

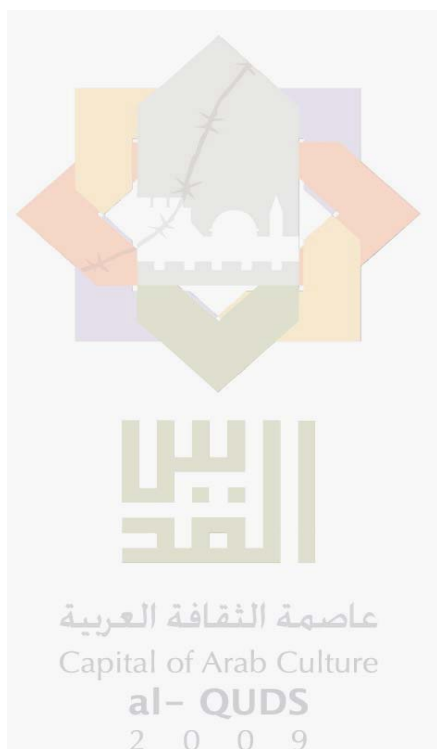
# **Palestinian National Authority Palestinian Central Bureau of Statistics**

## **Household Energy Survey: Main Results (January, 2009)**

**June, 2009**

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All correspondence should be directed to:  
**Palestinian Central Bureau of Statistics**  
**P.O.Box 1647 Ramallah, Palestine.**

Tel: (972/970) 2 242 6340

Fax: ( 972/970) 2 242 6343

E-Mail: [diwan@pcbs.gov.ps](mailto:diwan@pcbs.gov.ps)

web-site: <http://www.pcbs.gov.ps>

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## **Team Work**

- **Report Preparation**  
Mohammad Shaheen  
Abdullah Azzam
- **Maps Design**  
Reham Dar Ali
- **Graphic Design**  
Ahmad Sawalmeh
- **Dissemination Standard**  
Hanan Janajreh
- **Preliminary Review**  
Mohammad Al-Masri  
Mahmoud Abd-Alrhman
- **Final Review and Overall Supervision**  
Mahmoud Jaradat  
Ola Awad  
Acting President



## **Preface**

Most countries give special attention to providing statistics on energy due to its important role in reflecting the situation of infrastructure, the economy and the level of living standards of a society. In Palestine, additional special attention is given to energy statistics due to the shortage of natural resources, the high cost of energy and the high population density. All of these factors create a need for comprehensive and high quality statistics in this field of study.

In view of the attention on providing statistical data on household activities, which were found to be the highest energy-consuming sector, PCBS decided to conduct a special Household Energy Survey that provides high quality data about energy consumption by type, different energy consuming facilities used at the household level, and the behavior of this important sector.

PCBS conducts the Household Energy Survey twice a year. This survey was conducted during the period 22/02/2009 to 02/04/2009 to cover January in order to know the energy consumption behavior in the winter season.

PCBS hopes that the results of this report will contribute towards providing the necessary data needed for developing the energy situation in households. In addition, PCBS hopes that this report will contribute to bridging the data gap in energy statistics and providing useful data for the main data users and decision makers.

**June, 2009**

**Ola Awad  
Acting President**





## Table of Contents

| Subject                                      | Page        |
|--|-------------|
| List of Tables                               |             |
| List of Figures                              |             |
| List of Maps                                 |             |
| Executive Summary                            |             |
| Chapter One: <b>Introduction</b>             | <b>[19]</b> |
| Chapter Two: <b>Concepts and Definitions</b> | <b>[21]</b> |
| Chapter Three: <b>Main Findings</b>          | <b>[23]</b> |
| 3.1 Energy Sources                           | [23]        |
| 3.2 Energy Consumption Facilities            | [23]        |
| 3.3 Energy Uses                              | [24]        |
| 3.4 Household Energy Consumption             | [24]        |
| Chapter Four: <b>Methodology</b>             | <b>[27]</b> |
| 4.1 Questionnaire                            | [27]        |
| 4.2 Sample Frame                             | [27]        |
| 4.3 Fieldwork                                | [28]        |
| 4.4 Data Processing                          | [28]        |
| 4.5 Weight Calculation and the Estimation    | [28]        |
| Chapter Five: <b>Data Quality</b>            | <b>[29]</b> |
| 5.1 Accuracy                                 | [29]        |
| 5.2 Comparability                            | [30]        |
| 5.3 Data Quality Assurance Procedures        | [31]        |
| 5.4 Special Technical Notes                  | [31]        |
| <b>References</b>                            | <b>[33]</b> |
| <b>Tables</b>                                | <b>41</b>   |
| <b>Maps</b>                                  | <b>49</b>   |



## List of Tables

| Table  | Page      |
|--|-----------|
| <b>Table 1:</b> Selected Indicators of Household Energy in the Palestinian Territory<br>January 1999, 2003-2005, 2009  | <b>43</b> |
| <b>Table 2:</b> Percentage Distribution of Households in the Palestinian Territory<br>by Region and the Main Electricity Source in Housing Unit,<br>January 2009 | <b>43</b> |
| <b>Table 3:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and Type of Electricity Meter Used, January 2009                 | <b>44</b> |
| <b>Table 4:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and Number of Hours of Electricity Service, January 2009         | <b>44</b> |
| <b>Table 5:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and Using Solar Heater, January 2009                             | <b>44</b> |
| <b>Table 6:</b> Percentage of Households in the Palestinian Territory by Region and<br>Heating Facility Used, January 2009                                       | <b>45</b> |
| <b>Table 7:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and Cooking Facility Used, January 2009                          | <b>45</b> |
| <b>Table 8:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and the Main Fuel Used for Cooking, January 2009                 | <b>45</b> |
| <b>Table 9:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and the Main Fuel Used for Baking, January 2009                  | <b>46</b> |
| <b>Table 10:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and the Main Fuel Used for Water Heating, January 2009          | <b>46</b> |
| <b>Table 11:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and the Main Fuel Used for Heating, January 2009                | <b>46</b> |
| <b>Table 12:</b> Percentage Distribution of Households in the Palestinian Territory by<br>Region and the Main Fuel Used for Lighting, January 2009               | <b>47</b> |
| <b>Table 13:</b> Percentage of Households that Use Energy in the Palestinian<br>Territory by Region, Type of Locality and Energy Type,<br>January 2009           | <b>47</b> |
| <b>Table 14:</b> Average Household Consumption of Electricity, Petroleum Products<br>and Wood in the Palestinian Territory by Region, January 2009               | <b>48</b> |
| <b>Table 15:</b> Average Consumption Per Capita of Electricity, Petroleum Products<br>and Wood in the Palestinian Territory by Region, January 2009              | <b>48</b> |



