinct in the Wild, CR - Critically Endangered, EN - Endangered, VU - Vulnerable, LR/cd - Lower Risk/conservation dependent, NT - Near Threatened (includes LR/nt - Lower Risk/near threatened), DD - Data Deficient, LC - Least Concern (includes LR/lc - Lower Risk, least concern).

Source: International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC)

http://www.iucnredlist.org/about/summary-statistics

Metadata for Table 1.12, Table 1.13, Table 1.14 and Table 1.15

Definition
The Red List Index measures changes in aggregation extinction risk across group of species. It is based on changes in the number of species in each category of extinction risk on the IUCN Red List of Threatened Species (IUCN 2015) and is expressed as changes in an index ranging from 0 to 1. 1 is defined as 'Least Concern' to 0 'All species are categorized as 'Extinct'.

Relevance
This index allows comparison between sets of species in both how treated they are on average and the rate at which risk changes over time. This indicator serves as a means of measuring progress toward the conservation, restoration and sustainable use of mountain ecosystems and their services, in line with obligations under international agreements.

A downward trend in the Red List Index over time means that the expected rate of future species extinctions is worsening. An upward trend means that the expected rate of species extinctions is abating and a horizontal line means that the expected rate of species extinctions is remaining the same, although in each of these cases it does not mean that biodiversity loss has stopped. A Red List Index value of 1 would indicate that biodiversity loss has been halted.

Computation/Collection Method
This index is calculated at a point in time by multiplying the number of species in each Red List Category by a weight (ranging from 1 for 'Near Threatened' to 5 for 'Extinct' and 'Extinct in the Wild') and summing these values. This is then divided by a maximum threat score which is the total number of species multiplied by the weight assigned to the "Extinct" category. This final value is subtracted from 1 to give the Red List Index value.

Table 1.12 presents values calculated for December 2016. Table 1.13 shows the number of threatened species assessed as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) are referred to as "threatened" species. This classification is based according to the Red List Index, status and population size of the taxon at a global level, ecological traits, economics, cultural value, practicality of recovery action and more. For Reptiles, fishes, molluscs, other invertebrates, plants, fungi & protists there are still many species that have not yet been assessed for the IUCN Red List and therefore their status is not known (i.e., these groups have not yet been completely assessed).

Numbers in Table 1.14 and Table 1.15 are evaluated according to population size reduction, geographic range, small population size and decline, very small or restricted population and quantitative analysis. Some taxonomic groups are better known than others therefore proportion of threatened species is only reported for the more completely evaluated groups where >80% of species have been evaluated.

Source
IUCN, BLI, https://unstats.un.org/sdgs/metadata/files/Metadata-15-05-01.pdf

Table 1.16 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems (million USD) [SDG 15.a.1 and SDG 15.b.1]

Partner States/Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi	16.45 [NA,1]	0.60 [NA,1]			1.21 [NA,1]	0.04 [NA,1]	4.93 [NA,1]	7.58 [NA,1]	4.61 [NA,1]	15.76 [NA,1]	8.12 [NA,1]	47.59 [NA,1]	3.67 [NA,1]
Kenya	21.64 [NA,1]	6.26 [NA,1]	8.43 [NA,1]	0.97 [NA,1]	27.05 [NA,1]	46.16 [NA,1]	13.09 [NA,1]	167.92 [NA,1]	43.2 [NA,1]	103.79 [NA,1]	128.3 [NA,1]	111.86 [NA,1]	114.83 [NA,1]
Rwanda	0.36 [NA,1]	11.23 [NA,1]	3.98 [NA,1]	0.34 [NA,1]	5.07 [NA,1]	27.83 [NA,1]	27.29 [NA,1]	15.77 [NA,1]	15.77 [NA,1]	42.39 [NA,1]	13.67 [NA,1]	48.47 [NA,1]	19.59 [NA,1]
United R. of Tanzania	26.53 [NA,1]	24.87 [NA,1]	10.97 [NA,1]	5.28 [NA,1]	7.35 [NA,1]	49.69 [NA,1]	28.78 [NA,1]	55.53 [NA,1]	41.36 [NA,1]	97.33 [NA,1]	47.27 [NA,1]	115.20 [NA,1]	125.20 [NA,1]
Uganda	2.61 [NA,1]	1.97 [NA,1]	8.66 [NA,1]	3.26 [NA,1]	3.89 [NA,1]	34.46 [NA,1]	25.18 [NA,1]	32.29 [NA,1]	101.30 [NA,1]	43.00 [NA,1]	29.07 [NA,1]	127.10 [NA,1]	89.17 [NA,1]

Access date: 04 December 2017
Blank indicates the data are not available
[NA] Data type not available
[1] Commitments; Based on OECD, CRS database, 2017; Constant 2015 USD million; Other Official flows are not marked on biodiversity
Source: Organisation for Economic Co-operation and Development (OECD)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 1.16

Definition
The indicator is defined as the gross disbursements of total Official Development Assistance (ODA) from all donors for biodiversity.

Relevance
Total ODA flows to developing countries quantify the public effort that donors provide to developing countries for biodiversity.

Computation/Collection Method
This value is calculated as the sum of ODA flows from all donors to developing countries that have biodiversity as a principal or significant objective. The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through Creditor Reporting System (CRS). The data is reported by donors according to the same standards and methodologies in http://www.oecd.org/dac/stats/methodology.htm and is reported by national administrations and processed by Organisation for Economic Co-operation and Development (OECD).

Source
OECD, https://unstats.un.org/sdgs/metadata/files/Metadata-15-0A-01.pdf

Environmental Quality

Measurements of concentrations of substances in the environmental media reflect the combined and cumulative impact of human and natural processes. Statistics on the concentration of pollutants in the air are presented below. Air pollution impacts both the human subsystem and ecosystems.

Policy makers, analysts and civil society require statistics on environmental quality to monitor and make evidence-based policies to maintain and improve environmental quality globally and in each country. Pollutant concentration statistics provide information on the quality of environmental media. The importance of the different pollutants may vary when considering the quality of the ecosystem or the health and well-being of humans and other living beings.

Table 1.17 Annual mean level of fine particulate matter (e.g. PM$_{2.5}$ and PM$_{10}$) in cities (population weighted) (%) [SDG 11.6.2]

Partner States/Years		2012
Burundi	Total	38.04 [E, 1,2]
	Urban	48.90 [E, 1,3]
Kenya	Total	15.53 [E, 1,2]
	Urban	16.83 [E, 1,3]
Rwanda	Total	42.76 [E, 1,2]
	Urban	50.59 [E, 1,3]
United R. of Tanzania	Total	21.72 [E, 1,2]
	Urban	23.92 [E, 1,3]
Uganda	Total	57.22 [E, 1,2]
	Urban	79.58 [E, 1,3]

Access date: 04 December 2017
[E] Estimated
[1] Ambient air pollution: a global assessment of exposure and burden of disease, WHO Geneva 2016, http://www.who.int/iris/bitstream/10665/250141/1/9789241511353-eng.pdf
[2] Annual concentration of particulate matter (PM$_{2.5}$), urban and rural areas
[3] Annual concentration of particulate matter (PM$_{2.5}$), urban areas
Source: World Health Organization (WHO): http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 1.17

Definition
The mean annual concentration of fine suspended particles of less than 2.5 microns in diameter (PM$_{2.5}$). The mean is a population-weighted average for urban population in a country and is expressed in micrograms per cubic meter [μg/m^3].

Relevance
Air pollution consists of many pollutants, among other particulate matter. This indicator is a common measure of air pollution since these particles are able to penetrate into the respiratory tract and therefore constitute a risk for health by increasing mortality from respiratory infections and diseases, lung cancer, and selected cardiovascular diseases.

Computation/Collection Method
The annual urban mean concentration of PM$_{2.5}$ is estimated with improved modelling using data integration from satellite remote sensing, population estimates, topography and ground measurements. Some data are provided by the Ministry of Health and Environment from each country and collected by WHO. Data quality is higher for high-income countries. Data are improved by integrating satellite remote sensing, population estimates, topography and ground measurements.

Source
WHO, https://unstats.un.org/sdgs/metadata/files/Metadata-11-06-02.pdf

Chapter 2
Environmental Resources and their Use

CHAPTER 2 ENVIRONMENTAL RESOURCES AND THEIR USE

Environmental resources (or assets, as they are referred to in the System of Environmental-Economic Accounting Central Framework (SEEA-CF)) are the naturally occurring living and non-living components of the earth, together constituting the biophysical environment, which may provide benefits to humanity. Environmental resources include natural resources, such as subsoil resources (mineral and energy), biological resources and water resources, and land. They may be naturally renewable (e.g., fish, timber or water) or non-renewable (e.g., minerals).

They are important in every aspect of human activity such as shelter, food, health care, infrastructure, communications, transportation, defence and more. Thus, statistics of quality and availability of environmental resources are needed for policy makers to make informed decisions, especially to avoid the shortage or restriction of their use and availability. The main focus is the measure of stock variability over time, space and their use for production and consumption.

Mineral Resources

Minerals are elements or compounds composed of natural occurring inorganic materials in or on the earth's crust. The family is composed of metal ores (including precious metals and rare earths); non-metallic minerals such as coal, oil, gas, stone, sand and clay; chemical and fertilizer minerals; salt; and various other minerals such as gemstones, abrasive minerals, graphite, asphalt, natural solid bitumen, quartz and mica.

Mineral resources are not renewable so their depletion reduces their availability in the environment over time. The scale of their extraction can determine the amount of stress placed on the environment.

Table 2.1 Mineral production (EAC facts and figures 2016 table 4.3)

Indicator	Partner States/Years	2008	2009	2010	2011	2012	2013	2014	2015
Mineral Royalties (taxes) Percent	Burundi	-	-	-	-	-	-	-	-
	Kenya	-	-	-	-	-	-	-	-
	Rwanda	-	-	-	-	-	-	-	-
	Tanzania	3	3	3	-	-	-	-	-
	Uganda	-	-	-	-	-	-	-	-
Soda Ash - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	503	405	474	499	449	468	410	295
	Rwanda	NA	NA	NA	-				
	Tanzania	-	-	-	-	-	-	-	-
	Uganda	-	-	-	-	-	-	-	-
Fluorspar - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	130	6	41	95	91	78	97	70
	Rwanda	NA	NA	NA	-				
	Tanzania	-	-	-	-	-	-	-	-
	Uganda	-	-	-	-	-	-	-	-
Salt - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	24	24	6	25	10	9	19	21
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	26	27	34	32	34	36	55	92
	Uganda	-	-	-	-	-	-	-	-
Crushed Refined soda - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	866	948	959	1,054	883	947	852	614
	Rwanda	NA	NA	NA	NA				
	Tanzania	-	-	-	-	-	-	-	-
	Uganda	-	-	-	-	-	-	-	-
Gold - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	0.000	0.001	0.002	0.002	0.004	0.002	0.000	0.000
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	36	39	39	37	39	43	40	46
	Uganda	-	-	0.000	0.001	0.004	0.005	0.024	0.013
Diamond - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	NA	NA	NA	NA	NA	NA	NA	NA
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	238	182	80	28	127	180	253	216
	Uganda	-	-	-	-	-	-	-	-
Gemstone - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	0.02	0.04	0.17	0.31	0.12	0.56	0.25	0.44
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	1,858	1,068	2,646	1,242	1,238	1,692	3,084	1,873
	Uganda	-	-	-	-	-	-	-	-
Gypsum - 10^3 Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	5	-	-	-	-	-	-	-
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	56	8	27	12	92	172	200	236
	Uganda	-	-	-	-	-	-	-	-

(continued) Table 2.1. Mineral production (EAC facts and figures 2016 table 4.3)

Indicator	Partner States/Years	2008	2009	2010	2011	2012	2013	2014	2015
Coal - 10³ Tons	Burundi	-	-	-	-	-	-	-	-
	Kenya	-	-	-	-	-	-	-	-
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	15	1	0	81	79	85	246	282
	Uganda	-	-	-	-	-	-	-	-
Employment in Mining (Number)	Burundi	-	-	-	-	-	-	-	-
	Kenya	2,543	4,083	6,151	6,311	6,557	6,858	9,731	6,125
	Rwanda	1,493	-	-	-				
	Tanzania	-	-	-	-	-	-	-	-
	Uganda	-	-	1,068	-	-	-	-	-
Mining to GDP Ratio (Percentage)	Burundi	-	-	-	-	-	-	-	-
	Kenya	1	0.6	0.8	0.9	1.1	0.9	0.8	0.9
	Rwanda	1	1	1	2	2	2	2	1
	Tanzania	3	3	4	5	5	4	4	4
	Uganda	1	1	1	1	1	1	1	1

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Energy Resources

Energy can be produced from non-renewable (including fossil fuels, peat, uranium, and thorium ones) or renewable sources (including solar, hydroelectric, geothermal, marine and wind energy). Statistics on the production and consumption of energy are required to assist in sustainable energy management.

Table 2.2 Electricity generation (GWh) (EAC facts and figures 2016 table 4.2b)

Type	Partner States/ Years	2008	2009	2010	2011	2012	2013	2014	2015
Hydro	Burundi	112	120	142	141	139	154	168	134
	Kenya	3,267	2,160	3,224	3,183	3,977	4,386	3,411	3,463
	Rwanda	72	99	112	99	112	115	185	-
	Tanzania	2,649	2,640	2,701	1,993	1,769	1,734	2,614	2,124
	Uganda	1,407	1,629	1,659	1,617	1,564	3,026	2,975	3,022
	East Africa	**7,507**	**6,648**	**7,838**	**7,034**	**7,561**	**9,415**	**9,352**	**-**
Bagasse	Burundi	-	-	-	-	-	-	-	-
	Kenya	4	50	92	81	105	56	50	-
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	-	-	-	19	20	16	-	15
	Uganda	-	4	85	58	85	116	128	161
Thermal	Burundi	-	6	17	12	3	8	6	3
	Kenya	2,145	2,997	2,201	2,801	2,200	2,162	2,585	1,412
	Rwanda	120	149	169	94	94	255	246	
	Tanzania	268	650	915	957	1,204	1,375	1,291	1,183
	Uganda	597	875	1,024	472	227	2	93	74
	East Africa	**3,130**	**4,677**	**4,326**	**4,335**	**3,729**	**3,802**	**4,222**	**2,672**
Geothermal	Burundi	-	-	-	-	-	-	-	-
	Kenya	1,039	1,293	1,442	1,444	1,516	1,781	2,917	4,521
	Rwanda	NA	NA	NA	NA	NA	NA	NA	NA
	Tanzania	-	-	-	-	-	-	-	-
	Uganda	-	-	-	-	-	-	-	-
Natural Gas	Burundi	-	-	-	-	-	-	-	-
	Kenya	-	-	-	-	-	-	-	-
	Rwanda	NA	3	9	6	9	10	16	
	Tanzania	26,619	26,619	26,619	2,610	2,887	2,981	2,714	2,874
	Uganda	-	-	-	-	-	-	-	-
Solar	Burundi								
	Kenya								
	Rwanda			0.3	0.3		0.3	5.0	
	Tanzania								
	Uganda								

Table 2.3 Energy exports and imports (EAC facts and figures 2016 table 4.2c)

		Partner States/ Years	2008	2009	2010	2011	2012	2013	2014	2015
Exports	**Electricity (MWh)**	Burundi	2	-	4	-	-	7.00	23.00	-
		Kenya	41,000	27,000	29,600	37,300	32,700	43,700	30,800	49,723
		Rwanda	2,155	2,915	2,806	2,945	2,939	2,525	3,789	2,705
		Tanzania	1,306	1,225	833	941	1,141	1,244	1,215	-
		Uganda	65,368	81,921	75,401	87,738	99,345	105,242	167,731	121,370
	Petroleum products (Value USD Million)	Burundi	-	-	-	-	-	-	-	-
		Kenya	117	103	135	177	158	147	605	606
		Rwanda	1.2	0.4	1.7	20.2	52.4	72.3	-	-
		Tanzania	-	-	-	-	-	-	-	-
		Uganda	48	99	72	104	137	132	145	125
Imports	**Electricity (MWh)**	Burundi	96,157	85,036	99,436	104,121	104,289	111,589	89,368	91,689
		Kenya	25,000	39,000	30,000	33,900	39,100	49,000	158,400	58,800
		Rwanda	84,645	62,261	79,755	75,124	90,609	89,736	94,409	-
		Tanzania	52,369	64,877	57,164	58,270	62,057	58,642	59,291	71,312
		Uganda	46,171	26,265	69,991	36,088	34,960	45,711	-	-
	Petroleum products (Value USD Million)	Burundi	96	57	98	147	143	148	154	208
		Kenya	2,925	2,067	2,534	3,803	3,868	3,386	3,818	2,303
		Rwanda	64	89	231	113	114	103	89	-
		Tanzania	1,922	1,323	2,024	3,229	3,381	4,309	3,657	3,305
		Uganda	837	729	917	1,288	1,341	1,310	1,414	1,008

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Table 2.4 Proportion of population with primary reliance on clean fuels and technology (%) [SDG 7.1.2]

Partner States/Years	2014
Burundi	< 5.0 [E, 1]
Kenya	6.19 [E, 1]
Rwanda	< 5.0 [E, 1]
United R. of Tanzania	< 5.0 [E, 1]
Uganda	< 5.0 [E, 1]

Access date: 04 December 2017
[E] Estimated
[1] Sources and methods as reported here: http://www.who.int/indoorair/publications/burning-opportunities/en/
Source: World Health Organization (WHO)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.4

Definition
Proportion of population with primary reliance on clean fuels and technology where "Clean" is defined by the emission rate targets and specific fuel recommendations against kerosene and unprocessed coal.

Relevance
The adverse health impacts, as well as environment impact, caused by cooking, lighting and heating with solid fuels or kerosene can be avoided by adopting clean fuels and technologies for all main household energy. This indicator uses the type of primary fuels and technologies used for cooking, heating and lighting as a surrogate for estimating human exposure to household (indoor) air pollution.

Computation/Collection Method
Proportion of population with primary reliance on clean fuels and technology is calculated as the number of people using clean fuels technologies for cooking, heating and lighting divided by total population using any kind of cooking, heating or lightning, expressed as percentage. It is modelled with household survey data compiled by WHO. Estimates of primary cooking energy for the total, urban and rural population for a given year are obtained separately using a multilevel model. More details on the model are published in Bonjour et al, 2013.

Source
WHO, https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-02.pdf

Table 2.5 Renewable energy share in the total final energy consumption (%) [SDG 7.2.1]

Partner States/Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi	93.23 [NA]	96.23 [NA]	96.16 [NA]	97.02 [NA]	97.27 [NA]	97.29 [NA]	96.86 [NA]	96.89 [NA]	96.85 [NA]	96.92 [NA]	96.76 [NA]	96.59 [NA]	93.96 [NA]	94.07 [NA]	90.05 [NA]
Kenya	79.04 [NA]	80.24 [NA]	80.54 [NA]	83.18 [NA]	82.27 [NA]	81.23 [NA]	79.77 [NA]	80.26 [NA]	80.48 [NA]	78.15 [NA]	76.27 [NA]	77.08 [NA]	78.5 [NA]	77.14 [NA]	75.52 [NA]
Rwanda	86.53 [NA]	86.73 [NA]	87.11 [NA]	87.29 [NA]	87.54 [NA]	89.24 [NA]	90.59 [NA]	90.31 [NA]	90.63 [NA]	90.54 [NA]	90.66 [NA]	89.81 [NA]	89.03 [NA]	88.51 [NA]	88.45 [NA]
United R. of Tanzania	93.72 [NA]	93.22 [NA]	92.48 [NA]	92.38 [NA]	91.73 [NA]	91.01 [NA]	90.90 [NA]	91.36 [NA]	91.05 [NA]	91.64 [NA]	90.32 [NA]	88.51 [NA]	86.35 [NA]	86.62 [NA]	86.67 [NA]
Uganda	94.54 [NA]	94.41 [NA]	94.47 [NA]	94.38 [NA]	94.63 [NA]	93.28 [NA]	92.86 [NA]	92.69 [NA]	92.01 [NA]	92.41 [NA]	91.98 [NA]	91.52 [NA]	91.36 [NA]	89.98 [NA]	89.22 [NA]

Access date: 04 December 2017

[NA] Data type not available

Source: International Energy Agency (IEA)/United Nations Statistics Division (UNSD)/UN Energy/ SE4ALL Global Tracking Framework Consortium

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.5

Definition

This indicator is the percentage of final consumption of energy that is derived from renewable resources. Renewable energy consumption includes consumption of energy derived from: hydro, solid biofuels, wind, solar, liquid biofuels, biogas, geothermal, marine and waste.

Relevance

Renewable energy technologies represent a major element in strategies for greening economies everywhere in the world and for tackling the critical global problem of climate change.

Computation/Collection Method

This indicator focuses on the amount of renewable energy actually consumed rather than the capacity for renewable energy production which cannot always be fully utilized. Renewable energy consumption is derived from three tables of the International Energy Agency (IEA) world energy statistics and balances: total final consumption, electricity output and heat output. Total final energy consumption is calculated from national balances and statistics as total final consumption minus non-energy use. The indicator is calculated by dividing consumption of energy from all renewable sources by total final energy consumption.

Source

IEA, UNSD, UN Energy, SE4ALL Global Tracking Framework Consortium, https://unstats.un.org/sdgs/metadata/files/Metadata-07-02-01.pdf

Table 2.6 Energy intensity measured in terms of primary energy and GDP (MJ per USD constant 2011 PPP GDP) [SDG 7.3.1]

Partner States/ Years	2000	2002	2004	2006	2008	2010	2012	2014
Burundi	11.34 [E,1]	15.19 [E,1]	15.11 [E,1]	14.65 [E,1]	13.8 [E,1]	13.3 [E,1]	7.93 [E,1]	7.83 [E,1]
Kenya	8.74 [E,1]	8.6 [E,1]	8.54 [E,1]	8.18 [E,1]	8.08 [E,1]	7.98 [E,1]	7.43 [E,1]	7.82 [E,1]
Rwanda	8.37 [E,1]	6.79 [E,1]	6.24 [E,1]	7.24 [E,1]	6.51 [E,1]	6.14 [E,1]	5.69 [E,1]	5.34 [E,1]
United R. of Tanzania	11.46 [E,1]	11.19 [E,1]	10.7 [E,1]	10.26 [E,1]	9.59 [E,1]	9.24 [E,1]	9.14 [E,1]	8.54 [E,1]
Uganda	13.37 [E,1]	12.13 [E,1]	11.11 [E,1]	9.92 [E,1]	8.82 [E,1]	8.25 [E,1]	7.51 [E,1]	7.03 [E,1]

Access date: 04 December 2017

[E] Estimated

[1] Source: International Energy Agency, United Nations Statistics Division, World Development Indicators

Source: International Energy Agency (IEA)/United Nations Statistics Division (UNSD)/UN Energy/ SE4ALL Global Tracking Framework Consortium

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.6

Definition
This indicator is defined as the energy supplied to the economy per unit value of economic output.

Relevance
It is an indication of how much energy is used to produce one unit of economic output and a proxy of the efficiency with which an economy is able to use energy to produce economic output. Energy intensity can be affected by a number of factors including but not limited to climate, structure of the economy and nature of economic activities.

Computation/Collection Method
This indicator is obtained by dividing the total energy supply over GDP where total energy supplied is made up of the production plus net imports minus international marine and aviation bunkers plus-stock changes. GDP is the measure of economic output, for international comparison it is measured in constant terms at purchasing power parity.

