



الهيئة العامة للإحصاء
General Authority for Statistics

Metadata Report of Environment Statistics

V-2.1

Quality Management



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1. Contact

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1.2. Contact organization unit	Environment, Agriculture and Energy Statistics Department
1.3. Contact person function	Director of Environment, Agriculture and Energy Statistics Department
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1.5. Contact email address	info@stats.gov.sa
1.6. Contact phone number	920020081

2. Metadata Update

2.1. Metadata last update	09/01/2024
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3. Statistical Presentation

3.1. Data description
<p>Environment statistic is a statistical product whose data is collected through administrative records data on the main characteristics as follows:</p> <ul style="list-style-type: none">• Environment conditions and quality.• Environment resources and their uses.• Waste.• Human settlements and environmental health.



3.2. Classification system

The following classifications are applied in environment statistics:

National classification of economic activities (ISIC4):

The statistical classification based on the International Standard of Industrial Classification of All Economic Activities (ISIC4) is used to describe productive activities of an establishment.

General Framework for the Development of Environmental Statistics (FDES 2013):

It is a conceptual and statistical framework that is multipurpose, comprehensive, and integrated. It was developed by the United Nations Statistics Division and defines the scope of environmental statistics. It provides an organizational structure to guide the collection and classification of environmental statistics at the national level. The framework gathers data from various relevant fields and sources. Additionally, it has a general and holistic nature, encompassing issues and aspects of the environment relevant to policy analysis and decision-making. It is applied to comprehensive issues across multiple sectors and is also compatible with other environmental frameworks, such as the Integrated Environmental and Economic Accounting System.

This framework constitutes an important document because of its effective role in:

- Determining the scope of environmental statistics.
- Facilitating the presentation of data in various fields and from various sources.
- Organizing environmental topics in a simple and uncomplicated manner so that environmental indicators can be measured more easily.
- Contributing to identifying a set of environmental statistics relevant to decision-making in society.
- Dealing consistently with statistical frameworks used in other fields, which contributes to the integration of environmental statistics with other statistics.
- Conceptually based.

The framework organizes environmental statistics in a simple and flexible manner, and consists of six main sections, as follows:

- Section One: Environment conditions and quality.
- Section Two: Environment resources and their uses.
- Section Three: Waste.
- Section Four: Serious accidents and disasters.
- Section Five: Human Settlements and Environmental Health.



- Section Six: Environmental protection, management and obligations.

The classifications are available on the GASTAT's website: www.stats.gov.sa

Framework for the Development of Environment Statistics (FDES. 2013) is published on the United Nations Organization website via the link: [UNSD – Environment Statistics](#).

3.3. Sector coverage

The Environment Statistics Publication covers municipal, industrial and agricultural activities.

3.4. Statistical concepts and definitions

Terms and Concepts Related to Environment Statistics Publication:

- Environment Statistics:

Statistics that describe the state and trends of the environment, covering the media of the natural environment (air/climate, water, land/soil), the biota within the media, and human settlements. Environment Statistics tend by nature to achieve integration as they measure human activities and natural events that affect the environment, the effects of these activities and events, the social response to environmental impacts, and the quality and availability of natural assets.

- Air Temperature:

The temperature of the atmosphere which represents the average kinetic energy of the molecular motion in a small region and is defined in terms of a standard thermometer.

- Rain:

The amount of water falling in rain, during a certain time and region.

- Wind Speed:

Wind speed describes how quickly air moves beyond a certain point. This may be an average on a certain unit of time, such as miles per hour, or instant speed.

- Dam:

It is an artificial barrier or obstacle that traps water including any solids or other materials that may be present in it.



- **Torrents:**

Heavy amount of water resulting from rainwater falling above the ground. Torrents often occur in mountainous areas and valley areas and run at great speeds.

- **Land Degradation:**

The reduction or loss of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest or woodlands resulting from natural processes, land uses or other human activities and habitation patterns such as land contamination, soil erosion and the destruction of the vegetation cover.

- **Rangelands:**

Lands predominantly occupied by native vegetation which is grazed by herbivores or rodents.

- **Protected Area:**

Any area of land or water that has been allocated for a special purpose, often to prevent or minimize damage to wildlife and ecosystems.

- **Forests:**

Land with a tree canopy cover of more than 10% and an area of more than 0.5 hectares.

- **Acidity (or pH):**

pH is a measure of how acidic/basic water is. The range goes from 0 to 14, with 7 being neutral. pH of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base. The pH of water is a very important measurement concerning water quality.