## **List of Figures**

| <b>Figures</b>  | <b>Page</b> |
|---|-------------|
| <b>Figure 1:</b> Percentage of Households in the Palestinian Territory Using Solar Heater by Region, January 2009                 | <b>[23]</b> |
| <b>Figure 2:</b> Percentage of Households in the Palestinian Territory Using Heating Facilities by Heating Facility, January 2009 | <b>[24]</b> |
| <b>Figure 3:</b> Average Household Electricity Consumption in the Palestinian Territory by Region, January 2009                   | <b>[25]</b> |



## **List of Maps**

| <b>Maps</b>   |  | <b>Page</b> |
|---------------|--|-------------|
| <b>Map 1:</b> | Percent of Households in the Palestinian Territory Whose Main Electricity Source is Public Network by Region, January 2009 | <b>51</b>   |
| <b>Map 2:</b> | Percentage Distribution of Households in the Palestinian Territory by Using Solar Heater and Region, January 2009          | <b>53</b>   |





## **Executive Summary**

PCBS implemented the household energy survey (January 2009). This survey collected data on household energy indicators (electricity, petroleum fuel, and other types of energy) in the household activities (cooking, baking, water heating, lighting, and Heating). Data collection took place during the period 22/02/2009 - 02/04/2009.

The results of the survey indicated that 99.3% of households in the Palestinian Territory were connected to the public electricity network in January 2009. From the results, it is noted that the North of West Bank has the lowest percentage of households connected to electricity network 98.3%.

It is noted that 77.9% of households in the West Bank used normal Electricity Meter. 22.1% of households used Prepayment Electricity Meter, this percentage was about 57.6% in the North of West Bank, 29.2% in the South of West Bank, and 6.7% in the Middle of West Bank during January 2009.

The survey showed that 59.6% of households in the Palestinian Territory utilized solar energy by using solar energy heaters in January 2009, whereas this percentage was 67.2% in January 2005. It is noted that this percentage differs within the Palestinian regions in January 2009; it was about 58.0% in Gaza Strip and 60.5% in the West Bank.

The results of the survey indicated that the average household electricity consumption (from the households that used electricity) in the Palestinian Territory during January 2009 was 275 KWh, where this average was 256 KWh during January 2005. The average per capita electricity consumption in the Palestinian Territory during January 2009 was 47.6 KWh.

The main findings of the survey indicate that the average household gasoline consumption in the Palestinian Territory during January 2009 was 11 liters. This average ranged by region, it reached 27 liters in the Middle of West Bank and didn't exceed 7 liters in the North of West Bank, and 3 liters in Gaza Strip.

The survey indicated that 70.6% of households in the Palestinian Territory used liquefied petroleum gas during January 2009; the average household liquefied petroleum gas consumption was 21 kg (from the households that used liquefied petroleum gas), while it was 30 kg in January 2005. This average varies by region in January 2009; it reached 23 kg in the South of West Bank, and did not exceed 8 kg in Gaza Strip.

The main results of the survey indicate that 42.6% of the households used electrical heater in the Palestinian Territory, 42.5% of the households used gas heater, 32.5% of the households used wood heater, 5.0% used kerosene heater, 2.0% of the households used central heater in January 2009.



## Chapter One

### **Introduction**

Energy has great importance due to its role in reflecting the country's economy, the people's welfare and their living standards. In addition, energy data reflects the status of infrastructure.

In 1996, PCBS established an energy statistics program in order to develop a national plan for energy statistics and to provide data about energy in the Palestinian Territory. Taking into consideration the international recommendations of the United Nations in the field of energy and the special situation of the Palestinian Territory, energy indicators were formulated through a user-producer dialogue workshop held in March 1998. The energy statistics program implemented fourteen rounds of the household energy survey during 1999-2009.

Because of the importance of the household sector and due to its large contribution to energy consumption in the Palestinian Territory, PCBS decided to conduct a special household energy survey to cover energy indicators in the household sector. To achieve this, a questionnaire was attached to the Labor Force Survey.

This survey aimed to provide data on energy consumption in the household sector and to provide data on energy consumption behavior in the society by type of energy.

This survey presents data on various energy households indicators in the Palestinian Territory, and presents statistical data on electricity and other fuel consumption for the household sector, by type of fuel for different activities (cooking, baking, heating, lighting, and water heating).

The household energy survey (January 2009) report consists of five chapters: the first chapter presents the survey objectives and the report structure; the second chapter describes the concepts and definitions; the third chapter briefly describes the main findings; the fourth chapter presents the methodology used in the survey, consisting of the questionnaire design, sampling design, fieldwork operations and data processing; and the last chapter includes an assessment of data quality and technical notes.



## Chapter Two

### Concepts and Definitions

This section presents the main concepts and definitions used to derive the main indicators of energy consumption from different sources. These concepts and definitions are based on international recommendations in the field of energy statistics, and they are the same in all subjects in Palestinian Central Bureau of Statistics. The main concepts and expressions mentioned in this report were as follows:

#### Household

One person or a group of persons with or without a household relationship, who live in the same housing unit, share meals and make joint provision of food and other essentials of living.

#### Fuel

It refers to any matter used for producing energy via thermal, chemical or nuclear interaction.

#### Gasoline

Gasoline is a hydrocarbon fuel used mainly in internal- combustion engines. This fuel is obtained via filtration of crude oil. The quality of this type of fuel is measured by the octane number (from 0 to 100), which points to its resistance of early burning. This number is obtained by comparing the performance of its resistance of early burning with a mixture of  $C^7H^{16}$  and  $C^8H^{18}$ . For instance, the performance of "Gasoline 95" equals the performance of a mixture of 95%  $C^8H^{18}$  and 5%  $C^7H^{16}$ .

#### Diesel

It is a liquid hydrocarbon fuel obtained by the distillation of crude petroleum. It is heavy oil distilled between 200°C and 380°C. Its point is always above 50°C, and its specific gravity is higher than 0.82

#### Liquefied Petroleum Gas (LPG)

It is mainly used in heating as well as a fuel in some types of engines and as a raw material for chemical industries. Usually it is marketed in cylinder metallic packages. This gas is comprised of a mixture of gases, e.g.  $C^3H^8$  and  $C^4H^{10}$ . It is obtained from natural gas or by fracture of crude petroleum.

#### Kerosene

It is medium oil distilling between 150°C and 300°C. Its specific gravity is around 0.80 and the flash point above 38°C. It is used in sectors other than aircraft transport.