Source
IEA, UNSD, UN Energy, SE4ALL Global Tracking Framework Consortium, https://unstats.un.org/sdgs/metadata/files/Metadata-07-03-01.pdf

Table 2.7 Total final consumption and its components (PJ and GJ per capita)

Partner States/ Years	Indicator		2011	2012	2013	2014
Burundi	Total final consumption		89 E	56 E	53 E	55 E
	Non-energy use		1	0	1	0
	Energy use	Industry	1 E	1 E	1 E	1 E
		Transport	3	3	2	5
		Other	85 E	52 E	49 E	49 E
	Total final consumption per capita		9 E	6 E	5 E	5 E
Kenya	Total final consumption		464	473	485	498
	Non-energy use		10	12	2	2
	Energy use	Industry	68	57	62	50
		Transport	63	66	79	103
		Other	325	338	342	343
	Total final consumption per capita		11	11	11	11
Rwanda	Total final consumption		72 E	75 E	77 E	78 E
	Non-energy use		0	1 E	1 E	1 E
	Energy use	Industry	6 E	6 E	6 E	6 E
		Transport	5 E	6 E	7 E	7 E
		Other	60 E	62 E	64 E	65 E
	Total final consumption per capita		7 E	7 E	7 E	7 E
United R. of Tanzania	Total final consumption		773	813	859	902
	Non-energy use		1	2	2	2
	Energy use	Industry	114	121	131	142
		Transport	52	65	83	82
		Other	606	624	644	677
	Total final consumption per capita		16	17	17	17
Uganda	Total final consumption		405 E	407 E	416 E	424 E
	Non-energy use		0	0	0	1
	Energy use	Industry	19 E	20 E	28 E	32 E
		Transport	23	25	27	29
		Other	363 E	362 E	361 E	363 E
	Total final consumption per capita		12 E	12 E	11 E	11 E

Access date: 04 December 2017

In this table small numbers are rounded to 0.

Other refers to energy consumed by consumers not classified under Industry. It includes Households, Commerce and public services, Agriculture, Forestry, Fishing, and Not elsewhere specified.

E Estimated

Source: United Nations Statistics Division (UNSD)

https://unstats.un.org/unsd/energy/yearbook/default.htm

Metadata for Table 2.7

Definitions
Total final consumption refers to all fuel energy that it is delivered to users for both their energy and non-energy uses which do not involve a transformation process.
- Non-energy use refers to energy products as raw materials for the manufacture of products outside the scope of energy statistics, as well as for direct uses that do not involve using the products as a source of energy not a transformation input.
- Industry refers to the use of energy products for energy purposes by economic units belonging to manufacturing, mining and construction industries.
- Transport refers to the consumption of fuels and electricity by any economic entity to transport goods or persons between points of departure and destination within the national territory.
- Other refers to energy consumed by consumers not classified under industry.

Relevance
Taking into consideration the current energy resource composition, where renewable energy represents only a small portion, this data reflects the energy consumption structure and indicates the burden on the environment caused by different industries.

Computation/Collection Method
Data are collected from countries through questionnaires and processed by UNSD. It is supplemented by national and international publications.

Source
UNSD,
https://unstats.un.org/unsd/energy/yearbook/2014/t03.pdf
https://unstats.un.org/unsd/energy/yearbook/2014/04d.pdf

Table 2.8 Energy production

Partner States/Years			2011	2012	2013	2014
Burundi	Solid fuels	Production, trade and supply of coal - thousand tons of coal equivalent	4	10	8	6
		Production of biofuels and wastes [Terajoules]	88,133	54,815	63,460	63,131
	Liquid fuels [Thousand metric tons and kilograms per capita]	Production, trade and supply of LPG	..	..	..	..
		Production, trade and supply of fuel oil	..	..	..	..
	Gaseous fuels	Production, trade and supply of natural gas [Terajoules and megajoules per capita]				
	Electricity and heat	Production of electricity - by type [Gigawatt-hours]	141	142	159	174
Kenya	Solid fuels	Production, trade and supply of coal - thousand tons of coal equivalent	..	..	..	..
		Production of biofuels and wastes [Terajoules]	776,242	804,827	827,047	820,084
	Liquid fuels [Thousand metric tons and kilograms per capita]	Production, trade and supply of LPG	28	17	12	..
		Production, trade and supply of fuel oil	520	300	184	0
	Gaseous fuels	Production, trade and supply of natural gas [Terajoules and megajoules per capita]				
	Electricity and heat	Production of electricity - by type [Gigawatt-hours]	7,560	7,852	8,448	9,139
Rwanda	Solid fuels	Production, trade and supply of coal - thousand tons of coal equivalent				
		Production of biofuels and wastes [Terajoules]	94,030	96,997	100,384	101,376
	Liquid fuels [Thousand metric tons and kilograms per capita]	Production, trade and supply of LPG				
		Production, trade and supply of fuel oil	..	..	..	..
	Gaseous fuels	Production, trade and supply of natural gas [Terajoules and megajoules per capita]	23	23	24	24
	Electricity and heat	Production of electricity - by type [Gigawatt-hours]	346	393	413	476

(continued) Table 2.8 Energy production

Partner States/Years			2011	2012	2013	2014
United R. of Tanzania	Solid fuels	Production, trade and supply of coal - thousand tons of coal equivalent	71	70	75	217
		Production of biofuels and wastes [Terajoules]	826,705	853,891	901,526	944,832
	Liquid fuels [Thousand metric tons and kilograms per capita]	Production, trade and supply of LPG	..	..	..	..
		Production, trade and supply of fuel oil	..	..	..	..
	Gaseous fuels	Production, trade and supply of natural gas [Terajoules and megajoules per capita]	33,047	37,799	37,964	35,391
	Electricity and heat	Production of electricity - by type [Gigawatt-hours]	5,093	5,589	5,941	6,219
Uganda	Solid fuels	Production, trade and supply of coal - thousand tons of coal equivalent	..	..	..	..
		Production of biofuels and wastes [Terajoules]	417,764	419,000	423,794	430,339
	Liquid fuels [Thousand metric tons and kilograms per capita]	Production, trade and supply of LPG	..	..	..	..
		Production, trade and supply of fuel oil	..	..	..	..
	Gaseous fuels	Production, trade and supply of natural gas [Terajoules and megajoules per capita]				
	Electricity and heat	Production of electricity - by type [Gigawatt-hours]	2,588	2,640	2,861	3,258

Access date: 04 December 2017
Production, trade and supply of LPG (liquefied petroleum gases) includes output from refineries and plants
Production of natural gas includes quantities from other sources, which would include any quantities of biogas, LPG or manufactured gas blended with natural gas
.. Not available
Blank indicates data is not included in Energy Statistics Yearbook.
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/energy/yearbook/default.htm

Metadata for Table 2.8

Definitions
Production of energy is defined as the capture, extraction or manufacture of fuels or other energy products in forms which are ready for general consumption. Energy production corresponds to the production of energy products.

- Solid fuels include hard and brown coal, peat, patent fuel, brown coal briquettes, peat products, coal coke, oil shale and other products not specified.
- Solid biofuels include production of biofuels and wastes such as Fuelwood, Animal waste, Vegetal waste, Bagasse, Black liquor and Charcoal.
- Liquid fuels include crude oil, natural gas liquid, additives and oxygenates, oil products, gasoline, kerosene, gas/diesel oil, fuel oil, LPG, ethane, refinery gas, naphtha, spirits, lubricants, bitumen, paraffin waxes, petroleum coke and other oil products not specified.
- Gaseous fuels include natural gas, gas works gas, coke oven gas, blast furnace gas and other recovered gases not specified.
- Electricity and heat refers to production of energy such as streaming water, wind or waves, conversion of solar radiation to photovoltaic processes or combustion of fuels.

Relevance
There are many environmental issues related to energy production, including: (i) the depletion of non-renewable energy resources; (ii) the destruction of the environment (landscape) by the extraction of energy resources and the production and distribution of energy, and (iii) the pollution (air, water and soil) and waste generated by the production and consumption of energy. For statistical purposes, energy is measured in its "usable form" embedded in energy products.

Computation/Collection Method
Data are being collected from the countries through a questionnaire and processed by UNSD.

Source
UNSD,
https://unstats.un.org/unsd/energy/yearbook/2014/t17.pdf
https://unstats.un.org/unsd/energy/yearbook/2014/t12.pdf
https://unstats.un.org/unsd/energy/yearbook/2014/t27.pdf
https://unstats.un.org/unsd/energy/yearbook/2014/04d.pdf
https://unstats.un.org/unsd/environment/FDES/MS%202.2%20Energy%20Resources.pdf

Table 2.9 Material footprint (metric tons), material footprint per capita (metric tons) and material footprint per GDP (kg) [SDG 8.4.1 and SDG 12.2.1]

Partner States/ Years		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Burundi	Material footprint per capita	1.50 [C,1]	1.74 [C,1]	1.77 [C,1]	1.81 [C,1]	1.81 [C,1]	1.86 [C,1]	1.85 [C,1]	1.76 [C,1]	1.60 [C,1]	1.76 [C,1]	1.67 [C,1]
	Material footprint per unit of GDP	9.77 [C,1]	11.37 [C,1]	11.39 [C,1]	12.17 [C,1]	12.04 [C,1]	12.97 [C,1]	12.66 [C,1]	11.68 [C,1]	9.67 [C,1]	8.58 [C,1]	7.28 [C,1]
	Material footprint (millions)	10,005,000.00 [C,1]	11,887,000.00 [C,1]	12,447,000.00 [C,1]	13,137,000.00 [C,1]	13,574,000.00 [C,1]	14,489,000.00 [C,1]	14,903,000.00 [C,1]	14,635,000.00 [C,1]	13,763,000.00 [C,1]	15,728,000.00 [C,1]	15,440,000.00 [C,1]
Kenya	Material footprint per capita	2.81 [C,1]	2.82 [C,1]	2.79 [C,1]	2.66 [C,1]	2.68 [C,1]	2.89 [C,1]	2.90 [C,1]	2.93 [C,1]	2.83 [C,1]	3.05 [C,1]	3.05 [C,1]
	Material footprint per unit of GDP	4.93 [C,1]	4.85 [C,1]	4.90 [C,1]	4.67 [C,1]	4.60 [C,1]	4.80 [C,1]	4.66 [C,1]	4.53 [C,1]	4.47 [C,1]	4.79 [C,1]	4.55 [C,1]
	Material footprint (millions)	88,040,000.00 [C,1]	90,570,000.00 [C,1]	91,950,000.00 [C,1]	90,150,000.00 [C,1]	93,330,000.00 [C,1]	103,300,000.00 [C,1]	106,640,000.00 [C,1]	110,790,000.00 [C,1]	109,550,000.00 [C,1]	121,300,000.00 [C,1]	124,860,000.00 [C,1]
Rwanda	Material footprint per capita	1.65 [C,1]	1.62 [C,1]	1.77 [C,1]	1.78 [C,1]	1.80 [C,1]	1.89 [C,1]	2.31 [C,1]	2.36 [C,1]	1.85 [C,1]	2.33 [C,1]	2.38 [C,1]
	Material footprint per unit of GDP	7.91 [C,1]	7.48 [C,1]	7.42 [C,1]	7.38 [C,1]	7.04 [C,1]	6.89 [C,1]	7.91 [C,1]	7.73 [C,1]	5.61 [C,1]	6.84 [C,1]	6.71 [C,1]
	Material footprint (millions)	13,843,000.00 [C,1]	14,201,000.00 [C,1]	15,944,000.00 [C,1]	16,218,000.00 [C,1]	16,613,000.00 [C,1]	17,799,000.00 [C,1]	22,297,000.00 [C,1]	23,467,000.00 [C,1]	18,910,000.00 [C,1]	24,525,000.00 [C,1]	25,795,000.00 [C,1]
United R. of Tanzania	Material footprint per capita	1.29 [C,1]	1.36 [C,1]	1.50 [C,1]	1.42 [C,1]	1.49 [C,1]	1.46 [C,1]	1.42 [C,1]	1.42 [C,1]	2.47 [C,1]	2.58 [C,1]	2.67 [C,1]
	Material footprint per unit of GDP	2.12 [C,1]	2.35 [C,1]	2.69 [C,1]	2.47 [C,1]	2.69 [C,1]	2.64 [C,1]	2.65 [C,1]	2.61 [C,1]	2.63 [C,1]	2.63 [C,1]	2.69 [C,1]
	Material footprint (millions)	44,050,000.00 [C,1]	47,310,000.00 [C,1]	53,770,000.00 [C,1]	52,340,000.00 [C,1]	56,400,000.00 [C,1]	56,640,000.00 [C,1]	56,620,000.00 [C,1]	58,290,000.00 [C,1]	78,350,000.00 [C,1]	84,710,000.00 [C,1]	90,770,000.00 [C,1]
Uganda	Material footprint per capita	2.11 [C,1]	2.14 [C,1]	2.13 [C,1]	2.29 [C,1]	2.29 [C,1]	2.41 [C,1]	2.45 [C,1]	2.53 [C,1]	1.37 [C,1]	1.37 [C,1]	1.39 [C,1]
	Material footprint per unit of GDP	6.72 [C,1]	6.46 [C,1]	6.22 [C,1]	6.52 [C,1]	6.38 [C,1]	6.29 [C,1]	6.19 [C,1]	6.11 [C,1]	5.58 [C,1]	5.59 [C,1]	5.56 [C,1]
	Material footprint (millions)	51,298,000.00 [C,1]	53,682,000.00 [C,1]	55,317,000.00 [C,1]	61,513,000.00 [C,1]	63,698,000.00 [C,1]	69,142,000.00 [C,1]	72,790,000.00 [C,1]	77,670,000.00 [C,1]	58,140,000.00 [C,1]	60,000,000.00 [C,1]	62,330,000.00 [C,1]

Access date: 04 December 2017

[C] Country data

[1] Environment Live

Source: United Nations Environment Programme (UNEP), Organisation for Economic Co-operation and Development (OECD), EUROSTAT
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.9

Definition
Material footprint is the attribution of global material extraction to domestic final demand of a country. The total material footprint is the sum of the material footprint for biomass, fossil fuels, metal ores and non-metal ores.

Relevance
Material footprint of consumption reports the amount of primary materials required to serve final demand of a country and can be interpreted as an indicator for the material standard of living and/or level of capitalization of an economy. Per-capita material footprint describes the average material use for final demand.

Computation/Collection Method
It is calculated as raw material equivalent of imports plus domestic extraction minus raw material equivalents of exports. For the attribution of the primary material needs of final demand a global, multi-regional input-output framework is employed. The attribution method based on I-O analytical tools is described in detail in Wiedmann et al. 2015.

Source
UNEP, https://unstats.un.org/sdgs/metadata/files/Metadata-08-04-01.pdf

Table 2.10 Domestic material consumption (metric tons), domestic material consumption per capita (kg), and domestic material consumption per unit of GDP (metric tons) [SDG 8.4.2]

Partner States/Years		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Burundi	Domestic material consumption per capita	1.69 [C,1]	2.00 [C,1]	1.99 [C,1]	2.06 [C,1]	2.02 [C,1]	2.02 [C,1]	2.00 [C,1]	1.89 [C,1]	1.82 [C,1]	1.78 [C,1]	1.73 [C,1]
	Domestic material consumption per unit of GDP	10.99 [C,1]	13.07 [C,1]	12.85 [C,1]	13.87 [C,1]	13.46 [C,1]	14.04 [C,1]	13.63 [C,1]	12.55 [C,1]	11.04 [C,1]	8.66 [C,1]	7.52 [C,1]
	Domestic material consumption (millions)	11,252,546.00 [C,1]	13,665,492.00 [C,1]	14,038,746.00 [C,1]	14,975,010.00 [C,1]	15,167,471.00 [C,1]	15,682,222.00 [C,1]	16,055,764.00 [C,1]	15,714,752.00	15,706,982.00 [C,1]	15,885,839.00 [C,1]	15,952,145.00 [C,1]
Kenya	Domestic material consumption per capita	2.39 [C,1]	2.53 [C,1]	2.63 [C,1]	2.60 [C,1]	2.60 [C,1]	2.88 [C,1]	2.93 [C,1]	2.99 [C,1]	2.85 [C,1]	3.18 [C,1]	3.30 [C,1]
	Domestic material consumption per unit of GDP	4.18 [C,1]	4.36 [C,1]	4.62 [C,1]	4.56 [C,1]	4.47 [C,1]	4.79 [C,1]	4.72 [C,1]	4.64 [C,1]	4.56 [C,1]	5.07 [C,1]	5.03 [C,1]
	Domestic material consumption (millions)	74,699,800.00 [C,1]	81,414,864.00 [C,1]	86,750,440.00 [C,1]	87,986,192.00 [C,1]	90,670,224.00 [C,1]	103,025,536.00 [C,1]	107,785,840.00 [C,1]	112,988,248.00 [C,1]	110,417,680.00 [C,1]	126,452,888.00 [C,1]	135,066,752.00 [C,1]
Rwanda	Domestic material consumption per capita	1.64 [C,1]	1.64 [C,1]	1.79 [C,1]	1.71 [C,1]	1.67 [C,1]	1.79 [C,1]	2.15 [C,1]	2.13 [C,1]	1.70 [C,1]	2.08 [C,1]	2.01 [C,1]
	Domestic material consumption per unit of GDP	7.72 [C,1]	7.58 [C,1]	7.49 [C,1]	7.10 [C,1]	6.57 [C,1]	6.56 [C,1]	7.37 [C,1]	6.99 [C,1]	5.20 [C,1]	6.24 [C,1]	5.83 [C,1]
	Domestic material consumption (millions)	13,734,210.00 [C,1]	14,380,758.00 [C,1]	16,090,627.00 [C,1]	15,580,273.00 [C,1]	15,489,084.00 [C,1]	16,917,580.00 [C,1]	20,780,498.00 [C,1]	21,166,792.00 [C,1]	17,408,984.00 [C,1]	21,912,864.00 [C,1]	21,749,482.00 [C,1]
United R. of Tanzania	Domestic material consumption per capita	2.12 [C,1]	2.35 [C,1]	2.69 [C,1]	2.47 [C,1]	2.69 [C,1]	2.64 [C,1]	2.65 [C,1]	2.61 [C,1]	2.63 [C,1]	2.63 [C,1]	2.69 [C,1]
	Domestic material consumption per unit of GDP	5.47 [C,1]	5.86 [C,1]	6.43 [C,1]	5.68 [C,1]	5.88 [C,1]	5.55 [C,1]	5.35 [C,1]	5.08 [C,1]	4.93 [C,1]	4.90 [C,1]	4.87 [C,1]
	Domestic material consumption (millions)	72,000,808.00 [C,1]	81,846,008.00 [C,1]	96,322,272.00 [C,1]	90,820,728.00 [C,1]	101,428,304.00 [C,1]	102,664,896.00 [C,1]	105,751,136.00 [C,1]	107,403,808.00 [C,1]	111,276,592.00 [C,1]	114,913,592.00 [C,1]	120,774,280.00 [C,1]
Uganda	Domestic material consumption per capita	3.26 [C,1]	3.14 [C,1]	3.12 [C,1]	3.16 [C,1]	3.06 [C,1]	3.10 [C,1]	3.09 [C,1]	3.10 [C,1]	2.99 [C,1]	3.03 [C,1]	3.05 [C,1]
	Domestic material consumption per unit of GDP	9.25 [C,1]	8.47 [C,1]	8.12 [C,1]	8.02 [C,1]	7.60 [C,1]	7.23 [C,1]	6.97 [C,1]	6.69 [C,1]	6.04 [C,1]	6.03 [C,1]	5.73 [C,1]
	Domestic material consumption (millions)	79,048,432.00 [C,1]	78,700,144.00 [C,1]	80,844,912.00 [C,1]	84,676,192.00 [C,1]	84,908,752.00 [C,1]	88,904,728.00 [C,1]	91,700,752.00 [C,1]	95,169,200.00 [C,1]	94,935,328.00 [C,1]	99,662,280.00 [C,1]	103,828,560.00 [C,1]

Access date: 04 December 2017

[C] Country Data

[1] Environment Live

Source: United Nations Environment Programme (UNEP), Organisation for Economic Co-operation and Development (OECD) and EUROSTAT

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.10

Definition
Domestic Material Consumption (DMC) is a standard Material Flow Accounting (MFA) indicator and reports the apparent consumption of materials in a national economy.

Relevance
DMC presents the amount of material that needs to be handled within an economy, which is either added to material stocks of buildings and transport infrastructure or used to fuel the economy as material throughput. DMC describes the physical dimension of economic processes and interactions. It can also be interpreted as long-term waste equivalent. Per-capita DMC describes the average level of material use in an economy – an environmental pressure indicator – and is also referred to as metabolic profile.

Computation/Collection Method
It is calculated as direct imports (IM) of material plus domestic extraction (DE) of materials minus direct exports (EX) of materials measured in metric tonnes. DMC measure the amount of materials that are used in economic processes. It does not include materials that are mobilized in the process of domestic extraction but do not enter the economic process. DMC is based on official economic statistics and it requires some modelling to adapt the source data to the methodological requirements of the MFA. The accounting standard and accounting methods are set out in the EUROSTAT guidebooks for MFA accounts in the latest edition of 2013.

Source
UNEP, https://unstats.un.org/sdgs/metadata/files/Metadata-08-04-02.pdf

Land

Land is a unique environmental resource that delineates the space in which economic activities and environmental processes take place and within which environmental resources and economic assets are located. The two primary aspects are land cover and land use. They are closely related; while land cover describes the biophysical aspects of land, land use refers to the functional aspects of land. Changes in land cover can be the result of natural processes and of land use changes. Generally, the total area of a country remains unchanged from one period to the next. Hence, changes in the stocks of land comprise changes within and between stocks in different classes of land cover and land use.

Table 2.11 Agricultural land use (10^3 ha) (EAC facts and figures 2016 table 1.1c)

Indicator	Partner States/ Years	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total agriculture land	Burundi	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135
	Kenya	56,914	56,914	56,914	56,914	56,914	56,914	56,914	56,914	56,914	56,914	56,914
	Rwanda	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294
	Tanzania	48,100	48,100	48,100	48,100	48,100	48,100	48,100	48,100	48,100	48,100	48,100
	Uganda	16,275	16,275	16,275	16,275	16,275	16,901	-	-	-	-	
Total cultivated area	Burundi	-	-	-	-	-	-	-	-	-	-	-
	Kenya	-	-	-	-	-	-	-	-	-	-	
	Rwanda	852	868	846	1,716	1,735	1,735	1,735	1,735	1,735	1,735	1,735
	Tanzania	9,500	9,500	8,809	8,809	8,809	8,809	8,809	8,809	8,809	8,809	8,809
	Uganda	9,970	9,970	9,970	9,970	9,970	9,115	9,115	9,115	9,115	9,115	9,115

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Table 2.12 Total area equipped for irrigation (10^3 ha)

Partner States/ Years	1961	1966	1971	1976	1981	1986	1991	1996	2001	2006	2011	2014
Burundi	14.00 [F]	14.00 [F]	14.00 [F]	14.00 [F]	14.00 [F]	15.00 [F]	15.00 [F]	18.00 [F]	22.00 [Fm]	23.00 [Fm]	23.00 [Fm]	23.00 [Fm]
Kenya	14.00 [I]	17.00 [F]	32.00 [F]	42.00 [Q]	40.00 [F]	44.00 [F]	60.00 [F]	73.00 [F]	87.00 [F]	125.00 [Fm]	150.60 [Fm]	150.60 [Fm]
Rwanda	4.00 [F]	4.00 [F]	4.00 [F]	4.00 [F]	4.00 [F]	4.00 [F]	4.00 [F]	7.00 [F]	9.00 [F]	9.00 [Fm]	9.60 [Fm]	9.60 [Fm]
United R. of Tanzania	20.00 [F]	30.00 [F]	40.00 [F]	65.00 [F]	123.00 [Fm]	144.00 [Q]	148.00 [Fm]	150.00 [Q]	172.00 [F]	266.67 [Fm]	350.00 [Fm]	364.00 [Fm]
Uganda	2.00 [Q]	4.00 [Q]	4.00 [F]	4.00 [Q]	6.00 [F]	9.00 [F]	9.00 [F]	9.00 [F]	10.00 [Fm]	10.00 [Fm]	11.00 [Fm]	11.14 [Fm]

Access date: 04 December 2017
[F] FAO Estimate
[Fm] Manual Estimation
[I] Country data reported by International Organizations where the country is a member (Semi-official) - WTO, EU, UNSD, etc
[Q] Official data reported on FAO Questionnaires from countries
Source: Food and Agriculture Organization of the United Nations (FAO)
http://www.fao.org/faostat/en/#data/RL

Metadata for Table 2.12

Definition
Area equipped for irrigation refers to areas equipped to provide water (via irrigation) to crops. It includes areas equipped for full/partial control irrigation, equipped lowland areas, and areas equipped for spate irrigation.

Relevance
The total area equipped for irrigation illustrates how much agriculture depends on freshwater resources other than precipitation.