- **Nitrogenous oxygen demand:**

A quantitative measure of the amount of dissolved oxygen required for the biological oxidation of nitrogenous material.

- **Serious traffic accident:**

This results in:

- **Death or more (calculated within deaths).**
- **Serious injuries:** injuries or fractures resulting from the accident that require the victim to be transferred to the hospital or to be hospitalized (calculated as injuries).
- **Serious damage:** serious losses of private or public funds resulting from the incident.



- Biochemical oxygen demand (BOD):

The amount of oxygen used for biochemical oxidation by the unit of water volume at a given temperature and for a given period of time. It is an indicator of the degree of organic contamination in water by calculating the dissolved oxygen required by organisms for aerobic degradation of organic substances found in water.

- Chemical oxygen demand (COD):

It is a test for indirect measurement of the number of organic compounds in water. Most COD applications determine the number of organic pollutants found in surface water (e.g. lakes and rivers) or wastewater, making COD a useful measure of water quality.

- Salinity:

The degree of dissolved salts in water measured by weight in parts per thousand.

- Water Temperature:

Water temperature is a physical property expressing how hot or cold water is. Temperature can further be defined as a measurement of the average thermal energy of a substance. Thermal energy is the kinetic energy of atoms and molecules, so temperature in turn measures the average kinetic energy of the atoms and molecules. This energy can be transferred between substances as the flow of heat. Heat transfer, whether from the air, sunlight, another water source or thermal pollution can change the temperature of water.

- Phosphorus:

An essential component of organisms growth and contributes to enriching the water of lakes and other water bodies with nutrients.

- Fisheries:

According to the Fishing Regulations on Fishing Licenses, marine fisheries have been divided into two parts, namely investment fisheries and conventional fisheries.

- Investment Fisheries:

Fisheries that operate fishing boats larger than nine meters in length and have modern equipment such as a fish finder, electronic navigation devices, communication devices, as well as a winch and highly efficient fishing means.

- Traditional Fisheries:



Fisheries that operate traditional fishing boats ranging in length from five to twenty meters without the use of modern navigation and electronic equipment mentioned above, except for the use of a winch and shrimp bottom trawls in the Arabian Gulf.

- Agricultural Production:

Agricultural production is divided into two parts, plant production and animal production. Production is defined as the actual quantity.

- Plant production:

Crop harvested and ready for sale or consumption after deducting the harvest loss. Crops are divided into two parts, temporary crops and permanent crops.

- Animal production:

The use of agricultural animals in order to get the highest level of productivity with lowest cost. It includes all the things we get from animals, such as: meat, milk (with its derivatives), wool, leather, hair and fertilizers.

- Organic Agriculture:

A holistic agricultural production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity.

- Organic Products:

Organic products are defined as products that were grown or produced without use of genetically modified hormones or chemicals, such as preservatives and flavourings. In producing crops, the farmer resorts to using natural fertilizers; in order to strengthen and increase plant growth so that it is classified as organic food, it consists of two types:

- Animal Organic Products:

Organic animal products are made without giving animals or birds on farms any antibiotics or synthetic growth hormones.

- Organic Plant Products:

Plant organic products are food produced from organic farming which does not use industrial fertilizers, pesticides containing chemicals, or genetically enhanced or modified materials.



- **Fertilizers:**

Natural or processed chemical or organic materials added to soil or irrigation water according to specific rations to provide plants with the necessary nutrients, which contain at least 5% of one or more of the three nutrients (nitrogen, phosphate, potassium).

- **Groundwater:**

Underground fresh water or saline water (usually in aquifers) supplies water to wells.

- **Surface Water:**

All water naturally open to the atmosphere, including rivers, lakes, reservoirs, streams, impoundment's, seas, estuaries and so on. The term also covers springs, wells or other collectors of water that are directly influenced by surface waters.

- **Fresh Water:**

It is water with low salts concentration, and it is considered suitable water for extraction and treatment to produce potable water.

- **Water Treatment:**

A process to render water withdrawn from any source suitable for first use; and water used by mechanical, biological and advanced procedures.

- **Desalinated Water:**

The total volume of water obtained from desalination of seawater and brackish water.

- **Reused Water:**

Used water directly received from another user with or without treatment to be used for other purposes. It also includes treated wastewater obtained from treatment plants for use for other purposes. It excludes wastewater discharged into a watercourse and used again downstream; and recycling of water within industrial sites.

- **Wastewater:**

Discharge of effluent from waste water treatment plants which receive waste water from households, commercial establishments, and industries.