#### Charcoal

It is a solid residue, consisting mainly of carbon, obtained by the destructive distillation of wood in the absence of air.

#### Olive Cake

The olive cake (jeft) is the olive solid remainder after the olive pressing. It is considered as a byproduct.

**Wood**

Refers to all wood used for fuel purposes.

**Household Consumption**

It refers to consumption by Households in the different activities within Households (Heating, Cooking, Lighting, Water Heating and other activities

**Electric Energy**

Work done to move an electric charge in a conductor. It is measured in kilowatt-hour.

Electric Energy = Power (KW) X Time (Hours).

**Kilo Watt-Hour**

Energy unit, a 1 kWh =  $1000 \text{ W} \times 3600 \text{ Second} = 3.6 \times 10^6 \text{ Watt-second}$

Other prefixes are used for referring to this unit, e.g. Mega which equals  $10^6$ , and Giga, which equals  $10^9$ .

## Main Findings

This chapter presents the main findings of the Household Energy Survey. These results were divided into four sections: the first section introduces the results related to energy sources in the domestic sector during January 2009; the second introduces the results related to the facilities used in heating and cooking; the third section presents the use purposes of energy types in the different activities in the households; and the fourth presents the household and per capita consumption of the different energy types.

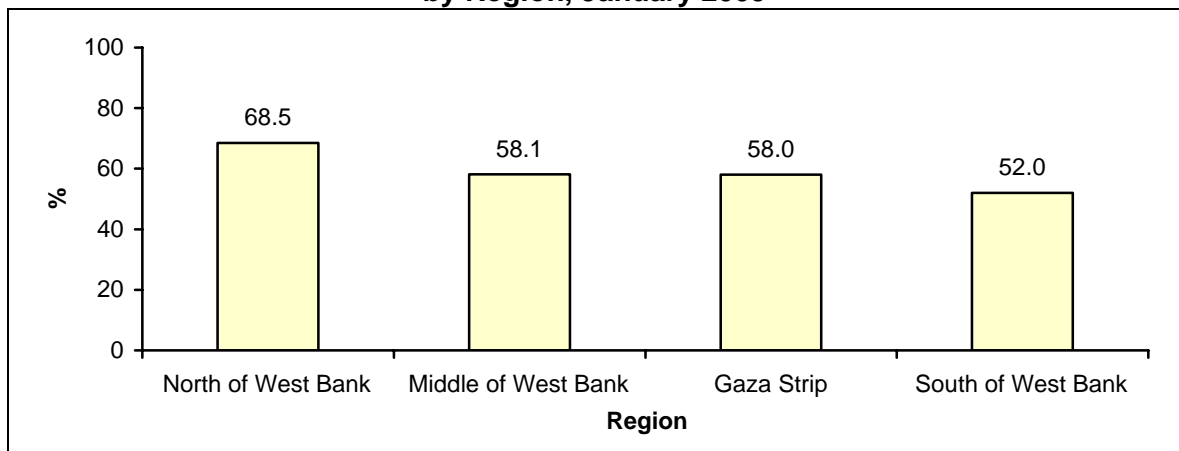
### 3.1 Energy Sources

The results of the survey indicate that 99.3% of households in the Palestinian Territory were connected to the public electricity network in January 2009.

From the results, it is noted that 77.9% of households in the West Bank used a normal Electricity Meter, while 22.1% of households used a Prepayment Electricity Meter in January 2009.

The results of the survey indicate that 59.6% of households in the Palestinian Territory were utilizing solar energy by using solar energy heaters in January 2009; this percentage was 67.2% in January 2005.

**Figure 1: Percentage of Households in the Palestinian Territory Using Solar Heater by Region, January 2009**

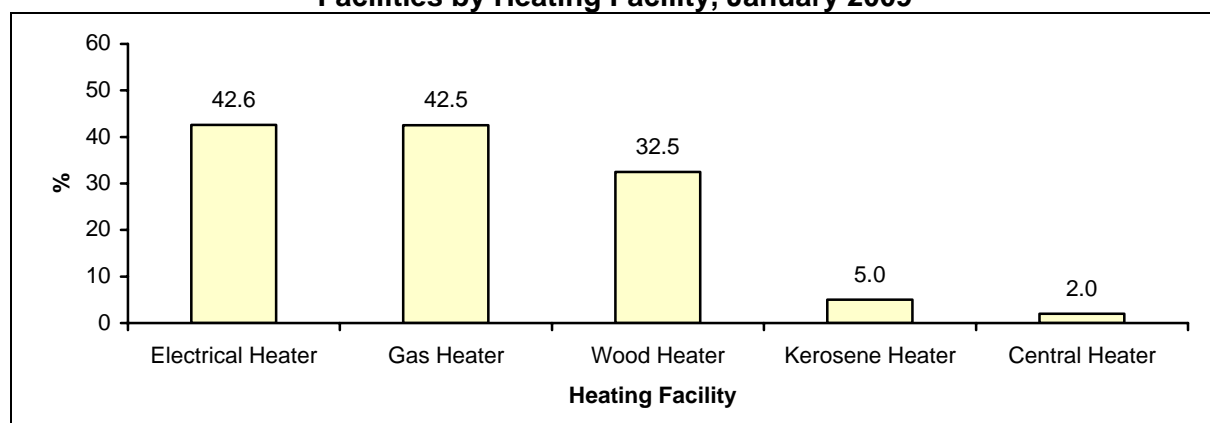


### 3.2 Energy Consumption Facilities

This section introduces the results on the use of heating and cooking facilities by households during January 2009.

The results of the survey indicate that 42.6% of households in the Palestinian Territory used an electrical heater for space heating, 42.5% of the households used a gas heater, 5.0% of the households used kerosene heaters, and 32.5% of the households used a wood heater in January 2009.

**Figure 2: Percentage of Households in the Palestinian Territory Using Heating Facilities by Heating Facility, January 2009**



The results of the survey indicate that 68.4% of households in the Palestinian Territory used gas ovens for the purpose of preparing food (cooking) in January 2009, 47.7% of the households in Gaza Strip used kerosene ovens, 13.0% of the households used wood burners, and 2.4% of the households used electrical ovens.

### 3.3 Energy Uses

This section presents the uses of energy types in different household activities during January 2009.

The results of the Household Energy Survey indicate that 68.0% of households in the Palestinian Territory depend on liquefied petroleum gas as a main fuel for cooking, 12.9% of households depend on wood, 2.4% of households depend on electricity, and 16.2% of the households depend on kerosene as a main fuel for cooking in January 2009.