Computation/Collection Method
Data are collected from FAO member Countries through the annual FAO Land use and irrigation questionnaire. Official information may be complemented with statistics from national statistical yearbooks and other official publications and information from governmental data portals. Supplemental information may be derived from national and international sectoral studies and reports.

Source
FAO,
http://fenixservices.fao.org/faostat/static/documents/RL/RL_e.pdf
http://www.fao.org/ag/agn/nutrition/Indicatorsfiles/Agriculture.pdf

Table 2.13 Progress towards sustainable forest management [SDG 15.2.1]

Partner States/Years		2010	2014	2015
Burundi	Above-ground biomass in forest (10^9kg)	42.25 [NA, 1]		46.03 [NA, 1]
	Above-ground biomass in forest/ hectare (10^5kg/m^2)	167 [NA, 1]		46.03 [NA, 1]
	Proportion of forest area certified under an independently verified certification scheme (%)	0 [NA, 1, 3]	0 [NA, 1, 3]	
	Proportion of forest area within legally established protected areas (%)	50.58 [NA, 1]		56.38 [NA, 1]
	Forest area within legally established protected areas (10km^2)	139.61 [NA, 1]		155.61 [NA, 1]
Kenya	Above-ground biomass in forest (10^9kg)	1015 [NA, 1]		1086.00 [NA, 1]
	Above-ground biomass in forest/ hectare (10^5kg/m^2)	239.95 [NA, 1]		1086.00 [NA, 1]
	Proportion of forest area certified under an independently verified certification scheme (%)	0.19 [NA, 1, 3]	0.63 [NA, 1, 3]	
	Proportion of forest area within legally established protected areas (%)	24 [NA, 1, 2]		
	Forest area within legally established protected areas (10km^2)	11.83 [NA, 1]		13.21 [NA, 1]
Rwanda	Above-ground biomass in forest (10^9kg)	67.9 [NA, 1]		73 [NA, 1]
	Above-ground biomass in forest/ hectare (10^5kg/m^2)	152.24 [NA, 1]		73 [NA, 1]
	Proportion of forest area certified under an independently verified certification scheme (%)	0 [NA, 1, 3]	0 [NA, 1, 3]	
	Proportion of forest area within legally established protected areas (%)	12.92 [NA, 1]		12.92 [NA, 1]
	Forest area within legally established protected areas (10km^2)	62 [NA, 1]		62 [NA, 1]
United R. of Tanzania	Above-ground biomass in forest (10^9kg)	202.6 [NA, 1]		9.331.56 [NA, 1]
	Above-ground biomass in forest/ hectare (10^5kg/m^2)	20.8 [NA, 1, 3]	131.98 [NA, 1, 3]	
	Proportion of forest area certified under an independently verified certification scheme (%)	85 [NA, 1, 2]		
	Proportion of forest area within legally established protected areas (%)	4.34 [NA, 1]		4.34 [NA, 1]
	Forest area within legally established protected areas (10km^2)	2000 [NA, 1]		2000.00 [NA, 1]
Uganda	Above-ground biomass in forest (10^9kg)	168.4 [NA, 1]		128.1 [NA, 1]
	Above-ground biomass in forest/ hectare (10^5kg/m^2)	61.17 [NA, 1]		128.1 [NA, 1]
	Proportion of forest area certified under an independently verified certification scheme (%)	101.27 [NA, 1, 3]	40.07 [NA, 1, 3]	
	Proportion of forest area within legally established protected areas (%)	35.19 [NA, 1]		35.19 [NA, 1]
	Forest area within legally established protected areas (10km^2)	731 [NA, 1]		731 [NA, 1]

Access date: 04 December 2017
Blank indicates the data are not available
[NA] Data type not available
[1] Food and Agriculture Organization of the United Nations (FAO)
[2] Based on data from Global Forest Resources Assessment 2010
[3] Sum of area certified under FSC and PEFC forest certification schemes   [PEFC: Programme for the Endorsement of Forest Certification; FSC: Forest Stewardship Council]
Source: Food and Agriculture Organization of the United Nations (FAO)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.13

Definition
Sustainable forest management is a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations

Relevance
The definition of sustainable forest management (SFM) by the UN General Assembly contains several key aspects, notably that sustainable forest management is a concept which varies over time and between countries, whose circumstances – ecological, social and economic – vary widely, but that it should always address a wide range of forest values, including economic, social and environmental values, and take intergenerational equity into account.

Clearly a simple measure of forest area, while essential, and used for target 15.1, is insufficient to monitor sustainable forest management as a whole. Five sub-indicators are developed to measure this topic.

Computation/Collection Method
At national level, forest area, biomass stock, forest area within protected areas, forest area under management plan and forest area under an independently verified forest management certification scheme are reported directly to FAO for pre-established reference years. Based on the country reported data, FAO then makes country-level estimates of the forest area net change rate using the compound interest formula, and also the proportion of forest area within protected area and under management plan.

Source
GA, UN, http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/62/98
FAO, https://unstats.un.org/sdgs/metadata/files/Metadata-15-02-01.pdf

Biological Resources

Biological resources are renewable resources that are capable of regeneration through natural processes. They include timber and aquatic resources and a range of other animal and plant resources (such as livestock, orchards, crops and wild animals), fungi and bacteria. Biological resources form an important part of biodiversity and ecosystems. If harvesting and other losses exceed natural or managed regeneration or replenishment, biological resources become depleted.

Biological resources can be natural (non-cultivated) or cultivated. Natural biological resources consist of animals, birds, fish and plants that yield both once-only and repeat products for which natural growth and/or regeneration is not under the direct control, responsibility and management of institutional units. Cultivated biological resources cover animal resources yielding repeat products and tree, crop and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility and management of an institutional unit. They may impact the environment differently than natural ones. This is quite evident in the case of mono-cultivated, intensive crops that use irrigation and increasing amounts of fertilizers and pesticides.

Table 2.14 Livestock population by type (10^3 head) (EAC facts and figures 2016 table 4.1d)

Livestock	Partner States/Years	2008	2009	2010	2011	2012	2013	2014	2015
Cattle	Burundi	472	554	596	645	609	646	826	797
	Kenya	-	17,500	17,500	17,500	17,500	17,500	17,500	17,500
	Rwanda	1,194	1,219	1,335	1,143	1,135	1,132	1,144	-
	Tanzania	18,798	19,210	19,210	21,257	21,125	22,800	24,100	25,800
	Uganda	11,409	11,751	12,104	12,467	12,840	13,020	13,623	-
	East Africa	**-**	**50,234**	**50,745**	**53,012**	**53,209**	**55,098**	**57,193**	**-**
Sheep	Burundi	281	292	296	308	440	488	426	400
	Kenya	-	17,100	17,100	17,100	17,100	17,100	17,100	17,100
	Rwanda	718	743	799	829	807	798	631	-
	Tanzania	3,562	3,600	3,600	6,397	5,715	7,000	7,000	9,200
	Uganda	3,413	3,516	3,621	3,730	3,841	3,937	3,842	-
	East Africa	**-**	**25,251**	**25,416**	**28,364**	**27,903**	**29,323**	**28,999**	**-**
Goat	Burundi	1,617	2,698	2,163	2,480	2,489	2,514	2,416	2,357
	Kenya	-	27,700	27,700	27,700	27,700	27,700	27,700	27,700
	Rwanda	2,519	2,735	2,688	2,971	2,673	2,702	2,532	-
	Tanzania	13,052	13,701	13,701	15,244	15,085	15,600	15,600	17,100
	Uganda	12,450	12,823	13,208	13,604	14,012	14,614	14,011	-
	East Africa	**-**	**59,657**	**59,460**	**61,999**	**61,959**	**63,130**	**62,259**	**-**
Pigs	Burundi	167	203	245	272	404	444	565	526
	Kenya	-	335	335	335	335	335	335	335
	Rwanda	586	602	706	707	807	1,011	1,015	-
	Tanzania	1,600	1,869	1,869	1,900	1,581	2,010	2,010	2,670
	Uganda	3,184	3,280	3,378	3,496	3,583	3,673	3,584	-
	East Africa	**-**	**6,289**	**6,511**	**6,693**	**6,710**	**7,473**	**7,509**	**-**
Poultry	Burundi	1,524	1,591	1,719	1,857	2,449	2,571	2,825	2,340
	Kenya	-	31,800	31,800	31,800	31,800	31,800	31,800	31,800
	Rwanda	2,217	2,848	4,081	4,421	4,688	4,803	-	-
	Tanzania	56,000	58,000	58,000	42,667	42,667	60,000	60,000	76,500
	Uganda	37,404	38,557	39,714	40,904	42,131	43,395	44,698	-
	East Africa	**-**	**132,796**	**135,314**	**121,649**	**123,735**	**142,569**	**-**	**-**

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Table 2.15 Fish catch (10^3 t) (EAC facts and figures 2016 table 4.1e)

Partner States/Years	2008	2009	2010	2011	2012	2013	2014	2015
Burundi	19	15	18	20	14	17	16	20
Kenya	135	134	141	149	154	163	168	-
Rwanda	13	14	15	16	18	25	-	-
Tanzania	325	336	347	341	365	375	366	363
Uganda	365	367	386	421	408	419	-	-
East Africa	**857**	**865**	**907**	**947**	**958**	**999**	**-**	**-**

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Table 2.16 Fisheries production by aquaculture (Quantity (tonnes) and Value (1,000 USD))

Partner States/Years		1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Burundi	tonnes	0	0	0	0	0	0	0	2	30 F	50 F	50 F	50 F	17	1,326
	1,000 USD	0	0	0	0	0	0	0	8	30 F	50 F	50 F	70 F	66	3,860
Kenya	tonnes	180 F	300 F	380 F	399 F	240 F	150 F	160 F	213 F	1,236 F	1,302 F	512	1,047 F	12,194 F	18,658 F
	1,000 USD	0	0	0	0	0	0	0	547	3,554	3,203	1,026	2,307	33,103	50,962
Rwanda	tonnes	0	0	0	0	0	0	23 F	39	164	79 F	270	34	100 F	4,847 F
	1,000 USD	0	0	0	0	0	0	0	48	401	119 F	344	40	172	16,757
United R. of Tanzania	tonnes	0	0	0	0	0	0	0	21	1,375 F	1,200 F	1,210 F	3,012 F	7,338	10,742
	1,000 USD	0	0	0	0	0	0	0	48	426	362 F	274	50	2,582	15,566
Uganda	tonnes	0	0	0	0	0	0	0	33	52 F	194	820	10,817	95,000 F	117,590
	1,000 USD	0	0	0	0	0	0	0	7	18 F	171	820	15,151	170,688	273,708

Access date: 04 December 2017
F FAO Estimate
0 Data not available
Data for Burundi, Rwanda and Uganda includes only inland waters.
Source: Food and Agriculture Organization of the United Nations (FAO)
http://www.fao.org/fishery/statistics/global-aquaculture-production/query/en

Metadata for Table 2.16

Definition
Aquaculture is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Aquaculture production specifically refers to output from aquaculture activities, which are designated for final harvest for consumption.

Relevance
Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding and protection from predators. Farming also implies individual or corporate ownership of the stock being cultivated. Aquaculture activities may also include the application of colorants, pellets, antibiotics, fungicides, hormones and other substances.

Computation/Collection Method
FAO collects data on aquaculture from countries through questionnaires. Estimates have been made for non-reporting countries as well as for countries reporting incomplete data. All species of inland and marine areas are included.

Source
FAO, http://www.fao.org/fishery/statistics/global-capture-production/en
FAO, http://www.fao.org/3/a-i7989t.pdf

Table 2.17 Coverage of protected areas in relation to marine areas (%) [SDG 14.5.1]

Partner States/ Years	2016
Burundi	
Kenya	0.8 [NA, 1, 2]
Rwanda	
United R. of Tanzania	2.5 [NA, 1, 2]
Uganda	

Access date: 04 December 2017
Blank indicates not applicable
[NA] Data type not available
[1] Protected Planet: The World Database on Protected Areas (WDPA) [On-line], January, 2017, International Union for Conservation of Nature (IUCN) and United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC).
[2] The Exclusive Economic Zone (EEZ) comprises an area which extends either from the coast, or in federal systems from the seaward boundaries of the constituent states (3 to 12 nautical miles, in most cases) to 200 nautical miles (370 kilometres) off the coast
Source: United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC), International Union for Conservation of Nature (IUCN)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.17

Definition
The coverage of protected areas in relation to marine areas is the coverage of important sites for marine biodiversity (i.e., those marine areas that contribute significantly to the global persistence of biodiversity) that are covered by designated protected areas in relation to the total marine area.

Relevance
The safeguard of important sites is vital for stemming the decline in biodiversity and ensuring long term and sustainable use of marine natural resources. The establishment of protected areas is an important mechanism for achieving this aim, and this indicator serves as a means of measuring progress toward the conservation, restoration and sustainable use of marine ecosystems and their services, in line with obligations under international agreements.

Computation/Collection Method
This indicator is calculated from data derived from a spatial overlap between digital polygons for protected areas from the World Database on Protected Areas (IUCN & UNEP-WCMC 2015) and digital polygons for marine Key Biodiversity Areas (from the World Database of Key Biodiversity Areas, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and other Key Biodiversity Areas; available through the Integrated Biodiversity Assessment Any marine Key Biodiversity Areas for which >98% of their area is overlapped by one or more protected areas was defined as completely protected. Protected area data are compiled by ministries of environment and other ministries responsible for the designation and maintenance of protected areas. FAO produces and collects questionnaires from each country and processed data.

Source
UNEP-WCMC, BLI, IUCN, https://unstats.un.org/sdgs/metadata/files/Metadata-14-05-01.pdf

Table 2.18 Production for selected crops, (10³ t) (EAC facts and figures 2016 table 4.1b)

Crops	Partner States/Years	2008	2009	2010	2011	2012	2013	2014	2015
Coffee	Burundi	30	16	31	19	24	31	19	22
	Kenya	42	54	42	36	50	40	50	42
	Rwanda	21	16	19	16	20	18	16	22
	Tanzania	186	62	40	61	66	71	49	42
	Uganda	219	196	167	191	186	233	220	229
	EAST AFRICA	**498**	**344**	**299**	**324**	**346**	**393**	**354**	**356**
Tea	Burundi	32	32	38	41	42	43	49	51
	Kenya	346	314	399	378	369	432	445	399
	Rwanda	20	21	22	24	23	22	25	25
	Tanzania	44	34	33	32	33	34	34	36
	Uganda	46	38	49	54	58	60	61	-
	EAST AFRICA	**487**	**439**	**541**	**529**	**525**	**591**	**614**	
Sugar cane	Burundi	189	178	189	207	220	227	189	-
	Kenya	5,112	5,611	5,695	5,307	5,824	6,674	6,478	6,849
	Rwanda	63	100	115	115	115	115	-	-
	Tanzania	2,041	2,041	2,570	3,021	2,717	2,992	2,968	3,133
	Uganda	-	-	-	-	-	-	-	-
	EAST AFRICA								

Access date: 08 February 2018
Source: East African Community (EAC) Secretariat, EAC Facts and Figures 2016
https://www.eac.int/documents/category/key-documents

Table 2.19 Production of exports and imports of forest products (1,000 USD)

Partner States/Year		1961	1970	1980	1990	2000	2009	2010	2011	2012	2013	2014	2015	2016
Burundi	Export					0	786	1,385	1,284	1,597	1,597	1,019	1,203	967
	Import			374	2,727	2,727	5,383	7,697	4,387	12,736	21,337	4,503	5,425	3,290
Kenya	Export	725	4,021	13,392	3,829	7,569	34,009	19,860	25,448	57,421	77,992	21,242	9,409	12,032
	Import	4,741	17,482	26,622	24,667	32,406	196,733	264,079	280,580	208,656	230,150	284,991	232,520	287,073
Rwanda	Export					315	2,374	912	122	117	298	2,948	2,685	3,658
	Import		153	978	9,667	1,652	10,435	6,868	14,341	12,377	12,983	17,927	21,045	22,689
United R. of Tanzania	Export	1,808	2,317	1,166	8,484	5,349	44,006	63,390	45,476	49,189	51,606	56,641	76,672	48,555
	Import	1,001	5,402	16,600	13,014	9,966	63,907	85,471	85,862	89,726	78,083	129,772	79,905	98,468
Uganda	Export	776	1,351	38		49	6,121	9,542	9,944	7,923	7,755	14,893	12,166	13,958
	Import	684	4,026	3,501	2,109	17,787	26,944	64,203	79,663	72,809	72,809	74,291	71,935	28,171

Access date: 26 December 2017
All values in this table are aggregated values, may include, official, semi-official, estimated or calculated area
Source: Food and Agriculture Organization of the United Nations (FAO), FRA
http://www.fao.org/faostat/en/?#data/FO

Metadata for Table 2.19

Definition

Total exports and imports of forest products (coniferous, non-coniferous tropical, non-coniferous non-tropical), including: roundwood (wood fuel, including wood for charcoal, and industrial roundwood); wood charcoal, wood chips, particles and residues; wood pellets and other agglomerates; sawnwood; wood-based panels (veneer sheets, plywood, particle board, oriented strandboard (OSB) and similar board, and fireboard); wood pulp (mechanical wood pulp, semi-chemical wood pulp, chemical wood pulp, dissolving grades), other pulp (pulp from fibres other than wood and recovered fibre pulp); recovered paper; and paper and paperboard (graphic papers, sanitary and household papers, packaging materials, and other paper and paperboard not elsewhere specified).

Relevance

Forest resources do not only play an important environmental role, but also an economic one through the production and trade of forest products. The exports and imports of forest products in value shows the importance of forest resources in the trade balance of a country.

Computation/Collection Method

FAO produces and collects questionnaires from each country. Some estimates have been made for non-reporting countries as well as for countries reporting incomplete data.

Source

FAO, http://www.fao.org/forestry/34572-0902b3c041384fd87f2451da2bb9237.pdf

Water Resources

Water resources management in terms of quantities, distribution and quality are among the world's most important priorities today. Policy makers need statistics on water resources, their abstraction, use and returns to estimate the amount of availability, monitor abstraction to prevent overutilization and ensure equitable usage of abstracted water.

Table 2.20 Total internal renewable water resources (km³/yr)

Partner States/Years	Long-term annual average (1961-1990)
Burundi	10.06
Kenya	20.70
Rwanda	9.50 [I]
United R. of Tanzania	84.00
Uganda	39.00

Access date: 04 December 2017
[I] Aquastat estimate
Source: Food and Agriculture Organization of the United Nations (FAO): AQUASTAT
http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en

Metadata for Table 2.20

Definition
Internal Renewable Water Resources (IRWR) is the long-term average annual flow of rivers and recharge of aquifers generated from endogenous precipitation per country. Double counting of surface water and groundwater resources is avoided by deducting the overlap from the sum of the surface water and groundwater resources.

Relevance
Surface water flows can contribute to groundwater replenishment through seepage in the river bed. Aquifers can discharge into rivers and contribute their base flow, the sole source of river flow during dry periods. Therefore, the respective flows of both systems are not wholly additive.

Computation/Collection Method
Total IRWR = Groundwater produced internally + Surface water produced internally – Overlap between surface water and groundwater.

Unless otherwise indicated, data come from government representatives and/or publications from within each respective country. Data not generated by a country is displayed with an appropriate qualifier. Most data is obtained by the use of the AQUASTAT questionnaire. This questionnaire is either forwarded to official government offices, or filled in by a recruited national expert (as monetary resources allow).

Source
FAO,
http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en
http://www.fao.org/nr/water/aquastat/metadata/index.stm

Table 2.21 Total external renewable water resources (km^3/yr)

Partner States/Years	Long-term annual average (1961-1990)
Burundi	2.48 [I]
Kenya	10.00 [I]
Rwanda	3.80 [I]
United R. of Tanzania	12.27 [I]
Uganda	21.10 [I]

Access date: 04 December 2017
[I] Aquastat estimate
All values are rounded to hundredths.
Source: Food and Agriculture Organization of the United Nations (FAO): AQUASTAT
http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en

Metadata for Table 2.21

Definition
External renewable water resources is the part of the country's long-term average annual renewable water resources that are not generated in the country. It includes inflows from upstream countries (groundwater and surface water), and part of the water of border lakes and/or rivers. External renewable water resources take into account the quantity of flow reserved by upstream (incoming flow) and/or downstream (outflow) countries through formal or informal agreements or treaties. Therefore, it may vary with time. In extreme cases, it may be negative when the flow reserved to downstream countries is more than the incoming flow.

Relevance
External renewable water resources provide an indication of the reliance of a country on water resources coming from other countries.

Computation/Collection Method
Total external renewable water resources = Total external renewable surface water + Accounted inflow of groundwater.

Unless otherwise indicated, data come from government representatives and/or publications from within each respective country. Data not generated by a country is displayed with an appropriate qualifier. Most data are obtained by the use of the AQUASTAT questionnaire. This questionnaire is either forwarded to official government offices, or filled in by a recruited national expert (as monetary resources allow).

Source
FAO,
http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en
http://www.fao.org/nr/water/aquastat/metadata/index.stm

Table 2.22 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (%) [SDG 6.4.2]

Partner States/Years	2014
Burundi	3.09 [NA]
Kenya	14.31 [NA]
Rwanda	1.44 [NA]
United R. of Tanzania	7.45 [NA]
Uganda	1.33 [NA]

Access date: 04 December 2017
[NA] Data type not available
Source: Food and Agriculture Organization of the United Nations (FAO): AQUASTAT
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.22

Definition
The level of water stress: freshwater withdrawal as a proportion of available freshwater resources is the ratio between total freshwater withdrawn by all major sectors and total renewable freshwater resources, after taking into account environmental water requirements. Main sectors, as defined by ISIC standards, include agriculture; forestry and fishing; manufacturing; electricity industry; and services. This indicator is also known as water withdrawal intensity.

Relevance
The indicator shows to what extent water resources are already used, and signals the importance of effective supply and demand management policies. It indicates the likelihood of increasing competition and conflict between different water uses and users in a situation of increasing water scarcity.

Computation/Collection Method
The indicator is computed as the Total freshwater withdrawn (TWW) divided by the difference between the Total renewable freshwater resources (TRWR) and the Environmental flow requirements (EFR), multiplied by 100. All variables are expressed in km^3/yr.

Stress (%) = $\frac{TWW}{TRWR-EFR} * 100$

Source
FAO, https://unstats.un.org/sdgs/metadata/files/Metadata-06-04-02.pdf

Table 2.23 Water supply industry (million m³/y)

Partner States	Year	Gross freshwater supplied by water supply industry	Losses during transport	Net freshwater supplied by water supply industry	Water supplied by water supply industry to households	Water supplied by water supply industry to agriculture, forestry and fishing	Water supplied by water supply industry to manufacturing	Water supplied by water supply industry to electricity industry	Water supplied by water supply industry to other economic activities
Burundi	2015	46.9[1]		31.5	19.8[2]	0.0	1.1	0.0	10.6
Kenya									
Rwanda	2012	38.1	18.5	19.6	18.4				1.1
Tanzania									
Uganda	2009	69.2[3]			33.2[3,4]		17.3[3,5]		18.7[3,6]

Access date: 02 February 2018

[1] This is the amount of water produced by REGIDESO in urban areas at the national level; these data are taken from annual reports. No data is available for rural areas because water meters are currently being installed.

[2] Quantity used by households in urban areas at the national level; data derived from annual billing reports

[3] Data refer to water produced by the National Water and Sewerage Corporation (NWSC). The NWSC only delivers water in larger towns and cities.

[4] The share of household/domestic in the water produced by NWSC is 48% of gross freshwater supplied by water supply industry (ISIC 36). UNSD calculated the figure based on this information. It may include water losses during transport.

[5] The share of industrial/commercial in the water produced by NWSC is 25% of gross freshwater supplied by water supply industry (ISIC 36). UNSD calculated the figure based on this information. It may include water losses during transport.

[6] The share of Institution/Government and public stand pipes in the water produced by NWSC is 27% of gross freshwater supplied by water supply industry (ISIC 36). UNSD calculated the figure based on this information. It may include water losses during transport.

Source: United Nations Statistics Division (UNSD)

https://unstats.un.org/unsd/environment/Time%20series.htm#InlandWaterResources

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Metadata for Table 2.23

Definition

Water supply industry: Water collection, treatment and supply includes water collection, treatment and distribution activities for domestic and industrial needs. Collection of water from various sources, as well as distribution by various means is included.