- **Catch:**



The catch is a product obtained by fishing and comprises all landings of fish, molluscs, crustaceans, and shellfisheries, as well as any captured animals or plants. The catch that was discarded is not tallied. The catch is calculated using the live weight of the fish in kilograms or metric tons. As a result, any catch landing as eviscerated fish, gill-less fish, or any other form must be converted into live weight. Catch information is frequently gathered through in-person observation of the number of fish or ship's tackles. The fish weights are calculated by multiplying the observed number of fish, containers, or ship's tackles by the average weight of the fish, container, or ship's tackle as determined by a previous survey of these species.

- **Waste:**

Everyday waste resulting from human activities. Its percentage is on the rise in developing countries, especially where there is overpopulation. Without public health awareness, waste can lead to serious harm. It does not include recycled or reused materials; and is divided into:

- **Organic Waste:**

Biodegradable materials, such as food and garden waste.

- **Inorganic Waste:**

Waste that does not contain organic compounds such as plastics, metals.

- **Municipal Waste:**

Waste material usually generated in the residential environment. Waste with similar characteristics may be generated in other economic activities.

- **Municipal Waste Generated:**

The sum of the amount of municipal waste collected plus the estimated amount of municipal waste from areas not served by a municipal waste collection service.

- **Collected Municipal Waste:**

Municipal 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).

- **Industrial Waste:**



Solid, liquid and gaseous waste arising from the manufacture of products.

- **Waste Management:**

Various activities include:

- Collection, transport, treatment and disposal of waste.
- Control, monitor and regulate the generation, collection, transport, treatment and disposal of waste.
- Prevent the generation of waste through modifications within production processes, reuse and recycling.

- **Recycling:**

Processing and use waste in production and consumption processes, such as smelting iron waste so that it can be converted into iron products.

- **Waste Processing:**

Physical, thermal, chemical or biological processes, which change the properties of wastes in order to reduce their size or hazardous nature, to facilitate their handling or to enhance recovery.

- **Landfilling:**

Final placement of waste under the surface in a controlled or non-controlled manner. 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.

- **Waste Incineration:**

The controlled combustion of waste with or without energy recovery.

- **Transition Stations:**

Stations that are used at some stage of waste transportation process to treatment sites and facilities, waste sorting or to final disposal sites in order to reduce the cost of transportation.

- **Safe "Improved" Drinking Water Source:**

Piped water into dwelling, plot or yard; public tap or standpipe; protected dug well; protected spring and rainwater.



- **Water Supply:**

Water distribution, including collection, treatment and storage, for use in a town, city or municipal area, which is generally used to meet domestic and industrial needs.

- **Public Network:**

The network that transports water from sources and storage basins to places of use in addition to pipes and networks located inside residential units and near sources of pure water.

- **Public Sewage Network:**

All extensions and equipment used to collect, transport and deliver sewage effluents to treatment or discharge sites, including pipe extensions, collection tanks, manholes, pumping stations, ventilation valves, etc.

- **Green Spaces:**

It is a place prepared with grass, flowers or trees in gardens, parks, playgrounds and squares that are not intended for agricultural use.

- **Paved Road:**

Any asphalt or concrete road, side road designed or used for vehicle traffic.

- **Exports and imports:**

The transactions and trade movements between countries for the exchange of different productive goods and services in order to exchange the benefit and cover the country's overall needs.

3.5. Statistical unit

Not applicable.

3.6. Statistical population

Not applicable.



3.7. Reference area

The publication sample is a representative sample for Saudi Arabia's 13 administrative regions.

3.8. Time coverage

Data is available for some indicators as a time series (2010-2022).

3.9. Base period

Not applicable.

4. Unit of measure

- Some statistics are measured in degrees Celsius (such as: average temperatures, minimum temperatures, etc.).
- Some statistics are measured in millimeters (such as: annual average rainfall).
- Some statistics are calculated in tons (such as: the amount of waste collected, the amount of treated waste,...etc.).
- Some results are calculated in kilometers (such as: lengths of paved transportation roads).
- Some results are calculated in square kilometers (such as: area of reserves, area of green areas, etc.).
- Some results are calculated as a percentage (for example: the percentage of the population using improved (safe) drinking water).

5. Reference period

The reference period for the variables or data set is as follows:

Data from administrative records are based on the last day of each calendar year.



6. Confidentiality

6.1. Confidentiality - policy

According to the Royal Decree No. 23 dated 07-12-1397, data must always be kept confidential, and must be used by GASTAT only for statistical purposes. Therefore, the data are protected in the data servers of the Authority.