The results of the Household Energy Survey indicate that 13.2% of households in the Palestinian Territory depend on liquefied petroleum gas as a main fuel for baking, 18.5% of households in the Palestinian Territory depend on electricity as a main fuel for baking.

The results of the survey indicate that 23.2% of households in the Palestinian Territory depend on liquefied petroleum gas as a main fuel for water heating, 15.4% of households in the Palestinian Territory depend on solar heaters and 36.0% of households in the Palestinian Territory depend on electricity as a main source for water heating in January 2009.

The results of the survey indicate that 87.4% of households in the Palestinian Territory depend on electricity as a main source for lighting in January 2009, while 8.1% of the households depend on kerosene as a main source for lighting.

### 3.4 Household Energy Consumption

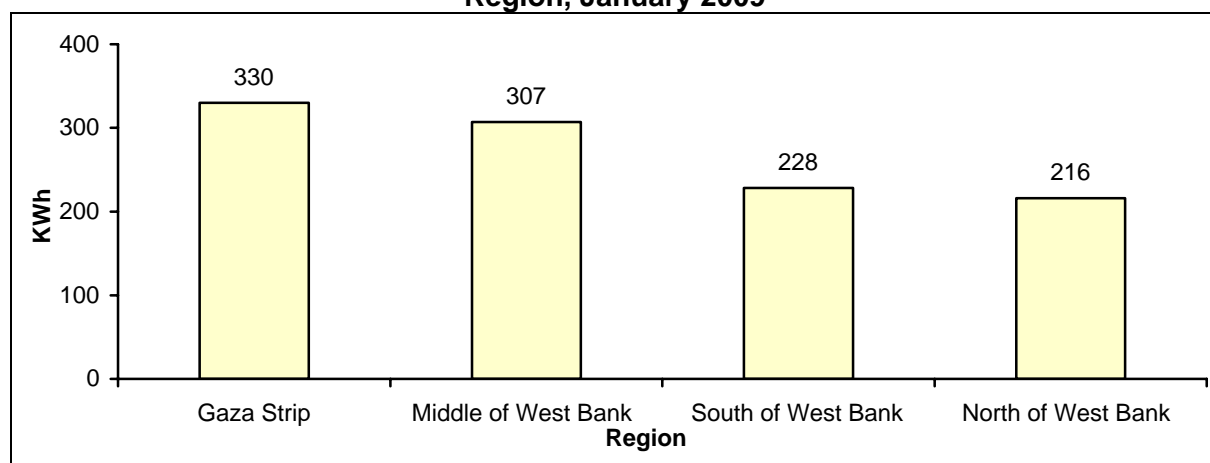
This section presents the main results related to household, per capita and total consumption of the different types of energy used in Palestinian Territory during January 2009.

#### Electricity Consumption:

The findings of the survey indicate that the average household electricity consumption in the Palestinian Territory during January 2009 was 275 KWh, while it was 256 KWh in January 2005. It reached 330 KWh in Gaza Strip and did not exceed 216 KWh in the North of the West Bank.



**Figure 3: Average Household Electricity Consumption in the Palestinian Territory by Region, January 2009**



The findings indicate that the average per capita electricity consumption in the Palestinian Territory during January 2009 was 47.6 KWh. It reached 55.8 KWh in the Middle of the West Bank and 39.3 KWh in the North of the West Bank.

#### **Gasoline Consumption:**

The findings of the survey indicate that the average household gasoline consumption in the Palestinian Territory during January 2009 was 11 liters. It was 27 liters in the Middle of West Bank and did not exceed 7 liters in the North of West Bank, and 3 liters in Gaza Strip.

#### **Liquefied Petroleum Gas Consumption:**

The findings of the survey indicate that the average household liquefied petroleum gas consumption in the Palestinian Territory during January 2009 was 21 kg; this average was 30 kg in January 2005. This average ranges by region: it reached 23 kg in the South of West Bank, and did not exceed 8 kg in Gaza Strip.

#### **Kerosene Consumption:**

The findings of the survey indicate that the average household kerosene consumption in the Palestinian Territory during January 2009 was 24 liters, while this average was 22 liters in January 2005. This average ranges by region; it reached 27 liters in the Middle of West Bank, 17 liters in the North of West Bank and 25 liters in Gaza Strip.

#### **Wood Consumption**

The findings of the survey indicate that the average household wood consumption in the Palestinian Territory during January 2009 was 287 kg. This average ranges by region and type of locality; it reached 360 kg in South of West Bank, 178 kg in the North of West Bank and 307 kg in Gaza Strip.



## Chapter Four

### Methodology

This section presents a documentation of the methodology used in preparing this report.

#### 4.1 Questionnaire

The Household Energy Survey questionnaire was designed in accordance with similar country experience and with international standards and recommendations for the most important indicators, taking into account the special situation of the Palestinian Territory.

#### 4.2 Sample Frame

The sample is a two-stage stratified cluster random sample.

##### Target Population

The target population was all Palestinian households living within the Palestinian Territory.

##### Sampling Frame

The sampling frame is a master sample from the Population, Housing and Establishment Census 1997 for the households that were visited a second or third or fourth time, while the households to be visited for the first time were chosen from the general frame of Population, Housing and Establishment Census 2007. It consists of a list of enumeration areas used as PSU's in the first stage of selection, and the household frame was used in the enumerator areas to choose households in the second level. The frame of the households has been updated in the enumerator areas for the new general sample at the end of year 2003.

##### Sampling Design

The sample of this survey is a sub-sample of the Labour Force Survey (LFS) sample, which is conducted every 13 weeks. The sample of LFS is distributed over 13 weeks. The sample of the Household Energy Survey occupies six weeks of the first quarter of 2009 of the LFS.

##### Stratification:

In designing the sample of the LFS, three levels of stratification were made:

1. Stratification by governorate.
2. Stratification by place of residence which comprises:  
(a) Urban      (b) Rural      (c) Refugee camps
3. Stratification by locality size.

##### Sample Unit:

In the first stage, the sampling units are the enumerator areas (clusters) in the master sample. In the second stage, the sampling units are households.

##### Analysis Unit:

Analysis units are composed of households.

##### Sample Size:

The sample size is of (3,850) Palestinian households in the West Bank and Gaza Strip, where this sample has been distributed according to the locality in urban areas, in rural areas and in refugee camps.

### **4.3 Fieldwork**

#### **Training Fieldworkers**

Fieldworkers were trained on the main skills before the start of data collection. The interviewers were trained on the Household Energy Survey by implementing the training course in Ramallah for the West Bank trainees. Instructions for filling the questionnaire were made available for the interviewers. The training provides the participants with aims and definitions of the different indicators and expressions of the survey and how to fill in the questionnaire.

