



الهيئة العامة للإحصاء  
General Authority for Statistics

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# Metadata Report of Household Environment Statistics

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V-2.0

Quality Management

Last update: 05.02.2023



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## 1. Contact

1.1. Contact organization	General Authority of Statistics
1.2. Contact organization unit	Environment, Agriculture, and Energy Statistics Department
1.3. Contact person function	Director of (Environment, Agriculture, and Energy Statistics Department)
1.4. Contact mail address	P.O. Box: 3735 Riyadh, 11481 Kingdom of Saudi Arabia
1.5. Contact email address	<a href="mailto:info@stats.gov.sa">info@stats.gov.sa</a>
1.6. Contact phone number	920020081

## 2. Metadata Update

2.1. Metadata last update	19/07/2023
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## 3. Statistical Presentation

3.1. Data description
<p>The household environment statistics provide and report recent household statistics to support policy and decision makers base their decisions. They are conducted to collect data on the following household characteristics:</p> <ul style="list-style-type: none"><li>• Main households' drinking water sources.</li><li>• Availability of main water source to households.</li><li>• Usage of water Saving tools or devices in the dwelling.</li></ul>



- Households methods of waste disposal
- Environmental pollutions households suffer from.
- Households knowledge and awareness of the most relevant environmental issues.

Key variables used in households' statistics:

Data on households' tap water and drinking water sources as well as soap usage in handwashing. Such data is required for computing some of SDG 6 indicators.

### 3.2. Classification system

Following classifications are applied in household environment statistics:  
For example:

#### **Saudi classification of specializations and educational levels:**

A statistical classification based on the International Standard Education Classification (ISCED\_11) and (ISCED\_13) for Education and Training Issued by United Nations Educational, Scientific and Cultural Organization (UNESCO) which is the reference classification for the organization of educational programs and related qualifications by education levels and fields. It is comprehensive for all educational programs, levels and methods, and covers all levels of education from kindergarten to postgraduate levels. This classification is used in the household environment statistics to classify individuals 15 years and above according to their majors and education levels.

Microdata is collected through interviews to allow output production in accordance to all relevant classifications.

The classifications are available on GASTAT's website: [www.stats.gov.sa](http://www.stats.gov.sa)

### 3.3. Sector coverage

Household environment statistics cover the household sector (both Saudis and non-Saudis) who habitually reside in Saudi Arabia.

### 3.4. Statistical concepts and definitions

Terminologies and concepts of household environment statistics are:

- Yard:  
A part of the house area that is intended for growing plants and trees and grassy areas, but not the planting pots
- Yard Area:



The yard area is calculated in square meters

- Automatic Irrigation Systems:

Any system that saves irrigation water, whether the drip or automatic spraying equipment

- Drinking Water Source:

The point from which the drinking water used in dwellings is sourced

- Source of Water used for Cooking, Hand-washing, and Other Uses:

The point from which the water used in dwellings for cooking, hand-washing, and other uses is sourced:

- Piped Water: It is also called “house connections”, which are pipes that connect water to one or more faucets inside the dwelling.
- Distributed Water (in tanks): The water supplied by tank trucks that transport large quantities of water to houses
- Bottled Water: Water sold in stores in small or large bottles or refillable containers. This does not include water brought from other sources and stored in plastic containers.
- Covered well: A well that is protected from the surface running water by an inner liner or cover that is higher than the ground level and forms a threshold that prevents the running water from mixing with the well water. The well is also covered to prevent the entry of contaminants such as the droppings of birds and small animals. Water is extracted from covered wells by pumps or manual lifting tools.
- Open Well: A well that does not have an inner lining or cover above ground level to protect it from running water and other contaminants such as the droppings of birds and small animals.
- Covered spring: Natural springs protected by a structure of bricks, stones or cement. The spring water comes out directly into a pipe or tank without mixing with the running surface water or contaminants.
- Open Spring: Natural springs that does not have structures to protect them from running water and other contaminants such as the droppings of birds and small animals.
- Surface Water: Open water sources above the ground, such as rivers, reservoirs, lakes, ponds, streams, canals, and irrigation canals.

