



**State of Palestine**  
**Palestinian Central Bureau of Statistics**

**Environmental Economic Survey, 2013**

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## **Introduction**

The attention of the world is increasingly drawn to environmental issues and environmental statistics on the economic sector are essential in order to assist with policy making and legislation that reduces the pressure on the environment, after many years of environmental neglect and the absence of standards and rules during the Israeli occupation, concern about the environment has grown in Palestine, as it has internationally.

PCBS conducted the Environmental Economic Survey during the period 16/04/2013 to 30/06/2013; with the primary objective of providing reliable data on the main environmental indicators in economic establishments in Palestine, including the methods used to handle solid waste and wastewater, the survey also includes the role of the local authority in providing a suitable environment that minimizes the negative effect of different types of pollution from economic activities.

This report is divided into three chapters: The first chapter defines the main findings of the report, the second chapter explains the methodology of data collection and tabulation, in addition to details regarding data quality and estimations of the data sources of this report, and the third chapter contains the concepts and definitions used in this report.

## **Concepts and Definitions**

### **Establishment:**

An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added.

### **Solid Waste Disposal:**

Ultimate deposition or placement of refuse that is not salvaged or recycled.

### **Waste Collection:**

Collection or transport of waste to the place of treatment or discharge by municipal services or similar institutions, or by public or private corporations, specialized enterprises or general government. Collection of municipal waste may be selective, that's to say carried out for a specific type of product, or undifferentiated, in other words, covering all kinds of waste at the same time.

### **Open Burning:**

Outdoor burning of wastes such as lumber, used textile and others.

### **Porous Cesspit:**

A well or a pit in which night soil and other refuse is stored, constructed with porous walls.

**Tight Cesspit:**

A well or a pit in which night soil and other refuse is stored, constructed with tight walls.

**Sewage Network:**

System of collectors, pipelines, conduits and pumps to evacuate wastewater (rainwater, domestic and other wastewater) from any of the location paces generation either to municipal sewage treatment plant or to a location place where wastewater is discharged.

**Public Water Network:**

A net of pipes for the purpose of providing clean water to households. It normally belongs to a municipality, the council or to a private company.

**Wastewater:**

Used water, typically discharged into the sewage system. It contains matter and bacteria in solution or suspension.

**Dump:**

Site used to dispose solid waste without environmental control.

**Solid Waste:**

Useless and sometimes hazardous material with low liquid content, solid wastes include municipal garbage, industrial and commercial waste, sewage sludge, wastes resulting from agricultural and animal husbandry operations and other connected activities, demolition wastes and mining residues.

**Pharmaceutical Waste:**

This includes pharmaceutical products, drugs and chemicals, which have been returned from wards, have been spilled or soiled, are out of date or contaminated, or are to be discarded for any reason.

**Wastewater Treatment:**

Process to render wastewater fit to meet environmental standards or other quality norms. Three broad types of treatment may be distinguished: mechanical, biological, and advanced.

## Questionnaire

The environmental questionnaire was designed according to international standards and recommendations for the most important indicators, taking into account the special situation of Palestine. Many visits were made to economic establishments to improve the survey tools and test the questionnaire prior to the implementation of the survey. Subsequent to the visits, some modifications were made to the questionnaire and the instructions.

## **Target Population**

All economic establishments approved by the Central Bureau of Statistics in the classification of economic activities. The Environmental Economic Survey covers activities in accordance with ISIC.rev.4.

## **Sample Frame**

The sampling frame is the list of all economic establishments enumerated in the Establishments Census of 2012 conducted by PCBS.

### **Sampling Design:**

The sample was a single-stage stratified random systematic sample.

### **Sample Strata:**

Three levels of stratification were followed in designing the sample of the survey, including:

1. Stratification by region: (North, Middle, South West Bank) and Gaza Strip.
2. Stratification by economic activity according to ISIC.rev.4.
3. Stratification by employment group.

### **Sample Size:**

The sample size of the Environmental Economic Survey is 3982 economic establishments.

## **Weight Calculation**

It is necessary, when calculating the estimations of the survey indicators, to calculate the weights of the establishments. The weight of an establishment is the mathematical inverse of choosing it, after the data editing, all the establishments weighted to substitute the non response and over coverage.

## **Variance Calculation**

Variance is change from a variable to another, it depends on:

1. The sample size
2. The actual variance for all the population units
3. the sample design

The variance for a number of variables was calculated using SPSS. The factors calculated are:

1. standard error
2. Coefficient of variance = standard error\*100% / estimation
3. Effect of sample design
4. 95% confidence interval

## Reference Period

The reference period during the data collection of the Environmental Economic Survey, 2013 was the last week of the fieldworker existence in the establishment.

## Data Collection

Field operations started on 16/04/2013 and lasted until 30/06/2013. The field work team consisted of a coordinator, directors of the field work offices and field workers, and each team consisted of supervisors and five field workers.

## Response Rates

During field work, 3,982 economic establishments were visited in Palestine, the end results of the interviews were then dealt with as follows:

interview results	Frequency	Percentage %
Completed questionnaires	3,305	83.0
Completely closed	103	3.0
Temporarily closed	36	1.0
Not found unit	23	1.0
Did not practice any activity during the reference period	30	1.0
The economic activate are different	2	0.0
Refusal	217	5.0
Repeated	7	0.0
Government	9	0.0
Others	250	6.0
<b>Total</b>	<b>3,982</b>	<b>100</b>

## Data Quality

### Sampling Errors:

Sampling errors result from studying only a part of a social base. As this survey is sample based, data will be affected by sampling errors due to not using the whole frame of society and differences may appear compared with the actual values that could be obtained through a census. For this survey, variance calculations were made for the amounts of water consumed, the solid waste generated and the main source of water in economic establishments by region and activity.

### Non-Sampling Errors:

Several measures were adopted to minimize the effects of such errors. The interviewers, editors and coders underwent intensive training and were provided with field work manuals to consult when facing any problem.

The data entry program was designed in a way that allows for error detection and correction. This applies particularly to logical errors that might not be discovered prior to data entry. A consistency check was also performed to ensure accuracy after data entry.

Errors may result from cases of non-response as well as in the implementation of the survey. In this survey, errors emerged because of (a) the special situation of the questionnaire itself which depends on a estimates; (b) diversity of sources (e.g., interviewers, respondents, editors, coders, data entry operators, etc.).

It is important to note that five percent of the sample for this survey underwent re-interview and the results of these re-interviews were reported by the supervisors. Re-interview reveals variances in estimates by interviewers of the quantities of water consumed and solid waste produced when the interviewer responsible for the main survey questionnaire differs from the person responsible for the re-interview questionnaire.

### **Technical Notes**

The following are important technical notes on the indicators presented in the results of the survey:

- Tables of water quantities were based on estimates by respondents so care should be taken in relation to these figures.

## **Data Processing**

The data processing stage comprised the following operations:

1. Editing prior to data entry: all questionnaires were edited again in the office using the same instructions adopted for editing in the field.
2. Data entry: At this stage, data were entered into the computer using Access database.
3. The data entry program was set up to satisfy a number of requirements such as:
  - Duplication of the questionnaire on the computer screen.
  - Checks for logic and consistency of data entered.
  - Possibility of internal editing of answers to questions.
  - Ensuring a minimum of digital data entry and field work errors.
  - User-friendly handling.
  - Possibility of transferring data into another format to be used and analyzed using other statistical analytical systems such as SAS and SPSS.

## **Symbolization Instruction**

Questions and data of the questionnaire were coded according to previously prepared coding guide and handled to data entry personnel.