الهيئة العامة للإحصاء
General Authority for Statistics

Household Environment Survey

2019

Surveys

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1. Introduction

The vision of the General Authority for Statistics (GASTAT) is to be the most remarkable and innovative statistical reference for supporting the economic and social development in the Kingdom of Saudi Arabia. Its mission is to provide updated, value added, accurate, transparent, comprehensible, and credible statistical products and services, in accordance with the best international standards and practices, and to achieve leadership in the development of the statistical sector to support decision making. Therefore, it is pleased to publish its first version of the Household Environment Survey of 2019, one of the field and sampling household surveys in the GASTAT knowledge and natural resource survey plan. The Household Environment Survey provides statistics on pollution and pollution types; household environment; water, water sources, costs and breaks; sewage and sewage cost; waste, waste sorting and components of household waste; air quality in households, as well as general statistics on the environment and environmental literacy, etc. GASTAT hopes that the bulletin data will assist decision-makers and researchers in developing environmental policies, and contribute to creating a statistical database on household environment. The data can be used in preparing and planning for future development programs, and supporting the efforts and endeavors of all government and private entities in this regard. GASTAT would like to express its sincerest gratitude to all partners, clients and stakeholders, as well as household members for their cooperation in providing the required data for the survey's questionnaire. Their cooperation has contributed greatly to the successful release of the bulletin. GASTAT also welcomes any suggestions or remarks that may improve the content of this bulletin or future bulletins on the following email (sa.gov.stats@info).

Allah is the Arbiter of Success

General Authority for Statistics

1. Data sources for the Household Environment Survey:

The bulletin uses the household field survey (Household Environment Survey) performed by GASTAT for the first time in 2019, intended to be held annually one of the (Environment Statistics Surveys), designed to collect information by visiting a sample of households within the 2010 statistical framework that represents all households across the Saudi administrative regions. During these visits, an online questionnaire will be used to provide estimates, indicators and accurate, detailed data on the household environmental sector in order to support decision makers. The data will identify household environmental behaviors and environmental awareness and support gaps, fulfill the environmental data requirements of public and private entities and understand the household environmental situation in the kingdom. This will help identify the ease of access to of water and sewage services, household production of organic and hazardous waste and use of pesticides and dangerous materials. This will, in turn, allow for the optimal planning of environmental awareness, mitigation of certain environmental issues, thereby benefiting the society and economy as a whole; as well as the provision of environment statistics that will help measure environment-related SDG indicators based on the international standards, assisting decision-makers to develop optimal plans.

2. Objectives:

1. Providing environment statistical data that help measure some environmental sustainable development indicators as per the international definitions of such indicators.
2. Providing statistical data for the Environmental Statistics Report as per the UN Framework for the Development of Environment Statistics (FDES 2013).
3. Providing data to help measure indicators of climate change and emissions from household energy use.
4. Providing water and waste data to help fill the periodical international surveys conducted by the United Nations Statistics Division (UNSD).

5. Raising environmental awareness around saving water and energy resources by using saving devices, waste sorting, environmental education and the optimal way to dispose of electronic waste.
6. Providing an environmental database to support decision makers, policy makers, researchers and interested parties.

3. Household Environment Survey Terminology and Concepts:

The latest international environment statistics concepts and relevant scientific references were used in line with the UN recommendations. The importance of unified concepts and definitions lies in the standardization of work methods to guide field workers. Therefore, the definitions must be very well understood and adhered to.

- **Environmental Pollution**

Environmental pollution is defined as the contamination of the physical and biological components of the natural environment to such an extent that humans and other living organisms are adversely affected. Pollutants can be solid, fluid or gaseous; as well as naturally occurring substances, but they are considered contaminants when in excess of natural levels. It can result in pollution of air, water, and land.

- **Light Pollution**

Light pollution, also known as photo pollution, is the excessive use of artificial light, resulting in the alteration of natural conditions, which adversely affects the health and safety of humans, wildlife and plant growth, increases energy usage, and distorts ecosystems. Some of the causes of light pollution are: Overuse of incandescent signs, decorative lights and excessively bright street lights. Leaving lights on in the house. Overpopulation, which leads to there being too many lights in a limited space.

- **Sound Pollution:**

The propagation of noise with harmful impact on the activity of human or animal life. Sound pollution is measured in decibel (dB), where the permissible limit according to WHO is 75 dB. Noise at (90) dB can cause hearing damage, whereas a noise louder than (100) can cause

complete hearing loss. Potential sound pollution sources are factory machines, such as grinders, generators, compressors, etc; social events with music; transportation, such as trains, planes and cars; construction activities, such as bridge, building and road construction; and household activities that produce loud noises.

- **Air Pollution:**

Air pollution is a mixture of solid particles and gases in the air in amounts that can can physiological, economical and biological harm to humans, animals, plants, and machinery and alter nature.

- **Visual Pollution:**

Visual pollution is an aesthetic issue and refers to the impacts of pollution that impair one's ability to enjoy a vista or view.

- **Sanitation:**

Adding a substance to pools to prevent infection resulting from pollutants caused by swimmers.

- **Filter:**

A device responsible for removing contaminants from pool water

- **Water Source:**

All types of water bought from the national company, private sector, individuals or any other resource for household consumption.

- **Water Cost:**

The administered price of water provided through supply pipes by public and private facilities (water fees).

- **Water Filter:**

Filter designed to clear drinking water of contaminants, making it fit for human consumption.

- **Tank:**

A container constructed for the purpose of storing water, or saving rain and river water for drinking, agriculture and irrigation.

- **Using soap for washing hands in households:**

Using soap and water to clean the hands of dirt, dust and macrobiotics that cause diseases, such as colds.

- **Public Sewage Network:**

The system of lines and equipment used to collect, transfer and deliver fluid waste to treatment and disposal locations, including pipes, collecting tanks, screening chambers, pumping stations, manholes and ventilation valves.

- **Treated Sewage Water:**

Sewage water that has been treated chemically, mechanically or biologically for re-use.

- **Waste:**

Waste is any substance which is discarded after use, except recycled or reused materials. Its numbers are on the rise in developing countries, especially where there is overpopulation. Without public health awareness, waste can lead to many hazards. It has four types:

- **Organic Waste:** Biodegradable materials, such as food and garden waste.
- **Inorganic Waste:** Non-biodegradable substances, such as plastic, minerals and fabrics.

- **Municipal Waste:**

It incudes all waste produced by households, commerce, crafts, government buildings, schools, and hospitals, as well as large-sized waste, such as old and used furniture, wood, garden waste, street sweeping waste and garbage container content, but does not include construction waste.

- **Household Non-Hazardous Waste:**

Household waste that can be categorized under the following types of waste: organic, plastic, mineral, and agricultural.

- **Household Hazardous Waste:**

Household medical waste, such as blood, tissues, needles, gauze, used bandages, as well as chemical waste resulting from using detergents, paint, pesticides and foggers.

- **Waste Sorting:**

Waste sorting is the process by which waste is separated in boxes in different colors into organic waste (later turned into fertilizer), paper, minerals and glass, which helps recycle the waste.

- **Selling Waste:**

Disposing of waste by selling it to companies to be recycled or used as raw materials in other industries.

- **Waste Incineration:**

Burning waste and turning it into ash.

- **Waste Burial:**

Shrinking solid waste and burying it in a hole in the ground that is of sufficient size, away from water bodies, with a layer of cement and another of solid plastic on the bottom that prevent fluids resulting from solid waste decomposition from leaking and polluting underground water.

- **Waste Containers:**

Containers used to store waste and undesired materials temporarily, considered to be one way to dispose of waste.

- **Solid or Fluid Chemical Waste:**

Leftover solid chemicals used in households, such as pesticide powders and fluid remnants, including organic solutions, acids, paints and fluid detergents.

- **Plastic Waste:**

Synthetic polymers made from oil derivatives. Plastic is a main component in many disposable household items, packaging materials, bags and bottles.

- **Electronic and Electric Waste:**

Appliances, electronics and electric devices that cannot be used anymore, such as TVs, computers, phones, communication devices, audiovisual recording devices, microwaves, household appliances, and other tools and products we use in our daily lives. Based on the European classification, they include:

- **Heat exchange equipment:**

ACs, freezers, fridges and other machines, such as dryers.

- **Screens, panels and equipment with screens:**

Tablets and LED and LCD display screens and plasma screens.

- **Bulbs:**

Florescent and neon lights used at home, including LEDs.

- **Large equipment:**

Central heating in houses, dishwashers, ovens, cooking appliances, washing machines, dryers, fans, heaters, sport equipment, and medical equipment such as thermometers and pressure monitors.

- **Small equipment:**

Small household appliances, such as small fans, irons, watches, adapters, cooking appliances, such as toasters, grills and fryers, water heating kits, vacuum cleaners and personal items, such as toothbrushes, hair dryers, shaving machines, earphones, cameras and speakers.

- **Small ICT Equipment:**

Routers, keyboards, external hard drives, desktops, printers, faxes, scanners, wireless phones and game consoles.

- **Tires:**

The rubber cushion that fits around a wheel, and is filled with compressed air.

- **Hybrid Car:**

A car that uses two or more distinct types of power (gasoline and electricity).

- **Electric Car:**

A car that is propelled by electricity. One of the applications of this technology is to replace the original car motor with an electric one, which is the easiest way to transform a normal vehicle into an electric one while maintaining its other components. The engine is supplied with energy through energy storage batteries.

- **Motor Oil:**

Motor oil is used for lubrication of internal combustion engines. The main reason for it is to lubricate the moving parts. In addition, it cleans, prevents the corrosion of, enhances the performance of and cools the engine by carrying heat away from moving parts. It is enhanced with a few other additives to make it resistant to high pressures. The oil is derived from petroleum and non-petroleum chemicals used in the petroleum industry. Generally, the oil is made from hydrocarbons and organic substances made entirely from hydrogen and carbon.

- **Firewood:**

Pieces of wood that are dried to be used to light fires and get energy for various household purposes, such as heating and cooking. There are two types of firewood:

- **Local:** produced in the same region.
- **Imported:** bought from abroad.

- **Resource Saving Devices:**

Rationalization is the optimal use of electricity resources necessary for a household without inconveniencing the residents, impacting their productivity or decreasing the efficiency and productivity of household appliances. Electricity is one of the most important energies in our daily lives, used to operate all machines at households, companies, factories and organizations. Electricity is a non-renewable resource that must be rationalized. Energy-saving bulbs, such as florescent and incandescent lights that carry the energy efficiency label, are highly efficient and rationalize energy consumption.

- **Water Saving Devices:**

Devices that control the flow of water in sinks, bathrooms, toilets and kitchen drains.

- **Air Filtration and Purification Devices:**

Air purifiers are devices that filter out particles and other pollutants from air in closed spaces.

- **Air Fresheners:**

Natural or chemical substances used to give the air a nice smell and remove bad smells, divided into 2 types:

- **Chemical Air Fresheners:** made from chemicals, such as perfumes, etc.
- **Natural Air Fresheners:** made from natural substances, such as cinnamon and lemon peel.

- **Antiseptics:**

An antiseptic is a fluid or solid substance that stops or slows down the growth of microorganisms, used on floors and in bathrooms.

- **Incense:**

A solid substance made from known and specific ratios of different plants. When burnt, it produces only smoke (smell) and no flame.

- **Insecticides:**

Dangerous chemicals, such as cyanide, nicotine, phosphorous and chlorine compounds, used to kill insects and plant pests. They vary in their toxicity to humans, animals and plants.

- **Public Health Pesticides:**

Special chemical compounds containing different percentages of high-efficiency, low-toxicity substances, used to decrease public health pests to the level where they don't pose health dangers or inflict humans, such as rat and snake poison.

- **Chemical Fertilizer:**

A substance that is added to soil to enhance plant growth.

- **Household Garden:**

A green space outside buildings, designed to enjoy nature, add beauty, decorate and/or produce plants. It may have raw, natural or human-made materials.

- **Hydroponics:**

Cultivating plants without soil by instead using mineral nutrient solutions in a water solvent, with roots growing inside the solution or inert materials, such as glass wool or pyrite.

- **Domestic Agriculture:**

Plants grown within the household fences, such as decorative trees, cut flowers, evergreen trees, fruits, palm or vegetables.

- Decorative trees: Non-fruitful trees used to add beauty to the house.
- Palm trees: Trees producing dates.
- Evergreen trees other than palm:Fruitful trees, such as lemon, orange, mango and pomegranate trees.
- Cut flowers:Flowers planted for display, such basil and cloves.
- Vegetables:Grass plants used in part or whole, raw or cooked for human consumption.

- **Self-Production:**

Crops harvested from household gardens and planted by household members.

- **Organic Products:**

Organic products are products that are free from GMOs and chemicals (such as preservatives and artificial flavors). Farmers use natural fertilizers for this kind of products to improve their produce. They are divided in two categories:

- **Organic Animal Products:** made from animals that are raised without the use of antibiotics or synthetic growth hormones.
- **Organic Plant Products:** made with organic farming, which does not use industrial fertilizers, pesticides containing chemicals, or genetically enhanced or modified materials.

- **Environmental Literacy:**

A layperson's understanding, skills and motivation towards his or her relationships to natural systems, including, for instance, the different kinds of pollution and awareness of environmental problems.

- **Environmental Activities:**

Any activity that enhances the preservation and sustainability of the environment and biodiversity, or any green and environmentally friendly activity in general. Such activities can help prevent an environmental crises on planet earth and are a way to make positive change.

This includes all the green and sustainable activities and choices, such as recycling and efficient energy use. It also includes political and direct activities that help preserve the environment and creative green solutions.

- **Greywater:**

Wastewater from baths, shower drains, sinks and washing machine that does not have chemicals. It derives its name from the color it turns into after stagnation.

- **Drip Irrigation:** Irrigation by allowing water to drip slowly to the roots of plants in connected or separate drops using drippers.
- **Sprinkling:** Sprinkler irrigation is a method of applying irrigation water which is similar to natural rainfall. Water is distributed through a system of pipes usually by pumping at a certain pressure which then covers the whole area.
- **Surface Irrigation:** One of the traditional irrigation methods used for garden landscapes, trees and plants.

- **Internal Leakage:**

Leaks resulting from a damage to the internal water pipes often inside walls and floors, which show up as cracks, disfigurations and spots of a varying color.

- **Water Overflow:**

A domestic wastewater overflow is when blackwater or greywater overflows into the household.

- **Household Pets:**

Any animals that can be kept within house fences for companionship, protection, or guarding, such as dogs, cats, rabbits, fish, birds and turtles.