#### **Data Collection**

Fieldwork started on 22/02/2009 and lasted until 02/04/2009. Fieldwork teams were distributed to all districts proportional to the sample size of each governorate. The fieldwork team consisted of 24 members, including one fieldwork coordinator, 4 supervisors, 4 editors and 15 interviewers.

During fieldwork 3,850 Households were visited in the Palestinian Territory, the end results for the interview become as following:

- (3,357) complete questioner
- (43) traveling households
- (32) housing unit not existed
- (140) cases no body in the house
- (47) objection cases
- (177) housing unit abandoned
- (26) household can't give data
- (28) other cases

### **4.4 Data Processing**

The data processing stage consisted of the following operations:

1. Editing and coding before data entry: All questionnaires were edited and coded in the office using the same instructions adopted for editing in the field.
2. Data entry: At this stage, data was entered into the computer using a data entry template written in Access. The data entry program was prepared to satisfy a number of requirements such as:
  - Duplication of the questionnaires on the computer screen.
  - Logic and consistency check of data entered.
  - Possibility for internal editing of question answers.
  - Maintaining a minimum of digital data entry and fieldwork errors.
  - User friendly handling.
  - Possibility of transferring data into another format to be used and analyzed using other statistical analytic systems such as SPSS.

### **4.5 Weight Calculation and the Estimation**

Since the sampling weight is counteractive with the percentage sample from the frame, and as this ratio is different from the percentage sample for the society in reference period, the weight was adjusted to show the total population in the middle of 2009. The weights were also adjusted to make the distribution of people in the sample by region, sort, and structure age to become identical to this distribution in the census 1997. Finally, weights were adjusted to compensate for incomplete cases that occur during data collecting.

## Data Quality

The concept of data quality is constructed of many aspects starting from the planning to the survey up to publishing method and understanding the data. The main principles of the statistical quality are Accuracy, Comparability, and Data Quality Assurance Procedures.

### 5.1 Accuracy

It includes many aspects of the survey, mainly statistical errors due to the sample, and not statistical errors referring to the workers and survey tools. It includes also the response rates in this survey and their effect on the assumptions. This section includes:

#### 1. Sampling Errors

These types of errors evolved as a result of studying a part of the society and not all of it. Because this survey is a sample, the data of this survey will be affected by sampling errors due to using a sample and not the whole frame of the society. Differences appear compared with the actual values that could be obtained through a census. For this survey, variance calculations were made for average household consumption and total consumption for the different types of energy in the Palestinian Territory.

The results of wood, charcoal and olive cake suffers from a high variance. This problem should be taken into consideration when dealing with the average household consumption of these types of fuel, keeping in mind that there are no problems in publishing the data for the geographical level (North of the West Bank, Middle of the West Bank, South of the West Bank and Gaza Strip). However, publishing data for the governorate level is not possible due to the high variance, especially for wood, charcoal and olive cake. The variances for the main indicators of this survey are as follows

| Variable                        | Estimate |       | Standard Error | C.V % | Confidence %95 Interval |       |
|---------------------------------|----------|-------|----------------|-------|-------------------------|-------|
|                                 | Unit     | Value |                |       | Lower                   | Upper |
| Main Electricity Source         | %        | 99.3  | 0.4            | 0.004 | 97.9                    | 99.8  |
| Use of Solar Heaters            | %        | 59.4  | 1.5            | 0.024 | 56.5                    | 62.2  |
| Average Electricity Consumption | KWh      | 276   | 4.85           | 0.018 | 261                     | 280   |
| Average wood Consumption        | Kg       | 287   | 5.02           | 0.042 | 279                     | 297   |
| Average Gasoline Consumption    | Liter    | 11    | 0.9            | 0.096 | 8.6                     | 12.2  |

#### 2. Non Sampling Errors

These errors are due to non-response cases as well as the implementation of surveys. In this survey, these errors emerged because of (a) the special situation of the questionnaire itself, which depends on a type of estimation, (b) diversity of sources (e.g., the interviewers, respondents, editors, coders, data entry operator, etc).

The sources of these errors can be summarized as:

1. Some of the households were not in their houses and the interviewers could not meet them.
2. Some of the households did not give attention to the questionnaire.
3. Some errors occurred due to the way the questions were asked by interviewers.
4. Misunderstanding of the questions by the respondents.
5. Answering the questions related to consumption by making estimations.

It is important to mention that 5% from the sample of this survey was re-interviewed, and the results of this re-interview were reported by the supervisors. The re-interview shows the variance in estimation by interviewers for wood, charcoal and olive cake when the interviewee is different between the one who answers for the main survey questionnaire and the one who answers the re-interview questionnaire.

$$\text{None response rate} = \frac{\text{Sum of none response cases}}{\text{Net sample}} \times 100\%$$

$$= \frac{498}{3,357} \times 100\% = 14.8\%$$

$$\begin{aligned} \text{Response rate} &= 100\% - \text{none response rate} \\ &= 100\% - 14.8\% = 85.2\% \end{aligned}$$

The none response cases were treated using adjustment groups (strata) and the following equation shows this

$$fg = \frac{\sum_{ng} wi - \sum_{o.c} wi}{\sum_{rg} wi}$$

Where

$\sum_{ng} wi$  Total weights in g group

$\sum_{o.cg} wi$  Total weights over coverage

$\sum_{rg} wi$  Total weights responding in the survey

Each unit is given  $fg$  value for the interval lies in and finally we get  $w'i$  using the following equation

$$w'gi = wi * fgi$$

## 5.2 Comparability

The data of the Household Energy Survey is comparable geographically and over time by comparing the data between different geographical areas and comparing the data of this survey with the data of previous surveys and census 2007.

### **5.3 Data Quality Assurance Procedures**

Several measures have been made to ensure quality control in the survey, such as: the training of the fieldworkers on the main skills before the start of data collection, conducting field visits to field researchers to ensure the integrity of data collection, auditing of questionnaires before data entry, using a program that does not allow any mistakes during the process of data entry, and then examining the data. This was done to ensure that they are free from errors that have not been discovered earlier, after the receipt of the raw data file, cleaning and inspection of the anomalous values have been made, and also inspection of the harmony between the different questions on the questionnaire.