- Water Availability:

Availability of water when needed at a dwelling.

- Water Outage:

Unavailability of water when needed at a dwelling

- Water Waiting Time:

The period from the water outage until the supply is restored.

- Hand Washing Facility:

The place where hands are washed.

- Water Availability of Handwashing Facility:

Availability of water at a handwashing facility

- Soap or Detergents:

Substances used with water to clean the hands from the dirt, such as dust, dirt, and pathogenic organisms, such as those cause common cold.

- Toilet Sharing:

To share the toilet with people other than family members.



- **Automatic/Manual Flush Toilet:**

The automatic flush toilet has a small water tank for flushing. It also includes a U-shaped drain pipe under the toilet seat to retain water and prevents flies and odors. The hand-flush toilet has a U-shaped drain pipe, but it does not have a tank, and water is poured manually to discharge the excrement.

- **Squat (Arabic) Toilet:**

A dry toilet that collects excreta in an underground pit covered with a squat slab, or platform to sit on top of, made of hard, easy-to-clean materials, with a small hole or seat to allow the waste to fall directly into the pit.

- **Pit Toilet (Squat Toilet without Slab) / Open Pit:**

A dry toilet that collects excreta in underground pit, which does not have a slab, platform or seat. It is a primitive pit for collecting excrement.

- **No Toilet / Open Defecation:**

To defecate in the woods, fields, or pits, leaving excrement on the ground and covering it with a layer of dust (cat method), or rolling up the excrement and throwing it in the trash, or defecation in a surface water source (drainage, beach, river, spring, or sea).

- **Sewerage:**

All installations and equipment used for collecting, transporting and delivering liquid sanitary waste to treatment or disposal sites, including pipelines, collection tanks, manholes, pumping stations, ventilation valves, and others.

- **Sewerage System:**

All installations and equipment used for collecting, transporting and delivering liquid sanitary waste to treatment or disposal sites, including pipelines, collection tanks, manholes, pumping stations, ventilation valves, and others.

- **Solid Sewage Pit:**

The tank that stores sewage water for the house or building and is called the septic tank. This septic tank is used when no sewerage system is available. The septic tank is designed to accommodate the sewage for a period of 10-30 days, then this water is withdrawn.

- **Soak Sewage Pit:**

An underground pit with porous walls, allowing water to seep slowly to the surrounding soil.

- **Sewage Pit Emptying:**

Emptying sewage water when the sewage pit (septic tank) is full and disposing of that water safely.

- **Water Saving Devices:**

Install low-efficiency flush devices in toilets, bathrooms, and kitchen drains

- **Booster Pump:**

A mechanical device used to move water from one place to another by increasing the water pressure to push the water through pipes to the destination point.

- **Automatic Washing Machine:**

A washing machine that washes clothes automatically without manual use

- **Automatic Dishwasher:**

A machine that washes dishes automatically.

- **Waste Disposal:**





When the dwelling disposes of household waste that may contain food leftovers, paper, plastic, glass, or cardboard pieces outside the dwelling.

- Public (Municipal) Trash Cans: The containers that are used to collect waste and trash temporarily outside the dwelling.
- Waste Incineration: To dispose of waste through burning, whether on the surface of the ground or inside excavations at a certain depth below the ground.
- Waste Burial: In this technique, solid waste is pressed to reduce its size, then buried in a pit under the ground. The size of this pit is sufficient to accommodate the amount of waste that will be buried, away from water bodies. A concrete layer is casted at the bottom of the pit followed by another layer of hard plastic to prevent the leakage of liquid materials formed due to the decomposition of solid waste into the ground, and the contamination of groundwater.

- **Waste Sorting:**

To separate the waste, so that the organic waste “food leftovers” are collected in separate bins in order to convert organic materials into compost and inorganic “paper” waste in other bins, as well as metal and glass waste, which helps in recycling process.

- **Separating Food Waste:**

The separation of food waste from other waste.

- **3-way Waste Sorting:**

Separating the waste such food waste, recyclable waste such as paper, glass and metal from the rest of the waste.