4. Indicators:

Indicator	Indicator Description / Measurement
Percentage distribution of households suffering from pollution by type (visual, sound, light, air)	It is measured by asking households in the survey sample if they buy organic products, then finding out and weighting the percentage of households buying organic products to total survey households.
Percentage distribution of daylight availability in the house across KSA	It is measured by asking households in the survey sample about the level of daylight availability (high, medium, low, zero), which is then weighted.
Percentage distribution of household pool water sources	It is measured by asking households in the survey sample about the sources of pool water (public network, pipe, well, other), then finding out and weighting the percentage of each source.
Percentage of household dependence on the public network (as a water source) in KSA	It is measured by asking households in the survey sample about their water source (public network, pipe, well, other), then finding out and weighting the (percentage of households depending on public network to total survey households) each source.
Percentage distribution of the main sewage source	It is measured by asking households in the survey sample about their sewage source (public network, private network, plant, other), then finding out and weighting the percentage of each source.
Percentage distribution of types of toilets in households	It is measured by asking households in the survey sample about the type of toilets they have then weighting the percentages.
Percentage distribution of household waste sorting	It is measured by asking households in the survey sample if they sort their waste, then finding out and weighting the

	(percentage of households practicing sorting waste to total survey households) each source.
Total waste produced by household in tons at country level	It is measured by asking households in the survey sample about the amount of waste they produce weekly (in kg), then calculating and weighting the annual amount in kg.
Percentage distribution of household disposal of electronic waste (public garbage containers, insinuation, selling, delivery to recycling agencies)	It is measured by asking households in the survey sample about their method of disposal of electronic waste (public garbage containers, insinuation, selling, delivery to recycling agencies), then identifying and weighting the percentages of methods.
Average number of cars per household	It is measured by asking households in the survey sample about the number of cars they have then weighting the percentages.
Annual average car oil change	It is measured by asking households in the survey sample about the number of times they change the car oil per year, then weighting the percentages.
Annual average changed tires per household	It is measured by asking households in the survey sample about the number of tires they change per year, then weighting the percentage.
Percentage distribution of coal and firewood types used in households at country level	It is measured by asking households in the survey sample about the type of coal and firewood they use then weighting the percentages.
Percentage distribution of households using air filtration devices	It is measured by asking households in the survey sample if they use air filtration devices, then finding out and weighting the percentage of households that use air filtration and purification devices to total survey households.
Percentage distribution of households using air fresheners	It is measured by asking households in the survey sample if they use air fresheners, then finding out and weighting the percentage of households that use air fresheners to total survey households.

Percentage distribution of households using incense in KSA per nationality	It is measured by asking households in the survey sample if they use incense, then finding out and weighting the percentage of households that use incense to total survey households
Percentage distribution of households using carpets	It is measured by asking households in the survey sample if they carpet their floors, then determining and weighting the percentage of households that do.
Percentage distribution of households using detergents in cleaning floors and toilets	It is measured by asking households in the survey sample whether they use detergents in cleaning floors and toilets, then determining and weighting the percentage of households that do.
Percentage distribution of household hydroponics	It is measured by asking households in the survey sample if they practice hydroponics, then determining and weighting the percentage of households practicing hydroponics to total survey households
Percentage distribution of households buying organic products	It is measured by asking households in the survey sample if they buy organic products, then finding out and weighting the percentage of households buying organic products to total survey households
Percentage distribution of household environmental literacy	It is measured by asking households in the survey sample about their environmental literacy, then determining and weighting the level of literacy.
Percentage distribution of household pets	It is measured by asking households in the survey sample if they have pets, then determining and weighting the percentage of households that have pets to total survey households.
Percentage distribution of household water overflow or internal leakages	It is measured by asking households in the survey sample whether they face overflow or leakages, and then determine and weight the level of this problem.

Percentage distribution of safety and security systems in households	It is measured by asking households in the survey sample about their used safety and security systems and weighting them.

The many indicators and data provided by the survey can be reviewed in the publication tables.

5. Coverage:

- **Spatial Coverage:**

The Household Environment Survey data covers households across the 13 administrative regions of the Kingdom of Saudi Arabia, which are: (Riyadh, Makkah, Madinah, Qassim, Eastern Province, Asir, Tabuk, Hail, Northern Borders, Jazan, Najran, Al-Baha, and Al-Jouf). A scientifically selected sample representing the region's households is visited in each region.

- **Temporal Coverage:**

1- Household profile data, housing characteristics, and household data is determined at the time of the researcher's visit.

2- Data related to the consumption, cost and main resource of water, waste, energy and air quality is attributed to the last 12 months preceding the researcher's visit to the household.

6. Adopted Statistical Classifications:

The data of the bulletin is based on the following classifications:

- Educational level classification

7. Sample Selection:

The survey sample was chosen by selecting 20000 households to be a sample that represents the survey population at country level and is distributed among the administrative regions of the Kingdom of Saudi Arabia as follows:

Administrative Region	Number of Households	Administrative Region	Number of Households	Administrative Region	Number of Households
Riyadh	3200	Asir	1616	Najran	960
Makkah	3424	Tabuk	1200	Al-Baha	768
Madinah	1632	Hail	1024	Al-Jouf	896
Qassim	960	Northern Borders	592	Total	20000
Eastern Province	2688	Jazan	1040		

- **Sampling Units of the Household Environment Survey:**

The basic sampling units are the enumeration areas. They are sampling units drawn in the first stage of designing the survey sample. Households are considered secondary and ultimate sampling units at the same time. They are sampling units drawn in the second stage of designing the survey sample. Each secondary sampling unit is considered a part of the basic sampling units.

8. Data Collection Tools:

- **Field Data Collection Questionnaire:**

The survey form was prepared and designed by household environment survey experts at GAStat. International recommendations, standards, and definitions were taken into consideration in the design of the survey, which was also presented to experts and stakeholders to obtain their insights and comments. Questions were then redrafted based on a specific scientific approach aimed at unifying question formats used by researchers. The questionnaire was divided into 9 thematic sections to increase its efficiency in achieving technical specifications in the field work stage.

The questionnaire was divided into the following 9 thematic sections:			
Geographic and distinctive data	Household data	Housing data	Water data
Sewage data	Water data	Year-long energy data	Housing air quality Household agriculture
General environmental data			
The complete questionnaire can be viewed and downloaded through GaStat's official website https://www.stats.gov.sa/sites/default/files/stmr_msh_lbyy_lmnzly2019.pdf			

Upon approval, the survey questionnaire was converted into an electronic questionnaire that can be used on an advanced data collection system on tablet devices. The system has the following features:

1) Reviewing the field researcher's work zone (survey sample).

2) Accessing the sample (household) using the map service on the tablet device.

3) Collecting high quality data using data checks and navigation services (to automatically detect input errors and illogical inputs immediately upon data collection).

4) Communicating with supervising entities by exchanging remarks with the field researcher.

9. Data Collection Method:

- The field research candidates in this survey were chosen based on standards related to the nature of the work.
- All candidates (GaStat staff and collaborators from some government entities) were qualified and trained through special training programs.
- Direct contact with households was adopted to complete the survey questionnaire and collect the data. Field researchers visited the households located within the survey sample after reaching them using the coordinates recorded on the tablets and the guiding maps, introducing themselves and proving their IDs using official GaStat

documents. They also clarified the aim of their visit, and presented an overview of the survey and its objectives. The household data was then collected through the electronic questionnaire.

- All field researchers used tablet devices to collect the survey questionnaire data according to timeframes specified based on the number of family members as well as their demographics, social and economic characteristics.
- Field researchers at all work locations in the Kingdom used the "synchronization" feature available on the tablet devices to download and transfer the completed data of the households directly to the database linked to them at GaStat's headquarters where they are stored to be reviewed and processed at a later stage.
- Electronic check rules were applied to guarantee the accuracy, consistency, and rationality of the data entered in the survey questionnaire. These are electronic rules that identify contradictions and they were designed by using a logical link between the answers of the questionnaire and its variables to help field researchers directly identify any errors upon completing the survey data with the head of the household. Those programmed rules don't allow any mistakes to go through when an answer contradicts with another piece of information or another answer in the questionnaire.
- The collected data is verified and reviewed by the field researcher, his/her inspector and the survey supervisor in the supervision area. All work areas are subjected to a monitoring and reviewing process from the Data Quality Room at GaStat's headquarters. The room also controls and monitors the performance of all working groups in the field during the data collection process, from the first day and until the last day.

10. Results Preparation and Review:

After reviewing the accumulated data for the Household Environment Survey, results are calculated, extracted, uploaded, and stored on the database. The final reviewing processes

are conducted by specialists in business statistics using modern technologies and software designed for the purposes of reviewing and auditing.

11. Data Publication:

First: Preparing results for publishing:

At this stage, GASTAT uploads data results to the Household Environment Survey database. It then prepares publication tables and graphics for the data and indicators, and adds description and methodology information as seen in this Bulletin. These are prepared in both Arabic and English.

Second: Preparing media material and announcing the bulletin's release date:

After GASTAT announces the bulletin's release date on its official website at the beginning of the calendar year, it prepares the required media materials to announce the bulletin's release on all media outlets, as well as its various social media platforms. The announcement is made on the date set for publication. The bulletin is published on the official website in various templates such as open data in Excel format

to guarantee its circulation and accessibility to all clients and parties interested in agricultural statistics and add it to the website's statistics library.

Third: Communicating with clients and providing them with the bulletin:

GASTAT pays great importance to communicating with clients who use its data. Therefore, GASTAT contacts clients upon the release of the Research and Development Survey bulletin to provide them with it. GASTAT also receives questions and enquiries from clients regarding the bulletin and its results through various communication channels. Clients can contact GASTAT to request data. Questions and inquiries are received via:

- GASTAT official website: www.stats.gov.sa
- GASTAT official email: info@stats.gov.sa
- Client support email: cs@stats.gov.sa
- Visiting GASTAT HQ in Riyadh or one of its branches across the Kingdom.
- Official letters.
- Phone: (920020081).

12.Implemented Quality Procedures:

The Household Environment Survey is subject to many technical quality procedures to ensure the quality of survey data. Such procedures include:

1. Using assessments of previous surveys conducted by GASTAT to identify the weaknesses and strengths in survey implementation and improve procedures of statistical data collection.
2. Training and testing researchers to guarantee their ability to properly obtain data in line with the survey objectives.
3. Testing the electronic tools used to collect data to ensure data integrity and protection at all stages of the survey implementation.
4. Reducing respondent burden by using appropriate statistical methods.
5. Committing to the timely publication of results based on previously set deadlines.

Several other measures are implemented by the Data Quality Room at GASTAT during the field data collection process.

Data Quality Room:

It is an operations room that works simultaneously with the field operations of the surveys. It is equipped with various electronic follow-up tools and monitoring and tracking screens. The observers and quality specialists in the room review the consistency of the data and detect errors and extreme values during the field data collection process. This is done by instantly and immediately following up on what is being completed by the field researcher to check the researchers' commitment to the instructions of the survey, ensure the implementation of the schedule of arranged visits to the establishment, ensure the rationality and reliability of the data, and review some important survey indicators to ensure data accuracy. The room undertakes several tasks, mainly:

- Reviewing collected data and sending comments to field teams of all levels through an automated office system connected to the tablet devices used by researchers, so that they can get the comments automatically and instantly on site.
- Contacting households by phone and asking some of the questionnaire questions to ensure that the researchers collected the data correctly and complied with the

instructions during their visits. These calls also seek to obtain any missing data and to thank heads of households for their collaboration.

- Responding to field inquiries, whether those of the field researchers or the heads of households.
- Checking the accuracy of the location where the questionnaire was completed by matching the location's coordinates to those registered in the sample file.

13.Bulletin Beneficiaries and Benefits:

All the relevant public sectors benefit from this survey, mainly the Presidency of Meteorology and Environment (PME), MEWA, and MoMRA, in addition to the private sector and regional and international organizations, researchers and planners interested in environmental statistics. The Household Environment Survey data is a statistical product that supports decision-making in this field.

More details on the Household Environment Survey methodology can be found on GASTAT's website.

Key Results from the Household Environment Survey

1- Percentage distribution of households suffering from pollution by type (visual, sound, light, air)

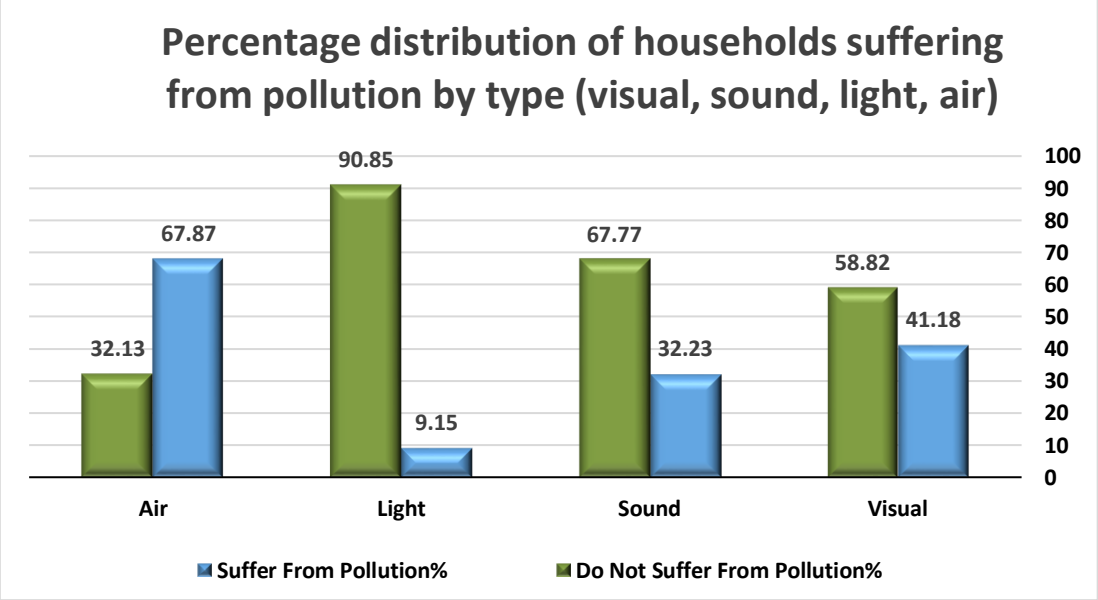


Figure 1

Survey results show that (67.87%) of households suffer from air pollution, whereas (41.18%) suffer from visual pollution, (32.23%) from noise pollution and (9.15%) from light pollution, as indicated by the Figure 1 above.

2- Percentage of household dependence on the public network (as a water source) in KSA

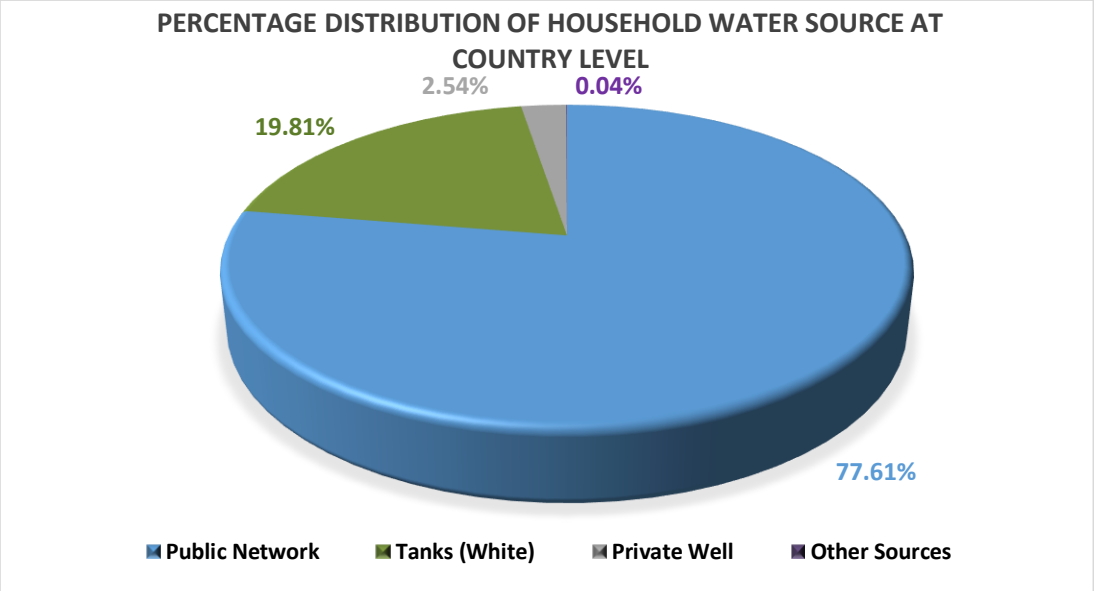


Figure 2

Survey results indicate that the public network is the main water resource for (77,61%) of all households, whereas (19,81%) rely on tanks. (2,54%) rely on a private well, and lastly, only (0,04%) rely on other sources, as shown in Figure 2.