Net freshwater supplied by water supply industry (ISIC 36): Gross freshwater supplied by water supply industry minus freshwater losses during transport. The net volume of freshwater supplied by the water supply industry to final users is broken down by households and by main groups of the economic activity of the final users (according to ISIC Rev. 4).

Relevance

Water users span all sectors and economic activities; of these, agricultural uses for irrigation, livestock and food production place one of the greatest pressures on freshwater resources. Water is used to produce and make use of energy such as in extraction of minerals, cooling within power plants or direct use in hydroelectricity. People require access to safe drinking water and sanitation, and increased urbanization and subsequent population increase in cities requires improvements to supplies of water and sanitation services. As many households and economic activities depend on the water supply industry for their provision of water, statistics are necessary for an efficient management of water resources.

Computation/Collection Method

Data on net freshwater supplied by water supply industry is usually collected from municipalities. Data on amounts of water supplied can significantly vary between countries depending on the extent to which water supply industry delivers water to industries, businesses, agriculture and power stations in addition to households. Data collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Water section. Questionnaires available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source

UNSD, https://unstats.un.org/unsd/environment/qindicators.htm

UNSD, https://unstats.un.org/unsd/environment/FDES/MS%202.6%20Water%20Resources.pdf

Table 2.24 Degree of integrated water resources management implementation (0-100) (SDG 6.5.1)

Partner States /Year	2012
Burundi	1 [NA, 1, 2]
Kenya	0 [NA, 1, 2]
Rwanda	1 [NA, 1, 2]
United R. of Tanzania	0 [NA, 1, 2]
Uganda	0 [NA, 1, 2]

Access date: 04 December 2017

[NA] Data type not available

[1] United Nations Environment Programme (UNEP)

[2] Based on 130 countries' response to a 2012 Integrated Water Resources Management survey question

Source: United Nations Environment Programme (UNEP)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 2.24

Definition

Implementation of Integrated Water Resources Management (IWRM) is defined as "a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems."

Relevance

The indicator provides a direct progress measurement of the first part of Target 6.5 "…implement integrated water resources management at all levels …". The percentage score provides an easy and understandable way of measuring progress towards the target, with '0' interpreted as no implementation of IWRM, and '100' interpreted as IWRM being fully implemented.

Computation/Collection Method

The survey contains 32 questions divided into the four main components. Each question is given a score between 0 and 100, in increments of 10. The un-weighted average of the question scores within each of the four components is calculated to give a score of 0 – 100 for each component. The component scores are averaged (un-weighted) to give the indicator score, expressed as a percentage between 0 and 100.

Source

UNEP, GWP 2010, http://www.unepdhi.org

UNEP, https://unstats.un.org/sdgs/metadata/files/Metadata-06-05-01.pdf

Chapter 3
Residuals

CHAPTER 3 RESIDUALS

This chapter contains statistics on the amount and characteristics of residuals generated by human production and consumption processes, their management, and their final release to the environment. Residuals are flows of solid, liquid and gaseous materials, and energy, that are discarded, discharged or emitted by establishments and households through processes of production, consumption or accumulation. Residuals may be discarded, discharged or emitted directly to the environment or be captured, collected, treated, recycled or reused. The FDES 2013 covers the main groups of residuals that are emissions of substances to air, water or soil, wastewater and waste, and the release of residuals from the application of chemical substances. This chapter does not contain indicators on wastewater.

Emissions to Air

Emissions to air are gaseous and particulate substances released to the atmosphere by establishments and households as a result of production, consumption and accumulation processes. The statistical description of such emissions covers their sources and the quantities emitted by substance. These statistics can be used for evidence-based policy making, particularly with regard to environmental regulations (e.g., maximum allowable emission levels versus actual levels). They can also be used to model where the greatest impacts on humans from air pollution may occur. These statistics are also required to monitor adherence to any multilateral environmental agreements (MEAs), particularly the Kyoto and Montreal protocols, to which the country may be a party.

Table 3.1 Fossil fuel CO_2 emissions (10^3 mt C)*

Partner States/ Years	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi	57	65	74	56	58	44	54	42	51	51	52	52	58	66	77	79	120
Kenya	1,588	2,060	2,841	2,555	2,173	1,842	2,079	2,335	2,611	2,681	2,793	3,368	3,320	3,670	3,413	3,636	3,896
Rwanda	148	126	144	145	145	142	144	144	144	152	148	157	161	181	201	219	229
United R. of Tanzania	618	969	723	853	979	1,038	1,190	1,501	1,644	1,608	1,675	1,614	1,938	2,207	2,603	3,048	3,153
Uganda	207	256	390	412	425	436	474	592	692	788	870	922	1,069	1,163	1,110	1,328	1426

Access date: 04 December 2017
*10^3 mt C = 3,670 mt of CO_2
Source: Carbon Dioxide Information Analysis Center (CDIAC)
http://cdiac.ornl.gov/trends/trends.htm

Metadata for Table 3.1

Definition

The data in table 3.1 shows the total CO_2 emissions from fossil fuels which include emissions from consumption of solid, liquid and gas fuels, cement production, and gas flaring.

Relevance

CO_2 is one of the primary greenhouse gases and is the most important cause of global warming. Increases in the emissions of CO_2 from burning fossil fuels over the past years has been identified as the major reason for change of temperature in the atmosphere.

Computation/Collection Method

The CO_2 emission estimates are derived primarily from energy statistics published by the United Nations Statistics Division (UNSD), using the methods of Marland and Rotty (1984). The energy statistics were compiled primarily from annual energy questionnaires distributed by UNSD and supplemented by official national statistical publications, as well as publications from international and regional organizations. Where official data are not available or are inconsistent, estimates are made by UNSD based on governmental, professional or commercial materials. Data from the U.S. Department of Interior's Geological Survey (USGS 2017) were used to estimate CO_2 emitted during cement production. Values for emissions from gas flaring were derived primarily from UNSD data but were supplemented with data from the U.S. Department of Energy's Energy Information Administration (1994), Rotty (1974), and data provided by G. Marland. Greater details about these methods are provided in Marland and Rotty (1984), Boden et al. (1995), and Andres et al. (1999).

Source

CDIAC, http://cdiac.ess-dive.lbl.gov/trends/emis/overview_2014.html

Table 3.2 CO$_2$ emissions per unit of value added [SDG 9.4.1]

Partner States/Years		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi																
Kenya	Emissions of carbon dioxide (Metric Tons)	7.76 [C,1]	7.08 [C,1]	6.83 [C,1]	5.86 [C,1]	6.72 [C,1]	7.48 [C,1]	8.44 [C,1]	8.38 [C,1]	8.82 [C,1]	10.43 [C,1]	11.21 [C,1]	11.32 [C,1]	10.35 [C,1]	11.70 [C,1]	12.35 [C,1]
	Emissions of carbon dioxide per unit of GDP (PPP) (kg CO$_2$ equivalent per USD1 constant 2005 PPP GDP)	0.12 [C,1]	0.10 [C,1]	0.10 [C,1]	0.08 [C,1]	0.09 [C,1]	0.10 [C,1]	0.10 [C,1]	0.09 [C,1]	0.10 [C,1]	0.11 [C,1]	0.11 [C,1]	0.11 [C,1]	0.09 [C,1]	0.10 [C,1]	0.10 [C,1]
	Emissions of carbon dioxide per unit of Manufacturing Value Added (kg per constant USD)	0.44 [M,2]	0.49 [M,2]	0.55 [M,2]	0.47 [M,2]	0.44 [M,2]	0.48 [M,2]	0.57 [M,2]	0.52 [M,2]	0.50 [M,2]	0.50 [M,2]	0.61 [M,2]	0.65 [M,2]	0.49 [M,2]	0.44 [M,2]	0.56 [M,2]
Rwanda																
United R. of Tanzania	Emissions of carbon dioxide (Metric Tons)	2.61 [C,1]	2.76 [C,1]	3.15 [C,1]	3.29 [C,1]	4.57 [C,1]	5.05 [C,1]	5.39 [C,1]	5.20 [C,1]	5.32 [C,1]	5.10 [C,1]	6.13 [C,1]	7.84 [C,1]	9.93 [C,1]	10.28 [C,1]	10.37 [C,1]
	Emissions of carbon dioxide per unit of GDP (PPP) (kg CO$_2$ equivalent per USD1 constant 2005 PPP GDP)	0.05 [C,1]	0.05 [C,1]	0.06 [C,1]	0.06 [C,1]	0.07 [C,1]	0.07 [C,1]	0.08 [C,1]	0.07 [C,1]	0.07 [C,1]	0.06 [C,1]	0.07 [C,1]	0.08 [C,1]	0.10 [C,1]	0.09 [C,1]	0.09 [C,1]
	Emissions of carbon dioxide per unit of Manufacturing Value Added (kg per constant USD)	0.50 [M,2]	0.40 [M,2]	0.37 [M,2]	0.34 [M,2]	0.31 [M,2]	0.32 [M,2]	0.30 [M,2]	0.27 [M,2]	0.23 [M,2]	0.21 [M,2]	0.21 [M,2]	0.34 [M,2]	0.36 [M,2]	0.38 [M,2]	0.59 [M,2]
Uganda																

Access date: 04 December 2017

Blank indicates the data is not available

[C] Country data

[M] Modeled

[1] IEA/OECD CO$_2$ emissions from fuel combustion, 2016

[2] UNIDO MVA 2017 Database. Available at https://stat.unido.org. IEA CO$_2$ Emissions from Fuel Combustion Statistics 2016

Source: United Nations Industrial Development Organization (UNIDO), International Energy Agency (IEA)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 3.2

Definition
The data in Table 3.2 shows the emissions of CO_2 in tonnes, per unit of GDP in kg CO_2 equivalent per USD1 constant 2005 PPP GDP, and per unit of manufacturing value added in kg per constant USD.

Relevance
The indicator CO_2 emissions per unit of value added represents the amount of emissions from fuel combustion produced by an economic activity, per unit of economic output. When computed for the whole economy, it combines effects of the average carbon intensity of the energy mix (linked to the shares of the various fossil fuels in the total); of the structure of an economy (linked to the relative weight of more or less energy-intensive sectors); of the average efficiency in the use of energy. When computed for the manufacturing sector (CO_2 emissions from fuel combustion per unit of manufacturing value added), it measures the carbon intensity of the manufacturing economic output, and its trends result from changes in the average carbon intensity of the energy mix used, in the structure of the manufacturing sector, in the energy efficiency of production technologies in each sub-sector, and in the economic value of the various output. Manufacturing industries are generally improving their emission intensity as countries move to higher levels of industrialization, but it should be noted that emission intensities can also be reduced through structural changes and product diversification in manufacturing. CO_2 emission accounts for around 80% of all GHG emission from the manufacturing processes.

Computation/Collection Method
CO_2 emissions from fuel combustion are estimated based on energy consumption and on the Intergovernmental Panel on Climate Change (IPCC) Guidelines. The total intensity of the economy is defined as the ratio of total CO_2 emissions from fuel combustion and GDP. The sectoral intensity is defined as CO_2 emission from manufacturing (in physical measurement unit such as tonnes) divided by manufacturing value added (MVA) in constant 2010 USD.

Source
UNIDO, UNSD, IEA, NSOs, https://unstats.un.org/sdgs/metadata/files/Metadata-09-04-01.pdf

Table 3.3 Emissions of direct greenhouse gases (CO₂, CH₄, N₂O)

Partner States/Years	Greenhouse gas	Start Year on record	Emissions	Last Inventory Year	Emissions	Percentage change in emissions (%)
Burundi	CO_2 (Gg)	1998	-2,857.23	2005	-15,176.37	431.16
	CH_4 (Gg CO_2 eq)	1998	945.00	2005	533.00	-43.60
	N_2O (Gg CO_2 eq)	1998	909.30	2005	25,771.40	2,734.34
	Aggregate GHGs (Gg CO_2 eq)	1998	-1,002.98	2005	11,128.00	-1,209.50
Kenya	CO_2 (Gg)			1994	-22,750.26	
	CH_4 (Gg CO_2 eq)			1994	15,768.09	
	N_2O (Gg CO_2 eq)			1994	448.17	
	Aggregate GHGs (Gg CO_2 eq)			1994	-6,533.99	
Rwanda	CO_2 (Gg)	2002	-6,712.03	2005	-8,013.00	19.38
	CH_4 (Gg CO_2 eq)	2002	1,274.45	2005	1,508.12	18.33
	N_2O (Gg CO_2 eq)	2002	808.87	2005	4,139.96	411.82
	Aggregate GHGs (Gg CO_2 eq)	2002	-4,628.71	2005	-2,364.92	-48.91
United R. of Tanzania	CO_2 (Gg)	1990	66,224.39	1994	813,679.69	1,128.67
	CH_4 (Gg CO_2 eq)	1990	48,349.59	1994	117,728.40	143.49
	N_2O (Gg CO_2 eq)	1990	15,155.19	1994	21,391.55	41.15
	Aggregate GHGs (Gg CO_2 eq)	1990	129,729.17	1994	952,799.64	634.45
Uganda	CO_2 (Gg)	1994	8,852.90	2000	10,106.00	14.15
	CH_4 (Gg CO_2 eq)	1994	26,777.79	2000	10,913.28	-59.25
	N_2O (Gg CO_2 eq)	1994	14,169.17	2000	17,034.50	20.22
	Aggregate GHGs (Gg CO_2 eq)	1994	49,799.87	2000	38,053.78	-23.59

Access date: 04 December 2017
Blank values indicate no data available
Source: United Nations Framework Convention on Climate Change (UNFCCC)
http://unfccc.int/ghg_data/ghg_data_unfccc/ghg_profiles/items/3954.php

Metadata for Table 3.3

Definition
The data in Table 3.3 shows the emissions of direct greenhouse gases (GHGs) including LULUCF/LUCF (Land Use, Land-Use Change and forestry) at a start and end year plus the percentage of change in emissions between those two years. The data contains estimates of CO_2 – Carbon dioxide, CH_4 – Methane, N_2O – Nitrous oxide, and fluorinated gases – HFCs, PFCs, SF_6.

Relevance
In order to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system", it is important to control the emissions of greenhouse gases. Activities in the LULUCF sector can provide a relatively cost-effective way of offsetting emissions, either by increasing the removals of greenhouse gases from the atmosphere (e.g. by planting trees or managing forests), or by reducing emissions (e.g. by curbing deforestation).

Computation/Collection Method
Each country submits national GHG inventories to the United Nations Framework Convention on Climate Change (UNFCCC) in accordance with the reporting requirements adopted under the UNFCCC Reporting Guidelines.

Source
UNFCCC,
http://unfccc.int/ghg_data/ghg_data_unfccc/items/4146.php,
http://unfccc.int/ghg_data/ghg_data_unfccc/data_sources/items/3816.php,
http://unfccc.int/land_use_and_climate_change/lulucf/items/3060.php

Table 3.4 Ozone-depleting substances (ODS) consumption (ODP tonnes)

Partner States/Years	Annex Group Name	Baseline*	1986	1989	1991	1995	1997	1999	2002	2004	2006	2008	2010	2012	2014	2016
Burundi	Chlorofluorocarbons (CFCs)	59.0	32.4	40.3	45.6	56.2	61.9	59.6	19.1	3.9	3.5	1.0	0.0	0.0	0.0	0.0
	Halons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Carbon Tetrachloride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Methyl Chloroform	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hydrochlorofluorocarbons (HCFCs)	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.4	6.3	7.4	7.0	6.8	5.2
	Methyl Bromide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	Chlorofluorocarbons (CFCs)	239.5	230.0	230.0	105.0	301.0	250.6	241.1	152.3	131.7	57.7	7.5	0.0	0.0	0.0	0.0
	Halons	5.3	15.5	25.0	16.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Carbon Tetrachloride	65.9		5.5	110.0	40.7	71.5	66.0	0.6	0.3	0.3	0.1	0.0	0.0	0.0	0.0
	Methyl Chloroform	1.1		12.0	10.0	3.5	1.2	1.0	5.8	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	Hydrochlorofluorocarbons (HCFCs)	52.2		2.8	3.9	5.8	13.3	19.8	24.2	26.9	42.5	57.8	49.6	42.4	24.8	15.1
	Methyl Bromide	217.5			198.0	195.0	236.4	60.0	139.1	41.1	34.2	10.2	6.6	0.0	0.0	0.0
Rwanda	Chlorofluorocarbons (CFCs)	30.4	34.7	32.2	29.2	26.5	34.4	30.1	30.1	27.1	12.0	1.2	0.0	0.0	0.0	0.0
	Halons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Carbon Tetrachloride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Methyl Chloroform	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hydrochlorofluorocarbons (HCFCs)	4.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	3.1	3.6	4.4	3.7	3.3	2.8
	Methyl Bromide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United R. of Tanzania	Chlorofluorocarbons (CFCs)	253.9	40.2	88.2		280.4	187.7	88.9	71.5	98.8	54.0	13.9	0.0	0.0	0.0	0.0
	Halons	0.3	0.5			0.5	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Carbon Tetrachloride	0.1		1.0		1.0	37.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Methyl Chloroform	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hydrochlorofluorocarbons (HCFCs)	1.7		0.7		2.2	0.4	0.0	0.0	0.0	5.8	8.4	2.0	9.5	1.3	1.2
	Methyl Bromide	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	Chlorofluorocarbons (CFCs)	12.8	7.1	13.8	14.6	11.8	13.9	12.2	12.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	Halons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Carbon Tetrachloride	0.4	0.2	0.2	0.3	0.0	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Methyl Chloroform	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hydrochlorofluorocarbons (HCFCs)	0.2		0.0	0.0	0.9	0.0	1.4	1.7	0.1	0.0	0.0	0.3	0.1	0.0	0.0
	Methyl Bromide	6.3			0.0	1.5	10.2	10.5	30.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0

Access date: 12 Februrary 2018

*Baseline is a reference level defined by each country to compare performance before and after a change is made.

Blank values indicate no data available

Source: United Nations Enviroment Programme (UNEP)

http://ozone.unep.org/en/data-reporting/data-centre

Metadata for Table 3.4

Definition
This indicator is used to monitor the reduction in the usage of Ozone Depleting Substances (ODSs) as a result of the Montreal Protocol. Therefore, only ODSs controlled under the Montreal Protocol are covered by the indicator. Reducing consumption ultimately leads to reductions in emissions since most uses of ODSs finally lead to the substances being emitted into the atmosphere. The units of measurement are metric tons of ODS weighted by their Ozone Depletion Potential (ODP), otherwise referred to as ODP tons.

Relevance
Ozone depleting substances (ODSs) is any substance containing chlorine or bromine, which destroys the stratospheric ozone layer that absorbs most of the biologically damaging ultraviolet radiation. The phasing out of ozone depleting substances, and their substitution by less harmful substances or new processes, are aimed at the recovery of the ozone layer.

Computation/Collection Method
Parties report their Production, Imports, Exports and Destruction of individual substances controlled under the Montreal Protocol in metric tonnes. For each substance, the metric tonnes are then multiplied by the ODP of the substance (resulting in ODP-weighted tonnes, or in short ODP-tonnes).

Consumption is then calculated as production plus imports minus exports minus destroyed quantities minus feedstock uses of a controlled substance. Destruction and feedstock uses both take out ODS out of the system (opposite of production), hence the reason for subtracting them when calculating consumption. The Protocol also specifies that consumption shall not include the amounts used for quarantine and pre-shipment applications of methyl bromide, and further specifies that exports to non-Parties will count as consumption in the exporting Party.

The precise formula for calculating consumption is:
consumption = total production - destroyed - production for internal feedstock use - production for internal quarantine use (for methyl bromide only) + total new imports - import for feedstock - import for quarantine use – total new exports + export to non-parties.

Source
UNSD, http://mdgs.un.org/unsd/mdg/Metadata.aspx

Generation and Management of Waste

Statistics on the amount and characteristics of waste, defined as discarded material for which the owner or user has no further use, generated by human activities in the course of production and consumption processes, are considered here. To reduce the amount of waste generated and increase the share of waste that is recycled and reused as material or energy source are central to sustainable consumption and production and natural resource management. The final disposal of waste in the environment, even if in a controlled manner, creates pollution and occupies considerable land areas.

Table 3.5 Total waste generation (1,000 tonnes)

Partner States/Years	1990	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Burundi		13.2[1]	13.8[1]	10.8[1]	15.6[1]	13.8[1]	7.2[1]	39.0[1]	8.3	29.6	24.6	59.4
Kenya												
Rwanda												
United R. of Tanzania	279.6[2]	470.0[2]	478.3[2]	486.5[2]	491.1[2]	506.9[2]	645.6[3]	649.1[3]	651.4[3]	678.9[3]	733.1[4]	689.5[3]
Uganda		544.4										

Access date: 02 February 2018

Blank indicates the data is not available

[1] These data represent 25% of all household waste of the city of Bujumbura only, the rest (75% of solid household waste) is not collected. The source of these data is the SETEMU; the methodology for collecting this data is the quantification of solid wastes discharged into the landfills managed by the SETEMU; as the quantification is done in cubic meters, the conversion is done in tons using the density of 0.45 tons per cubic meter.

[2] Data refer to Dodoma, Songea and Songwe only.

[3] Data refer to Dodoma, Rukwa, Songea and Songwe only.

[4] Data refer to Arusha, Dodoma, Rukwa, Songea and Songwe only.

Source: United Nations Statistics Division (UNSD)

https://unstats.un.org/unsd/environment/Time%20series.htm#Waste

Metadata for Table 3.5

Definition
Total waste generation refers to the amount of waste generated before any collection or treatment, by waste type, and by generator (by economic activity (by ISIC) and households).

Relevance
Policy makers, particularly local governments, require statistics on waste in order to assess how its generation changes over time. This, in turn, assists in planning for present and future waste management in terms of transportation and facilities required. Statistics on waste are also needed to develop strategies to encourage waste reduction, reuse and recycling.

Computation/Collection Method
Ideally, statistics on the amount and type of waste generated should be reported by the establishments (economic units) that generate it. However, in practice these statistics are usually estimated from the records of the economic units engaged in waste collection, treatment and disposal. The broad waste categories frequently used in waste statistics, such as municipal, industrial and hazardous waste, combine many waste materials into categories based on the similarity of their collection, treatment and disposal. The amount of waste generated can be estimated with high reliability when the waste management system is well developed and covers all waste.

Data are collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Waste section. Questionnaires are available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Table 3.6 Municipal waste collected – national level (1,000 tonnes)

Partner States/Years	Value	Year
Burundi	39 [1]	2011
Kenya		
Rwanda		
United R. of Tanzania	513 [2]	2015
Uganda	224	2006

Access date: 04 December 2017
Blank indicates the data is not available
[1] Data refer to Bujumbura only
[2] Data refer to Dodoma, Mbeya, Moshi, Songea, Songwe only.
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Time%20series.htm#Waste

Metadata for Table 3.6

Definition
Municipal waste collected refers to waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).

Relevance
Policy makers, particularly local governments, require statistics on waste in order to assess how its generation changes over time. This, in turn, assists in planning for present and future waste management in terms of transportation and facilities required. Statistics on waste are also needed to develop strategies to encourage waste reduction, reuse and recycling.

Computation/Collection Method
Data on municipal waste collected are usually gathered through surveys of municipalities, which are responsible for waste collection and disposal, or from transport companies that collect waste and transport it to a disposal site. Such surveys deliver fairly reliable data. However, the figures only cover waste collected by or on behalf of municipalities. Therefore, amounts of waste will vary, depending on the extent that municipal waste collection covers small industries and the services sector. Waste collected by the informal sector, waste generated in areas not covered by the municipal waste collection system or illegally dumped waste is not included.

Data are collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Waste section. Questionnaires are available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Table 3.7 Municipal waste collected – capital city (1,000 tonnes)

Partner States	Capital City	Year	Population (1,000 inh.)	% of population served	Municipal waste collected from households	Municipal waste collected from other origins	Total amount of municipal waste collected
Burundi	Bujumbura	2011	546.7		39.0		39.0
Kenya	Nairobi	2012	3,580.0 [1]	44.0	358.7	229.3	588.0
Rwanda	Kigali						
United R. of Tanzania	Dodoma	2011			150.0	64.5	215.0
Uganda	Kampala						

Access date: 02 February 2018
Blank indicates the data is not available
[1] Total population of the city includes those spending the day in the city but reside in neighbouring towns.
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Time%20series.htm#Waste

Metadata for Table 3.7

Definition
Municipal waste collected refers to waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).