### **5.4 Special Technical Notes**

This part presents the important technical notes on the indicators presented in the results of the survey:

- In all calculations related to gasoline, we dealt with the average of all available types of gasoline.
- In this survey we collected data about consumption of olive cake and coal in households, but because of lacking data and since the variance of this data is fairly high we published this data through other entries in the tables.
- We calculated the average consumption per capita of electricity and energy types in the West Bank regions (North, Middle, and South of the West Bank) by using the average household members in the West Bank.
- According to the average household consumption of electricity, kerosene, LPG and wood, this represents the households that use these energy types.
- The increase in consumption of electricity and the decrease in the consumption of the other types of fuel in Gaza Strip reflected the last Israeli war and the Israeli siege imposed there.





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# Tables



2009 ,2005 - 2003 ,1999

:1

**Table 1: Selected Indicators of Household Energy in the Palestinian Territory, January 1999, 2003-2005, 2009**

| Indicator  | 2009  | 2005  | 2004  | 2003  | 1999  |       |
|--|-------|-------|-------|-------|-------|-------|
| Percentage of Households Connected to the Electricity Public Network | 99.3  | 99.4  | 99.4  | 99.3  | 96.8  |       |
| Percentage of Households Using Solar Heater                          | 59.6  | 67.2  | 68.7  | 70.3  | 63.8  |       |
| Percentage of Households Using Space Heating Facilities              | 67.8  | 86.7  | 86.4  | 86.0  | 75.2  |       |
| Percentage of Households Using Gas Burner for Cooking                | 68.4  | 99.3  | 99.7  | 99.6  | 98.0  |       |
| Average Household Consumption of Electricity (KW.h)                  | 275.0 | 256.0 | 264.7 | 268.0 | 264.6 | ( . ) |
| Average Household Consumption of Gasoline (liter)                    | 11.0  | 10.0  | 10.7  | 12.0  | 21.7  | ( )   |
| Average Household Consumption of LPG (kg)                            | 21.0  | 30.0  | 32.1  | 31.0  | 32.0  | ( )   |
| Average Household Consumption of Kerosene (liter)                    | 24.0  | 22.0  | 23.2  | 17.0  | 11.9  | ( )   |
| Average Household Consumption of Wood (kg)                           | 287.0 | 236.0 | 207.2 | 259.0 | 86.5  | ( )   |

2009

:2

**Table 2: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Electricity Source in Housing Unit, January 2009**

| Region                       | Main Electricity Source in the Housing Unit |                |                |  |
|------------------------------|---|----------------|----------------|--|
|                              | Total                                       | No Electricity | Public Network |  |
| <b>Palestinian Territory</b> | <b>100</b>                                  | <b>0.7</b>     | <b>99.3</b>    |  |
| <b>West Bank</b>             | <b>100</b>                                  | <b>0.9</b>     | <b>99.1</b>    |  |
| North of West Bank           | 100   | 1.7            | 98.3           |  |
| Middle of West Bank          | 100   | 0.0            | 100.0          |  |
| South of West Bank           | 100   | 0.9            | 99.1           |  |
| <b>Gaza Strip</b>            | <b>100</b>                                  | <b>0.1</b>     | <b>99.9</b>    |  |

2009

:3

**Table 3: Percentage Distribution of Households in the Palestinian Territory by Region and Type of Electricity Meter Used, January 2009**

| Region                       | Type of Electricity Meter Used |                  |              |  |
|------------------------------|--------------------------------|------------------|--------------|--|
|                              | Total                          | Prepayment Meter | Normal Meter |  |
| <b>Palestinian Territory</b> | <b>100</b>                     | <b>22.1</b>      | <b>77.9</b>  |  |
| <b>West Bank</b>             | <b>100</b>                     | <b>33.6</b>      | <b>66.4</b>  |  |
| North of West Bank           | 100                            | 57.6             | 42.4         |  |
| Middle of West Bank          | 100                            | 6.7              | 93.3         |  |
| South of West Bank           | 100                            | 29.2             | 70.8         |  |
| <b>Gaza Strip</b>            | <b>100</b>                     | <b>0.0</b>       | <b>100.0</b> |  |

2009

:4

**Table 4: Percentage Distribution of Households in the Palestinian Territory by Region and Number of Hours of Electricity Service, January 2009**

| Region                       | Number of Hours of Electricity Service |                     |                           |                                      |  |
|------------------------------|--|---------------------|---------------------------|--------------------------------------|--|
|                              | Total                                  | 24 ساعة<br>24 Hours | 17-23 ساعة<br>17-23 Hours | أقل من 16 ساعة<br>Less Than 16 Hours |  |
| <b>Palestinian Territory</b> | <b>100</b>                             | <b>63.9</b>         | <b>5.3</b>                | <b>30.8</b>                          |  |
| <b>West Bank</b>             | <b>100</b>                             | <b>97.2</b>         | <b>1.1</b>                | <b>1.7</b>                           |  |
| North of West Bank           | 100                                    | 99.1                | 0.1                       | 0.8                                  |  |
| Middle of West Bank          | 100                                    | 92.6                | 3.4                       | 4.0                                  |  |
| South of West Bank           | 100                                    | 99.6                | 0.0                       | 0.4                                  |  |
| <b>Gaza Strip</b>            | <b>100</b>                             | <b>0.0</b>          | <b>13.2</b>               | <b>86.8</b>                          |  |

2009

:5

**Table 5: Percentage Distribution of Households in the Palestinian Territory by Region and Using Solar Heater, January 2009**

| Region                       | Using Solar Heater in the Housing Unit |             |             |  |
|------------------------------|--|-------------|-------------|--|
|                              | Total                                  | Not Using   | Using       |  |
| <b>Palestinian Territory</b> | <b>100</b>                             | <b>40.4</b> | <b>59.6</b> |  |
| <b>West Bank</b>             | <b>100</b>                             | <b>39.5</b> | <b>60.5</b> |  |
| North of West Bank           | 100                                    | 31.5        | 68.5        |  |
| Middle of West Bank          | 100                                    | 41.9        | 58.1        |  |
| South of West Bank           | 100                                    | 48.0        | 52.0        |  |
| <b>Gaza Strip</b>            | <b>100</b>                             | <b>42.0</b> | <b>58.0</b> |  |