3- Percentage distribution of household water break measurements at country level

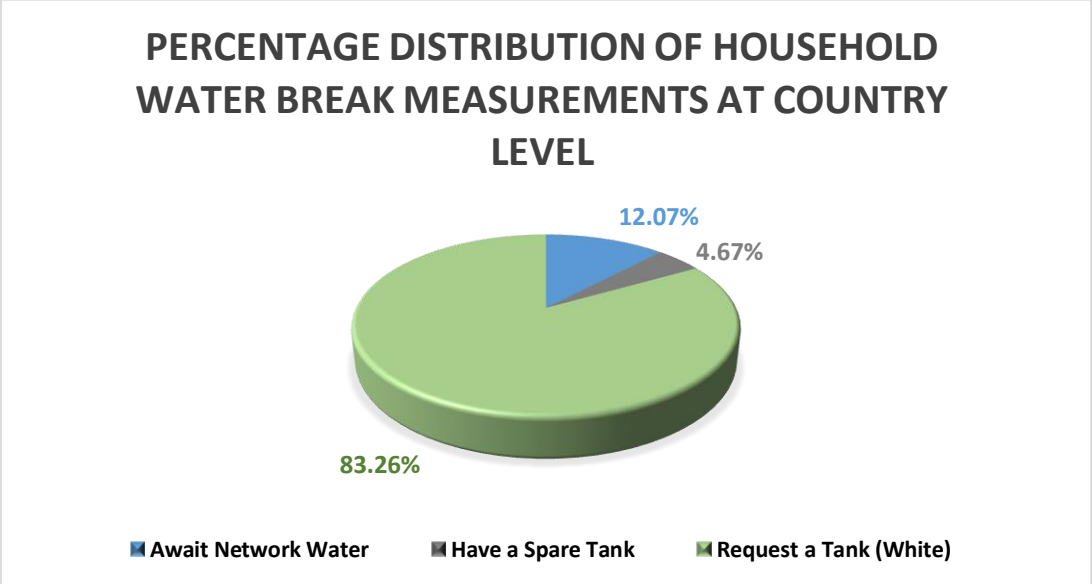


Figure 3

Survey results show that (83,26%) of households request a tank in case of a water break, whereas (12.07%) await network water, and (4,67%) have a spare tank, as shown in Figure 3 above.

4- Percentage distribution of household main sewage source at country level

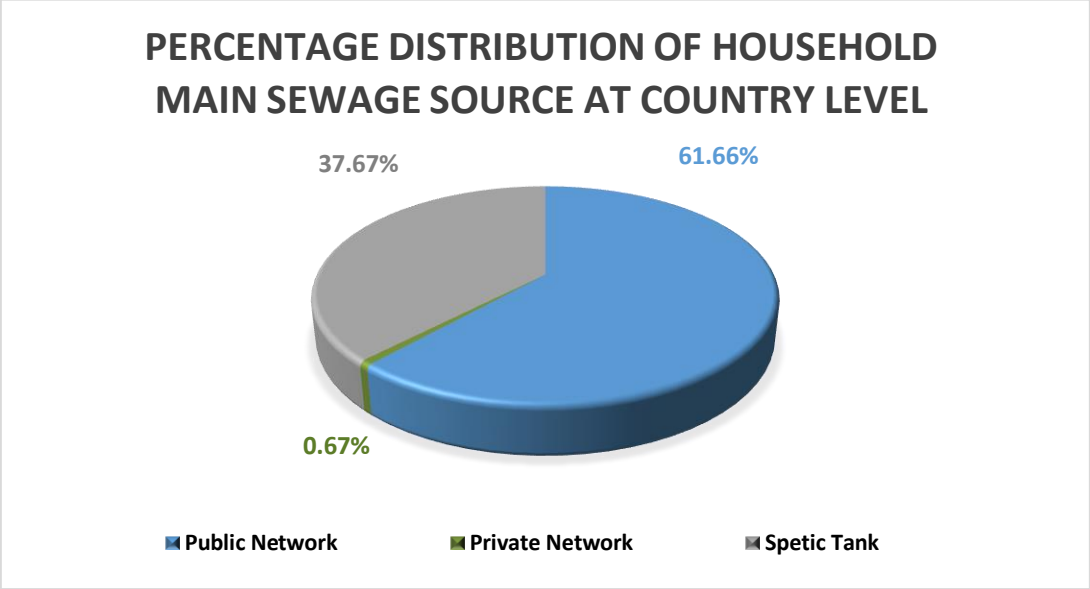


Figure 4

Figure 4 shows that the main sewage source for (61.66%) of households is the public network, followed by the septic tank (37.67%), and the private network at only (0.67%).

5- Total waste produced by household in tons at country level

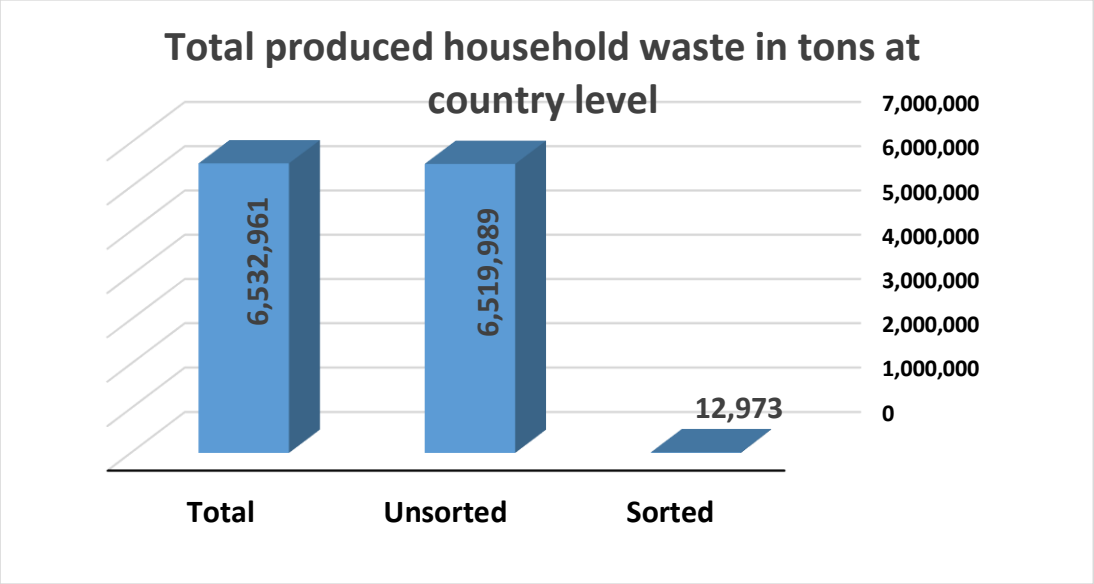


Figure 5

Survey results indicate that the total amount of waste generated by households is (6,532,961) tons, (6,519,989) tons of it is unsorted, which is much higher than sorted waste, which is only (12,973) tons, as shown by Figure 5 above.

6- Percentage distribution of household electronic waste disposal by method at country level

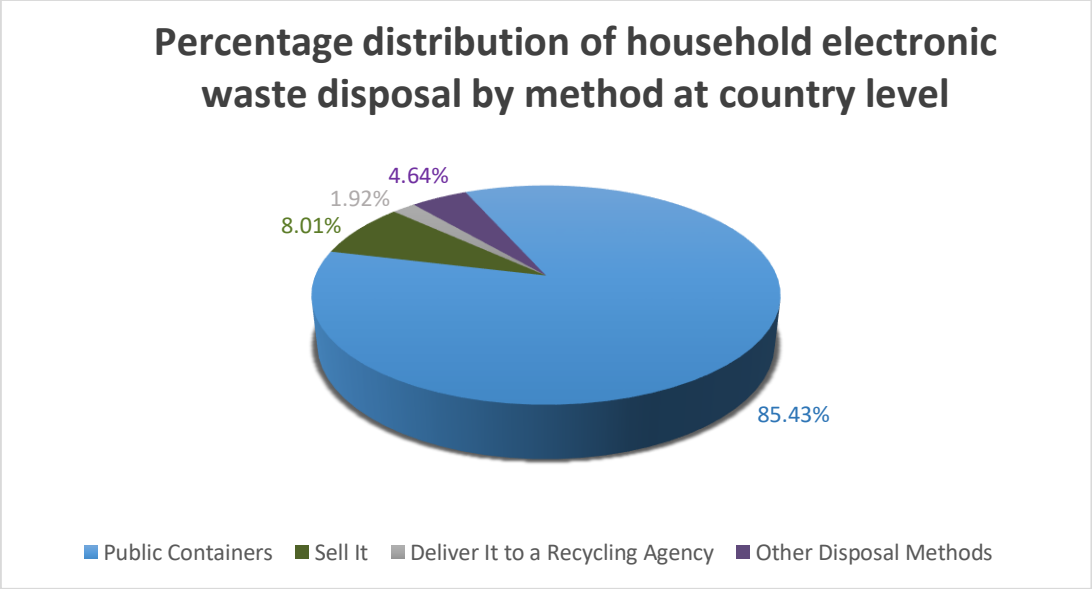


Figure 6

As indicated by Figure 6 above, (85,43%) of households dispose of electronic waste through public containers, whereas (8,01%) sell it, (1,92%) deliver it to a recycling agency, and (4,64%) use other disposal methods.

7- Average number of household wasted electronics at the administrative region level

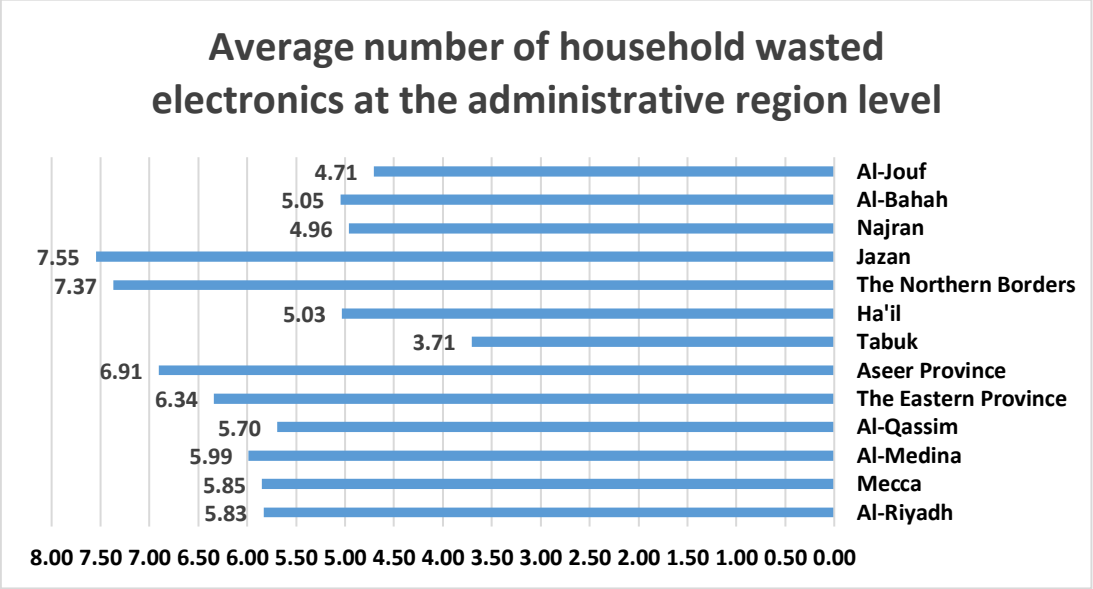


Figure 7

Survey results show that the average number of wasted electronics from every household at country level is (5.81). On the level of administrative regions, Jazan witnessed the highest average (7.55), followed by the Northern Borders (7.37). On the other hand, Tabuk witnessed the lowest average (3.71), followed by Al-Jouf (4.71), as shown by Figure 7 above.

8- Annual average car oil change

Table 1

Average number of times for changing the car oil
8.85

Table 1 above shows that the average number of times that households change their car oil is (8.85) per year.

9- Annual average changed tires per household

Table 2

Annual average changed tires per household
3.12

Survey results indicate the the average number of changed tires per household at country level is (3,12) per year, as shown in Table 2.

10- Percentage distribution of the main coal and firewood types used in households at country level

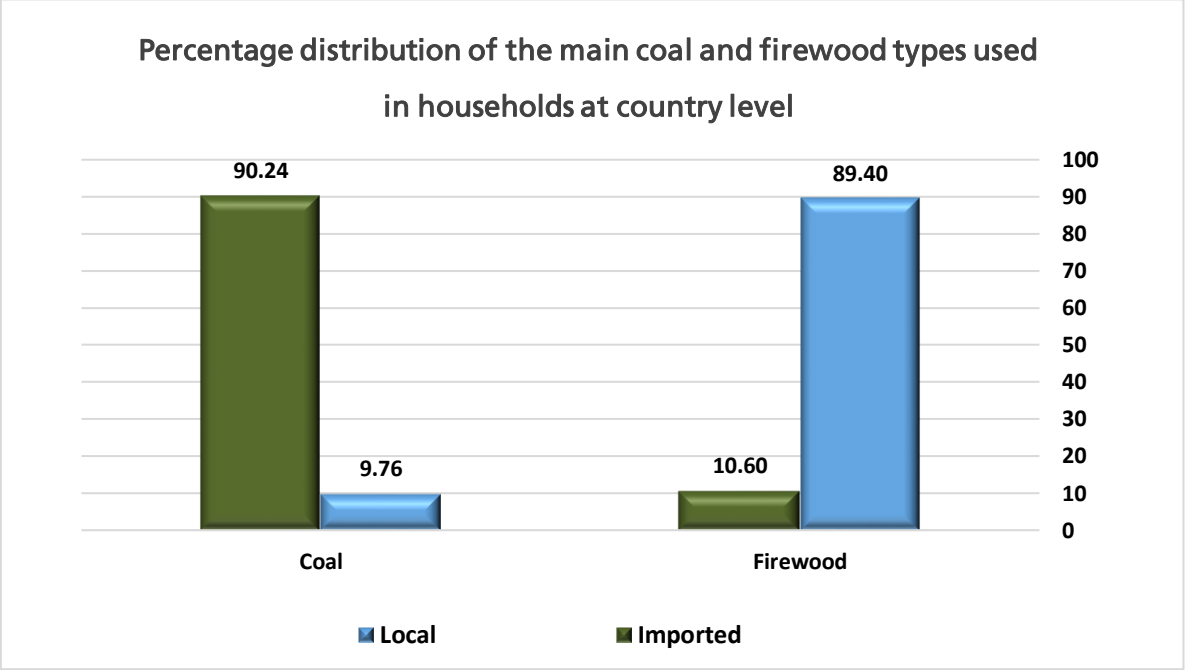


Figure 8

According to the survey results, local firewood represents (89.40%) of the firewood used by households, whereas (90.24%) of all used coal is imported, as indicated in Figure 8.