Relevance
Policy makers, particularly local governments, require statistics on waste in order to assess how its generation changes over time. This, in turn, assists in planning for present and future waste management in terms of transportation and facilities required. Statistics on waste are also needed to develop strategies to encourage waste reduction, reuse and recycling.

Computation/Collection Method
Data on municipal waste collected are usually gathered through surveys of municipalities, which are responsible for waste collection and disposal, or from transport companies that collect waste and transport it to a disposal site. Such surveys deliver fairly reliable data. However, the figures only cover waste collected by or on behalf of municipalities. Therefore, amounts of waste will vary, depending on the extent that municipal waste collection covers small industries and the services sector. Waste collected by the informal sector, waste generated in areas not covered by the municipal waste collection system or illegally dumped waste is not included.

Data are collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Waste section. Questionnaires are available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Table 3.8 Municipal waste treated or disposed – capital city (1,000 tonnes)

Partner States	Capital City	Year	Municipal waste recycled	Municipal waste composted	Municipal waste incinerated	Municipal waste landfilled	Municipal waste subject to other treatment
Burundi	Bujumbura	2011				39.0	
Kenya	Nairobi	2012	117.6	264.6	29.4	176.4	
Rwanda	Kigali						
United R. of Tanzania	Dodoma	2011					129.0
Uganda	Kampala						

Access date: 02 February 2018
Blank indicates the data is not available
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Time%20series.htm#Waste

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Metadata for Table 3.8

Definition
Municipal waste collected refers to waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).
Landfilling is the final placement of waste into or onto the land in a controlled or uncontrolled way. The definition covers both landfilling in internal sites (i.e., where a generator of waste is carrying out its own waste disposal at the place of generation) and in external sites.
Incineration is the controlled combustion of waste with or without energy recovery.
Recycling is defined as any reprocessing of waste material in a production process that diverts it from the waste stream, except reuse as fuel. Both reprocessing as the same type of product, and for different purposes should be included. Recycling within industrial plants i.e. at the place of generation should be excluded.
Composting is a biological process that submits biodegradable waste to anaerobic or aerobic decomposition, and that results in a product that is recovered and can be used to increase soil fertility.

Relevance
Policy makers, particularly local governments, require statistics on waste in order to assess how its generation changes over time. This, in turn, assists in planning for present and future waste management in terms of transportation and facilities required. Statistics on waste are also needed to develop strategies to encourage waste reduction, reuse and recycling.

Computation/Collection Method
Data on municipal waste collected are usually gathered through surveys of municipalities, which are responsible for waste collection and disposal, or from transport companies that collect waste and transport it to a disposal site. Such surveys deliver fairly reliable data. However, the figures only cover waste collected by or on behalf of municipalities. Therefore, amounts of waste will vary, depending on the extent that municipal waste collection covers small industries and the services sector. Waste collected by the informal sector, waste generated in areas not covered by the municipal waste collection system or illegally dumped waste is not included.

Data are collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Waste section. Questionnaires are available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

</div>

Table 3.9 Composition of municipal waste (%)

Partner States	Year	Paper, paperboard	Textiles	Plastics	Glass	Metals	Other inorganic material	Organic material
Burundi	2005	7.3[1]	0.4[1]	3.5[1]	2.9[1]	2.1[1]	2.8[1]	81.0[1]
Kenya								
Rwanda								
United R. of Tanzania	2015	8.0[2]	5.0[2]	22.0[2]	2.0[2]	5.0[2]	9.0[2]	49.0[2]
Uganda	2006	6.0[3]	1.2[3]	7.6[3]	0.8[3]	0.6[3]	9.4[3]	74.5[3]

Access date: 02 February 2018
Blank indicates the data is not available
[1] These data come from the study on solid waste composition made by Services Techniques Municipaux (SETEMU) in 2005.
[2] Data refer to Dar es Salaam only.
[3] Nine municipal councils and the capital city were considered in the survey.
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Time%20series.htm#Waste

Metadata for Table 3.9

Definition
Municipal waste refers to waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).

Relevance
Policy makers, particularly local governments, require statistics on waste in order to assess how its generation changes over time. This, in turn, assists in planning for present and future waste management in terms of transportation and facilities required. Statistics on waste are also needed to develop strategies to encourage waste reduction, reuse and recycling.

Computation/Collection Method
Usually, the composition of municipal waste is determined from the physical analysis of waste samples using surveying methods. Sometimes only the composition of household waste data is available.

Data are collected from the UNSD/UNEP biennial Questionnaires on Environment Statistics, Waste section. Questionnaires are available at: http://unstats.un.org/unsd/environment/questionnaire.htm.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Release of Chemical Substances

Chemical fertilizers to enrich soils and pesticide use in protecting plants and animals from disease are covered here. Other chemicals accelerate the growth of biota and preserve and enhance the quality, size and appearance of biological products. Environmental effects are generated by the diffusion of chemicals through cycling systems and build-up of contaminants in water, land and living organisms (through the food chain). The statistics include the amount of natural and chemical fertilizers and pesticides used by type of active ingredients, the area under application and the method employed. These statistics serve as a proxy or the basis for estimating the chemicals that remain in the environment and affect environmental quality.

Table 3.10 Consumption of fertilizers (tonnes of nutrients)

Partner States	Nutrients	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Burundi	Nitrogen (N)	282 [Qm]	429 [Qm]	1,098 [Qm]	1,488 [D]	809 [D]	997 [D]	1,049 [D]	1,942 [D]	2,673 [D]	3,168 [BK]	4,079 [D]	5,614 [D]	4,618 [D]
	Phosphate (P$_2$O$_5$)	0 [Qm]	624 [Qm]	2,256 [Qm]	639 [D]	685 [D]	372 [D]	623 [D]	1,333 [D]	2,677 [D]	2,495 [BK]	3,067 [D]	4,512 [D]	3,882 [D]
	Potash (K$_2$O)	19 [Qm]	42 [Qm]	36 [Qm]	882 [D]	222 [D]	585 [D]	96 [D]	171 [D]	285 [D]	713 [BK]	1,379 [D]	2,853 [D]	1,503 [D]
Kenya	Nitrogen (N)	68,061 [Qm]	64,724 [Qm]	72,514 [Qm]	77,667 [Qm]	79,441 [Qm]	73,071 [Qm]	67,372 [D]	70,788 [D]	111,969 [D]	91,571 [BK]	128,866 [D]	228,928 [D]	132,993 [D]
	Phosphate (P$_2$O$_5$)	90,378 [Qm]	70,165 [Qm]	93,143 [Qm]	85,245 [Qm]	99,143 [Qm]	97,673 [Qm]	93,168 [D]	75,853 [D]	107,805 [D]	91,698 [BK]	76,952 [D]	12,048 [D]	19,985 [D]
	Potash (K$_2$O)	11,877 [Qm]	10,657 [Qm]	15,038 [Qm]	13,140 [Qm]	14,311 [Qm]	5,680 [Qm]	14,674 [D]	20,268 [D]	33,002 [D]	19,648 [BK]	19,026 [D]	7,528 [D]	12,780 [D]
Rwanda	Nitrogen (N)	877 [D]	709 [D]	1,214 [D]	589 [D]	2,573 [D]	2,799 [D]	535 [D]	94 [D]	77 [D]	2,307 [BK]	6,722 [D]	6,937 [D]	11,095 [D]
	Phosphate (P$_2$O$_5$)	793 [D]	622 [D]	1,087 [D]	1,528 [D]	4,247 [D]	4,317 [D]	455 [D]	0 [NR]	31 [D]	2,858 [BK]	4,281 [D]	4,633 [D]	7,031 [D]
	Potash (K$_2$O)	779 [D]	704 [D]	1,099 [D]	1,769 [D]	2,004 [D]	3,637 [D]	454 [D]	0 [NR]	6 [D]	669 [BK]	2,208 [D]	2,930 [D]	4,571 [D]
United R. of Tanzania	Nitrogen (N)	26,590 [Qm]	34,469 [Qm]	33,530 [Qm]	39,222 [Qm]	41,448 [Qm]	43,426 [Qm]	66,942 [D]	66,380 [Qm]	67,717 [Qm]	56,531 [BK]	42,685 [Qm]	83,873 [D]	76,453 [D]
	Phosphate (P$_2$O$_5$)	6,390 [Qm]	9,725 [Qm]	16,825 [Qm]	11,552 [Qm]	8,992 [Qm]	9,264 [Qm]	14,951 [D]	27,349 [Qm]	28,943 [Qm]	40,172 [BK]	15,043 [Qm]	26,430 [D]	32,623 [D]
	Potash (K$_2$O)	5,070 [Qm]	6,053 [Qm]	5,463 [Qm]	1,583 [Qm]	276 [Qm]	276 [Qm]	4,640 [D]	8,196 [Qm]	9,205 [Qm]	8,009 [BK]	5,383 [Qm]	9,114 [D]	10,336 [D]
Uganda	Nitrogen (N)	4,328 [D]	3,951 [D]	2,578 [D]	4,389 [D]	3,968 [D]	10,644 [D]	7,046 [D]	6,366 [D]	7,609 [D]	8,049 [BK]	9,595 [D]	6,639 [D]	7,503 [D]
	Phosphate (P$_2$O$_5$)	2,976 [D]	3,298 [D]	2,018 [D]	2,172 [D]	2,171 [D]	5,493 [D]	4,152 [D]	2,811 [D]	2,587 [D]	3,536 [BK]	4,105 [D]	3,357 [D]	5,968 [D]
	Potash (K$_2$O)	2,027 [D]	1,509 [D]	1,160 [D]	1,091 [D]	1,358 [D]	2,839 [D]	2,548 [D]	2,429 [D]	1,872 [D]	3079 [BK]	3,147 [D]	2,562 [D]	2,959 [D]

Access date: 12 February 2018

[NA] Not applicable

[D] Data obtained as balance

[BK] Break in series

[QM] Official data from questionnaires and/or national sources and/or COMTRADE (reporters)

[NR] Not reported by country

Source: Food and Agriculture Organization of the United Nations (FAO)

http://www.fao.org/faostat/en/#data/RFN

Metadata for Table 3.10

Definition
Table 3.10 shows annual consumption of fertilizers for the three main plant nutrients: nitrogen (N), phosphate (P_2O_5), potash (K_2O) expressed in tonnes.

Relevance
These statistics are useful for market management and monitoring, production forecasts and policy-making in agricultural and food sectors.

Computation/Collection Method
Fertilizer consumption data is calculated based on the equation:

C = A+O
Where:
C = fertilizers Consumption
A = Agricultural use
O = Other uses
Countries report to FAO data on A and O through the FAOSTAT Fertilizers questionnaire.

Source
FAO, http://fenixservices.fao.org/faostat/static/documents/RF/RF_e.pdf

Table 3.11 Consumption of fertilizers per 1,000 hectares of agricultural land area (tonnes of nutrients)

Partner States/Years	Item	2002	2005	2008	2011	2012	2013
Burundi	Nitrogen (N)	0.28	0.60	0.56	1.42	1.53	2.04
	Phosphate (P_2O_5)	0.44	1.24	0.21	1.42	1.39	1.59
	Potash (K_2O)	0.01	0.02	0.33	0.15	0.32	0.72
Kenya	Nitrogen (N)	2.34	2.69	2.70	4.05	4.10	4.72
	Phosphate (P_2O_5)	2.81	3.45	3.61	3.90	3.70	5.57
	Potash (K_2O)	0.03	0.56	0.21	1.19	1.15	0.74
Rwanda	Nitrogen (N)	0.00	0.68	1.55	0.04	1.26	3.64
	Phosphate (P_2O_5)	0.00	0.61	2.39	0.02	1.37	2.33
	Potash (K_2O)	0.00	0.62	2.01	0.00	0.00	0.00
United R. of Tanzania	Nitrogen (N)	0.65	0.95	1.17	1.77	1.42	1.08
	Phosphate (P_2O_5)	0.15	0.48	0.25	0.76	1.01	0.38
	Potash (K_2O)	0.13	0.15	0.01	0.24	0.20	0.14
Uganda	Nitrogen (N)	0.28	0.19	0.76	0.53	0.50	0.63
	Phosphate (P_2O_5)	0.17	0.15	0.39	0.18	0.20	0.26
	Potash (K_2O)	0.13	0.09	0.20	0.13	0.19	0.19

Access date: 14 Feburary 2018
[1] When the Fertilizer Utilization Account (FUA) does not balance due to utilization from stockpiles, apparent consumption has been set to zero.
Source: United Nations Statistics Division (UNSD), Food and Agriculture Organization of the United Nations (FAO)
https://unstats.un.org/unsd/environment/qindicators.htm

Table 3.12 Use of pesticides (tonnes of active ingredients)

Partner States/Years	Item	1992	1995	1997	1998	2000	2001	2003	2005	2007	2009	2011	2012	2013	2014	2015
Burundi	Insecticides	74.42	101.02	85.46	74.34	30.15	22.43	18.52	14.21	287.33	36.02	38.56	39.99			
	Mineral Oils			13.00												
	Herbicides	7.00	12.18	4.00	3.86	7.43	13.00	8.61	11.52	78.35	105.06	0.04	23.26		14.55	26.9
	Fungicides & Bactericides	10.66	31.00	15.10	0.03	0.08	0.13	233.94	278.00	42.85	26.81	26.66	25.53			
	Seed Treatm Fungicides				29.00	72.18	37.00	1.25	0.69	2.43	2.73	3.17	3.18			
	Seed Treatm Insecticides							1.38	0.40	1.70	2.10	2.19	1.91			
	Rodenticides				0.06	0.03		0.00	0.01							
Kenya	Insecticides		1,413.00	2,078.00		367.00	303.00									
	Herbicides		871.00	703.00		477.00	562.00									
	Fungicides & Bactericides		2,323.00	2,391.00		1,149.00	711.00									
	Rodenticides					5.00	2.00									
Rwanda	Insecticides	25.00		90.00	103.00	36.00	69.00	73.63	69.82	75.00	95.04	67.80	91.20	332.78	233.70	
	Herbicides	13.00		2.00	0.00	4.00	1.00	3.37		7.00	1.35	9.20	10.29	26.72	9.30	
	Fungicides & Bactericides	59.00		157.00	54.00	107.00	1.00	63.68	153.10	316.11	1,091.21	104.60	816.30	1,480.29	1,817.80	
	Seed Treatm Fungicides						1.00						0.03			
	Seed Treatm Insecticides												2.70	0.54	0.06	
	Plant Growth Regulators											5.00				
	Rodenticides				0.00	0.00								1.17	0.05	
United R. of Tanzania	Insecticides	1.00	275.00	25.00	1.00											
	Herbicides		108.00	20.00												
	Fungicides & Bactericides		174.00	4.00												
Uganda	Insecticides	20.00	42.00													
	Herbicides	20.00	8.00													
	Fungicides & Bactericides	40.00	38.00													

Access date: 12 Februrary 2018
Blank values indicate no data available
Source: Food and Agriculture Organization of the United Nations (FAO)
http://www.fao.org/faostat/en/#data/RP

Metadata for Table 3.12

Definition
Table 3.12 shows the usage of the major pesticides that are intended for preventing, destroying or controlling any pest, including vectors of human or animal diseases, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs, or substances which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. They also include substances intended for use as a plant growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the premature fall of fruit.

Relevance
The application of and the residuals from pesticides are an environmental health concern. Residuals in soil from the use of pesticides play an important role in determining its quality, productive capacity and pollution levels.

Computation/Collection Method
The annual FAO Questionnaire on Pesticides Use is the main source of data for this domain. These official statistics may be complemented with government data sources such as yearbooks and ministerial data portals. Data gaps may be filled with secondary sources such as country studies from other international organizations.

Source
FAO, http://www.fao.org/faostat/en/#data/RP/metadata

Chapter 4
Natural Extreme Events and Disasters

CHAPTER 4 EXTREME EVENTS AND DISASTERS

This chapter organizes statistics on the occurrence of extreme events and disasters with focus on their impacts on human well-being and the infrastructure of the human sub-system. The most common data providers are national and sub-national authorities responsible for disaster management and assistance, insurance companies, satellite information and research centres. This chapter is divided into: (i) natural extreme events and disasters; and (ii) technological disasters.

Natural Extreme Events and Disasters

Statistics on natural extreme events and disasters include the frequency and intensity of extreme events and disasters produced by natural phenomena as well as their impact on human lives and habitats and the environment as a whole. These statistics are important to policy makers, analysts and civil society to monitor the frequency, intensity and impact of disasters over time and space. A disaster is the result or exposure to an extreme event. (CRED definition: "Disaster is an unforeseen and often sudden event that causes great damage, destruction and human suffering").

Table 4.1 Natural disasters

Partner States	Disaster Type	Year	Occurrence	Total Deaths	Injured	Affected	Homeless	Total Affected	Total Damage (1,000 USD)
	Drought	1999	1	6		650,000		650,000	
	Drought	2003	1						
	Drought	2005	1	120		2,150,000		2,150,000	
	Drought	2008	1			82,500		82,500	
	Drought	2009	1			180,000		180,000	
	Drought	2011	1						
	Earthquake	2004	1	3			120	120	
	Epidemic	1992	1	220		2,068		2,068	
	Epidemic	1997	2	21		24,350		24,350	
	Epidemic	1999	2	80		616,434		616,434	
	Epidemic	2000	3	308	100	730,591		730,691	
	Epidemic	2002	3	87		2,163		2,163	
	Epidemic	2003	1	6		230		230	
	Epidemic	2011	1	12		600		600	
	Epidemic	2016	1	1	193			193	
	Flood	2000	1				500	500	
Burundi	Flood	2002	2			8,000		8,000	
	Flood	2004	1				10,000	10,000	
	Flood	2005	1				5,000	5,000	
	Flood	2006	6	22		7,000	7,805	14,805	
	Flood	2007	2	5	6	2,695	23,000	25,701	
	Flood	2008	2	9	5	3,270		3,275	
	Flood	2009	1			8,000		8,000	
	Flood	2010	2			1,990		1,990	
	Flood	2011	1			685		685	
	Flood	2014	1	96	182		12,500	12,682	2,000
	Flood	2015	1	52		4,179		4,179	13,000
	Landslide	2015	1	11			2,870	2,870	
	Landslide	2017	1	6			810	810	
	Storm	1999	1			30,810		30,810	
	Storm	2004	2				15,500	15,500	
	Storm	2006	1		5		1,500	1,505	
	Storm	2010	1	9			1,500	1,500	
	Storm	2011	1	12	50			50	

(Continued) Table 4.1. Natural disasters

Partner States	Disaster Type	Year	Occurrence	Total Deaths	Injured	Affected	Homeless	Total Affected	Total Damage (1,000 USD)
	Drought	1999	1	85		23,000,000		23,000,000	
	Drought	2004	1	80		2,300,000		2,300,000	
	Drought	2005	1	27		3,500,000		3,500,000	
	Drought	2008	1	4		3,800,000		3,800,000	
	Drought	2011	2			8,050,000		8,050,000	
	Drought	2014	1			1,600,000		1,600,000	
	Drought	2016	1			3,000,000		3,000,000	
	Earthquake	2004	1	1					100,000
	Epidemic	1999	3	1,814		329,570		329,570	
	Epidemic	2000	5	50		721		721	
	Epidemic	2001	4	40		743		743	
	Epidemic	2004	1	8		141		141	
	Epidemic	2005	2	53		1,645		1,645	
	Epidemic	2006	3	183		588		588	
	Epidemic	2008	1	43					
	Epidemic	2009	3	251		10,446		10,446	
	Epidemic	2010	2	57		3,880		3,880	
	Epidemic	2014	1	72	3,459			3,459	
Kenya	Epidemic	2017	1		1			1	
	Flood	2001	1	4					38
	Flood	2002	4	85	8	175,000		175,008	
	Flood	2003	2	40		60,300		60,300	
	Flood	2004	2	54		12,000		12,000	
	Flood	2005	3	26		36,200		36,200	500
	Flood	2006	4	212		783,300		783,300	
	Flood	2007	3	19	1	42,650		42,651	
	Flood	2008	6	55		62,438		62,438	
	Flood	2009	2	56		136,200		136,200	
	Flood	2010	2	194		211,164		211,164	
	Flood	2011	3	33		95,692	5,000	100,692	
	Flood	2012	1	73		280,670		280,670	100,000
	Flood	2013	4	128	20	115,780		115,800	36,000
	Flood	2015	3	138	73	245,226		245,299	
	Flood	2016	2	42		10,000	1,000	11,000	
	Flood	2017	1	26		25,000		25,000	
	Landslide	2002	1	16					
	Landslide	2007	1	20	6			6	
	Landslide	2008	1	10	20			20	
	Landslide	2010	1	10					

(Continued) Table 4.1. Natural disasters

Partner States	Disaster Type	Year	Occurrence	Total Deaths	Injured	Affected	Homeless	Total Affected	Total Damage (1,000 USD)
Rwanda	Drought	1996	1			82,000		82,000	
	Drought	1999	1			894,545		894,545	
	Drought	2003	1			1,000,000		1,000,000	
	Earthquake	2002	1	45	108	1,535		1,643	
	Earthquake	2008	1	36	643			643	
	Epidemic	1991	1	32		214		214	
	Epidemic	1996	1	10		106		106	
	Epidemic	1998	1	55		2,951		2,951	
	Epidemic	1999	3	76		488		488	
	Epidemic	2000	1	10		164		164	
	Epidemic	2002	1	83		636		636	
	Epidemic	2004	1	4		540		540	
	Epidemic	2006	1	35		300		300	
	Flood	2001	2	12		3,000		3,000	
	Flood	2002	1	69		20,000		20,000	
	Flood	2003	1		16		7,000	7,016	
	Flood	2007	2	30		4,500		4,500	9
	Flood	2008	1		51	11,295		11,346	
	Flood	2011	1	14	20	3,588		3,608	
	Flood	2012	1	5		11,160		11,160	
	Flood	2015	1	2	6	3,425		3,431	
	Flood	2016	1	67					
	Landslide	2006	1	24		2,000		2,000	
	Landslide	2010	2	21	17		5,920	5,937	
	Landslide	2016	1	54			4,000	4,000	
	Storm	2017	2	3	28	6,525		6,553	

(Continued) Table 4.1. Natural disasters

Partner States	Disaster Type	Year	Occurrence	Total Deaths	Injured	Affected	Homeless	Total Affected	Total Damage (1,000 USD)
United Republic of Tanzania	Drought	2003	1			1,900,000		1,900,000	
	Drought	2004	1			254,000		254,000	
	Drought	2006	1			3,700,000		3,700,000	
	Drought	2011	1			1,000,000		1,000,000	
	Earthquake	2000	1	1	6	750	35	791	
	Earthquake	2001	1				700	700	
	Earthquake	2002	1	2			2,000	2,000	
	Earthquake	2004	1	10					
	Earthquake	2005	1	2		5,000		5,000	
	Earthquake	2016	1	17	440	139,161		139,601	458,000
	Epidemic	1999	1	56		529		529	
	Epidemic	2000	4	37		898		898	
	Epidemic	2001	2	25		515		515	
	Epidemic	2002	1	9		149		149	
	Epidemic	2005	1	6		576		576	
	Epidemic	2006	4	70		1,410		1,410	
	Epidemic	2007	2	119		284		284	
	Epidemic	2009	1	12		600		600	
	Epidemic	2015	2	169	13,787			13,787	
	Flood	2000	1	36	17		1,800	1,817	
	Flood	2001	1	5			200	200	
	Flood	2002	1	9		1,200		1,200	
	Flood	2003	1			2,000		2,000	
	Flood	2005	1	1		10,548		10,548	
	Flood	2006	2		28		21,500	21,528	
	Flood	2008	2	73	15	7,500	1,942	9,457	
	Flood	2009	2	38		50,000		50,000	
	Flood	2011	3	37	200	59,000	6,776	65,976	
	Flood	2012	1	10					
	Flood	2014	2	31		40,000		40,000	2,000
	Flood	2015	1	12			5,000	5,000	
	Flood	2016	3	16		126,342	13,933	140,275	
	Flood	2017	1	7					
	Insect infestation	2006	1						
	Landslide	2001	1	13			150	150	
	Storm	2008	2		7	670		677	
	Storm	2009	1			605		605	
	Storm	2015	1	47	112	5,000		5,112	

(Continued) Table 4.1. Natural disasters

Partner States	Disaster Type	Year	Occurrence	Total Deaths	Injured	Affected	Homeless	Total Affected	Total Damage (1,000 USD)
Uganda	Drought	1999	1	115		700,000		700,000	
	Drought	2002	1	79		655,000		655,000	
	Drought	2005	1			600,000		600,000	
	Drought	2008	1			1,100,000		1,100,000	
	Drought	2011	1			669,000		669,000	
	Earthquake	2016	1	4			590	590	
	Epidemic	1999	3	137		2,205		2,205	
	Epidemic	2000	3	259		723		723	
	Epidemic	2001	1	14		9		9	
	Epidemic	2003	1	35		242		242	
	Epidemic	2004	1	3		53		53	
	Epidemic	2005	2	21		726		726	
	Epidemic	2006	4	203		5,702		5,702	
	Epidemic	2007	2	132		5,937		5,937	
	Epidemic	2008	1	28		388		388	
	Epidemic	2009	2	17		544		544	
	Epidemic	2010	1	48		190		190	
	Epidemic	2012	3	156	116	5,864		5,980	
	Epidemic	2013	3	28	1,018	217,479		218,497	
	Epidemic	2017	1	3					
	Flood	2001	2	1		500	300	800	
	Flood	2002	2	17		760	100	860	
	Flood	2003	2	25		700	1,500	2,200	
	Flood	2004	2			10,000	20,000	30,000	
	Flood	2006	2	3		5,680		5,680	
	Flood	2007	2	33		438,070	282,975	721,045	71
	Flood	2008	1	49	40	30,000		30,040	
	Flood	2011	1	27		63,075		63,075	
	Flood	2012	1			15,000		15,000	
	Flood	2013	1	13		25,445		25,445	3,100
	Flood	2016	1			10,000		10,000	2,700
	Flood	2017	1	17	14			14	
	Landslide	2001	1	11	10	3,356		3,366	
	Landslide	2010	1	388	10	12,785		12,795	
	Landslide	2012	1	18	64		3,368	3,432	
	Landslide	2016	1	15			1,000	1,000	
	Storm	2000	2		5		10,000	10,005	
	Storm	2002	1				100	100	
	Storm	2011	1	23	47			47	

Access date: 12 February 2018

Blank values indicated missing values or non-reported information.