2009

:6

**Table 6: Percentage of Households in the Palestinian Territory by Region and Heating Facility Used, January 2009**

| Region                       | Heating Facility |                |                 |             |                   | المنطقة |
|------------------------------|------------------|----------------|-----------------|-------------|-------------------|---------|
|                              | Wood Heater      | Central Heater | Kerosene Heater | Gas Heater  | Electrical Heater |         |
| <b>Palestinian Territory</b> | <b>32.5</b>      | <b>2.0</b>     | <b>5.0</b>      | <b>42.5</b> | <b>42.6</b>       |         |
| <b>West Bank</b>             | <b>28.3</b>      | <b>0.2</b>     | <b>4.7</b>      | <b>48.2</b> | <b>42.3</b>       |         |
| North of West Bank           | 31.5             | 0.5            | 4.5             | 51.1        | 27.3              |         |
| Middle of West Bank          | 14.4             | 4.7            | 6.8             | 51.9        | 63.7              |         |
| South of West Bank           | 39.8             | 1.8            | 2.6             | 39.8        | 38.7              |         |
| <b>Gaza Strip</b>            | <b>63.8</b>      | <b>0.0</b>     | <b>6.8</b>      | <b>0.2</b>  | <b>44.8</b>       |         |

2009

:7

**Table 7: Percentage Distribution of Households in the Palestinian Territory by Region and Cooking Facility Used, January 2009**

| Region                       | Cooking Facility |                 |             |             |                 |  |
|------------------------------|------------------|-----------------|-------------|-------------|-----------------|--|
|                              | Total            | Kerosene Burner | Wood Burner | Gas Burner  | Electrical Oven |  |
| <b>Palestinian Territory</b> | <b>100</b>       | <b>16.2</b>     | <b>13.0</b> | <b>68.4</b> | <b>2.4</b>      |  |
| <b>West Bank</b>             | <b>100</b>       | <b>0.0</b>      | <b>0.7</b>  | <b>99.0</b> | <b>0.3</b>      |  |
| North of West Bank           | 100              | 0.0             | 0.7         | 99.2        | 0.1             |  |
| Middle of West Bank          | 100              | 0.0             | 0.0         | 99.2        | 0.8             |  |
| South of West Bank           | 100              | 0.0             | 1.4         | 98.4        | 0.2             |  |
| <b>Gaza Strip</b>            | <b>100</b>       | <b>47.7</b>     | <b>37.0</b> | <b>9.0</b>  | <b>6.3</b>      |  |

2009

:8

**Table 8: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Fuel Used for Cooking, January 2009**

| Region                       | Main Fuel Used for Cooking |               |            |             |             |             |             |  |
|------------------------------|----------------------------|---------------|------------|-------------|-------------|-------------|-------------|--|
|                              | Total                      | Not Available | Others     | Kerosene    | Electricity | Wood        | LPG         |  |
| <b>Palestinian Territory</b> | <b>100</b>                 | <b>0.2</b>    | <b>0.3</b> | <b>16.2</b> | <b>2.4</b>  | <b>12.9</b> | <b>68.0</b> |  |
| <b>West Bank</b>             | <b>100</b>                 | <b>0.3</b>    | <b>0.0</b> | <b>0.0</b>  | <b>0.3</b>  | <b>0.8</b>  | <b>98.6</b> |  |
| North of West Bank           | 100                        | 0.0           | 0.0        | 0.0         | 0.1         | 0.7         | 99.2        |  |
| Middle of West Bank          | 100                        | 0.0           | 0.0        | 0.0         | 0.8         | 0.3         | 98.9        |  |
| South of West Bank           | 100                        | 0.9           | 0.8        | 0.0         | 0.2         | 1.4         | 97.7        |  |
| <b>Gaza Strip</b>            | <b>100</b>                 | <b>0.1</b>    | <b>0.8</b> | <b>47.6</b> | <b>6.3</b>  | <b>36.4</b> | <b>8.8</b>  |  |

2009

:9

**Table 9: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Fuel Used for Baking, January 2009**

| Region                       | Main Fuel Used for Baking |               |            |             |             |             |  |
|------------------------------|---------------------------|---------------|------------|-------------|-------------|-------------|--|
|                              | Total                     | Not Available | Others     | Wood        | LPG         | Electricity |  |
| <b>Palestinian Territory</b> | <b>100</b>                | <b>36.1</b>   | <b>2.6</b> | <b>29.6</b> | <b>13.2</b> | <b>18.5</b> |  |
| <b>West Bank</b>             | <b>100</b>                | <b>47.1</b>   | <b>2.6</b> | <b>17.9</b> | <b>19.8</b> | <b>12.6</b> |  |
| North of West Bank           | 100                       | 52.2          | 0.6        | 23.2        | 18.3        | 5.7         |  |
| Middle of West Bank          | 100                       | 63.7          | 0.1        | 13.2        | 13.9        | 9.1         |  |
| South of West Bank           | 100                       | 22.3          | 7.9        | 15.6        | 28.2        | 26.0        |  |
| <b>Gaza Strip</b>            | <b>100</b>                | <b>14.6</b>   | <b>3.1</b> | <b>52.2</b> | <b>0.3</b>  | <b>29.8</b> |  |

2009

:10

**Table 10: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Fuel Used for Water Heating, January 2009**

| Region                       | Main Fuel Used for Water Heating |               |            |             |             |             |              |             |  |
|------------------------------|----------------------------------|---------------|------------|-------------|-------------|-------------|--------------|-------------|--|
|                              | Total                            | Not available | Others     | Kerosene    | Wood        | LPG         | Solar Energy | Electricity |  |
| <b>Palestinian Territory</b> | <b>100</b>                       | <b>0.4</b>    | <b>0.4</b> | <b>8.2</b>  | <b>16.4</b> | <b>23.2</b> | <b>15.4</b>  | <b>36.0</b> |  |
| <b>West Bank</b>             | <b>100</b>                       | <b>0.5</b>    | <b>0.1</b> | <b>0.3</b>  | <b>6.5</b>  | <b>34.0</b> | <b>16.8</b>  | <b>41.8</b> |  |
| North of West Bank           | 100                              | 0.5           | 0.1        | 0.2         | 5.4         | 33.5        | 20.5         | 39.8        |  |
| Middle of West Bank          | 100                              | 0.2           | 0.6        | 0.3         | 2.1         | 22.3        | 16.9         | 57.6        |  |
| South of West Bank           | 100                              | 0.8           | 0.2        | 0.3         | 12.6        | 47.0        | 11.5         | 27.6        |  |
| <b>Gaza Strip</b>            | <b>100</b>                       | <b>0.2</b>    | <b>0.8</b> | <b>23.4</b> | <b>35.7</b> | <b>2.3</b>  | <b>12.8</b>  | <b>24.8</b> |  |