11- Percentage distribution of the number of times households use incense at country level

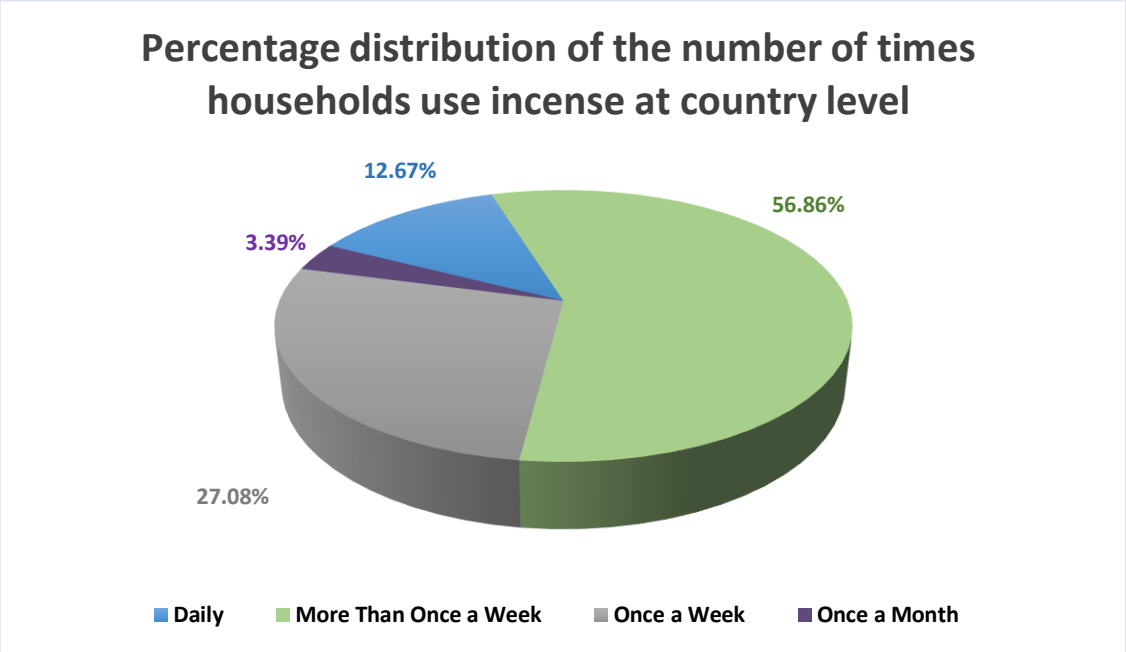


Figure 9

Survey results show that (56,86%) of households use incense in the house more than once a week, whereas (27,08%) use it once a week, (12,67%) daily, and (3,39%) once a month, as shown in Figure 9.

12- Percentage distribution of household environmental literacy at country level

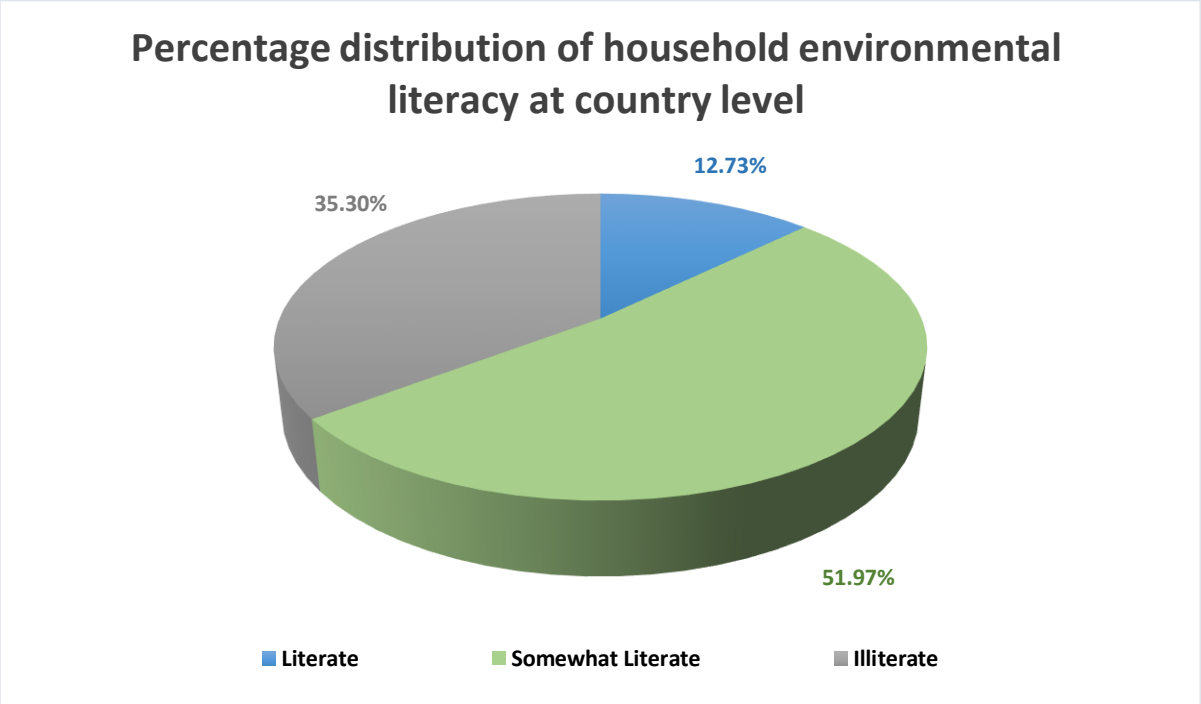


Figure 10

Survey results indicate that (51,97%) of households are somewhat literate in environment, while (35,30%) are illiterate, and (12,73%) are literate, as shown in Figure 10 above.

13- Percentage distribution of households with pets at country level

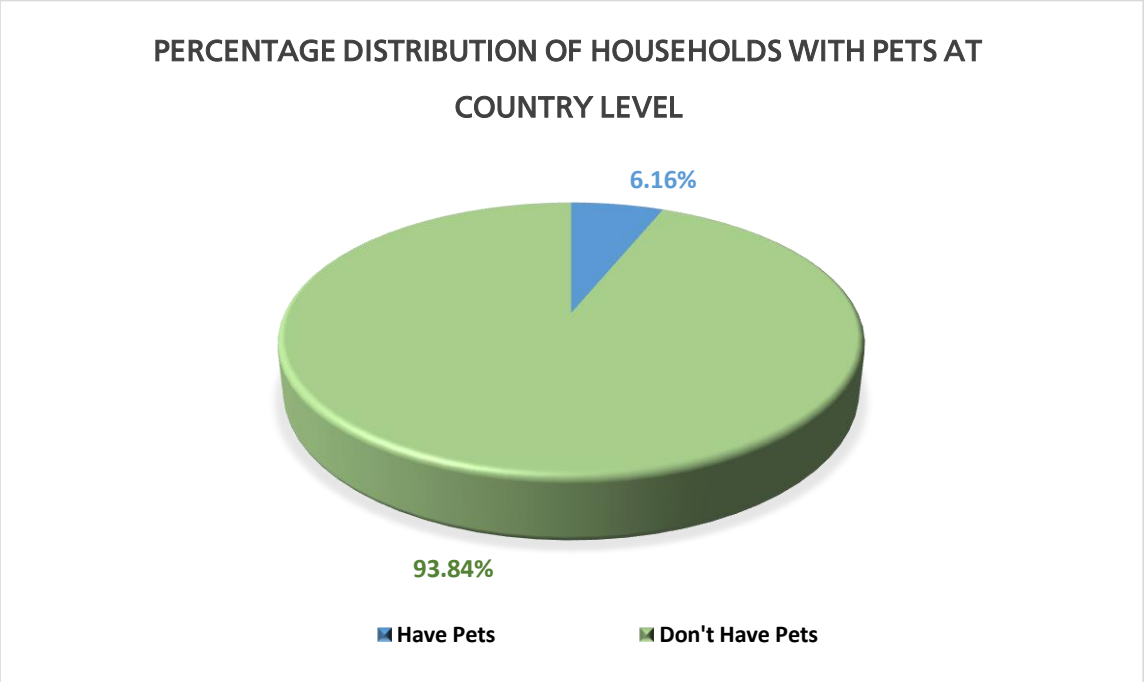


Figure 11

Figure 11 above indicates that (6.16%) of households have pets, whereas the majority don't at (93,84%).

14- Percentage distribution of safety and security measures available in households at country level

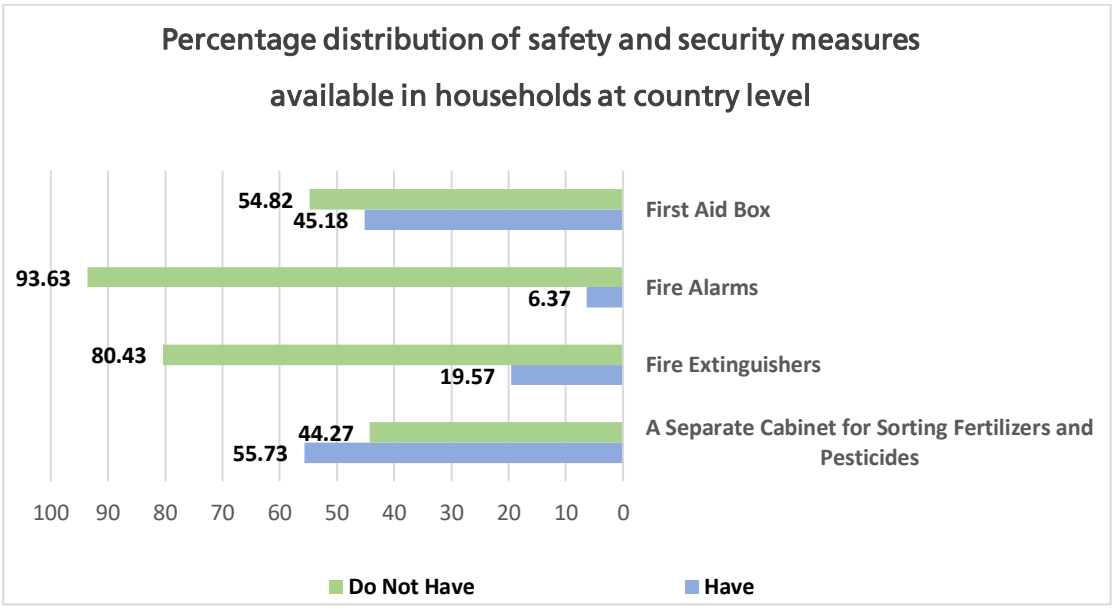


Figure 12

As shown in Figure 12 above, survey results indicate that the percentages of safety and security measures in households are divided as follows:

1- (55.73%) of households have a separate cabinet for storing fertilizers and pesticides.
2- (45.18%) have a first aid box at home.
3- (19.57%) have fire extinguishers.
4- (6.37%) have fire alarms.

Publication Tables

Percentage distribution of households suffering from diseases by disease type at country level

Table 2-1

No.	Types of Diseases suffered by Households	Disease impact on households (%)	
		Suffering	Not suffering
1	Respiratory diseases	13.94	86.06
2	Hearing diseases	3.01	96.99
3	Frequent diarrhea, gastroenteritis, parasitic infection	1.84	98.16
4	Diseases transmitted by insects	0.27	99.73
5	Cancer	0.39	99.61

Percentage distribution of households suffering from the major pollution types at country level

Table 2-2

No.	Types of Pollution suffered by Households	Pollution impact on households (%)	
		Suffering	Not suffering
1	Visual	41.18	58.82
2	Sound	32.23	67.77
3	Light	9.15	90.85
4	Air	67.87	32.13

Percentage distribution of households suffering from visual pollution at country level

Table 2-3

No.	Visual Pollution Impact on Households	Pollution impact on households (%)	
		Suffering	Not suffering
1	Antennas and wires	16.86	83.14
2	Open dumping of waste	22.01	77.99
3	Graffiti	18.38	81.62

Percentage distribution of households suffering from sound pollution at country level

Table 2-4

No.	Sound Pollution Impact on Households	Pollution impact on households (%)	
		Suffering	Not suffering
1	Noise from household appliances	6.57	93.43
2	Transportation sound pollution	26.87	73.13
3	Factory sound pollution	1.44	98.56

Percentage distribution of households suffering from light pollution at country level

Table 2-5

No.	Light Pollution Impact on Households	Pollution impact on households (%)	
		Suffering	Not suffering
1	Decoration lights and signs	2.44	97.56
2	Lights resulting from overpopulation	7.22	92.78

Percentage distribution of households suffering from air pollution at country level

Table 2-6

No.	Air Pollution Impact on Households	Pollution impact on households (%)	
		Suffering	Not suffering
1	Incineration gases (cooking and heating)	8.93	91.07
2	Smoking	12.39	87.61
3	Dust and sand	54.74	45.26
4	Unpleasant smells	25.66	74.34

Average area of household yards and gardens at country level (m2)

Table 3-1

Average area of household yards and gardens (m2)
44.02

Average area of household yards and gardens by housing type at the administrative region level (m2)

Table 3-2

No.	Administrative Region	Housing Type					
		Traditional house	Villa	Floor at a traditional house	Floor at a villa	Apartment	Other
1	Riyadh	42.20	134.92	54.05	72.35	0.08	1.62
2	Makkah	44.96	150.52	34.32	73.86	0.02	1.01
3	Madinah	58.94	132.16	89.43	62.37	0.00	1.10
4	Qassim	88.94	187.74	55.10	80.49	0.09	0.00
5	Eastern Region	32.97	158.25	27.19	58.30	0.00	0.00
6	Asir	78.93	162.75	77.46	89.92	0.00	0.00
7	Tabuk	38.37	111.89	18.35	78.19	0.00	0.00
8	Hail	62.02	112.81	62.93	67.20	0.09	0.00
9	Northern Borders	34.46	128.26	33.41	51.01	0.04	0.00
10	Jazan	90.25	119.25	43.98	94.75	0.23	0.00
11	Najran	106.68	183.82	45.73	69.11	0.39	0.00
12	Al-Baha	82.09	68.24	61.69	15.36	0.00	0.00
13	Al-Jouf	92.54	134.15	38.36	59.05	0.00	0.00

Percentage distribution of sunlight availability in the house at country level

Table 3-3

No.	Degree of sunlight exposure	Percentage distribution (%)
1	High	30.17
2	Medium	56.84
3	Low	10.76
4	None	2.23
Total		100.00

Percentage distribution of sunlight availability in the house at the administrative region level

Table 3-4

No.	Administrative Region	Sunlight exposure (%)			
		High	Medium	Low	None
1	Riyadh	26.73	52.98	16.73	3.55
2	Makkah	27.24	59.38	10.37	3.02
3	Madinah	25.83	66.50	6.91	0.77
4	Qassim	47.47	41.84	9.68	1.01
5	Eastern Region	26.52	63.37	8.78	1.33
6	Asir	33.17	57.01	8.73	1.09
7	Tabuk	39.47	51.16	8.17	1.21
8	Hail	32.56	56.84	10.60	0.00
9	Northern Borders	41.05	51.05	7.59	0.30
10	Jazan	54.53	36.98	5.96	2.54
11	Najran	42.04	57.10	0.79	0.06
12	Al-Baha	36.51	56.43	6.88	0.17
13	Al-Jouf	8.66	85.11	5.24	0.99