Source: Center for Research on the Epidemiology of Disasters (CRED)

http://www.emdat.be/

Metadata for Table 4.1

Definition
Table 4.1 shows losses due to natural disasters. A natural disaster is a natural generated event where either more than ten (10) people are reported killed, hundred (100) or more people are affected, there is a declaration state of emergency or there is a call for international assistance. EM-DAT data include the main following information:
Total deaths: the sum of deaths and missing people.
Injured: People suffering from physical injuries, trauma, or an illness requiring immediate medical assistance as a direct result of a disaster.
Affected: People requiring immediate assistance during an emergency situation.
Homeless: Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.
Total affected: the sum of injured, affected and homeless.
Total damage: The amount of damage to property, crops, and livestock.

Relevance
Such statistics contributes to assist humanitarian action at both international and national level, rationalize decision-making for disaster preparedness and to provide an objective basis for vulnerability assessment and priority setting.

Computation/Collection Method
When a disaster occurs, the related information is entered at three different levels: the event/disaster level, the country level and the source level. The database is based on information from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies. Priority is given to data from UN agencies, governments, and the International Federation of Red Cross and Red Crescent Societies. CRED consolidates and updates data on a daily basis. A further check is made at monthly intervals, and revisions are made at the end of each calendar year. Data availability varies by countries. Data before year 1990 is available on http://www.emdat.be/

Source
CRED,
http://www.emdat.be/explanatory-noteshttp://www.emdat.be/guidelines

Table 4.2 Number of deaths, missing persons and persons affected by disaster per 100,000 people (number) [SDG 1.5.1 and SDG 11.5.1 and SDG 13.1.1]

Partner States/ Years		2002	2004	2006	2008	2010	2012	2014	2016
Burundi									
Kenya	Number of persons affected by disaster per 100,000 people	11.00 [E, 1, 2]	15.00 [E, 1, 2]	4,336.54 [E, 1, 2]	12157.66 [E, 1, 2]	47,088.74 [E, 1, 2]	15,683.09 [E, 1, 2]	2,409.62 [E, 1, 2]	2,907.50 [E, 1, 2]
	Missing persons due to disaster					6.00 [C, 1]	1.00 [C, 1]		1.00 [C, 1]
	Number of deaths due to disaster	77 [C, 1]	11.00 [C, 1]	17.00 [C, 1]	62.00 [C, 1]	148.00 [C, 1]	24.00 [C, 1]	224.00 [C, 1]	582.00 [C, 1]
Rwanda	Number of persons affected by disaster per 100,000 people								8061.50 [E, 1, 2]
	Number of deaths due to disaster								35 [C, 1]
United R. of Tanzania									
Uganda	Number of persons affected by disaster per 100,000 people	14,210.61 [E, 1, 2]	405.25 [E, 1, 2]	4,292.54 [E, 1, 2]	14,926.03 [E, 1, 2]	23,233.75 [E, 1, 2]	143.82 [E, 1, 2]	3,420.18 [E, 1, 2]	
	Missing persons due to disaster			2.00 [C, 1]		600.00 [C, 1]			
	Number of deaths due to disaster	2,061.00 [C, 1]	70.00 [C, 1]	299.00 [C, 1]	163.00 [C, 1]	1,377.00 [C, 1]	15.00 [C, 1]	6.00 [C, 1]	

Access date: 04 December 2017

Blank indicates the data is not available

[E] Estimated

[C] Country data

[1] UNISDR (2015). Global Assessment Report on Disaster Risk Reduction 2015, Geneva, Switzerland: United Nations Office for Disaster Risk Reduction

[2] The number of affected people equals People Injured plus people whose houses are damaged or destroyed. The number of people whose houses are damaged or destroyed is estimated by multiplying the average number of household with the number of damaged or destroyed houses. If the average number of household is not available, UNISDR has developed a proxy (still under development and it has to be approved and review by partners) to estimate the number of people per household.

Source: United Nations International Strategy for Disaster Reduction (UNISDR)

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 4.2

Definition
Table 4.2 shows the number of persons affected, missing and dead by disaster. The number of deaths corresponds to the number of people who died during the disaster, or directly after, as a direct result of the hazardous event. Missing persons refers to the number of people whose whereabouts is unknown since the hazardous event. The number of people affected refers to the people who are affected, either directly or indirectly, by a hazardous event.

Relevance
The disaster loss data on mortality is significantly influenced by large-scale catastrophic events, which represents important outliers in terms of mortality, as they normally imply considerable numbers of people killed. The United Nations Office for Disaster Risk Reduction (UNISDR) recommends countries to report the data by event, so complementary analysis to determine true trends can be done by both including and excluding such catastrophic events that can represent important outliers in terms of mortality.

Computation/Collection Method
Data are compiled by UNISDR from national disaster loss databases. Detailed methodology is available at http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf.

Source
UNISDR, https://unstats.un.org/sdgs/metadata/files/Metadata-11-05-01.pdf

Table 4.3 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services (per 1,000 USD) [SDG 11.5.2]

Partner States/Years	2016
Burundi	2.16[E, 1, 2]
Kenya	1.97[E, 1, 2]
Rwanda	4.46[E, 1, 2]
United R. of Tanzania	1.33[E, 1, 2]
Uganda	1.87[E, 1, 2]

Access date: 04 December 2017
[E] Estimated
[1] UNISDR (2015). Global Assessment Report on Disaster Risk Reduction 2015, Geneva, Switzerland: United Nations Office for Disaster Risk Reduction
[2] AAL is the expected average loss per year considering all potential occurrence of natural hazards (earthquakes, tsunami, cyclonic wind, storm surge and tsunami) over a long time frame.
[AAL: Average annual loss]
Source: United Nations International Strategy for Disaster Reduction (UNISDR)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 4.3

Definition
Direct economic loss is the monetary values of total or partial destruction of physical assets existing in the affected area.

Relevance
This indicator is influenced by large-scale catastrophic events which represent outliers. The United Nations Office for Disaster Risk Reduction (UNISDR) recommends countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events.

Computation/Collection Method
The national disaster loss databases usually register physical damage value which needs conversion to monetary values according to UNISDR methodology in
http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf. The converted global value is then divided by global GDP calculated from the World Bank Development Indicators.

Source
UNISDR, https://unstats.un.org/sdgs/metadata/files/Metadata-11-05-02.pdf

Technological Disasters

Technological disasters arise as a result of human intent, negligence or error or faulty technological applications. Information on the occurrence and impact of such disasters on human lives, habitats the environment and on disaster preparedness is included in the tables below. Policy makers, analysts and civil society require the statistics to understand who is responsible, what is the impact, and how to assess and mitigate future risk. (CRED definition: "Three types of technological disasters: Industrial accidents, transport accidents and other disasters of varied origin")

Table 4.4 Industrial accidents

Partner States	Disaster type	Year	Occurrence	Total deaths	Injured	Affected	Homeless	Total affected
Burundi	Collapse	2009	1	18	39			39
Kenya	Collapse	1993	1	20				
	Collapse	2006	1	20	92			92
	Collapse	2007	1	14				
	Collapse	2009	1	41				
	Collapse	2011	1	16				
	Collapse	2016	1	49				
	Explosion	2009	1	107	100			100
	Explosion	2011	1	119	100			100
	Fire	1997	1				10,000	10,000
	Fire	1998	1	24	80			80
	Fire	2001	1	67	27			27
	Fire	2004	1	2	1		30,000	30,001
	Fire	2009	2	56		2,500		2,500
	Fire	2011	4	2	37	6,625	9,414	16,076
	Other	2004	2	137	190			190
	Other	2005	2	102	84			84
	Other	2015	1	1	141			141
	Poisoning	2000	1	100	400			400
Rwanda	Collapse	2010	1	11				
	Fire	1995	1					
United Republic of Tanzania	Chemical spill	1997	1	100				
	Collapse	2013	1	36				
	Collapse	2015	1	19				
	Explosion	2000	1	33	40			40
	Explosion	2009	1	26	500	18,866		19,366
	Explosion	2011	1	27	500	1,000		1,500
	Fire	1994	1	40	47			47
	Fire	2009	1	12	20			20
	Other	1999	1	21				
	Other	2002	1	42				
	Other	2008	1	19	16			16
Uganda	Collapse	2001	1	1	127			127
	Collapse	2006	1	28	97			97
	Fire	2000	1				4,000	4,000
	Fire	2001	1	31	79			79
	Fire	2003	1				10,000	10,000
	Fire	2004	2			26,000		26,000
	Fire	2005	2	3			50,000	50,000
	Fire	2006	1	12				
	Fire	2008	1	19				
	Other	1994	1	26				
	Other	2007	1	37				
	Other	2015	1	13				

Access date: 04 December 2017

Empty values indicated missing values or non-reported information.

Source: Center for Research on the Epidemiology of Disasters (CRED)

http://www.emdat.be/

Metadata for Table 4.4

Definition
Table 4.4 shows losses due to technological disasters. Technological disasters are divided into 3 sub-groups among which industrial accidents is one of them. EM-DAT data include the main following information:
Total deaths: the sum of deaths and missing people.
Injured: People suffering from physical injuries, trauma, or an illness requiring immediate medical assistance as a direct result of a disaster.
Affected: People requiring immediate assistance during an emergency situation.
Homeless: Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.
Total affected: The total affected is the sum of injured, affected and homeless.

Relevance
Such statistics contributes to assist humanitarian action at both international and national level, rationalize decision-making for disaster preparedness and to provide an objective basis for vulnerability assessment and priority setting.

Computation/Collection Method
When a disaster occurs, the related information is entered at three different levels: the event/disaster level, the country level and the source level. The database is based on information from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies. Priority is given to data from UN agencies, governments, and the International Federation of Red Cross and Red Crescent Societies. CRED consolidates and updates data on a daily basis. A further check is made at monthly intervals, and revisions are made at the end of each calendar year.

Source
CRED,
http://www.emdat.be/explanatory-notes
http://www.emdat.be/guidelines

Table 4.5 Transport accidents

Partner States	Disaster type	Year	Occurrence	Total deaths	Injured	Affected	Homeless	Total affected
Burundi	Road	2001	1	12				
	Road	2002	1	41	39			39
	Road	2003	1	10	8			8
	Road	2005	2	48	25			25
	Road	2007	1	12	6			6
	Road	2016	2	40	150			150
	Water	2003	1	150		48		48
	Water	2009	2	26		10		10
Kenya	Air	1990	1	10				
	Air	1992	1	50				
	Air	2003	1	14				
	Air	2006	1	14	3			3
	Rail	1993	1	340				
	Rail	1999	1	32	254			254
	Rail	2000	2	45	66			66
	Road	1991	4	120	40			40
	Road	1992	1	96	14			14
	Road	1993	1	35	43			43
	Road	1998	2	81	77			77
	Road	1999	3	35	75			75
	Road	2000	5	209	130			130
	Road	2001	3	73	44			44
	Road	2003	1	20				
	Road	2004	2	27	37			37
	Road	2005	2	40	24			24
	Road	2006	6	93	49			49
	Road	2007	4	53	45			45
	Road	2008	1	15	24			24
	Road	2009	2	50	74			74
	Road	2011	2	36	15			15
	Road	2013	4	95	24			24
	Road	2016	1	33				
	Road	2017	2	37				
	Water	1991	1	174				
	Water	1993	1	54				
	Water	1994	2	312	12	71		83
	Water	1997	1	36				
	Water	2012	1	28				
Rwanda	Road	1995	1	70				
	Road	1998	1	22				
	Road	1999	2	68	137			137
	Road	2000	1	39	81			81
	Road	2008	1	12	9			9
	Road	2011	2	27	3			3
	Water	2003	1	13		23		23

(Continued) Table 4.5 Transport accidents

Partner States	Disaster type	Year	Occurrence	Total deaths	Injured	Affected	Homeless	Total affected
	Air	1999	1	12				
	Rail	1992	1	24	47			47
	Rail	1994	1	8	100			100
	Rail	1996	1	33	24			24
	Rail	2002	1	281	230			230
	Road	1997	2	34	51			51
	Road	1998	2	95	66			66
	Road	1999	3	59	100			100
	Road	2000	2	28	77			77
	Road	2001	3	68	46			46
	Road	2002	3	109	54			54
	Road	2003	4	74	150			150
	Road	2004	1	11	3			3
United Republic of Tanzania	Road	2005	1	16	27			27
	Road	2006	3	93	41			41
	Road	2007	5	101	89			89
	Road	2008	1	12	29			29
	Road	2009	4	81	57			57
	Road	2010	2	48	110			110
	Road	2011	2	35	58			58
	Road	2015	2	63	30			30
	Water	1991	2	113				
	Water	1996	1	869				
	Water	1999	2	53				
	Water	2002	2	54		21		21
	Water	2003	1	15		17		17
	Water	2006	4	92		15		15
	Water	2010	1	18		19		19
	Water	2011	1	220		619		619
	Water	2012	1	144		140		140
	Water	2013	2	48				

(Continued) Table 4.5 Transport accidents

Partner States	Disaster type	Year	Occurrence	Total deaths	Injured	Affected	Homeless	Total affected
Uganda	Air	2009	1	11				
	Rail	1994	1	37	37			37
	Road	1990	1	23				
	Road	1993	1	30				
	Road	1994	1	21				
	Road	2000	3	72	10			10
	Road	2001	1	11	5			5
	Road	2002	2	97				
	Road	2003	4	85	79			79
	Road	2004	1	40	4			4
	Road	2005	2	41	20			20
	Road	2006	1	30	4			4
	Road	2010	1	21				
	Road	2012	2	29	4			4
	Road	2013	1	31	10			10
	Road	2016	1	20				
	Water	1992	2	74				
	Water	1996	1	50				
	Water	1999	1	50				
	Water	2000	3	108	11			11
	Water	2002	3	88	7	10		17
	Water	2003	2	31				
	Water	2004	4	111		54		54
	Water	2006	1	10		30		30
	Water	2007	1	30		17		17
	Water	2008	1	30		16		16
	Water	2010	2	44		19		19
	Water	2011	1	19				
	Water	2014	2	308		41		41
	Water	2015	1	18				
	Water	2016	1	30		15		15

Metadata for Table 4.5

Definition
Table 4.5 shows losses due to technological disasters. Technological disasters are divided into 3 sub-groups among which transport accidents is one of them. EM-DAT data include the main following information:
Total deaths: the sum of deaths and missing people.
Injured: People suffering from physical injuries, trauma, or an illness requiring immediate medical assistance as a direct result of a disaster.
Affected: People requiring immediate assistance during an emergency situation.
Homeless: Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.
Total affected: The total affected is the sum of injured, affected and homeless.

Relevance
Such statistics contributes to assist humanitarian action at both international and national level, rationalize decision-making for disaster preparedness and to provide an objective basis for vulnerability assessment and priority setting.

Computation/Collection Method
When a disaster occurs, the related information is entered at three different levels: the event/disaster level, the country level and the source level. The database is based on information from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies. Priority is given to data from UN agencies, governments, and the International Federation of Red Cross and Red Crescent Societies. CRED consolidates and updates data on a daily basis. A further check is made at monthly intervals, and revisions are made at the end of each calendar year.

Source
CRED,
http://www.emdat.be/explanatory-notes
http://www.emdat.be/guidelines

Table 4.6 Miscellaneous accidents

Partner States	Disaster type	Year	Occurrence	Total deaths	Injured	Affected	Homeless	Total affected
Kenya	Collapse	1994	1	14				
	Collapse	2007	1	41				
	Collapse	2009	1	49				
	Explosion	2009	1	107	100			100
	Fire	1998	1				10,000	10,000
	Fire	1999	1	24	80			80
	Fire	2001	1	67	27			27
	Fire	2004	1	2	1		30,000	30,001
	Fire	2009	2	56		2,500		2,500
	Fire	2013	4	2	37	6,625	9,414	16,076
	Other	2005	2	137	190			190
	Other	2006	2	102	84			84
	Other	2015	1	1	141			141
United Republic of Tanzania	Collapse	2015	1	36				
	Explosion	2000	1	33	40			40
	Explosion	2009	1	26	500	18,866		19,366
	Explosion	2011	1	27	500	1,000		1,500
	Fire	1994	1	40	47			47
	Fire	2011	1	12	20			20
	Other	2000	1	21				
	Other	2009	1	19	16			16
Uganda	Collapse	2001	1	1	127			127
	Collapse	2006	1	28	97			97
	Fire	2001	1				4,000	4,000
	Fire	2003	1	31	79			79
	Fire	2004	1				10,000	10,000
	Fire	2004	2			26,000		26,000
	Fire	2005	2	3			50,000	50,000
	Fire	2007	1	12				
	Fire	2008	1	19				
	Other	1997	1	26				
	Other	2008	1	37				
	Other	2016	1	13				

Access date: 04 December 2017
Empty values indicated missing values or non-reported information.
Source: Center for Research on the Epidemiology of Disasters (CRED)
http://www.emdat.be/

Metadata for Table 4.6

Definition
Table 4.6 shows losses due to technological disasters. Technological disasters are divided into 3 sub-groups among which miscellaneous accidents is one of them. EM-DAT data include the main following information:
Total deaths: the sum of deaths and missing people.
Injured: People suffering from physical injuries, trauma, or an illness requiring immediate medical assistance as a direct result of a disaster.
Affected: People requiring immediate assistance during an emergency situation.
Homeless: Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.
Total affected: The total affected is the sum of injured, affected and homeless.

Relevance
Such statistics contributes to assist humanitarian action at both international and national level, rationalize decision-making for disaster preparedness and to provide an objective basis for vulnerability assessment and priority setting.

Computation/Collection Method
When a disaster occurs, the related information is entered at three different levels: the event/disaster level, the country level and the source level. The database is based on information from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies. Priority is given to data from UN agencies, governments, and the International Federation of Red Cross and Red Crescent Societies. CRED consolidates and updates data on a daily basis. A further check is made at monthly intervals, and revisions are made at the end of each calendar year.

Source
CRED,
http://www.emdat.be/explanatory-notes
http://www.emdat.be/guidelines

Chapter 5
Human Settlements and Environmental Health

CHAPTER 5 HUMAN SETTLEMENTS AND ENVIRONMENTAL HEALTH

This chapter encompasses statistics on the environment in which humans live and work, particularly with regard to living conditions and environmental health. These statistics are important for the management and improvement of conditions related to human settlements, shelter conditions, safe water, sanitation and health. Increasing concentration of humans in modern urban settlements pose special challenges to humans and their physical environment in which these settlements are located. The well-being and health risks associated with the environment can be mitigated substantially by the prevailing conditions and characteristics of human settlements. Appropriate infrastructure, adequate waste disposal, wise land use planning, clean and safe transportation and ecosystem health, among others, can modify the effect of environmental and settlement-related risks on human well-being.

Human Settlements

Statistics on basic services and infrastructure of human settlements, access to selected basic services, housing conditions, and exposure to ambient pollution, are included below. Policy makers, analysts and civil society need these statistics for information on how humans live and work in these settlements, how they transform the landscape and the supporting ecosystem and how this affects human well-being and health. Data sources include censuses, surveys, administrative records and remote sensors.

Table 5.1 Proportion of population using safely managed drinking water services (%) [SDG 6.1.1]

Partner States/Years		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Burundi														
Kenya	Urban	60.88 [E,1]	60.33 [E,1]	59.79 [E,1]	59.25 [E,1]	58.71 [E,1]	58.18 [E,1]	57.65 [E,1]	57.12 [E,1]	59.59 [E,1]	56.06 [E,1]	55.54 [E,1]	55.02 [E,1]	54.50 [E,1]
Rwanda	Urban	27.97 [E,1]	28.65 [E,1]	29.33 [E,1]	30.02 [E,1]	30.71 [E,1]	31.41 [E,1]	32.10 [E,1]	32.81 [E,1]	33.51 [E,1]	34.22 [E,1]	34.94 [E,1]	35.65 [E,1]	36.38 [E,1]
United Republic of Tanzania	Urban	8.64 [E,1]	11.16 [E,1]	13.72 [E,1]	16.33 [E,1]	18.99 [E,1]	21.69 [E,1]	24.44 [E,1]	27.23 [E,1]	30.06 [E,1]	32.72 [E,1]	33.00 [E,1]	33.29 [E,1]	33.57 [E,1]
	Rural	1.50 [E,1]	1.70 [E,1]	1.90 [E,1]	2.11 [E,1]	2.33 [E,1]	2.55 [E,1]	2.78 [E,1]	3.02 [E,1]	3.27 [E,1]	3.52 [E,1]	3.78 [E,1]	4.04 [E,1]	4.31 [E,1]
Uganda	Urban	23.87 [E,1]	23.34 [E,1]	22.82 [E,1]	22.30 [E,1]	21.77 [E,1]	21.25 [E,1]	20.72 [E,1]	20.19 [E,1]	19.66 [E,1]	19.13 [E,1]	18.59 [E,1]	18.06 [E,1]	17.52 [E,1]
	Total	4.29 [E,1]	4.46 [E,1]	4.63 [E,1]	4.80 [E,1]	4.97 [E,1]	5.15 [E,1]	5.33 [E,1]	5.51 [E,1]	5.69 [E,1]	5.88 [E,1]	6.06 [E,1]	6.25 [E,1]	6.44 [E,1]

Access date: 04 December 2017
Blank indicates the data is not available
[E] Estimated
[1] WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (2017)
Source: World Health Organization (WHO)/ United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.1

Definition
Proportion of population using safely managed drinking water services is currently being measured by the proportion of population using an improved basic drinking water source which is located on premises and available when needed and free of faecal (and priority chemical) contamination.