- **Electronic and Electrical Equipment Waste:**

The waste that includes damaged or old electronic and electrical devices and tools that have completed their usable life cycle, such as: television, computers, phones, and other means of communication, video and audio recording devices, short-wave ovens, household appliances, and other devices, tools, and products used in our daily lives, including the following according to the European classification:

- **Small IT and Telecommunications Equipment:**

include keyboards, external drives, desktop computers, printers, faxes, scanners, cordless phones, and game consoles.

- **Lighting Equipment:**

include fluorescent lamps, neon lamps, and home lighting devices, including LEDs

- **Small Household Appliances:**

includes small household appliances such as small fans, clocks, transformers, food processing equipment such as toasters, grills, frying pans, water heating equipment (kettles), vacuum cleaners, and personal care equipment such as toothbrushes, hair dryers, shavers, headphones, cameras, and speakers.

- **Large Household Appliances:**

include central heating installed in houses, dishwashers, ovens, cooking equipment, washing machines, clothes dryers, fans, heaters, sports entertainment equipment, and medical equipment such as thermometers and pressure gauges.

- **Screens, Panels and Equipment Containing Screens:**

include tablet computers and flat screens such as LCD, LED and plasma screens.

- **Air Conditioning and Heating Equipment:**



include air conditioners, freezers, refrigerators, and other equipment such as dryers installed at houses.

- **Public (Municipal) Trash Cans:**

The trash containers used to store waste and trash temporarily outside the dwelling.

- **Selling Waste:**

The waste that is sold to companies for the purpose of being recycled or introduced into other industries as raw materials.

- **Delivering Waste to a Recycling Facility:**

To deliver the waste to recycling companies or to individuals to reuse it free of charge.

- **Visual Pollution:**

Any unsightly element that have a negative impact on the aesthetic quality of a landscape that impair one's ability to enjoy a view.

- **Noise Pollution:**

Results from unwanted sounds, which can cause inconvenience and discomfort to living creatures in general, and to humans in particular.

- **Light Pollution:**

The excessive use of artificial lights that change the natural lighting of the environment, adversely affecting the health and safety of humans and wildlife, plant growth, leading to an increase in energy consumption, and disturbance of ecosystems.

- **Air Pollution:**

The presence of any solid, liquid or gaseous substances in the air in quantities that lead to physiological, economic and vital damages to humans, animals, plants, machinery and equipment, or affect the nature of things.

- **Organic Products:**

The products that have been grown or produced without the use of genetically modified hormones or chemicals, such as preservatives and flavorings, where the farmer depends on natural fertilizers to boost and increase the plant growth so that the product is classified as organic food.

- **Environmental Concern:**

A basic knowledge and concern for the human relationship with his natural environment, and the effects of this relationship (such as: pollution of all kinds), awareness of the environment and its problems, and the acquisition of environmental knowledge, skills and trends.

- **Environmental Issues:**

The issues related to human harmful impact on the environment, and environment preservation is a practice that aims to protect the natural environment at the individual, organizational or governmental level, for the benefit of the environment and humans alike, and addresses environmental concepts and issues through advocacy, learning and activities.

- **Air Pollution:**

When the outside air contains substances or particles that are harmful to humans and other living organisms.

- **Increased Amount of Waste:**

The increase in the amount of waste in the street surrounding the house, which causes unpleasant and disturbing odors



- Scarcity of Drinking Water:  
Lack of access to clean drinking water or lack of water supply.
- Climate Change:  
A significant, impactful, and tangible long-term change in the weather including temperature, precipitation rate, snowfall rate, and winds.
- Desertification:  
The degradation of land in arid, semi-arid, dry and sub-humid regions. It is caused by human activities and climate changes. Desertification does not refer to the expansion of existing deserts. This is happening because dryland ecosystems, which cover more than a third of the world's land area, are highly vulnerable to overexploitation and inappropriate land use.

### 3.5. Statistical unit

The statistical unit in household environment statistics is the household.

### 3.6. Statistical population

Statistical populations of household environment statistics are all Saudi and non-Saudi households that habitually reside in Saudi Arabia.