Percentage distribution of households with a swimming pool at country level

Table 3-5

No.	Swimming pool availability	Percentage distribution (%)
1	Yes	0.73
2	No	99.27
Total		100.00

Percentage distribution of household swimming pool source at country level

Table 3-6

No.	Swimming pool water source	Percentage distribution (%)
1	Public network	32.55
2	Tank (white)	61.60
3	Private well	5.85
Total		100.00

Percentage distribution of household swimming pool source at the administrative region level

Table 3-7

No.	Administrative Region	Swimming pool water source (%)		
		Public network	Tank (white)	Private well
1	Riyadh	30.30	63.89	5.81
2	Makkah	44.96	54.51	0.54
3	Madinah	24.20	68.76	7.04
4	Qassim	0.00	61.93	38.07
5	Eastern Region	35.37	53.69	10.94
6	Asir	0.00	100.00	0.00
7	Tabuk	12.50	81.25	6.25
8	Hail	31.56	57.55	10.89
9	Northern Borders	20.00	80.00	0.00
10	Jazan	0.24	69.83	29.93
11	Najran	0.00	93.33	6.67
12	Al-Baha	42.86	57.14	0.00
13	Al-Jouf	20.03	41.32	38.66

Average household swimming pool size at country level

Table 3-8

Average swimming pool size
44.97

Average number of swimming pool water disposal per year at country level

Table 3-9

Average times of swimming pool water disposal
3.54

Average number of times households empty their swimming pool per year at the administrative region level

Table 3-10

No.	Administrative Region	Average times of swimming pool water disposal
1	Riyadh	2.90
2	Makkah	2.38
3	Madinah	10.23
4	Qassim	11.90
5	Eastern Region	2.32
6	Asir	2.38
7	Tabuk	6.00
8	Hail	3.88
9	Northern Borders	12.00
10	Jazan	12.09
11	Najran	8.00
12	Al-Baha	2.71
13	Al-Jouf	8.59

Percentage distribution of household swimming pool water disposal method at country level

Table 3-11

No.	Disposal method	Percentage distribution (%)	
		Yes	No
1	Sewage	41.56	58.44
2	Use in irrigation	54.68	45.32
3	Use in cleaning	39.80	60.20

Percentage distribution of households that have a swimming pool filter at country level

Table 3-12

No.	Availability of swimming pool filter	Percentage distribution (%)
1	Yes	92.28
2	No	7.72
Total		100.00

Percentage distribution of household water source at country level

Table 4-1

No.	Water source	Percentage distribution (%)
1	Public network	77.61
2	Tank (white)	19.81
3	Private well	2.54
4	Other	0.03
Total		100.00

Percentage distribution of household water source at the administrative region level

Table 4-2

No.	Administrative Region	Water source (%)			
		Public network	Tank (white)	Private well	Other
1	Riyadh	92.76	6.67	0.57	0.00
2	Makkah	72.66	25.50	1.83	0.00
3	Madinah	80.20	16.86	2.93	0.00
4	Qassim	84.70	13.33	1.97	0.00
5	Eastern Region	92.53	4.15	3.32	0.00
6	Asir	26.88	67.76	5.36	0.00
7	Tabuk	80.44	16.86	2.70	0.00
8	Hail	63.97	34.62	1.41	0.00
9	Northern Borders	85.26	14.17	0.57	0.00
10	Jazan	67.18	26.51	5.57	0.74
11	Najran	36.76	55.72	7.52	0.00
12	Al-Baha	76.82	16.89	6.29	0.00
13	Al-Jouf	80.50	7.92	11.58	0.00

Percentage distribution of household drinking water source at country level

Table 4-3

No.	Water source	Percentage distribution (%)
1	Public network	9.83
2	Filters	12.96
3	Tank (white)	17.06
4	Private well	0.59
5	Bottles	59.38
6	Other	0.17
Total		100.00

Percentage distribution of household drinking water source at the administrative region level

Table 4-4

No.	Administrative Region	Drinking water source (%)					
		Public network	Filters	Tank (white)	Private well	Bottles	Other
1	Riyadh	4.25	20.68	12.64	0.17	62.17	0.08
2	Makkah	9.56	6.63	6.63	0.68	76.38	0.12
3	Madinah	28.51	14.60	13.76	1.65	41.47	0.01
4	Qassim	7.73	33.75	27.94	0.44	30.14	0.00
5	Eastern Region	12.42	3.82	31.39	0.06	52.30	0.02
6	Asir	10.17	1.76	26.80	1.18	60.09	0.00
7	Tabuk	11.36	38.61	5.47	0.00	44.56	0.00
8	Hail	18.65	19.16	32.54	0.47	29.18	0.00
9	Northern Borders	5.92	8.42	75.01	0.32	10.34	0.00
10	Jazan	2.58	7.36	20.11	0.14	66.94	2.86
11	Najran	8.84	18.41	31.46	3.78	37.51	0.00
12	Al-Baha	4.18	22.48	0.09	0.35	72.90	0.00
13	Al-Jouf	16.46	7.57	39.85	2.48	33.64	0.00

Percentage distribution of households using soap to wash hands at country level

Table 4-5

No.	Frequency of soap use in washing hands in households	Percentage distribution (%)
1	Regularly	81.87
2	Rare	1.23
3	When needed	16.74
4	Not used	0.16
Total		100.00

Percentage distribution of households using soap to wash hands at the administrative region level

Table 4-6

No.	Administrative Region	Soap use for washing hands in households (%)			
		Regularly	Rarely	When needed	Not used
1	Riyadh	71.04	0.94	27.92	0.09
2	Makkah	90.76	0.65	8.48	0.10
3	Madinah	81.27	1.99	16.69	0.05
4	Qassim	0.05	0.96	38.88	0.10
5	Eastern Region	92.79	1.26	5.85	0.10
6	Asir	80.99	2.90	15.90	0.21
7	Tabuk	80.44	4.28	15.28	0.00
8	Hail	82.69	0.16	16.83	0.32
9	Northern Borders	88.52	0.82	10.60	0.06
10	Jazan	92.29	1.29	5.65	0.77
11	Najran	49.97	1.15	48.41	0.46
12	Al-Baha	89.99	0.26	9.49	0.26
13	Al-Jouf	74.78	1.90	21.84	1.48

Percentage distribution of household main water tank type at country level

Table 4-7

No.	Type of main tank	Percentage distribution (%)
1	Cement	83.33
2	Fiberglass	14.49
3	Tin	2.00
4	Other	0.18
Total		100.00

Percentage distribution of household main water tank type at the administrative region level

Table 4-8

No.	Administrative Region	Main tank (%)			
		Cement	Fiberglass	Tin	Other
1	Riyadh	95.71	4.15	0.14	0.00
2	Makkah	97.90	0.92	0.62	0.57
3	Madinah	96.35	2.90	0.52	0.24
4	Qassim	95.83	0.24	1.93	0.00
5	Eastern Region	22.27	77.32	0.33	0.08
6	Asir	98.83	0.79	0.38	0.00
7	Tabuk	90.97	6.16	2.87	0.00
8	Hail	96.17	2.89	0.93	0.00
9	Northern Borders	83.89	14.09	2.02	0.00
10	Jazan	57.85	28.48	13.67	0.00
11	Najran	71.70	6.41	21.89	0.00
12	Al-Baha	93.71	1.60	4.69	0.00
13	Al-Jouf	43.21	27.91	28.87	0.00

Percentage distribution of the number of times households empty their main tank at country level

Table 4-9

No.	Number of cleaning times	Percentage distribution (%)
1	None	48.66
2	Once	45.35
3	2-5 times	5.84
4	More than 5 times	0.16
Total		100.00

Percentage distribution of the number of times households empty main tank at the administrative region level

Table 4-10

No.	Administrative Region	Number of cleaning times (%)			
		None	Once	2-5 times	More than 5 times
1	Riyadh	54.58	38.45	6.83	0.15
2	Makkah	41.36	53.48	5.02	0.15
3	Madinah	50.10	45.01	4.89	0.00
4	Qassim	73.63	22.96	3.29	0.12
5	Eastern Region	45.56	45.76	8.26	0.42
6	Asir	56.70	41.39	1.92	0.00
7	Tabuk	56.10	38.71	5.14	0.04
8	Hail	36.20	59.45	4.34	0.00
9	Northern Borders	55.94	40.67	3.39	0.00
10	Jazan	43.69	44.62	11.46	0.22
11	Najran	36.45	55.46	8.09	0.00
12	Al-Baha	22.85	73.59	3.29	0.26
13	Al-Jouf	42.00	54.95	2.97	0.08

Percentage distribution of household water availability constancy at country level

Table 4-11

No.	Water availability constancy	Percentage distribution (%)
1	Frequent	88.36
2	Sometimes	9.87
3	Rare	0.83
4	None	0.94
Total		100.00

Percentage distribution of household water availability constancy at the administrative region level

Table 4-12

No.	Administrative Region	Water availability constancy (%)			
		Frequent	Sometimes	Rare	None
1	Riyadh	90.99	7.23	1.30	0.49
2	Makkah	77.39	19.92	0.66	2.03
3	Madinah	91.65	7.78	0.20	0.37
4	Qassim	93.97	5.73	0.31	0.00
5	Eastern Region	91.08	7.19	1.51	0.22
6	Asir	96.93	2.70	0.31	0.05
7	Tabuk	98.18	1.75	0.08	0.00
8	Hail	95.23	4.77	0.00	0.00
9	Northern Borders	97.51	2.43	0.06	0.00
10	Jazan	88.59	5.10	1.23	5.08
11	Najran	98.17	1.48	0.27	0.07
12	Al-Baha	97.84	1.91	0.25	0.00
13	Al-Jouf	87.81	11.75	0.37	0.07

Percentage distribution of household water break measurements at country level

Table 4-13

No.	Measurements taken in water breaks	Percentage distribution (%)
1	Waiting for the network water	12.07
2	Using a spare tank	4.67
3	Requesting a tank (white)	83.26
Total		100.00

Percentage distribution of household water break measurements at the administrative region level

Table 4-14

No.	Administrative Region	Measurements taken in water breaks (%)		
		Waiting for the network water	Using a spare tank	Requesting a tank (white)
1	Riyadh	8.10	1.12	90.78
2	Makkah	7.60	0.99	91.41
3	Madinah	10.14	2.73	87.13
4	Qassim	2.64	0.00	97.36
5	Eastern Region	42.30	32.53	25.17
6	Asir	3.82	0.00	96.18
7	Tabuk	49.09	8.28	42.63
8	Hail	8.18	6.43	85.39
9	Northern Borders	7.33	2.92	89.75
10	Jazan	16.21	1.17	82.61
11	Najran	0.00	6.95	93.05
12	Al-Baha	26.70	4.54	68.76
13	Al-Jouf	18.47	9.41	72.12

Percentage distribution of waiting time for water after a break in households at country level

Table 4-15

No.	Waiting time	Percentage distribution (%)
1	Less than an hour	17.86
2	1-6 hours	51.02
3	A full day	16.68
4	More than one day	14.43
Total		100.00

Percentage distribution of waiting time for water after a break in households by measurement at country level

Table 4-16

No.	Waiting time	Measurements taken in water breaks (%)	
		Waiting for the network water	Requesting a tank (white)
1	Less than an hour	11.56	88.44
2	1-6 hours	7.50	92.50
3	A full day	18.01	81.99
4	More than one day	26.06	73.94

Percentage distribution of household main sewage source at country level

Table 5-1

No.	Main sewage source	Percentage distribution (%)
1	Public network	61.65
2	Private network	0.67
3	Septic tank (hole)	37.67
Total		100.00

Percentage distribution of household main sewage source at the administrative region level

Table 5-2

No.	Administrative Region	Main sewage source (%)		
		Public network	Private network	Septic tank
1	Riyadh	80.41	0.00	19.59
2	Makkah	62.99	1.96	35.05
3	Madinah	52.34	0.00	47.66
4	Qassim	62.15	0.00	37.85
5	Eastern Region	83.32	0.97	15.71
6	Asir	26.43	0.00	73.57
7	Tabuk	59.36	0.00	40.64
8	Hail	52.63	0.00	47.37
9	Northern Borders	49.32	0.00	50.68
10	Jazan	2.84	0.00	97.16
11	Najran	17.28	0.11	82.61
12	Al-Baha	0.00	0.00	100.00
13	Al-Jouf	42.64	0.00	57.36

Average times for draining the septic tank per year at country level

Table 5-3

Average times for emptying the septic tank
1.28

Percentage distribution of frying oil disposal method at country level

Table 5-4

No.	Frying oils disposal methods	Percentage distribution (%)
1	Direct disposal through the sewage system	43.01
2	Trash can	56.14
3	Other	0.85
Total		100.00

Percentage distribution of frying oil disposal method at the administrative region level

Table 5-5

No.	Administrative Region	Percentage distribution of disposal method (%)		
		Direct disposal in the sewage system	Trash can	Other
1	Riyadh	35.67	62.22	2.11
2	Makkah	41.12	57.99	0.89
3	Madinah	67.50	32.48	0.02
4	Qassim	29.86	69.30	0.84
5	Eastern Region	48.10	51.82	0.08
6	Asir	43.19	56.81	0.00
7	Tabuk	36.05	63.95	0.00
8	Hail	70.16	29.84	0.00
9	Northern Borders	48.21	51.79	0.00
10	Jazan	36.20	63.80	0.00
11	Najran	42.80	57.20	0.00
12	Al-Baha	51.80	47.96	0.23
13	Al-Jouf	63.35	35.07	1.58

Percentage distribution of types of toilets in households at country level

Table 5-6

No.	Type of toilet	Percentage distribution (%)	
		Yes	No
1	Squat toilet	78.67	21.33
2	Sit toilet	71.87	28.13

Percentage distribution of households that clean the house daily at country level

Table 6-1

No.	Cleaning the house daily	Percentage distribution (%)
1	Cleaning	86.20
2	Not cleaning	13.80
Total		100.00

Percentage distribution of households that clean the house daily at the administrative region level

Table 6-2

No.	Administrative Region	Cleaning the house daily (%)	
		Cleaning	Not cleaning
1	Riyadh	84.02	15.98
2	Makkah	90.01	9.99
3	Madinah	83.38	16.62
4	Qassim	82.80	17.20
5	Eastern Region	85.94	14.06
6	Asir	86.16	13.84
7	Tabuk	74.11	25.89
8	Hail	74.62	25.38
9	Northern Borders	85.05	14.95
10	Jazan	97.24	2.76
11	Najran	94.19	5.81
12	Al-Baha	90.74	9.26
13	Al-Jouf	75.47	24.53

Percentage distribution of the number of times households dispose of waste at country level

Table 6-3

No.	Number of times for waste disposal	Percentage distribution (%)
1	Daily	68.20
2	More than once a week	28.69
3	Once a week	3.12
Total		100.00

Percentage distribution of the number of times households dispose of waste at the administrative region level