6.2. Confidentiality - data treatment

Data were displayed in appropriate tables to facilitate its summarization, comprehension, and results extraction. Also, to compare data with other data and extract statistical meanings for the study community. It is also easier to check tables without the need to see any sensitive or confidential data, which violates data confidentiality of statistical data.

7. Release policy

7.1. Release calendar

The environment statistics publication results are bound by a release calendar.

7.2. Release calendar access

Available on the: [Statistical Releases | General Authority for Statistics \(stats.gov.sa\)](https://stats.gov.sa)

7.3. User access

One of GASTAT's objectives is to meet better its clients' needs, so it immediately provides them with the bulletin's results once the environment statistics publication is published.



It also receives questions and inquiries of the clients about the Bulletin and its results through various communication channels, such as:

- GASTAT's official website: www.stats.gov.sa
- GASTAT's official e-mail address: info@stats.gov.sa
- Client Support's e-mail address: cs@stats.gov.sa
- Official visits to GASTAT's official head office in Riyadh or one of its branches in Saudi Arabia.
- Official letters.
- Statistical telephone (920020081).

8. Frequency of dissemination

Annual.

9. Accessibility and clarity

9.1. News release

The announcements for each publication are available on release calendar as mentioned in 7.2. Release calendar access. The news release can be viewed on the website of GASTAT in the link: <https://www.stats.gov.sa/en/news>

9.2. Publications

GASTAT issues environment statistics publications and reports on a regular basis within a pre-prepared publishing plan and installed on the GASTAT's website. GASTAT is keen to publish its publications in a manner that serves all users of different types, including publications in different formats that contain (publication tables, data graphs, indicators, metadata, methodology, and used questionnaires) in both English and Arabic.

The environment statistics publications are available on the:



<https://www.stats.gov.sa/en/node>

9.3. On-line database

Not available.

9.4. Micro-data access

Not applicable.

9.5. Other

Not available.

9.6. Documentation on methodology

The Environmental Statistics Publication is based on the General Framework for the Development of Environment Statistics (FDES 2013) issued by the Division of Environmental Statistics at the United Nations via the link:

[UNSD – Environment Statistics](#)

The concepts and definitions are based on the list of terms published on the two United Nations websites via the link:

[United Nations Statistics Division - Environment Statistics](#)

European Environment Agency via the link:

[Glossary – European Environment Agency \(europa.eu\)](#)

9.7. Quality documentation

Quality documentation covers documentation on methods and standards for assessing, measuring, and monitoring the quality of statistical process and output. It is based on standard



quality criteria such as relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, comparability, and coherence.

10. Quality management

10.1. Quality assurance

GASTAT declares that it considers the following principles: impartiality, user orientated, quality of processes and output, effectiveness of statistical processes, reducing the workload for respondents.

Quality controls and validation of data are actions carried out throughout the process in different stages such as the data input and data collection and other final controls.

10.2. Quality assessment

GASTAT performs all statistical activities according to a national model (Generic Statistical Business Process Model - GSBPM). According to the GSBPM, the final phase of statistical activities is overall evaluation using information gathered in each phase or sub-process. This information is used to prepare the evaluation report which outlines all the quality issues related to the specific statistical activity and serves as input for improvement actions.

11. Relevance

11.1. User needs

Internal GASTAT's users, which make use of the environment statistics publication data, include:

- Department of International Indicators.
- Department of Health and Education Statistics.
- General Department of Strategic Commination and Client Support.
- Population, Gender and Diversity Department.
- Department of Data and Geographical Maps.
- Department of Traffic and Transport Statistics.



External users who make significant use of (environment statistics publication) data include, but is not limited to:

- The governmental entities.
- Regional and International Organizations.
- Research institutions.
- Media.
- Individual of researchers and students.

The disseminated key variables that mostly used by key users:

The Environment Statistics Section of the United Nations Statistics Division (UNSD).	Data on water, waste, air quality, and biodiversity, by forms.
Gulf Statistical Center.	Data on water, waste, air quality, and biodiversity, by forms.
Food and Agriculture Organization of the United Nations.	Water data by organization’s form.

11.2. User satisfaction

Not available.

11.3. Completeness

The data of the environment statistics publication are based on the government entities’ record data, statistical surveys and censuses data of the General Authority for Statistics.

Data Coverage:

The General Framework for the Development of Environment Statistics (FDES 2013) consists of 458 individual statistics organized in the structure (sections, subsections and subdivisions). Four sections are addressed in this first edition of this publication, depending on availability and conformity. The basic set is divided into three layers of statistics.