Relevance
Millennium Development Goal (MDG) target 7C called for 'sustainable access' to 'safe drinking water'. At the start of the MDG period, there was a complete lack of nationally representative data about drinking water safety in developing countries, and such data were not collected through household surveys or censuses. The Joint Monitoring Programme (JMP) developed the concept of 'improved' water sources, which was used as a proxy for 'safe water', as such sources are likely to be protected against faecal contamination, and this metric has been used since 2000 to track progress towards the MDG target. International consultations since 2011 have established consensus on the need to build on and address the shortcomings of this indicator; specifically, to address normative criteria of the human right to water including accessibility, availability and quality.

Computation/Collection Method
Household surveys and censuses currently provide information on types of basic drinking water sources (piped water into dwelling, yard or plot; public taps or standpipes; boreholes or tubewells; protected dug wells; protected springs and rainwater) and also indicate if sources are on premises. The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) estimates access to basic services for each country, separately in urban and rural areas, by fitting a regression line to a series of data points from household surveys and censuses.

Source
WHO/UNICEF, JMP, https://unstats.un.org/sdgs/metadata/files/Metadata-06-01-01.pdf

Table 5.2 Proportion of population practicing open defecation (%) [SDG 6.2.1]

Partner States/Years		2001	2003	2005	2007	2009	2011	2013	2015
Burundi	Rural	2.60 [E,1]	2.73 [E,1]	2.86 [E,1]	2.98 [E,1]	3.11 [E,1]	3.23 [E,1]	3.36 [E,1]	3.42 [E,1]
	Urban	2.54 [E,1]	2.64 [E,1]	2.74 [E,1]	2.83 [E,1]	2.93 [E,1]	3.02 [E,1]	3.10 [E,1]	3.14 [E,1]
	Total	1.87 [E,1]	1.74 [E,1]	1.62 [E,1]	1.49 [E,1]	1.36 [E,1]	1.23 [E,1]	1.10 [E,1]	1.04 [E,1]
Kenya	Rural	20.06 [E,1]	19.37 [E,1]	18.69 [E,1]	18.00 [E,1]	17.32 [E,1]	16.63 [E,1]	15.95 [E,1]	15.26 [E,1]
	Urban	16.49 [E,1]	15.83 [E,1]	15.18 [E,1]	14.54 [E,1]	13.9 [E,1]	13.27 [E,1]	12.65 [E,1]	12.03 [E,1]
	Total	2.44 [E,1]	2.47 [E,1]	2.50 [E,1]	2.53 [E,1]	2.56 [E,1]	2.60 [E,1]	2.63 [E,1]	2.66 [E,1]
Rwanda	Rural	4.84 [E,1]	4.47 [E,1]	4.10 [E,1]	3.74 [E,1]	3.37 [E,1]	3.00 [E,1]	2.63 [E,1]	2.27 [E,1]
	Urban	4.32 [E,1]	3.96 [E,1]	3.62 [E,1]	3.29 [E,1]	2.98 [E,1]	2.68 [E,1]	2.39 [E,1]	2.12 [E,1]
	Total	1.53 [E,1]	1.57 [E,1]	1.60 [E,1]	1.63 [E,1]	1.66 [E,1]	1.69 [E,1]	1.73 [E,1]	1.76 [E,1]
United Republic of Tanzania	Rural	11.89 [E,1]	12.43 [E,1]	12.96 [E,1]	13.5 [E,1]	14.04 [E,1]	14.58 [E,1]	15.12 [E,1]	15.66 [E,1]
	Urban	9.74 [E,1]	10.04 [E,1]	10.30 [E,1]	10.54 [E,1]	10.75 [E,1]	10.94 [E,1]	11.11 [E,1]	11.26 [E,1]
	Total	2.44 [E,1]	2.34 [E,1]	2.24 [E,1]	2.14 [E,1]	2.04 [E,1]	1.94 [E,1]	1.84 [E,1]	1.74 [E,1]
Uganda	Rural	16.63 [E,1]	15.26 [E,1]	13.88 [E,1]	12.5 [E,1]	11.13 [E,1]	9.75 [E,1]	8.37 [E,1]	6.99 [E,1]
	Urban	14.85 [E,1]	13.6 [E,1]	12.33 [E,1]	11.08 [E,1]	9.83 [E,1]	8.61 [E,1]	7.40 [E,1]	6.21 [E,1]
	Total	1.93 [E,1]	1.96 [E,1]	1.98 [E,1]	2.01 [E,1]	2.03 [E,1]	2.06 [E,1]	2.08 [E,1]	2.10 [E,1]

Access date: 04 December 2017
[E] Estimated
[1] WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (2017)
Source: World Health Organization (WHO)/ United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP)
http://unstats.un.org/sdgs/indicators/database/

Table 5.3 Proportion of population with basic handwashing facilities on premises (%) [SDG 6.2.1]

Partner States/Years		2001	2003	2005	2007	2009	2011	2013	2015
Burundi	Rural				4.02 [E,1]	4.02 [E,1]	4.02 [E,1]	4.02 [E,1]	
	Urban				23.52 [E,1]	23.52 [E,1]	23.52 [E,1]	23.52 [E,1]	
	Total				5.95 [E,1]	6.05 [E,1]	6.15 [E,1]	6.26 [E,1]	
Kenya	Rural						9.67 [E,1]	9.67 [E,1]	9.67 [E,1]
	Urban						26.41 [E,1]	26.41 [E,1]	26.41 [E,1]
	Total						13.68 [E,1]	13.82 [E,1]	13.96 [E,1]
Rwanda	Rural	0.34 [E,1]	0.64 [E,1]	0.95 [E,1]	1.26 [E,1]	1.57 [E,1]	1.88 [E,1]	2.18 [E,1]	2.49 [E,1]
	Urban	7.63 [E,1]	8.36 [E,1]	9.08 [E,1]	9.80 [E,1]	10.53 [E,1]	11.25 [E,1]	11.97 [E,1]	12.70 [E,1]
	Total	1.49 [E,1]	2.00 [E,1]	2.52 [E,1]	3.06 [E,1]	3.63 [E,1]	4.21 [E,1]	4.81 [E,1]	5.43 [E,1]
United Republic of Tanzania	Rural							40.48 [E,1]	40.48 [E,1]
	Urban							63.08 [E,1]	63.08 [E,1]
	Total							47.31 [E,1]	47.63 [E,1]
Uganda	Rural	4.39 [E,1]	4.69 [E,1]	4.99 [E,1]	5.29 [E,1]	5.59 [E,1]	5.89 [E,1]	6.19 [E,1]	6.19 [E,1]
	Urban	13.83 [E,1]	14.02 [E,1]	14.20 [E,1]	14.38 [E,1]	14.57 [E,1]	14.75 [E,1]	14.94 [E,1]	14.94 [E,1]
	Total	5.54 [E,1]	5.85 [E,1]	6.19 [E,1]	6.53 [E,1]	6.87 [E,1]	7.20 [E,1]	7.54 [E,1]	7.60 [E,1]

Access date: 04 December 2017
Blank indicates the data is not available
[E] Estimated
[1] WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (2017)
Source: World Health Organization (WHO)/ United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP)
http://unstats.un.org/sdgs/indicators/database/

Table 5.4 Proportion of urban population living in slums, informal settlements or inadequate housing (%, number 10^3) [SDG 11.1.1]

Partner States/Years	Unit	1990	1995	2000	2005	2007	2009	2014
Burundi	Percentage				64.30[M, 1]	64.30[M, 1]	[M, 1]	57.90[M, 1]
	Number				451.87[M, 1]	508.29[M, 1]	[M, 1]	713.91[M, 1]
Kenya	Percentage	54.87[M, 1]	54.84[M, 1]	54.80[M, 1]	54.77[M, 1]	54.75[M, 1]	54.74[M, 1]	56.00[M, 1]
	Number	2,343.38[M, 1]	2,859.40[M, 1]	3,399.87[M, 1]	4,068.90[M, 1]	4,395.67[M, 1]	4,761.94[M, 1]	6,426.56[M, 1]
Rwanda	Percentage	96.05[M, 1]	87.90[M, 1]	79.75[M, 1]	71.60[M, 1]	68.34[M, 1]	65.08[M, 1]	53.20[M, 1]
	Number	371.97[M, 1]	396.64[M, 1]	874.04[M, 1]	1,129.20[M, 1]	1,164.63[M, 1]	1,207.86[M, 1]	1,792.31[M, 1]
United R. of Tanzania	Percentage	77.36[M, 1]	73.72[M, 1]	70.07[M, 1]	66.42[M, 1]	64.96[M, 1]	63.51[M, 1]	50.70[M, 1]
	Number	3,718.83[M, 1]	4,538.95[M, 1]	5,335.37[M, 1]	6,270.87[M, 1]	6,713.33[M, 1]	7,199.87[M, 1]	7,952.30[M, 1]
Uganda	Percentage	75.02[M, 1]	75.02[M, 1]	75.02[M, 1]	66.72[M, 1]	63.40[M, 1]	60.08[M, 1]	53.60[M, 1]
	Number	1,473.21[M, 1]	1,833.31[M, 1]	2,214.43[M, 1]	2,402.55[M, 1]	2,487.48[M, 1]	2,577.88[M, 1]	3,282.46[M, 1]

Access date: 04 December 2017
Blank indicates the data is not available
[M] Modeled
[1] United Nations Human Settlements Programme (UN-Habitat), Global Urban Indicators Database
Source: United Nations Human Settlements Programme (UN-Habitat), Global Urban Indicators Database
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.4

Definition

Table 5.4 describes percentage and number of population living in slums, inadequate housing and informal settlements.

UN-Habitat defined a slum as one in which the inhabitants suffer one or more of the following 'household deprivations': 1) Lack of access to improved water source, 2) Lack of access to improved sanitation facilities, 3) Lack of sufficient living area, 4) Lack of housing durability and, 5) Lack of security of tenure. By extension, the term 'slum dweller' refers to a person living in a household that lacks any of the above attributes.

UN-Habitat defined Informal settlements as residential areas where: 1) inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit, with modalities ranging from squatting to informal rental housing, 2) the neighbourhoods usually lack, or are cut off from, basic services and formal city infrastructure and 3) the housing may not comply with current planning and building regulations, is often situated in geographically and environmentally hazardous areas, and may lack a municipal permit. Informal settlements can be a form of real estate speculation for all income levels of urban residents, affluent and poor. Slums are the poorest and most dilapidated form of informal settlements.

UN-Habitat defined Inadequate housing as housing that does not meet the following criteria:

1) Legal security of tenure, which guarantees legal protection against forced evictions, harassment and other threats;

2) Availability of services, materials, facilities and infrastructure, including safe drinking water, adequate sanitation, energy for cooking, heating, lighting, food storage or refuse disposal;

3) Affordability, as housing is not adequate if its cost threatens or compromises the occupants' enjoyment of other human rights;

4) Habitability, as housing is not adequate if it does not guarantee physical safety or provide adequate space, as well as protection against the cold, damp, heat, rain, wind, other threats to health and structural hazards;

5) Accessibility, as housing is not adequate if the specific needs of disadvantaged and marginalized groups are not taken into account (such as the poor, people facing discrimination; persons with disabilities, victims of natural disasters);

6) Location, as housing is not adequate if it is cut off from employment opportunities, health-care services, schools, childcare centres and other social facilities, or if located in dangerous or polluted sites or in immediate proximity to pollution sources;

7) Cultural adequacy, as housing is not adequate if it does not respect and take into account the expression of cultural identity and ways of life.

The proportion of urban population living in slums, informal settlements or inadequate housing is currently being measured by the proportion of urban population living in slums.

Relevance

The proliferation of slums and informal settlements, and a chronic lack of adequate housing, continue to be among the major challenges of urbanization and its sustainability. They are the face of poverty and inequality in cities and no transformative action on environment will be achieved without addressing the challenges of urban poverty represented by them.

Computation/Collection Method

Method of computation – This indicator considers three components computed as follows:

a) Slum households (SH): = 100[(Number of people living in slum)/(City population)]

b) Informal settlements households (ISH): = 100[(No. of people living in informal settlements households)/(City population)]

c) Inadequate housing households (IHH): = 100[(No. of people living in inadequate housing)/(City population)]

The unit of measurements for all these indicators will be %. At a later stage an index of measurements will be developed that will incorporate all measures and provide one estimate.

Source

UN-Habitat, https://unstats.un.org/sdgs/metadata/files/Metadata-11-01-01.pdf

Table 5.5 Total population living within the low elevation coastal zone (LECZ) (number)

Partner States/Years	1990	1995	2000
Burundi	0	0	0
Kenya	208,708	245,839	280,327
Rwanda	0	0	0
United R. of Tanzania	566,079	687,213	782,912
Uganda	0	0	0

Access date: 04 December 2017
Zero values indicate not applicable
Source: Center for International Earth Science Information Network (CIESIN)/Socioeconomic Data and Applications Center (SEDAC)
http://sedac.ciesin.columbia.edu/data/set/lecz-urban-rural-population-estimates-v1/data-download

Metadata for Table 5.5

Definition
Table 5.5 shows total population living in the Low Elevation Coastal Zone (LECZ) which is defined as the contiguous area along the coast that is less than 10 metres above sea level.

Relevance
Global temperature continues to increase, contributing to a rising sea level. Populations living in the LECZ are under threat of becoming environmental refugees. Data on the population living in the LECZ illustrate the number of people potentially at risk of sea level rise.

Computation/Collection Method
All estimates are based on Global Rural-Urban Mapping Project (GRUMP) alpha data products. The LECZ was generated using SRTM Digital Elevation Model data and includes all land area that is contiguous with the coast and 10 meters or less in elevation. All grids used for population, land area, urban mask, and LECZ were of 1 km (30 arc-second) resolution. This data set is produced by the Columbia University Center for International Earth Science Information Network (CIESIN) in collaboration with the International Institute for Environment and Development (IIED). Total populations were calculated as the number of people living in each country intersecting the low elevation coastal zone.

Source
CIESIN/SEDAC, http://sedac.ciesin.columbia.edu/data/set/lecz-urban-rural-population-estimates-v1/metadata

Table 5.6 Proportion of population living in low elevation coastal zone (LECZ) (%)

Partner States/Years	Location	1990	1995	2000
Burundi	Urban	0.00	0.00	0.00
	Rural	0.00	0.00	0.00
	Total	0.00	0.00	0.00
Kenya	Urban	0.97	0.95	0.93
	Rural	0.88	0.89	0.91
	Total	0.89	0.90	0.91
Rwanda	Urban	0.00	0.00	0.00
	Rural	0.00	0.00	0.00
	Total	0.00	0.00	0.00
United R. of Tanzania	Urban	5.68	5.68	5.68
	Rural	1.46	1.44	1.43
	Total	2.16	2.22	2.25
Uganda	Urban	0.00	0.00	0.00
	Rural	0.00	0.00	0.00
	Total	0.00	0.00	0.00

Access date: 04 December 2017
Zero values indicate not applicable
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Proportion_Population_CoastalZones.htm

Metadata for Table 5.6

Definition
Low Elevation Coastal Zone (LECZ) is defined as the contiguous area along the coast that is less than 10 metres above sea level.

Relevance
Global temperature continues to increase, contributing to a rising sea level. Populations living in the LECZ are under threat of becoming environmental refugees. Data on the population living in the LECZ illustrate the number of people potentially at risk of sea level rise.

Computation/Collection Method
Country-level estimates of LECZ were generated globally using Global Rural-Urban Mapping Project (GRUMP) and a Digital Elevation Model (DEM) derived from remote sensing data. Proportions were calculated by UNSD Environment Statistics Section using total and LECZ population figures available from CIESIN/SEDAC.

Source
UNSD, https://unstats.un.org/unsd/environment/Proportion_Population_CoastalZones.htm

Table 5.7 Proportion of population with access to electricity (%) [SDG 7.1.1]

Partner States/Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi	3.94 M	4.12 M	4.29 M	4.46 M	4.62 M	4.80 M	4.98 M	5.17 M	4.80 G	5.59 M	5.30 G	6.03 M	6.50 G	6.49 M	7.00 G
Kenya	15.72 M	16.66 M	17.59 M	16.00 M	19.46 M	20.39 M	21.34 M	22.29 M	23.26 M	23.00 G	19.20 M	26.20 M	27.19 M	28.19 M	36.00 M
Rwanda	6.20 G	5.90 M	6.50 M	7.10 M	7.71 M	4.80 G	8.93 M	9.56 M	6.00 G	10.84 M	9.70 G	10.80 G	12.81 M	15.20 G	19.80 G
United R. of Tanzania	9.85 M	10.24 M	10.61 M	11.10 G	11.40 G	11.74 M	12.12 M	12.52 M	11.50 G	11.20 G	14.80 G	14.20 G	15.30 G	16.40 G	15.50 M
Uganda	8.38 M	8.60 G	7.80 G	9.77 M	10.24 M	8.90 G	9.00 G	11.66 M	12.16 M	10.00 G	13.18 M	14.60 G	14.22 M	13.90 G	20.40 G

Access date: 04 December 2017
G Global monitoring data
M Modelled
Source: World Bank
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.7

Definition
Proportion of population with access to electricity is the percentage of population with access to electricity.

Relevance
Access to electricity addresses major critical issues in all the dimensions of sustainable development. It facilitates development of household-based income generating activities and lightens the burden of household tasks.

Computation/Collection Method
Given the low frequency and the regional distribution of some surveys, a number of countries have gaps in available data. To develop the historical evolution and starting point of electrification rates, a simple modelling approach was adopted to fill in the missing data points - around 1990, 2000, 2010 and 2012. This modelling approach allowed the estimation of electrification rates for 212 countries over these time periods.

Source
World Bank, http://unstats.un.org/sdgs/metadata/files/Metadata-07-01-01.pdf

Table 5.8 Electricity access in 2016 (%)

Partner States/Years		2016
Burundi	Population without electricity (millions)	10
	National electrification rate (%)	10
	Urban electrification rate (%)	35
	Rural electrification rate (%)	6
Kenya	Population without electricity (millions)	17
	National electrification rate (%)	65
	Urban electrification rate (%)	78
	Rural electrification rate (%)	60
Rwanda	Population without electricity (millions)	8
	National electrification rate (%)	30
	Urban electrification rate (%)	72
	Rural electrification rate (%)	12
Tanzania	Population without electricity (millions)	36
	National electrification rate (%)	30
	Urban electrification rate (%)	57
	Rural electrification rate (%)	18
Uganda	Population without electricity (millions)	37
	National electrification rate (%)	33
	Urban electrification rate (%)	65
	Rural electrification rate (%)	17

Access date: 26 December 2017
Source: IEA (International Energy Agency), World Energy Outlook 2017
http://www.oecd-ilibrary.org/energy/energy-access-outlook-2017_9789264285569-en

Metadata for Table 5.8

Definition
Population with electricity is defined as population with access to electricity and initial consumption of at least 250 kilowatt-hours (kWh) for rural households and 500 kWh for urban households.

Relevance
Access to electricity addresses major critical issues in all dimensions of sustainable development. It facilitates development of household-based income generating activities and lightens the burden of household tasks.

Computation/Collection Method
For many countries, data on the urban and rural breakdown was collected, but if not available an estimate was made on the basis of pre-existing data or a comparison to the average correlation between urban and national electrification rates. Often only the percentage of households with a connection is known and assumptions about an average household size are used to determine access rates as a percentage of the population. To estimate the number of people without access, population data comes from OECD statistics in conjunction with the United Nations Population Division reports World Urbanization Prospects: the 2014 Revision Population Database, and World Population Prospects: the 2012 Revision. Electricity access data is adjusted to be consistent with demographic patterns of urban and rural population. Due to differences in definitions and methodology from different sources, data quality may vary from country to country. Where country data appeared contradictory, outdated or unreliable, the IEA Secretariat made estimates based on cross-country comparisons and earlier surveys.

Source
IEA, World Energy Outlook 2016, www.worldenergyoutlook.org/media/weowebsite/2015/WEO2016Electricity.xlsx
http://www.worldenergyoutlook.org/resources/energydevelopment/definingandmodellingenergyaccess/

Table 5.9 Total population supplied by water supply industry (%)

Partner States/Years	1990	2004	2007	2008	2010	2013
Burundi						
Kenya			31.0			
Rwanda					74.2	
United R. of Tanzania	54.0	54.9		55.4		55.6
Uganda						

Access date: 04 December 2017
Source: United Nations Statistics Division (UNSD)
https://unstats.un.org/unsd/environment/Time%20series.htm#InlandWaterResources

Metadata for Table 5.9

Definition
Total population supplied by water supply industry is the percentage of the resident population connected to the water supply.

Relevance
Statistics on the population supplied by water supply industry are necessary to understand the environment in which humans live and work. They also give information on the use of water resources and how efficiently these resources are shared with the overall population.

Computation/Collection Method
Data on total population supplied by water supply industry can be obtained through municipalities or through household surveys. Household surveys usually give more accurate results, since they do not rely on sometimes incomplete information about or held by municipalities. Data on amounts of water supplied can significantly vary between countries depending on the extent to which water supply industry delivers water to industries, businesses, agriculture and power stations in addition to households.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm

Table 5.10 Population connected to wastewater collecting system (%)

Partner States/Years	2001	2003	2005	2007	2009	2012	2012	2013	2014	2015
Burundi						4.0 [1]	4.0 [1]	4.5 [1]	4.5 [1]	4.5 [1]
Kenya	4.9	4.9	4.9	4.9	4.9	4.9	4.9			
Rwanda										
United R. of Tanzania										
Uganda	10.0 [2]	9.0 [2]	8.0 [2]	6.0 [2]	6.0 [2]					

Access date: 04 December 2017

[1] Data refer to the population connected to wastewater treatment in the city of Bujumbura.

[2] Data refer to population served by the National Water and Sewerage Corporation (NWSC). The NWSC only provides service in larger towns and cities.

Source: United Nations Statistics Division (UNSD)

https://unstats.un.org/unsd/environment/Time%20series.htm#InlandWaterResources

Metadata for Table 5.10

Definition
Wastewater refers to water which is of no further value to the purpose for which it was used because of its quality, quantity or time of occurrence. Cooling water is excluded. Wastewater collecting system may deliver wastewater to treatment plants or may discharge it without treatment to the environment. Therefore, population connected to wastewater collecting system is the percentage of population connected to the wastewater collecting systems (sewerage). Wastewater collecting systems may deliver wastewater to treatment plants or may discharge it without treatment to the environment.

Relevance
Polluted wastewater should be collected and treated before its discharge to the environment to reduce harmful environment effects. Statistics on the population's access to wastewater collecting systems and wastewater treatment are an important part of statistics on human settlements. Access to wastewater collecting systems does not necessarily imply that the wastewater is treated.

Computation/Collection Method
Data on population connected to wastewater collecting system can be obtained from municipalities or through household surveys. Household surveys usually give more accurate results, since they do not rely on sometimes incomplete information about or held by municipalities. In general, data quality can be considered to be fairly good.