Table 6-4

No.	Administrative Region	Number of times for waste disposal (%)		
		Daily	More than once a week	Once a week
1	Riyadh	74.86	22.70	1.44
2	Makkah	74.56	23.23	2.21
3	Madinah	52.39	43.39	4.22
4	Qassim	71.36	25.83	2.81
5	Eastern Region	73.94	24.14	1.91
6	Asir	53.61	41.78	4.61
7	Tabuk	43.60	50.36	6.04
8	Hail	55.61	41.09	3.30
9	Northern Borders	62.18	33.05	4.77
10	Jazan	75.47	22.99	1.53
11	Najran	46.77	43.86	9.37
12	Al-Baha	34.35	58.51	7.15
13	Al-Jouf	35.62	48.84	15.54

Percentage distribution of households that sort waste at country level

Table 6-5

No.	Waste sorting at households	Percentage distribution (%)
1	Sorting	0.30
2	No sorting	99.70
Total		100.00

Total produced household waste in tons at country level

Table 6-6

No.	Waste type	Amount of generated waste (ton)
1	Sorted	12,973
2	Unsorted	6,519,989
Total		6,532,961

Total produced household waste in tons at the administrative region level

Table 6-7

No.	Administrative Region	Quantity (ton)
1	Riyadh	2,034,142
2	Makkah	1,387,901
3	Madinah	424,687
4	Qassim	256,394
5	Eastern Region	751,561
6	Asir	521,594
7	Tabuk	242,181
8	Hail	166,213
9	Northern Borders	87,981
10	Jazan	354,376
11	Najran	160,091
12	Al-Baha	83,120
13	Al-Jouf	62,721

Amount of sorted household waste in tons by waste type at country level

Table 6-8

No.	Waste type	Quantity (ton)
1	Organic	3,905
2	Plastic	3,411
3	Glass	1,701
4	Metal	1,603
5	Agricultural	1,207
6	Chemical	382
7	Medical	298
8	Batteries	466
Total		12,973

Percentage distribution of household unsorted waste disposal by method at country level

Table 6-9

No.	Waste disposal method	Percentage distribution (%)
1	Public container	99.62
2	Incineration	0.36
3	Burial	0.02
Total		100.00

Percentage distribution of household unsorted waste disposal by method at the administrative region level

Table 6-10

No.	Administrative Region	Disposal methods (%)		
		Public container	Incineration	Burial
1	Riyadh	99.88	0.12	0.01
2	Makkah	99.63	0.37	0.00
3	Madinah	99.51	0.44	0.05
4	Qassim	100.00	0.00	0.00
5	Eastern Region	99.93	0.07	0.00
6	Asir	99.99	0.01	0.00
7	Tabuk	98.29	1.60	0.11
8	Hail	98.67	1.08	0.25
9	Northern Borders	100.00	0.00	0.00
10	Jazan	99.34	0.66	0.00
11	Najran	99.97	0.03	0.00
12	Al-Baha	99.20	0.65	0.14
13	Al-Jouf	94.18	5.72	0.11

Number of household wasted electronics at country level

Table 6-11

Number of household wasted electronics
48,301,922

Number of wasted household electronics at the administrative region level

Table 6-12

No.	Administrative Region	Number
1	Riyadh	11,923,334
2	Makkah	12,030,375
3	Madinah	2,302,190
4	Qassim	1,072,449
5	Eastern Region	6,993,319
6	Asir	2,860,947
7	Tabuk	2,126,478
8	Hail	2,378,631
9	Northern Borders	975,223
10	Jazan	2,918,094
11	Najran	1,421,895
12	Al-Baha	320,347
13	Al-Jouf	978,639

Number of wasted household electronics at country level

Table 6-13

No.	Type of wasted electronics	Number
1	Heat exchange equipment	2,967,892
2	Screens, panels and equipment with screens	1,380,954
3	Bulbs (florescent, neon…)	38,358,699
4	Small household appliances (pot, iron, coffee machine)	1,553,763
5	Large household appliances (fridge, washing machine, oven)	1,282,612
6	Small ICT devices (mobile phones, game console)	2,758,002

Average number of wasted electronics produced by households at country level

Table 6-14

Average number of household wasted electronics
5.81

Average number of household wasted electronics at the administrative region level

Table 6-15

No.	Administrative Region	Average
1	Riyadh	5.83
2	Makkah	5.85
3	Madinah	5.99
4	Qassim	5.70
5	Eastern Region	6.34
6	Asir	6.91
7	Tabuk	3.71
8	Hail	5.03
9	Northern Borders	7.37
10	Jazan	7.55
11	Najran	4.96
12	Al-Baha	5.05
13	Al-Jouf	4.71

Percentage distribution of household electronic waste disposal by method at country level

Table 6-16

No.	Waste disposal methods	Percentage distribution (%)
1	Public container	85.43
2	Selling	8.01
3	Delivery to a recycling agency	1.92
4	Other	4.64
Total		100.00

Percentage distribution of household electronic waste disposal by method at the administrative region level

Table 6-17

No.	Administrative Region	Disposal methods (%)			
		Public container	Selling	Delivery to a recycling agency	Other
1	Riyadh	89.77	5.08	1.99	3.15
2	Makkah	88.80	6.92	0.90	3.39
3	Madinah	88.14	3.31	0.21	8.34
4	Qassim	71.05	1.64	13.32	13.99
5	Eastern Region	85.61	4.71	2.46	7.22
6	Asir	80.66	17.51	0.49	1.33
7	Tabuk	60.69	27.13	4.88	7.30
8	Hail	84.12	11.45	3.57	0.86
9	Northern Borders	89.24	4.76	0.05	5.95
10	Jazan	91.32	2.71	1.11	4.85
11	Najran	67.78	30.76	0.09	1.37
12	Al-Baha	79.47	7.99	7.73	4.81
13	Al-Jouf	76.33	6.83	0.03	16.81

Percentage distribution of household electronic waste disposal method by type at country level

Table 6-18

No.	Type of wasted electronics	Disposal methods (%)			
		Public container	Selling	Delivery to a recycling agency	Other
1	Heat exchange equipment	37.51	43.80	6.72	11.97
2	Screens, panels and equipment with screens	56.42	24.18	4.81	14.59
3	Bulbs (florescent, neon…)	95.64	1.20	1.18	1.98
4	Small household appliances (pot, iron, coffee machine)	69.07	19.16	3.61	8.16
5	Large household appliances (fridge, washing machine, oven)	37.30	42.62	7.92	12.16
6	Small ICT devices (mobile phones, game console)	41.07	33.64	1.90	23.38

Percentage distribution of household medical waste disposal by method at country level

Table 6-19

No.	Medication disposal methods	Percentage distribution (%)	
		Yes	No
1	Donating or giving excess medication to others	9.01	90.99
2	Throwing them in the garbage	91.74	8.26
3	Throwing them in the sink or toilet	8.99	91.01

Percentage distribution of household medical waste disposal by method at the administrative region level

Table 6-20

No.	Administrative Region	Medication disposal methods (%)					
		Donating or giving excess medication to others		Throwing them in the garbage		Throwing them in the sink or toilet	
		Yes	No	Yes	No	Yes	No
1	Riyadh	5.79	94.21	93.57	6.43	7.60	92.40
2	Makkah	12.89	87.11	89.71	10.29	10.31	89.69
3	Madinah	14.16	85.84	81.83	18.17	5.20	94.80
4	Qassim	1.58	98.42	97.77	2.23	6.66	93.34
5	Eastern Region	7.03	92.97	95.71	4.29	4.35	95.65
6	Asir	4.84	95.16	91.42	8.58	18.53	81.47
7	Tabuk	25.25	74.75	84.73	15.27	25.01	74.99
8	Hail	16.47	83.53	80.54	19.46	26.53	73.47
9	Northern Borders	13.59	86.41	88.34	11.66	5.80	94.20
10	Jazan	0.97	99.03	98.08	1.92	1.92	98.08
11	Najran	0.06	99.94	99.67	0.33	4.35	95.65
12	Al-Baha	7.62	92.38	95.56	4.44	1.49	98.51
13	Al-Jouf	18.49	81.51	90.13	9.87	7.46	92.54

Average total number of cars and hybrid cars owned by households at country level

Table 7-1

Total average number of cars	Average number of hybrid cars
1.377	0.003

Average times for changing car oil per year at country level

Table 7-2

Average number of times for changing the car oil
8.85

Average times for changing car oil per year at the administrative region level

Table 7-3

No.	Administrative Region	Average number of times for changing the car oil
1	Riyadh	9.14
2	Makkah	7.81
3	Madinah	5.78
4	Qassim	9.15
5	Eastern Region	7.83
6	Asir	12.58
7	Tabuk	13.57
8	Hail	12.89
9	Northern Borders	15.63
10	Jazan	10.92
11	Najran	7.98
12	Al-Baha	7.66
13	Al-Jouf	5.10

Average times for changing car tire per year at country level

Table 7-4

Average number of changed tires
3.12

Average times for changing car tire per year at the administrative region level

Table 7-5

No.	Administrative Region	Average number of changed tires
1	Riyadh	3.02
2	Makkah	2.97
3	Madinah	1.94
4	Qassim	2.48
5	Eastern Region	3.26
6	Asir	4.62
7	Tabuk	4.12
8	Hail	3.91
9	Northern Borders	2.69
10	Jazan	3.30
11	Najran	3.76
12	Al-Baha	3.12
13	Al-Jouf	1.87

Percentage distribution of households that buy resource saving devices at country level

Table 7-6

No.	Resource saving devices	Percentage distribution (%)	
		Yes	No
1	Water saving devices	14.17	85.83
2	Energy saving bulbs	57.66	42.34
3	Energy saving appliances	21.15	78.85

Percentage distribution of households that buy resource saving devices by device type at the administrative region level

Table 7-7

No.	Administrative Region	Resource saving devices (%)					
		Water saving devices		Energy saving bulbs		Energy saving appliances	
		Yes	No	Yes	No	Yes	No
1	Riyadh	8.08	91.92	44.30	55.70	17.78	82.22
2	Makkah	14.81	85.19	61.80	38.20	23.79	76.21
3	Madinah	1.99	98.01	57.88	42.12	10.91	89.09
4	Qassim	9.89	90.11	48.40	51.60	18.05	81.95
5	Eastern Region	22.92	77.08	69.77	30.23	30.88	69.12
6	Asir	19.43	80.57	65.91	34.09	9.10	90.90
7	Tabuk	34.18	65.82	85.04	14.96	30.87	69.13
8	Hail	43.32	56.68	87.25	12.75	37.25	62.75
9	Northern Borders	4.24	95.76	48.62	51.38	36.69	63.31
10	Jazan	14.53	85.47	19.12	80.88	21.18	78.82
11	Najran	5.91	94.09	56.33	43.67	10.09	89.91
12	Al-Baha	10.96	89.04	71.94	28.06	7.27	92.73
13	Al-Jouf	4.30	95.70	78.20	21.80	30.57	69.43

Percentage distribution of the main coal and firewood types used in households at country level

Table 7-8

No.	Coal and firewood use	Used material (%)	
		Local	Imported
1	Firewood	89.40	10.60
2	Coal	9.76	90.24

Percentage distribution of the main coal and firewood types used in households at the administrative region level

Table 7-9

No.	Administrative Region	Firewood type (%)		Coal type (%)	
		Local	Imported	Local	Imported
1	Riyadh	91.38	8.62	10.67	89.33
2	Makkah	87.93	12.07	35.56	64.44
3	Madinah	60.97	39.03	30.59	69.41
4	Qassim	94.66	5.34	12.87	87.13
5	Eastern Region	38.72	61.28	9.27	90.73
6	Asir	97.45	2.55	42.38	57.62
7	Tabuk	96.78	3.22	58.68	41.32
8	Hail	7.77	92.23	2.24	97.76
9	Northern Borders	93.44	6.56	0.03	99.97
10	Jazan	100.00	0.00	45.04	54.96
11	Najran	94.35	5.65	30.77	69.23
12	Al-Baha	87.39	12.61	68.55	31.45
13	Al-Jouf	95.87	4.13	1.72	98.28

Percentage distribution of household air ventilation through open windows at country level

Table 8-1

No.	Ventilation through open windows	Percentage distribution (%)
1	Always	66.68
2	Sometimes	30.28
3	Do not open windows	3.04
Total		100.00

Percentage distribution of household air ventilation through open windows at the administrative region level

Table 8-2

No.	Administrative Region	Ventilation through open windows (%)		
		Always	Sometimes	Do not open windows
1	Riyadh	68.26	28.73	3.00
2	Makkah	66.37	30.18	3.45
3	Madinah	60.03	37.79	2.18
4	Qassim	73.44	22.37	4.19
5	Eastern Region	65.27	32.97	1.76
6	Asir	68.65	29.91	1.45
7	Tabuk	60.55	37.73	1.73
8	Hail	72.81	26.83	0.36
9	Northern Borders	66.80	30.54	2.65
10	Jazan	56.17	32.48	11.35
11	Najran	86.37	13.36	0.27
12	Al-Baha	76.26	23.65	0.09
13	Al-Jouf	55.42	37.49	7.09

Percentage distribution of households using air filtration and ventilation devices at country level

Table 8-3

No.	Use of air filtration devices	Percentage distribution (%)
1	Used	8.66
2	Not used	91.34
Total		100.00

Percentage distribution of households using air filtration and ventilation devices at the administrative region level

Table 8-4

No.	Administrative Region	Use of air filtration devices (%)	
		Used	Not used
1	Riyadh	13.36	86.64
2	Makkah	5.75	94.25
3	Madinah	2.24	97.76
4	Qassim	6.35	93.65
5	Eastern Region	12.61	87.39
6	Asir	6.29	93.71
7	Tabuk	9.75	90.25
8	Hail	7.24	92.76
9	Northern Borders	5.10	94.90
10	Jazan	7.32	92.68
11	Najran	7.29	92.71
12	Al-Baha	6.52	93.48
13	Al-Jouf	5.40	94.60

Percentage distribution of households that use air fresheners at country level

Table 8-5

No.	Use of air fresheners	Percentage distribution (%)
1	Used	51.69
2	Not used	48.31
Total		100.00

Percentage distribution of households that use air fresheners at the administrative region level

Table 8-6

No.	Administrative Region	Use of air fresheners (%)	
		Used	Not used
1	Riyadh	47.54	52.46
2	Makkah	53.29	46.71
3	Madinah	41.56	58.44
4	Qassim	55.01	44.99
5	Eastern Region	60.04	39.96
6	Asir	42.27	57.73
7	Tabuk	46.82	53.18
8	Hail	54.79	45.21
9	Northern Borders	58.22	41.78
10	Jazan	62.09	37.91
11	Najran	61.21	38.79
12	Al-Baha	58.54	41.46
13	Al-Jouf	49.28	50.72

Percentage distribution of the number of times households use air fresheners at country level

Table 8-7

No.	Number of times for using air fresheners	Percentage distribution (%)
1	Daily	15.12
2	More than once weekly	58.75
3	Once a week	22.29
4	Once a month	3.84
Total		100.00

Percentage distribution of the number of times households use air fresheners at the administrative region level

Table 8-8

No.	Administrative Region	Number of times for using air fresheners (%)			
		Daily	More than once weekly	Once a week	Once a month
1	Riyadh	19.08	53.91	23.76	3.26
2	Makkah	12.49	59.96	22.13	5.42
3	Madinah	8.15	65.13	22.40	4.31
4	Qassim	12.69	54.11	28.32	4.89
5	Eastern Region	18.77	63.00	14.99	3.25
6	Asir	14.27	62.58	21.08	2.06
7	Tabuk	7.35	46.64	45.45	0.56
8	Hail	19.95	61.67	17.28	1.09
9	Northern Borders	22.66	64.00	12.39	0.95
10	Jazan	14.51	56.61	23.19	5.70
11	Najran	14.35	61.25	24.11	0.30
12	Al-Baha	12.29	63.20	21.42	3.08
13	Al-Jouf	10.75	52.50	33.22	3.53