2009

:11

**Table 11: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Fuel Used for Heating, January 2009**

| Region                       | Main Fuel Used for Heating |               |            |             |             |             |  |
|------------------------------|----------------------------|---------------|------------|-------------|-------------|-------------|--|
|                              | Total                      | Not available | Others     | Wood        | LPG         | Electricity |  |
| <b>Palestinian Territory</b> | <b>100</b>                 | <b>32.3</b>   | <b>5.0</b> | <b>18.6</b> | <b>21.9</b> | <b>22.2</b> |  |
| <b>West Bank</b>             | <b>100</b>                 | <b>9.5</b>    | <b>6.7</b> | <b>22.0</b> | <b>33.2</b> | <b>28.6</b> |  |
| North of West Bank           | 100                        | 11.7          | 10.1       | 22.2        | 39.3        | 16.7        |  |
| Middle of West Bank          | 100                        | 4.4           | 5.6        | 11.5        | 29.6        | 48.9        |  |
| South of West Bank           | 100                        | 11.8          | 3.4        | 32.7        | 28.7        | 23.4        |  |
| <b>Gaza Strip</b>            | <b>100</b>                 | <b>76.4</b>   | <b>1.7</b> | <b>12.2</b> | <b>0.0</b>  | <b>9.7</b>  |  |

2009

:12

**Table 12: Percentage Distribution of Households in the Palestinian Territory by Region and the Main Fuel Used for Lighting, January 2009**

| Region                       | Main Fuel Used for Lighting |             |             |             |  |
|------------------------------|-----------------------------|-------------|-------------|-------------|--|
|                              | Total                       | Others      | Kerosene    | Electricity |  |
| <b>Palestinian Territory</b> | <b>100</b>                  | <b>4.5</b>  | <b>8.1</b>  | <b>87.4</b> |  |
| <b>West Bank</b>             | <b>100</b>                  | <b>0.6</b>  | <b>0.5</b>  | <b>98.9</b> |  |
| North of West Bank           | 100                         | 0.4         | 1.3         | 98.3        |  |
| Middle of West Bank          | 100                         | 0.4         | 0.0         | 99.6        |  |
| South of West Bank           | 100                         | 0.9         | 0.0         | 99.1        |  |
| <b>Gaza Strip</b>            | <b>100</b>                  | <b>12.2</b> | <b>22.7</b> | <b>65.1</b> |  |

2009

:13

**Table 13: Percentage of Households that Use Energy in the Palestinian Territory by Region, Type of Locality and Energy Type, January 2009**

| Region and Type of Locality  | Energy Type |             |              |             |             |  |
|------------------------------|-------------|-------------|--------------|-------------|-------------|--|
|                              | Kerosene    | LPG         | Solar Energy | Wood        | Electricity |  |
| <b>Palestinian Territory</b> | <b>31.1</b> | <b>70.6</b> | <b>59.6</b>  | <b>45.5</b> | <b>99.3</b> |  |
| <b>Urban</b>                 | <b>33.6</b> | <b>67.3</b> | <b>58.4</b>  | <b>46.1</b> | <b>99.8</b> |  |
| <b>Rural</b>                 | <b>9.0</b>  | <b>94.9</b> | <b>67.7</b>  | <b>49.6</b> | <b>97.3</b> |  |
| <b>Camps</b>                 | <b>51.8</b> | <b>51.0</b> | <b>54.1</b>  | <b>33.1</b> | <b>99.8</b> |  |
| <b>West Bank</b>             | <b>5.9</b>  | <b>99.7</b> | <b>60.5</b>  | <b>32.2</b> | <b>99.1</b> |  |
| North of West Bank           | 5.9         | 99.9        | 68.5         | 35.0        | 98.3        |  |
| Middle of West Bank          | 7.5         | 99.7        | 58.1         | 19.9        | 100.0       |  |
| South of West Bank           | 4.3         | 99.2        | 52.0         | 41.5        | 99.1        |  |
| <b>Gaza Strip</b>            | <b>79.9</b> | <b>14.1</b> | <b>58.0</b>  | <b>71.1</b> | <b>99.9</b> |  |



2009

:14

**Table 14: Average Household Consumption of Electricity, Petroleum Products and Wood in the Palestinian Territory by Region, January 2009**

| Region                       | Average Household Consumption of Electricity, Petroleum Products and Wood |                            |                            |                 |                  |                             |  |
|------------------------------|---|----------------------------|----------------------------|-----------------|------------------|-----------------------------|--|
|                              | ( )<br>Diesel<br>(Liter)  | ( )<br>Gasoline<br>(Liter) | ( )<br>Kerosene<br>(Liter) | ( )<br>LPG (Kg) | ( )<br>Wood (kg) | ( )<br>Electricity<br>(KWh) |  |
| <b>Palestinian Territory</b> | <b>7</b>  | <b>11</b>                  | <b>24</b>                  | <b>21</b>       | <b>287</b>       | <b>275</b>                  |  |
| <b>West Bank</b>             | <b>9</b>  | <b>16</b>                  | <b>21</b>                  | <b>22</b>       | <b>265</b>       | <b>247</b>                  |  |
| North of West Bank           | 3   | 7                          | 17                         | 21              | 178              | 216                         |  |
| Middle of West Bank          | 19  | 27                         | 27                         | 21              | 277              | 307                         |  |
| South of West Bank           | 8   | 17                         | 19                         | 23              | 360              | 228                         |  |
| <b>Gaza Strip</b>            | <b>1</b>  | <b>3</b>                   | <b>25</b>                  | <b>8</b>        | <b>307</b>       | <b>330</b>                  |  |

2009

:15

**Table 15: Average Consumption Per Capita of Electricity, Petroleum Products and Wood in the Palestinian Territory by Region, January 2009**

| Region                       | Average Consumption Per Capita of Electricity, Petroleum Products and Wood |                 |                  |                          |  |
|------------------------------|--|-----------------|------------------|--------------------------|--|
|                              | ( )<br>Kerosene (Liter)  | ( )<br>LPG (Kg) | ( )<br>Wood (kg) | ( )<br>Electricity (KWh) |  |
| <b>Palestinian Territory</b> | <b>4.1</b>   | <b>3.6</b>      | <b>49.5</b>      | <b>47.6</b>              |  |
| <b>West Bank</b>             | <b>3.8</b>   | <b>4.0</b>      | <b>48.2</b>      | <b>44.9</b>              |  |
| North of West Bank           | 3.1  | 3.8             | 32.4             | 39.3                     |  |
| Middle of West Bank          | 4.9  | 3.8             | 50.4             | 55.8                     |  |
| South of West Bank           | 3.5  | 4.2             | 65.5             | 41.5                     |  |
| <b>Gaza Strip</b>            | <b>3.8</b>   | <b>1.2</b>      | <b>47.2</b>      | <b>50.8</b>              |  |

# Maps