Source
UNSD, https://unstats.un.org/unsd/environment/qindicators.htm
UNSD, https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf

Table 5.11 Amount of water-and sanitation-related official development assistance that is part of a government-coordinated spending plan (billions) [SDG 6.a.1]

Partner States/Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	20010	2011	2012	2013	2014	2015
Burundi	11.10 [NA,1]	13.48 [NA,1]	4.76 [NA,2]	4.82 [NA,2]	5.31 [NA,2]	6.48 [NA,2]	9.26 [NA,2]	14.56 [NA,2]	16.68 [NA,2]	20.78 [NA,2]	37.11 [NA,2]	33.74 [NA,2]	27.02 [NA,2]	25.27 [NA,2]	21.05 [NA,2]	14.02 [NA,2]
Kenya	22.85 [NA,1]	38.95 [NA,1]	26.41 [NA,2]	28.28 [NA,2]	43.28 [NA,2]	51.54 [NA,2]	61.73 [NA,2]	98.29 [NA,2]	119.99 [NA,2]	124.82 [NA,2]	170.33 [NA,2]	171.59 [NA,2]	190.07 [NA,2]	194.81 [NA,2]	201.95 [NA,2]	171.12 [NA,2]
Rwanda	41.85 [NA,1]	12.72 [NA,1]	6.93 [NA,2]	6.53 [NA,2]	21.32 [NA,2]	28.29 [NA,2]	33.80 [NA,2]	41.89 [NA,2]	44.09 [NA,2]	25.22 [NA,2]	41.39 [NA,2]	44.00 [NA,2]	35.16 [NA,2]	42.65 [NA,2]	35.21 [NA,2]	40.02 [NA,2]
United R. of Tanzania	58.94 [NA,1]	27.69 [NA,1]	42.41 [NA,2]	79.52 [NA,2]	42.88 [NA,2]	62.94 [NA,2]	101.72 [NA,2]	159.24 [NA,2]	165.02 [NA,2]	205.97 [NA,2]	227.86 [NA,2]	175.96 [NA,2]	230.33 [NA,2]	196.78 [NA,2]	174.01 [NA,2]	146.94 [NA,2]
Uganda	51.09 [NA,1]	76.45 [NA,1]	38.02 [NA,2]	76.54 [NA,2]	73.19 [NA,2]	100.97 [NA,2]	93.83 [NA,2]	173.12 [NA,2]	106.20 [NA,2]	200.69 [NA,2]	167.76 [NA,2]	89.35 [NA,2]	105.93 [NA,2]	97.59 [NA,2]	96.76 [NA,2]	138.43 [NA,2]

Access date: 04 December 2017

[NA] Data type not available

[1] Commitments; Based on OECD, CRS database, 2017; Constant 2015 USD million

[2] Gross disbursements; Based on OECD, CRS database, 2017; Constant 2015 USD million

Source: Organisation for Economic Co-operation and Development (OECD), Creditor Reporting System (CRS) database, 2016

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.11

Definition

Amount of water- and sanitation-related official development assistance that is part of a government coordinated spending plan is defined as the proportion of total water and sanitation-related Official Development Assistance (ODA) disbursements that are included in the government budget.

Relevance

The amount of water and sanitation-related ODA is a quantifiable measurement as a proxy for "international cooperation and capacity development support" in financial terms. It is essential to be able to assess ODA in proportion with how much of it is included in the government budget to gain a better understanding of whether donors are aligned with national governments while highlighting total water and sanitation ODA disbursements to developing countries over time. A low value of this indicator (near 0%) would suggest that international donors are investing in water and sanitation related activities and programmes in the country outside the purview of the national government. A high value (near 100%) would indicate that donors are aligned with national government and national policies and plans for water and sanitation.

Computation/Collection Method

The indicator is computed as the proportion of total water and sanitation-related ODA that is included in the government budget, i.e. the amount of water and sanitation-related ODA in the government budget divided by the total amount of water and sanitation-related ODA. The numerator on water and sanitation-related ODA in the government budget is obtained from the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) survey for the 2016-2017 cycle. The question on external funding collects data on the amount of donor funds that were included in government budget. The denominator is obtained through OECD Creditor Reporting System.

Source

WHO, OECD, UNEP, https://unstats.un.org/sdgs/metadata/files/Metadata-06-0A-01.pdf

Environmental Health

Environmental health focuses on how environmental factors and processes impact and change human health. Common statistics include morbidity and mortality associated with specific types of diseases and conditions that are heavily influenced by environmental factors. The main provider of data is the country's sanitary or health authority.

Table 5.12 Cholera fatality rates, reported cases and deaths (number)

Partner States/ Years		1971	1978	1980	1982	1984	1987	1992	1994	1997	1999	2000	2002	2005	2007	2009	2010	2013	2015
Burundi	fatality rate		2.99	1.37	2.17	5.56		6.05	7.30	4.85	1.83	1.57	1.39	1.38	0.55	0.00	0.30	1.09	0.00
	reported cases		8,297	2,039	415	180		479	562	1,959	3,440	1,021	577	1,309	365	355	333	1,557	442
	reported deaths		248	28	9	10		29	41	95	63	16	8	18	2	0	1	17	0
Kenya	fatality rate	15.90	2.53	1.50	2.60	0.00	4.71	2.95	3.18	3.23	3.17	6.74	3.44	2.57	5.56	2.31	1.98		0.50
	reported cases	239	673	2,808	3,498	14	255	3,388	880	17,200	11,039	1,157	291	816	1,206	11,425	3,188		13,291
	reported deaths	38	17	42	91	0	12	100	28	555	350	78	10	21	67	264	63		67
Rwanda	fatality rate		5.73	13.33	1.00	8.07	5.94	6.96	0.00	5.84	14.98	0.65		0.00	1.45	0.00			
	reported cases		838	30	201	161	101	503	10	274	327	1,235		89	1,453	67		0	
	reported deaths		48	4	2	13	6	35	0	16	49	8		0	21	0		0	
United R. of Tanzania	fatality rate		11.09	11.30	7.96	13.00	12.26	11.73	6.92	5.54	4.76	3.36	2.49	3.19	4.04	1.47	1.32	6.30	1.20
	reported cases		6,608	5,196	4,071	2,600	1,892	18,526	2,240	40,249	12,266	4,637	11,920	2,945	1,609	7,700	4,469	270	11,563
	reported deaths		733	587	324	338	232	2,173	155	2,231	584	156	297	94	65	113	59	17	144
Uganda	fatality rate	3.96	9.82	11.76	25.26		35.71	2.05	5.54	7.20	4.40	6.13	5.85	0.00	1.09	2.10	3.33	3.61	2.30
	reported cases	757	1,120	1,539	190		140	5,072	704	2,610	5,179	2,807	2,274	4,924	276	1,095	2,341	748	1,461
	reported deaths	30	110	181	48		50	104	39	188	228	172	133	98	3	23	78	27	33

Access date: 04 December 2017
Source: World Health Organization (WHO)
http://apps.who.int/gho/data/node.main.174?lang=en

Metadata for Table 5.12

Definition
Number of reported deaths (sum of reported deaths per year), reported cases (confirmed cholera cases including those confirmed clinically, epidemiology, or by laboratory investigation) and the fatality rate for cholera (proportion of cholera cases which are fatal within a specified time measured as number of notified deaths / number of notified cases * 100.

Relevance
Cholera is a severe and sometimes fatal diarrheal disease caused by the comma-shaped bacterium *Vibrio cholerae*. The disease is acquired through the consumption of food or water contaminated by this microorganism. Disease outbreaks are often associated with and accentuated by floods and conflict that allow increased fecal contamination of water supplies.

Computation/Collection Method
WHO publishes data reported by national authorities (ministries of health) of each country.

Source
WHO, http://apps.who.int/gho/data/node.imr

Table 5.13 Malaria fatality rates, reported cases and deaths (number)

Partner States/Years		2000	2002	2003	2005	2008	2009	2010	2012	2013	2014
Burundi	Reported cases	308,095	327,138	353,459	327,464	876,741	1,185,622	1,763,447	2,151,076	4,141,387	4,585,273
	Estimated cases	2,800,000			2,200,000			1,900,000		1,400,000	
	Reported deaths	691	483	425	776	595	1,183	2,677	2,263	3,411	2,974
	Estimated number deaths	8,900			5,300			3,500		3,200	
Kenya	Reported cases		20,049	39,383		839,903		898,531	1,453,471	2,335,286	2,808,931
	Estimated cases	7,200,000			5,200,000			3,300,000		6,500,000	
	Reported deaths	48,767	47,697	51,842	44,328			26,017	785	360	472
	Estimated number deaths	13,000			10,000			9,000		9,900	
Rwanda	Reported cases		506,028	553,150	683,769	316,242	698,745	638,669	483,470	962,618	1,610,812
	Estimated cases	3,400,000			1,600,000			1,100,000		1,300,000	
	Reported deaths		3,167	2,679	2,581	566	809	670	459	409	496
	Estimated number deaths	5,200			3,600			3,000		3,000	
United R. of Tanzania	Reported cases	17,734	42,468	1,976,614	2,764,049	4,585	3,242	1,278,998	1,986,955	1,552,444	680,807
	Estimated cases	12,000,000			9,700,000			6,900,000		5,700,000	
	Reported deaths	379	815	15,251	18,322	12,434	16,776	15,867	7,820	8,528	5,373
	Estimated number deaths	30,000			20,000			16,000		17,000	
Uganda	Reported cases		557,159	801,784	1,104,310	979,298	1,301,337	1,581,160	2,662,258	1,502,362	3,631,939
	Estimated cases	12,000,000			13,000,000			14,000,000		8,100,000	
	Reported deaths					2,372	6,296	8,431	6,585	7,277	5,921
	Estimated number deaths	49,000			35,000			19,000		12,000	

Access date: 04 December 2017
Source: World Health Organization (WHO)
http://www.who.int/gho/publications/world_health_statistics/en/

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Metadata for Table 5.13

Definition
Number of reported deaths (sum of reported deaths per year submitted by the national malaria control programmes (NMCPS)), reported cases (confirmed malaria cases including those confirmed clinically, epidemiology, or by laboratory investigation), estimated number of malaria deaths and estimated number of malaria cases.

Relevance
Malaria is caused by *plasmodium parasite*. The risk of malaria and malaria epidemics increases with climate change and changes in land use associated with mining, logging, road building, and agricultural and irrigation projects. These changes often increase transmission of the disease.

Computation/Collection Method
WHO transmits data reported by national authorities (ministries of health) of each country. Estimated of malaria deaths were estimated from a relationship between levels of malaria mortality in different age groups and the intensity of malaria transmission. Estimated number of malaria cases was calculated from information on parasite prevalence obtained from household surveys. A detailed methodology is available on the WHO website provided.

Source
WHO, http://apps.who.int/gho/data/node.imr

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Table 5.14 Yellow fever reported (number)

Partner States/Years	1992	1993	1994	1995	1996	1997	1998	1999	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Burundi				260		0	0	0				0		0	0	0	0	0	0			
Kenya	27	27	7	11	0	0	0		0	0	0	0	0	0	0	0		0	0	0	0	0
Rwanda					0	0		0	0	0	0			0					0	0	0	0
United R. of Tanzania						0				0		0	0	0	0					0	0	
Uganda						0	0		0		11		0	0	0	0	0	106	66	32		

Access date: 04 December 2017
Source: World Health Organization (WHO)
http://www.who.int/gho/publications/world_health_statistics/en/

Table 5.15 Mortality rate attributed to household and ambient air pollution (per 100,000 population) [SDG 3.9.1]

Partner States/Years	2012 Crude death rate attributed to household air pollution	2012 Crude death rate attributed to ambient air pollution
Burundi	92.59[E, 1]	48.12[E, 1]
Kenya	50.99[E, 1]	21.39[E, 1]
Rwanda	58.16[E, 1]	39.63[E, 1]
United R. of Tanzania	44.55[E, 1]	21.36[E, 1]
Uganda	59.19[E, 1]	45.33[E, 1]

Access date: 04 December 2017

Blank indicates the data is not available

[E] Estimated

[1] Global Health Observatory (GHO), World Health Organisation (WHO)

Source: World Health Organisation (WHO), Health statistics and information systems

http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.15

Definition
The mortality rate attributable to household and ambient air pollution relatively.

Relevance
Evidence from epidemiological studies has shown that exposure to air pollution is linked, among others, to the diseases taken into account in the mortality rate.
- Acute respiratory infections in young children (estimated under 5 years of age);
- Cerebrovascular diseases (stroke) in adults (estimated above 25 years);
- Ischaemic heart diseases (IHD) in adults (estimated above 25 years);
- Chronic obstructive pulmonary disease (COPD) in adults (estimated above 25 years); and
- Lung cancer in adults (estimated above 25 years).

Computation/Collection Method
Attributable mortality is calculated by first combining information on the increased (or relative) risk of a disease resulting from exposure, with information on how widespread the exposure is in the population (e.g. the annual mean concentration of particulate matter to which the population is exposed, proportion of population relying primarily on polluting fuels for cooking). This allows calculation of the 'population attributable fraction' (PAF), which is the fraction of disease seen in a given population that can be attributed to the exposure (e.g. in that case of both the annual mean concentration of particulate matter and exposure to polluting fuels for cooking). Applying this fraction to the total burden of disease (e.g. cardiopulmonary disease expressed as deaths), gives the total number of deaths that results from exposure to that particular risk factor (in the example given above, to ambient and household air pollution).

The mortality rate is calculated by dividing the number of deaths by the total population (or indicated if a different population group is used, e.g. children under 5 years).

Source
WHO, http://unstats.un.org/sdgs/metadata/files/Metadata-03-09-01.pdf

Table 5.16 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) (per 100,000 population) [SDG 3.9.2]

Partner States/Years	2012
Burundi	68.40 [E, 1]
Kenya	32.50 [E, 1]
Rwanda	19.40 [E, 1]
United R. of Tanzania	27.60 [E, 1]
Uganda	30.30 [E, 1]

Access date: 04 December 2017
[E] Estimated
[1] World Health Statistics 2016, WHO, 2016
Source: World Health Organisation (WHO), Health statistics and information systems
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.16

Definition
The mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) is defined as the number of deaths from unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services) in a year, divided by the population, and multiplied by 100,000.

Relevance
The indicator expresses the number of deaths from inadequate water, sanitation and hygiene (with focus on WASH services) which could be prevented by improving those services and practices. It is based on both the WASH service provision in the country, as well as the related health outcomes, and therefore provides important information on the actual disease. The included diseases are the WASH attributable fractions of diarrhoea, intestinal nematode infections and protein-energy malnutrition.

Computation/Collection Method
Data rely on a) statistics on WASH services, which are well assessed in almost all countries, and b) data on deaths. Data on deaths are also widely available from countries from death registration data or sample registration systems, which are certainly feasible systems. The main limitation is that not all countries do have such registration systems to date, and data need to be completed with other type of information. Detailed methodology is available in
http://www.who.int/water_sanitation_health/gbd_poor_water/en/ and
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4255749/.

Source
WHO, http://unstats.un.org/sdgs/metadata/files/Metadata-03-09-02.pdf

Table 5.17 Countries with a high level of users/communities participating in planning programs in drinking-water supply [SDG 6.b.1]

Partner States	Location	2014	2017
Burundi	Rural	0 [C,1]	0 [C,1]
	Urban	0 [C,1]	0 [C,1]
Kenya	Rural	0 [C,1]	1 [C,1]
	Urban	0 [C,1]	0 [C,1]
Rwanda	Rural	1 [C,1]	1 [C,1]
	Urban	1 [C,1]	0 [C,1]
United Republic of Tanzania	Rural	0 [C,1]	0 [C,1]
	Urban	0 [C,1]	0 [C,1]
Uganda	Rural	0 [C,1]	
	Urban	1 [C,1]	

Access date: 04 December 2017
Blank indicates the data is not available
[C] Country data
[1] Key indicators of the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS). For the specific sources by country, refer to
http://www.who.int/water_sanitation_health/monitoring/investments/glaas/en/
Source: World Health Organisation (WHO), United Nations Environment Programme (UNEP), Organisation for Economic Co-operation and Development (OECD)
http://unstats.un.org/sdgs/indicators/database/

Table 5.18 Countries with a high level of users/communities participating in planning programs in hygiene promotion [SDG 6.b.1]

Partner States	Location	2014	2017
Burundi	Total (national level)	0 [C,1]	0 [C,1]
Kenya	Total (national level)	0 [C,1]	0 [C,1]
Rwanda	Total (national level)	1 [C,1]	0 [C,1]
United Republic of Tanzania	Total (national level)	0 [C,1]	0 [C,1]
Uganda	Total (national level)	0 [C,1]	

Access date: 04 December 2017
Blank indicates the data is not available
[C] Country data
[1] Key indicators of the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS). For the specific sources by country, refer to
http://www.who.int/water_sanitation_health/monitoring/investments/glaas/en/
Source: World Health Organisation (WHO), United Nations Environment Programme (UNEP), Organisation for Economic Co-operation and Development (OECD)
http://unstats.un.org/sdgs/indicators/database/

Table 5.19 Countries with a high level of users/communities participating in planning programs in sanitation [SDG 6.b.1]

Partner States	Location	2014	2017
Burundi	Rural	0 [C, 1]	0 [C, 1]
	Urban	0 [C, 1]	0 [C, 1]
Kenya	Rural	0 [C, 1]	0 [C, 1]
	Urban	0 [C, 1]	0 [C, 1]
Rwanda	Rural	1 [C, 1]	1 [C, 1]
	Urban	1 [C, 1]	1 [C, 1]
United Republic of Tanzania	Rural	1 [C, 1]	1 [C, 1]
	Urban	1 [C, 1]	1 [C, 1]
Uganda	Rural	0 [C, 1]	
	Urban	0 [C, 1]	

Access date: 04 December 2017

Blank indicates the data is not available

[C] Country data

[1] Key indicators of the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS). For the specific sources by country, refer to
http://www.who.int/water_sanitation_health/monitoring/investments/glaas/en/

Source: World Health Organisation (WHO), United Nations Environment Programme (UNEP), Organisation for Economic Co-operation and Development (OECD)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 5.17, Table 5.18 and Table 5.19

Definition
The indicator assesses the percentage of local administrative units (as defined by the national government) that have an established and operational mechanism by which individuals and communities can meaningfully contribute to decisions and directions about water and sanitation management.

The indicator Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management is currently being measured by the Proportion of countries with clearly defined procedures in law or policy for participation by service users/communities in planning program in water and sanitation management, and hygiene promotion and the Proportion of countries with high level of users/communities participating in planning programs in water and sanitation management, and hygiene promotion.

Relevance
Defining the procedures in policy or law for the participation of local communities is vital to ensure the needs of all the community are met, including the most vulnerable and also encourages ownership of schemes which in turn contributes to their sustainability.

A high value of this indicator would indicate high levels of participation, indicating greater ownership and a higher likelihood of sustainable delivery and management of water and sanitation services.

Computation/Collection Method
The UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) questionnaire provides information on whether there are "clearly defined procedures in laws or policies for participation by service users (e.g. households) and communities in planning programs". For countries that have data available from the local administrative unit level, they are asked to provide data on the number of local administrative units for which policies and procedures for local participation (i) exist, and (ii) are operational, as well as (iii) the number of local administrative units assessed, and (iv) the total number of units in the country. The indicator is computed as (ii) the number of local admin units with operation policies and procedures for local participation divided by (iv) the total number of local administrative units in the country. Both numerator and denominator will be obtained through the GLAAS survey for the 2016-2017 cycle.

Source
WHO, UNEP, OECD, https://unstats.un.org/sdgs/metadata/files/Metadata-06-0B-01.pdf

Chapter 6
Environmental Protection
Management and Engagement

CHAPTER 6 ENVIRONMENTAL PROTECTION, MANAGEMENT AND ENGAGEMENT

Environmental protection, management and engagement contains information on environmental protection and resource management expenditure to improve the environment and maintain ecosystem health. Environmental governance, institutional strength, enforcement of regulations and extreme event preparedness are also considered. It also includes a wide variety of programmes and actions to increase awareness, including environmental information and education, as well as private and community activities aimed at diminishing environmental impacts and improving the quality of local environments. However, this chapter only covers statistics on environmental governance and protection.

Environmental Governance and Protection

To provide a holistic view of a country's efforts towards sustaining and protecting the environment, policy makers, analysts and civil society require statistics on environmental governance and regulation at the national level. The magnitude of these activities can inform about the extent of institutional development, availability of resources, and the existence and enforcement of regulatory and market instruments whose primary purpose is to protect, regulate and manage the changing environment.

Table 6.1 Participation in multilateral environmental agreements (MEAs) and other global environmental conventions: List and description

Partner States	Basel Conv.	Conv. on International Trade in Endangered Species of Wild Fauna and Flora	Conv. on Biological Diversity	Conv. on Migratory Species	Kyoto Protocol	Montreal Protocol	Ramsar Conv.	Rotterdam Conv.	Stockholm Conv.	UN Conv on the Law of the Sea	UN Conv. to Combat Desertification	UN Framework Conv. On Climate Change	World Heritage Conv.
Burundi	1997	1988	1997	2011	2001	1997	2002	2004	2005	…	1997	1997	1982
Kenya	2000	1978	1994	1999	2005	1988	1990	2005	2004	1989	1997	1994	1991
Rwanda	2004	1980	1996	2005	2004	2001	2006	2004	2002	…	1998	1998	2000
United R. of Tanzania	1993	1979	1996	1999	2002	1993	2000	2002	2004	1985	1997	1996	1977
Uganda	1999	1991	1993	2000	2002	1988	1988	2008	2004	1990	1997	1994	1987

Access date: 04 December 2017
… indicates non-participation according to the source at the time of the latest update
Source: United Nations Statistics Division (UNSD), United Nations Environment Programme (UNEP)
https://unstats.un.org/unsd/environment/qindicators.htm

Table 6.2 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement (number) [SDG 12.4.1]

Partner States/Years	Compliance with the Basel Convention on hazardous wastes and other chemicals	Compliance with the Montreal Protocol on hazardous waste and other chemicals	Compliance with the Rotterdam Convention on hazardous waste and other chemicals	Compliance with the Stockholm Convention on hazardous waste and other chemicals
Burundi	16.67 [C, 1]	100.00 [C, 2]	66.67 [C, 3]	33.33 [C, 4]
Kenya	16.67 [C, 1]	100.00 [C, 2]	62.75 [C, 3]	83.33 [C, 4]
Rwanda	100.00 [C, 1]	100.00 [C, 2]	54.90 [C, 3]	33.33 [C, 4]
United R. of Tanzania	16.67 [C, 1]	100.00 [C, 2]	64.71 [C, 3]	50.00 [C, 4]
Uganda	16.67 [C, 1]	100.00 [C, 2]	39.22 [C, 3]	50.00 [C, 4]

Access date: 04 December 2017
Data are for the year 2015
[C] Country data
[1] Basel Convention
[2] Montreal Protocol
[3] Rotterdam Convention
[4] Stockholm Convention
Source: United Nations Environment Programme (UNEP)
http://unstats.un.org/sdgs/indicators/database/

Metadata for Table 6.2   125

Definition
The indicator refers to the number of parties (=countries that have ratified, accepted, approved or accessed), to the following multilateral environmental agreements (MEAs):

1. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention);
2. The Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade (Rotterdam Convention);
3. The Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention);
4. The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol),

Which have submitted the information to the Secretariat of each MEA, as required by each of the agreements.

Relevance
The proposed indicator is process-oriented, focusing on compliance with the obligations that contribute to the overall target of achieving the environmentally sound management of chemicals and all wastes throughout their life cycle. It doesn't measure the quantity of chemicals in media and doesn't quantify adverse impacts on human health and the environment. The MEAs, however, were developed and adopted to address the most urgent challenges for human health and the environment and therefore, through the implementation of MEAs progress will be made to reduce release to air, water and soil and well as presence of hazardous chemicals in products.

Computation/Collection Method
In the following methodology, reporting is to take place in 2017 for the period 2010-2014. Reporting parameters include the following: The Country Score depends on the amount of information that is sent to the Conventions' Secretariat, and is calculated as follows (and communicated by the Secretariats):
Basel Convention:
   1. Designation of the Focal Point and one or more Competent Authorities (1 point);
   2. Submission of the annual national reports during the reporting period (1 point per report).
Rotterdam Convention:
   1. Designation of the Designated National Authority(-ies) and Official contact point (1 point);
   2. Submission of the import responses during the reporting period (0,2 point per import response).
Stockholm Convention:
   1. Designation of the Stockholm Convention official contact point and national focal point (1 points);
   2. Submission of the national implementation plan (1 points);
   3. Submission of the revised national implementation plan(s) addressing the amendments adopted by the Conference of the Parties within the reporting period (1 point per revised and updated plan).
Montreal Protocol:
   1. Compliance with reporting requirements for production and consumption of ozone-depleting substances under (Article 7 of) the Montreal Protocol (15 points);
   2. Submission of information on Licensing systems under (Article 4B of) the Montreal Protocol (5 points).
The final indicator will be a number expressed as percent, where 100% is the maximum degree of compliance with the reporting obligations of the MEAs to which a Country is a Party, and 0% the least degree of compliance with those obligations.

Periodicity
The reporting on this indicator will follow a 5-year cycle.
   1. First baseline reporting cycle in 2017: data collected from 2010 to 2014;
   2. Second reporting cycle in 2020: data collected from 2015 to 2019;
   3. Third reporting cycle in 2025: data collected from 2020 to 2024;
   4. Fourth reporting cycle in 2030: data collected from 2025 to 2029.

Source
UNEP, https://unstats.un.org/sdgs/metadata/files/Metadata-12-04-01.pdf