Percentage distribution of air freshener ingredients in households at country level

Table 8-9

No.	Freshener ingredients	Percentage distribution (%)
1	Chemical-based	80.17
2	Natural	19.83
Total		100.00

Percentage distribution of air freshener ingredients in households at the administrative region level

Table 8-10

No.	Administrative Region	Freshener ingredients (%)	
		Chemical-based	Natural
1	Riyadh	80.23	19.77
2	Makkah	77.41	22.59
3	Madinah	84.32	15.68
4	Qassim	96.81	3.19
5	Eastern Region	86.10	13.90
6	Asir	68.44	31.56
7	Tabuk	61.79	38.21
8	Hail	83.84	16.16
9	Northern Borders	90.81	9.19
10	Jazan	73.94	26.06
11	Najran	87.71	12.29
12	Al-Baha	74.15	25.85
13	Al-Jouf	79.25	20.75

Percentage distribution of households that use incense by nationality at country level

Table 8-11

No.	Nationality	Incense use (%)	
		Used	Not used
1	Saudi	88.70	11.30
2	Non-Saudi	34.95	65.05
Total		69.83	30.17

Percentage distribution of households that use incense at the administrative region level

Table 8-12

No.	Administrative Region	Incense use (%)	
		Used	Not used
1	Riyadh	66.30	33.70
2	Makkah	71.39	28.61
3	Madinah	64.13	35.87
4	Qassim	67.35	32.65
5	Eastern Region	70.81	29.19
6	Asir	63.23	36.77
7	Tabuk	74.26	25.74
8	Hail	70.94	29.06
9	Northern Borders	82.52	17.48
10	Jazan	89.82	10.18
11	Najran	75.19	24.81
12	Al-Baha	81.40	18.60
13	Al-Jouf	65.34	34.66

Percentage distribution of the number of times households use incense at country level

Table 8-13

No.	Number of times for using incense	Percentage distribution (%)
1	Daily	12.67
2	More than once a week	56.86
3	Once a week	27.08
4	Once a month	3.39
Total		100.00

Percentage distribution of the number of times households use incense at the administrative region level

Table 8-14

No.	Administrative Region	Number of times for using incense (%)			
		Daily	More than once a week	Once a week	Once a month
1	Riyadh	12.74	50.58	32.93	3.75
2	Makkah	12.84	59.99	23.42	3.75
3	Madinah	6.24	54.41	33.14	6.20
4	Qassim	4.06	45.90	45.67	4.37
5	Eastern Region	9.17	64.90	21.90	4.03
6	Asir	27.83	59.59	11.26	1.32
7	Tabuk	4.30	53.30	41.97	0.43
8	Hail	10.69	65.49	23.06	0.76
9	Northern Borders	21.33	64.39	12.04	2.25
10	Jazan	19.16	52.45	26.47	1.92
11	Najran	21.56	52.49	25.26	0.69
12	Al-Baha	10.93	62.69	25.87	0.51
13	Al-Jouf	9.87	57.18	30.44	2.51

Percentage distribution of the incense method of use in households at country level

Table 8-15

No.	Method of using incense	Percentage distribution (%)
1	Inhaling	10.98
2	Smoking from afar	89.02
Total		100.00

Percentage distribution of the incense method of use in households at the administrative region level

Table 8-16

No.	Administrative Region	Method of using incense (%)	
		Inhaling	Smoking from afar
1	Riyadh	7.16	92.84
2	Makkah	11.96	88.04
3	Madinah	9.90	90.10
4	Qassim	5.63	94.37
5	Eastern Region	10.50	89.50
6	Asir	17.00	83.00
7	Tabuk	11.46	88.54
8	Hail	19.37	80.63
9	Northern Borders	23.79	76.21
10	Jazan	19.66	80.34
11	Najran	5.33	94.67
12	Al-Baha	11.48	88.52
13	Al-Jouf	6.54	93.46

Percentage distribution of household use of carpets at country level

Table 8-17

No.	Carpeting	Percentage distribution (%)
1	Full coverage	17.53
2	Partial coverage	68.87
3	Not used	13.59
Total		100.00

Percentage distribution of household use of carpets at the administrative region level

Table 8-18

No.	Administrative Region	Carpeting (%)		
		Full coverage	Partial coverage	Not used
1	Riyadh	14.09	72.82	13.09
2	Makkah	14.75	67.51	17.74
3	Madinah	17.02	76.39	6.59
4	Qassim	19.47	68.23	12.30
5	Eastern Region	12.46	76.27	11.27
6	Asir	37.09	58.95	3.96
7	Tabuk	26.53	65.44	8.03
8	Hail	27.62	66.90	5.48
9	Northern Borders	19.48	74.31	6.20
10	Jazan	10.27	41.02	48.71
11	Najran	34.37	64.72	0.91
12	Al-Baha	28.83	68.81	2.36
13	Al-Jouf	26.37	62.42	11.21

Percentage distribution of household use of carpets by housing type at country level

Table 8-19

No.	Housing Type	Carpeting (%)		
		Full coverage	Partial coverage	Not used
1	Traditional house	28.87	57.58	13.55
2	Villa	9.99	81.30	8.71
3	Floor at a traditional house	25.86	63.52	10.62
4	Floor at a villa	15.74	75.27	8.99
5	Apartment	16.15	68.00	15.85
6	Other	48.87	36.69	14.44

Percentage distribution of household use of detergents in cleaning floors and toilets at country level

Table 8-20

No.	Using detergents in cleaning floors and toilets	Percentage distribution (%)
1	Daily	33.74
2	Once a week	31.23
3	More than once a week	31.22
4	Not used	3.81
Total		100.00

Percentage distribution of household use of detergents in cleaning floors and toilets at the administrative region level

Table 8-21

No.	Administrative Region	Using detergents in cleaning floors and toilets (%)			
		Daily	Once a week	More than once a week	Not used
1	Riyadh	27.35	34.54	32.67	5.44
2	Makkah	45.62	22.13	29.04	3.21
3	Madinah	26.22	41.59	28.26	3.93
4	Qassim	30.63	28.29	35.43	5.65
5	Eastern Region	33.99	32.78	31.27	1.95
6	Asir	29.38	24.42	41.21	4.98
7	Tabuk	8.68	55.17	31.13	5.02
8	Hail	29.90	39.60	27.44	3.06
9	Northern Borders	46.97	16.01	35.78	1.24
10	Jazan	47.91	30.11	19.88	2.10
11	Najran	23.05	42.54	33.73	0.68
12	Al-Baha	21.94	48.42	29.12	0.52
13	Al-Jouf	20.61	43.71	30.25	5.43

Percentage distribution of household use of pesticides and chemical fertilizers by type at country level

Table 8-22

No.	Types of pesticides and chemical fertilizers	Percentage distribution (%)	
		Used	Not used
1	Insecticides	54.77	45.23
2	Public health pesticides	25.59	74.41
3	Chemical fertilizers	1.10	98.90

Percentage distribution of household use of pesticides and chemical fertilizers by type at the administrative region level

Table 8-23

No.	Administrative Region	Types of pesticides and chemical fertilizers (%)					
		Insecticides		Public health pesticides		Chemical fertilizers	
		Used	Not used	Used	Not used	Used	Not used
1	Riyadh	41.16	58.84	5.68	94.32	1.57	98.43
2	Makkah	67.72	32.28	24.00	76.00	0.53	99.47
3	Madinah	68.65	31.35	31.28	68.72	0.22	99.78
4	Qassim	9.28	90.72	53.88	46.12	0.24	99.76
5	Eastern Region	60.78	39.22	22.82	77.18	2.17	97.83
6	Asir	33.25	66.75	77.35	22.65	0.00	100.00
7	Tabuk	55.18	44.82	46.32	53.68	1.65	98.35
8	Hail	84.03	15.97	36.04	63.96	3.01	96.99
9	Northern Borders	71.18	28.82	23.54	76.46	0.00	100.00
10	Jazan	79.86	20.14	12.24	87.76	1.41	98.59
11	Najran	75.06	24.94	17.80	82.20	0.43	99.57
12	Al-Baha	33.33	66.67	25.72	74.28	0.74	99.26
13	Al-Jouf	50.49	49.51	32.79	67.21	3.16	96.84

Percentage distribution of household plant type at country level

Table 8-24

No.	Plant type	Percentage distribution (%)	
		Yes	No
1	Decorative trees	11.31	88.69
2	Palm	3.41	96.59
3	Evergreen trees other than palm	1.86	98.14
4	Cut flowers	5.08	94.92
5	Vegetables	0.61	99.39

Percentage distribution of household plant type at the administrative region level

Table 8-25

No.	Administrative Region	Plant type (%)									
		Decorative trees		Palm		Evergreen trees other than palm		Cut flowers		Vegetables	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	Riyadh	14.49	85.51	3.51	96.49	0.92	99.08	5.11	94.89	0.56	99.44
2	Makkah	7.62	92.38	1.82	98.18	1.11	98.89	2.61	97.39	0.45	99.55
3	Madinah	4.56	95.44	2.96	97.04	0.46	99.54	1.88	98.12	0.02	99.98
4	Qassim	15.75	84.25	6.03	93.97	1.64	98.36	5.77	94.23	1.25	98.75
5	Eastern Region	9.32	90.68	6.27	93.73	2.79	97.21	4.81	95.19	0.60	99.40
6	Asir	15.15	84.85	0.36	99.64	2.79	97.21	8.91	91.09	0.54	99.46
7	Tabuk	13.06	86.94	1.58	98.42	0.46	99.54	7.62	92.38	0.20	99.80
8	Hail	17.14	82.86	5.97	94.03	5.01	94.99	11.23	88.77	1.82	98.18
9	Northern Borders	27.01	72.99	5.74	94.26	5.41	94.59	8.36	91.64	1.33	98.67
10	Jazan	15.74	84.26	3.67	96.33	4.07	95.93	8.89	91.11	1.23	98.77
11	Najran	16.66	83.34	10.60	89.40	8.22	91.78	14.25	85.75	0.50	99.50
12	Al-Baha	5.66	94.34	0.98	99.02	5.57	94.43	9.62	90.38	2.84	97.16
13	Al-Jouf	8.71	91.29	3.95	96.05	3.54	96.46	3.98	96.02	0.42	99.58

Total number of household plants by type at country level

Table 8-26

No.	Plant type	Number
1	Decorative trees	4,195,433
2	Palm	1,181,460
3	Evergreen trees other than palm	466,111
Total		5,843,005

Total number of household plants by type at the administrative region level

Table 8-27

No.	Administrative Region	Plant type		
		Decorative trees	Palm	Evergreen trees other than palm
1	Riyadh	1,243,622	385,163	44,695
2	Makkah	831,474	170,742	63,874
3	Madinah	107,762	189,683	2,397
4	Qassim	223,048	87,768	14,844
5	Eastern Region	453,158	200,172	78,207
6	Asir	639,175	8,134	78,724
7	Tabuk	100,804	25,933	1,582
8	Hail	85,387	22,846	16,887
9	Northern Borders	85,036	7,716	12,049
10	Jazan	280,741	16,406	24,739
11	Najran	75,364	47,729	36,629
12	Al-Baha	26,711	2,338	77,451
13	Al-Jouf	43,151	16,832	14,033

Percentage distribution of household plant irrigation method at country level

Table 8-28

No.	House plant irrigation method	Percentage distribution (%)
1	Drip irrigation	26.68
2	Sprinklers	37.23
3	Surface irrigation	36.09
Total		100.00

Percentage distribution of household plant irrigation method at the administrative region level

Table 8-29

No.	Administrative Region	House plant irrigation method (%)		
		Drip irrigation	Sprinklers	Surface irrigation
1	Riyadh	29.57	45.72	24.71
2	Makkah	20.52	35.98	43.50
3	Madinah	37.19	20.46	42.35
4	Qassim	26.61	20.19	53.20
5	Eastern Region	33.81	28.02	38.16
6	Asir	6.41	42.85	50.74
7	Tabuk	55.69	37.35	6.97
8	Hail	25.22	24.83	49.94
9	Northern Borders	40.23	57.35	2.42
10	Jazan	18.24	61.09	20.67
11	Najran	13.33	17.52	69.16
12	Al-Baha	38.65	28.23	33.12
13	Al-Jouf	49.76	21.06	29.18

Percentage distribution of household main plant irrigation source at country level

Table 8-30

No.	Main irrigation source	Percentage distribution (%)
1	Public network	72.30
2	Well	5.89
3	Tank	20.41
4	Greywater	1.41
Total		100.00

Percentage distribution of household main plant irrigation source at the administrative region level

Table 8-31

No.	Administrative Region	Main irrigation water source (%)			
		Public network	Well	Tank	Greywater
1	Riyadh	88.79	3.94	4.51	2.76
2	Makkah	64.25	6.76	28.99	0.00
3	Madinah	78.58	8.88	9.17	3.37
4	Qassim	79.62	7.16	7.07	6.15
5	Eastern Region	94.76	1.80	2.84	0.60
6	Asir	22.04	11.74	66.21	0.00
7	Tabuk	80.41	3.24	15.55	0.79
8	Hail	82.90	3.31	13.61	0.18
9	Northern Borders	77.47	1.15	20.91	0.46
10	Jazan	49.56	7.39	43.06	0.00
11	Najran	34.06	10.86	55.08	0.00
12	Al-Baha	42.67	13.67	43.65	0.00
13	Al-Jouf	77.78	14.54	7.05	0.63

Household consumption of own production at country level

Table 8-32

No.	Type of household production	Household consumption (kg)
1	Vegetables	1,126,061
2	Fruits (except dates)	2,081,458
3	Dates	11,767,733
Total		14,975,252

Percentage distribution of household hydroponics at country level

Table 8-33

No.	Hydroponics	Percentage distribution (%)
1	Yes	0.70
2	No	99.30
Total		100.00

Percentage distribution of household hydroponics at the administrative region level

Table 8-34

No.	Administrative Region	Hydroponics (%)	
		Yes	No
1	Riyadh	0.61	99.39
2	Makkah	1.20	98.80
3	Madinah	0.00	100.00
4	Qassim	0.66	99.34
5	Eastern Region	0.23	99.77
6	Asir	0.25	99.75
7	Tabuk	2.37	97.63
8	Hail	0.38	99.62
9	Northern Borders	1.47	98.53
10	Jazan	1.01	98.99
11	Najran	0.13	99.87
12	Al-Baha	0.06	99.94
13	Al-Jouf	0.29	99.71

Percentage distribution of households that buy organic products at country level

Table 9-1

No.	Buying organic products	Percentage distribution (%)
1	Buy	26.05
2	Don’t buy	73.95
Total		100.00

Percentage distribution of households that buy organic products by type at country level

Table 9-2

No.	Buying organic products	(%) Organic product types	
		Plant	Animal
1	Buy	23.83	14.11
2	Don't buy	76.17	85.89
Total		100.00	100.00

Percentage distribution of household environmental literacy at country level

Table 9-3

No.	Level of environmental literacy	Percentage distribution (%)
1	Literate	12.73
2	Somewhat literate	51.97
3	Illiterate	35.30
Total		100.00