### 3.7. Reference area

The survey sample is a representative sample for Saudi Arabia's 13 administrative regions that were chosen in a scientific way to represent the region's households from the frame of the General Housing and Population Census 2022.

### 3.8. Time coverage

Data are available from 2018, 2020 and 2022.

### 3.9. Base period

Not applicable.



## 4. Unit of measure

The main unit used in the household environment statistics is reported as percentage.

Such as: relative distribution of the main source of drinking water in the dwelling at the level of Saudi Arabia in Saudi Arabia.

## 5. Reference period

References period to the variables or dataset as following:

Data of household environment statistics 2022 are attributed from January 1 to December 31.

For example:

- Data on the number of household members and their demographic characteristics is based on the date of the household contact.
- The data from water, sewage, waste, and environmental data from 2022.

## 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 the original questionnaire, which usually include data like names and addresses of individuals, names of data providers, which violates data confidentiality of statistical data.

“Anonymity of data” is one of the most important procedures. To keep data confidential,



GASTAT removed information on individual persons, households, or business entities such a way that the respondent cannot be identified either directly (by name, address, contact number, identity number etc.) or indirectly (by combining different - especially rare - characteristics of respondents: age, occupation, education etc.).

## 7. Release policy

### 7.1. Release calendar

The household environment statistics publication is included in the statistical calendar (dates of publication of the bulletins) on GASTAT's official website. The results of the statistics were published on 27/7/2023.

### 7.2. Release calendar access

Available on the: <https://www.stats.gov.sa/en/future-releases>

### 7.3. User access

One of GASTAT's objectives is to meet its clients' needs better, so it immediately provides them with the bulletin's results once the household 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](http://www.stats.gov.sa)
- GASTAT's official e-mail address [info@stats.gov.sa](mailto:info@stats.gov.sa)
- Client Support's e-mail address [cs@stats.gov.sa](mailto: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 (92002008).



## 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 household 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 household environment statistics publications are available on [Environment Statistics | General Authority for Statistics \(stats.gov.sa\)](#)

### 9.3. On-line database

Not applicable.

### 9.4. Micro-data access

Microdata are unit-level data obtained from sample surveys, censuses, and administrative systems. They provide information about characteristics of individual people or entities such as households, business enterprises, facilities, farms, or even geographical areas such as villages or towns.



The different types of microdata files to meet different information needs:

- Public use:

It consists sets of records containing information on individual persons, households, or business entities anonymized in such a way that the respondent cannot be identified either directly (by name, address, contact number, identity number etc.) or indirectly (by combining different - especially rare - characteristics of respondents: age, occupation, education etc.).

- Scientific use:

These files established based on specific methodology asked by data requester to extract the datasets with specific characteristics used for strategic studies and decision making as well scientific research purposes on individuals, households and enterprises with no direct identifiers, which have been subject to control methods to protect confidentiality.

Eligible users can access microdata sets through secure interface built-in by GASTAT called "Etaha" with specific documentary requirements.

## 9.5. Other

Not available.

## 9.6. Documentation on methodology

Based on the WHO/UNICEF Joint Monitoring Program for Water Supply, Sanitation and Personal Hygiene.

## 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 household environment statistics data, include:

- Global indicators management
- Health and education statistics management
- Strategic partnerships and client support management
- Population, Gender and Diversity management

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

- Governmental entities.
- Regional and International Organizations.
- Research institutions.
- Media.
- Individuals.

The disseminated key variables that mostly used by key users:

- Relative distribution of the main source of drinking water in the dwelling at the level of Saudi Arabia.
- Relative distribution of the main source of cooking water, hand washing and other household uses at the level of Saudi Arabia.
- Relative distribution of water availability from the main source in the dwelling at the level of Saudi Arabia.
- Relative distribution of wastewater discharge in the dwelling at the level of Saudi Arabia.





- Relative distribution of the use of water rationing devices or tools in the dwelling at the level of Saudi Arabia.
- Relative distribution of residential waste disposal methods at the level of Saudi Arabia.
- Relative distribution of pollution (visual, noise, light and air) suffered by households in the dwelling at the level of Saudi Arabia.
- Relative distribution of the most important environmental issue at the level of Saudi Arabia.