According to the “Basic Set of Environment Statistics”, a number of statistics were covered as follows:

- First layer:



31 statistics were covered according to the available data from 100 high-priority statistics that have a sound methodological basis.

- Second layer:

29 statistics were covered according to the available data from 200 priority environmental statistics, but they require methodological development.

- Third layer:

10 statistics were covered according to the available data from 158 environmental statistics which are either low priority or require significant methodological development.

12. Accuracy and reliability

12.1. Overall accuracy

The data is checked over previous years to study the correlation between variables and confirm consistency between different data series.

13. Timeliness and punctuality

13.1. Timeliness

The General Authority for Statistics is keen to apply recognized international standards in announcing and clarifying the time of publishing statistics through the official website through the statistical calendar, as well as in adhering to the announced time. In case of a delay, it will be updated accordingly.

13.2. Punctuality

It is published according to the publication dates of the statistical calendar published for the Environmental Statistics Publication on the General Authority for Statistics' webpage.



14. Coherence and comparability

14.1. Comparability - geographical
Data are fully comparable between the administrative regions of the Kingdom of Saudi Arabia.
14.2. Comparability - over time
The Environmental Statistics Publication started in 2021 as annual statistics including a time series.
14.3. Coherence- cross domain
Not applicable.
14.3.1. Coherence - sub annual and annual statistics
Not applicable.
14.3.2. Coherence- National Accounts
Not applicable.]
14.4. Coherence - internal
]Not applicable.

15. Data revision

15.1. Data revision - policy
Not applicable, only final results will be published.]
15.2. Data revision - practice
Not applicable, only final results will be published.



16. Statistical processing

16.1. Source data

The Environmental Statistics Publication relies on two main sources for its data, which makes it provide comprehensive data related to environmental statistics in the Kingdom of Saudi Arabia. It includes statistics from sources from the General Authority for Statistics (censuses, and statistical surveys) and statistics from administrative record sources, from which data can be obtained. Annually and on a regular basis, GASTAT calculates its indicators and issues them in the Environmental Statistics Publication.]

The following table shows the data sources in the Environmental Statistics Publication:

Government entities		
Saline Water Conversion Corporation.	Ministry of Municipal, Rural Affairs and Housing.	Ministry of Environment, Water and Agriculture.
National Center for Waste Management.	National Center for Wildlife Development.	National Center for Meteorology.
Royal Commission for Jubail and Yanbu.	National Water Company.	
Censuses and statistical surveys		
Demographic survey.	Agricultural census.	General census of population and housing.
Household environment survey.	Housing publication.	

16.2. Frequency of data collection

Annual.

16.3. Data collection

Data collection from administrative records:



In coordination with the Authority's departments related to collecting register-based data, data is obtained from the administrative records of the Environment Statistics Publication from the Ministry of Environment, Water and Agriculture, the Ministry of Municipal and Rural Affairs and Housing, the General Corporation for Saline Water Conversion, the National Center of Meteorology, the National Center for Wildlife Development, the Center National Waste Management Authority, Royal Commission for Jubail and Yanbu, and National Water Company.

The data were saved on GASTAT's databases, data have been audited and reviewed according to the statistical method and recognized quality standards, in case of defect quality issues or errors in the data we refer back to data source.]

16.4. Data validation

Data are reviewed and matched to ensure their accuracy and precision in a way that suits their nature with the aim of giving the presented statistics quality and accuracy.

The data of the publication's current year are compared with the data of the previous year to ensure their integrity and consistency in preparation for processing data and extracting and reviewing results.

In addition to the data processing and tabulation to check their accuracy, all the outputs are stored and uploaded to the database after being calculated by GASTAT to be reviewed and processed by specialists in Department of Environmental, Agriculture and Energy Statistics through modern technologies and software designed for this purpose.

16.5. Data compilation

Data Editing:

Specialists of Environment Agriculture and Energy Statistics Department have processed and analyzed data in this stage, and this step was based on the following measures:

- Sort and arrange data in groups or different categories in a serial order.
- Summarize detailed data into main points or main data.
- Linking between many parts of data and make them connected.
- Process incomplete or missing data.
- Process illogical data.
- Converting data into statistically significant data.
- Organize, display and interpret data.



Data are presented in proper tables so that they may be simply summarized, understood, comprehended, and extracted, as well as compared to other data and statistical significances. Furthermore, such data may be conveniently accessed in the form of tables.

16.6. Adjustment

Not applicable, only final results will be published.

17. Comment