Percentage distribution of household environmental literacy by nationality at country level

Table 9-4

No.	Level of environmental literacy	Nationality (%)	
		Saudi	Non-Saudi
1	Literate	14.84	8.83
2	Somewhat literate	57.18	42.34
3	Illiterate	27.98	48.83

Percentage distribution of household environmental literacy by nationality at the administrative region level

Table 9-5

No.	Administrative Region	Level of environmental literacy (%)					
		Literate		Somewhat literate		Illiterate	
		Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi
1	Riyadh	6.57	2.35	38.67	17.35	16.32	18.73
2	Makkah	6.91	4.53	31.27	16.04	20.29	20.96
3	Madinah	7.46	1.65	42.30	19.19	15.33	14.07
4	Qassim	14.94	3.48	37.44	13.39	10.90	19.85
5	Eastern Region	15.16	4.36	33.27	14.56	18.43	14.22
6	Asir	18.34	1.97	40.02	9.98	18.09	11.60
7	Tabuk	4.93	2.12	45.71	9.59	22.88	14.78
8	Hail	14.53	0.54	54.26	16.59	3.35	10.73
9	Northern Borders	19.97	3.15	37.36	5.50	21.18	12.83
10	Jazan	10.99	1.51	41.41	6.05	27.33	12.72
11	Najran	1.97	0.48	36.30	12.07	28.86	20.32
12	Al-Baha	8.17	1.82	59.08	10.51	12.94	7.48
13	Al-Jouf	13.36	2.97	39.61	9.65	19.35	15.05

Percentage distribution of environmental activity type by household member participation and nationality at country level

Table 9-6

No.	Environmental activity type	Percentage distribution (%)			
		Saudi		Non-Saudi	
		Participate	Don't participate	Participate	Don't participate
1	Visiting environmental festivals	12.80	52.09	2.82	32.29
2	Volunteering in environmental events and campaigns	3.55	61.33	0.82	34.29
3	Membership in environmental associations	0.91	63.98	0.26	34.85
4	Attending and participating in environmental workshops and courses	2.90	61.99	0.93	34.18

Percentage distribution of household member participation in visiting environmental festivals at the administrative region level

Table 9-7

No.	Administrative Region	Visiting environmental festivals (%)			
		Saudi		Non-Saudi	
		Participate	Don't participate	Participate	Don't participate
1	Riyadh	13.01	48.55	2.48	35.96
2	Makkah	10.05	48.42	3.82	37.71
3	Madinah	16.19	48.90	3.92	30.99
4	Qassim	11.59	51.69	0.51	36.21
5	Eastern Region	8.23	58.63	2.99	30.14
6	Asir	11.44	65.01	0.31	23.24
7	Tabuk	33.99	39.53	6.12	20.36
8	Hail	42.05	30.09	3.38	24.48
9	Northern Borders	17.63	60.88	2.95	18.54
10	Jazan	14.12	65.61	2.21	18.06
11	Najran	17.42	49.71	1.46	31.41
12	Al-Baha	7.86	72.33	0.34	19.48
13	Al-Jouf	6.53	65.80	1.37	26.30

Percentage distribution of household member participation in volunteer work at environmental events or campaigns at the administrative region level

Table 9-8

No.	Administrative Region	Volunteering in environmental events and campaigns (%)			
		Saudi		Non-Saudi	
		Participate	Don't participate	Participate	Don't participate
1	Riyadh	1.87	59.69	0.49	37.94
2	Makkah	3.06	55.41	1.11	40.42
3	Madinah	0.56	64.53	0.29	34.61
4	Qassim	3.64	59.64	0.21	36.50
5	Eastern Region	5.62	61.24	1.77	31.37
6	Asir	3.09	73.36	0.00	23.55
7	Tabuk	7.73	65.79	1.84	24.64
8	Hail	11.69	60.45	0.23	27.63
9	Northern Borders	4.04	74.47	0.15	21.34
10	Jazan	9.42	70.31	1.23	19.04
11	Najran	0.52	66.61	0.13	32.74
12	Al-Baha	6.23	73.96	0.00	19.81
13	Al-Jouf	2.22	70.11	0.17	27.50

Percentage distribution of household member membership in environmental associations by nationality at the administrative region level

Table 9-9

No.	Administrative Region	Membership in environmental associations (%)			
		Saudi		Non-Saudi	
		Participate	Don't participate	Participate	Don't participate
1	Riyadh	0.31	61.26	0.14	38.29
2	Makkah	0.72	57.76	0.26	41.27
3	Madinah	0.10	65.00	0.09	34.82
4	Qassim	1.18	62.10	0.00	36.71
5	Eastern Region	1.00	65.86	0.84	32.30
6	Asir	2.23	74.23	0.00	23.55
7	Tabuk	1.46	72.06	0.31	26.17
8	Hail	2.01	70.13	0.30	27.56
9	Northern Borders	1.55	76.97	0.00	21.48
10	Jazan	0.97	78.76	0.34	19.93
11	Najran	0.00	67.13	0.00	32.87
12	Al-Baha	6.74	73.45	0.00	19.81
13	Al-Jouf	1.92	70.41	0.12	27.55

Percentage distribution of household member participation in and attendance of environment-related courses and workshops by nationality at the administrative region level

Table 9-10

No.	Administrative Region	Attending and participating in environmental workshops and courses (%)			
		Saudi		Non-Saudi	
		Participate	Don't participate	Participate	Don't participate
1	Riyadh	1.66	59.91	1.00	37.43
2	Makkah	1.91	56.56	1.00	40.53
3	Madinah	0.83	64.26	0.31	34.60
4	Qassim	3.59	59.69	0.16	36.55
5	Eastern Region	3.72	63.14	1.97	31.17
6	Asir	2.61	73.84	0.04	23.51
7	Tabuk	10.63	62.89	1.32	25.16
8	Hail	8.53	63.61	0.27	27.58
9	Northern Borders	5.90	72.62	0.46	21.22
10	Jazan	8.50	71.23	1.22	19.05
11	Najran	0.69	66.44	0.00	32.87
12	Al-Baha	5.13	75.05	0.00	19.81
13	Al-Jouf	2.92	69.41	0.26	27.42

Percentage distribution of households with pets at country level

Table 9-11

No.	Household pets	Percentage distribution (%)
1	Yes	6.16
2	No	93.84
Total		100.00

Percentage distribution of households with pets at the administrative region level

Table 9-12

No.	Administrative Region	Household pets (%)	
		Yes	No
1	Riyadh	5.39	94.61
2	Makkah	6.00	94.00
3	Madinah	3.71	96.29
4	Qassim	4.95	95.05
5	Eastern Region	8.92	91.08
6	Asir	7.66	92.34
7	Tabuk	4.79	95.21
8	Hail	13.84	86.16
9	Northern Borders	3.62	96.38
10	Jazan	7.70	92.30
11	Najran	2.78	97.22
12	Al-Baha	2.39	97.61
13	Al-Jouf	1.65	98.35

Percentage distribution of households with pets by type at country level

Table 9-13

No.	Household pet kind	Percentage distribution (%)	
		Yes	No
1	Cat	1.74	98.26
2	Dog	0.27	99.73
3	Bird	3.41	96.59
4	Cattle	0.91	99.09
5	Other	0.47	99.53

Percentage distribution of household water overflow or internal leakages at country level

Table 9-14

No.	Water overflow or internal leakages	Percentage distribution (%)
1	Frequent	2.15
2	Rare	15.12
3	Never	82.73
Total		100.00

Percentage distribution of household water overflow or internal leakages at the administrative region level

Table 9-15

No.	Administrative Region	Water overflow or internal leakages (%)		
		Frequent	Rare	Never
1	Riyadh	2.32	12.84	84.84
2	Makkah	1.66	13.49	84.84
3	Madinah	1.18	17.36	81.45
4	Qassim	0.61	8.21	91.18
5	Eastern Region	2.82	18.79	78.38
6	Asir	3.39	10.55	86.06
7	Tabuk	2.19	32.19	65.62
8	Hail	4.01	44.85	51.14
9	Northern Borders	0.67	30.93	68.40
10	Jazan	1.73	7.45	90.82
11	Najran	1.42	22.96	75.63
12	Al-Baha	4.01	5.76	90.24
13	Al-Jouf	3.72	17.58	78.70

Percentage distribution of household water overflow or internal leakages by housing type at country level

Table 9-16

No.	Housing Type	Water overflow or internal leakages (%)		
		Frequent	Rare	Never
1	Traditional house	3.41	21.46	75.14
2	Villa	2.06	13.77	84.17
3	Floor at a traditional house	2.31	19.77	77.93
4	Floor at a villa	2.32	12.61	85.08
5	Apartment	1.73	13.66	84.62
6	Other	3.35	12.71	83.95

Percentage distribution of safety and security measures available in households at country level

Table 9-17

No.	Availability in households	Safety and security methods (%)			
		Separate cabinet for pesticides and fertilizers	Fire extinguishers	Fire alarms	First aid box
1	Yes	55.73	19.57	6.37	45.18
2	No	44.27	80.43	93.63	54.82
Total		100.00	100.00	100.00	100.00

Percentage distribution of households that have a separate cabinet for fertilizers and pesticides at the administrative region level

Table 9-18

No.	Administrative Region	Separate cabinet for pesticides and fertilizers (%)	
		Yes	No
1	Riyadh	56.14	43.86
2	Makkah	61.93	38.07
3	Madinah	42.54	57.46
4	Qassim	57.45	42.55
5	Eastern Region	62.93	37.07
6	Asir	53.31	46.69
7	Tabuk	63.50	36.50
8	Hail	49.10	50.90
9	Northern Borders	46.39	53.61
10	Jazan	31.93	68.07
11	Najran	38.85	61.15
12	Al-Baha	43.20	56.80
13	Al-Jouf	33.15	66.85

Percentage distribution of households with fire extinguishers at the administrative region level

Table 9-19

No.	Administrative Region	Fire extinguisher (%)	
		Yes	No
1	Riyadh	20.10	79.90
2	Makkah	18.10	81.90
3	Madinah	12.37	87.63
4	Qassim	17.20	82.80
5	Eastern Region	31.65	68.35
6	Asir	12.97	87.03
7	Tabuk	33.16	66.84
8	Hail	18.70	81.30
9	Northern Borders	33.69	66.31
10	Jazan	8.04	91.96
11	Najran	4.66	95.34
12	Al-Baha	20.27	79.73
13	Al-Jouf	12.60	87.40

Percentage distribution households with fire alarms in at the administrative region level

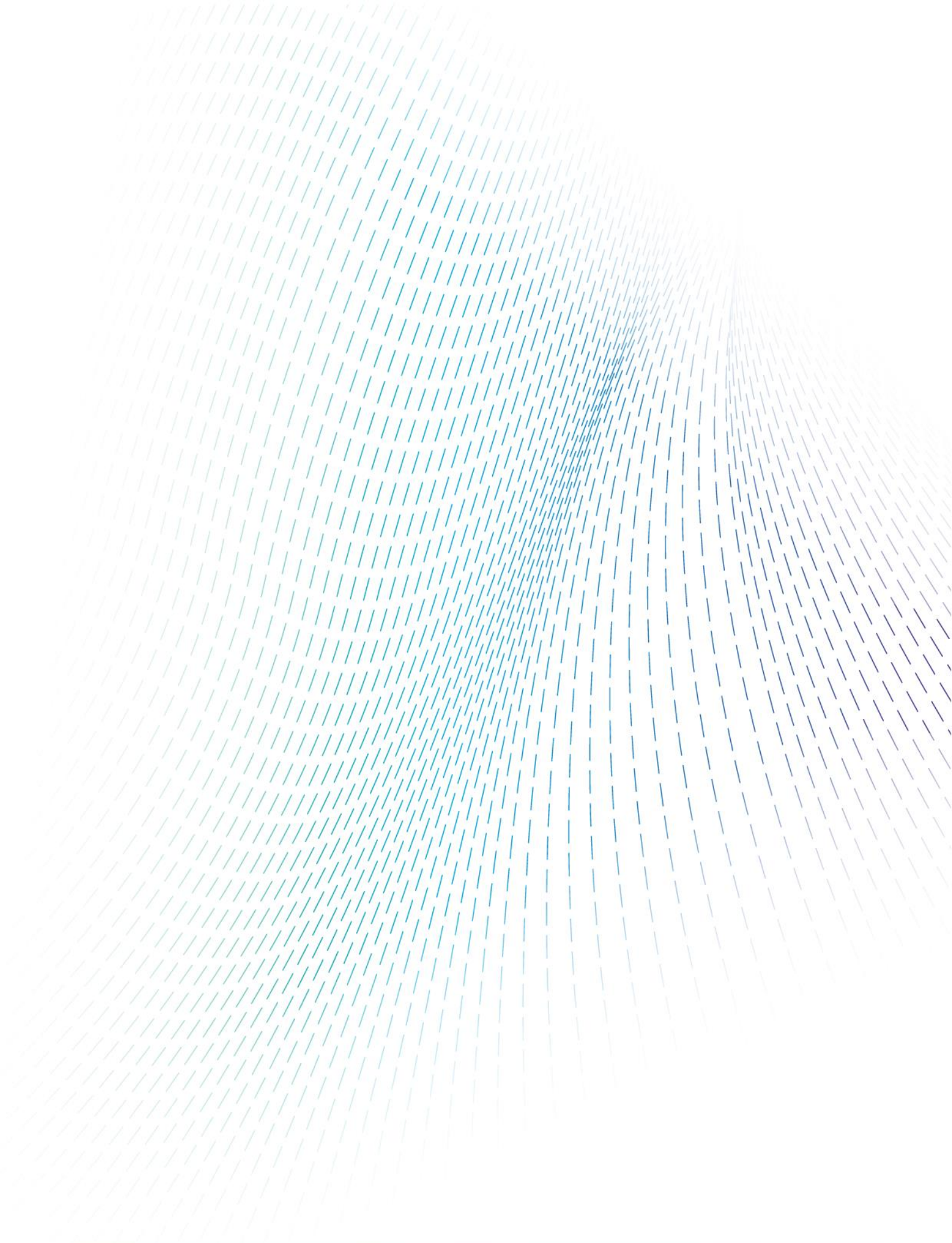
Table 9-20

No.	Administrative Region	Fire alarms (%)	
		Yes	No
1	Riyadh	6.40	93.60
2	Makkah	4.35	95.65
3	Madinah	2.74	97.26
4	Qassim	3.51	96.49
5	Eastern Region	16.98	83.02
6	Asir	3.28	96.72
7	Tabuk	4.68	95.32
8	Hail	3.79	96.21
9	Northern Borders	8.97	91.03
10	Jazan	1.52	98.48
11	Najran	1.06	98.94
12	Al-Baha	12.97	87.03
13	Al-Jouf	3.37	96.63

Percentage distribution of households with first aid boxes at the administrative region level

Table 9-21

No.	Administrative Region	First aid box (%)	
		Yes	No
1	Riyadh	45.90	54.10
2	Makkah	43.97	56.03
3	Madinah	28.21	71.79
4	Qassim	46.02	53.98
5	Eastern Region	61.35	38.65
6	Asir	41.20	58.80
7	Tabuk	61.88	38.12
8	Hail	47.06	52.94
9	Northern Borders	43.17	56.83
10	Jazan	23.29	76.71
11	Najran	30.60	69.40
12	Al-Baha	54.77	45.23
13	Al-Jouf	31.23	68.77



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