### 11.2. User satisfaction

Not available.

### 11.3. Completeness

Household environment statistics data are based on completed household data where all data are published in the form of statistical indicators.

## 12. Accuracy and reliability

### 12.1. Overall accuracy

The data collected is improved through the researchers, that have been selected according to a set of practical and objective criteria and training program related to the field of work.

The electronic data collection form of the household environment statistics questionnaire includes alert, prevention rules and correction rules during the data collection process in order to improve data quality.

Overall, the data is checked with previous years to identify any significant changes in the data. The internal consistency of the data is checked before it is finalized. The links between variables are checked and coherence between different data series is confirmed.



## 13. Timeliness and punctuality

### 13.1. Timeliness

GASTAT uses the Special Data Dissemination Standard (SDDS) issued by the International Monetary Fund. According to this Standard, all statistics agencies are required to publish data on an annual basis, and with a delay of not more than half a year (180 days) after the end of the reference period. If the data are from different source, they may be published in a different frequency.

### 13.2. Punctuality

Publication takes place in accordance with published release dates for household environment statistics on GASTAT's webpage. The data are available at the expected time, as scheduled the release calendar, If the publication delayed the reasons would be provided.

## 14. Coherence and comparability

### 14.1. Comparability - geographical

Data are fully comparable in Saudi Arabia's administrative regions.

### 14.2. Comparability - over time

The survey started in 2019 as an annual survey.

Major changes in recent years:

- 2021: Shift to CATI (Computer Assisted Telephone Interviewing)
- 2023: Shift to CATI and CAWI (Computer Assisted Telephone Interviewing) and using the frame of the General Housing and Population Census in 2022

### 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
Household environment statistics estimates for a given reference period have full internal coherence, as they are all based on the same corpus of microdata, and they are calculated using the same estimation methods.

## 15. Resources used

Description	Total
Total staff (GASTAT's staff, researchers)	116
Number of surveyed households	45520
Total days of data collection period (end date - start date)	30
Average conducted interviewer per day (during data collection)	N/A

## 16. Data revision

16.1. Data revision - policy
Not applicable, only final results will be published.
16.2. Data revision - practice
Not applicable, only final results will be published.



## 17. Statistical processing

### 17.1. Source data

The Household Environment Survey is the main source of environmental information to assess the state of the environment of households in Saudi Arabia, where data is collected from an estimated 45,520 Households.

### 17.2. Frequency of data collection

Annual.

### 17.3. Data collection

Data collection from survey:

The household environment statistics data collection is carried out through Computer-assisted telephone interviewing (CATI) and Computer-assisted web interviewing (CAWI).

### 17.4. 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 household environment statistics through modern technologies and software designed for this purpose.



## 17.5. Data compilation

### Data Coding

In the household environment statistics, interviewers collect from respondents, a detailed description of each field. This information is then coded in-house by an automated process, which is reviewed by a small-dedicated team of coding experts using a series of consistency checks.

### Data Editing

Specialists of (Statistical dept. name) 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.

### Imputation (for Non-Response or Incomplete Data Sets)

- Non-responses:

The response is analyzed at the completed sample level, then the weight is estimated for each preview unit to be circulated to the entire community.

- Incomplete data sets:

GASTAT uses statistical methods to estimate anomalous values and some missing data within the sections of the home environment statistics questionnaire.

Such as: the use of measures of centralism at the level of target classes.

### Extrapolation and weighting

After processing the data collected from the responding households, survey weights were generated to produce indicator tables by following two main steps in creating survey weights:

- Adjustment of non-response
- Calibration weight

### Applied statistical estimation

GASTAT has relied on the formulas approved by the international standards in calculating (household environment statistics) indicators, as follows:

- Relative distribution of the main source of drinking water in the dwelling at the level of Saudi Arabia =  $(\text{number of households by main source of drinking water} / \text{total households}) * 100$
- Relative distribution of the main source of drinking water in the dwelling at the level of administrative regions =  $(\text{number of households by main source of drinking water and administrative region} / \text{total households}) * 100$



### 17.6. Adjustment

Not applicable, only final results will be published.

## 18. Comment