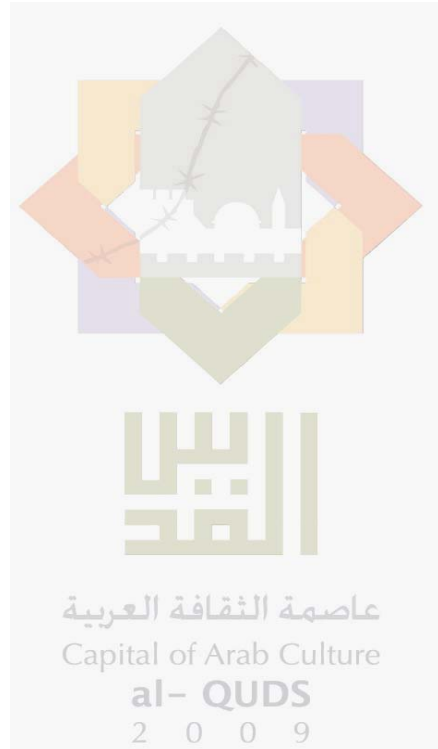
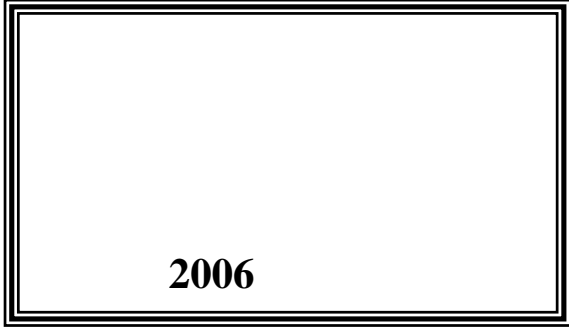




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Tables

Table 1: Energy Balance in the Palestinian Territory in Physical Units, 2007

Production and Utilization	Energy Sources and Products				
	() Solar Energy (MWh)	() Electricity (MWh)	() Gasoline (1000 Liters)	() Bitumen (Tons)	() Kerosene (1000 Liters)
1.Primary production	1,441,990.6	.	.	.	.
2.Imports	.	3,188,271.5	145,093.1	4,765.5	5,313.2
3.Exports	.	.	.	.	.
4.Bunkers	.	.	.	.	.
5.Stock change	.	.	14.0	.	0.7
6.Total energy requirements	1,441,990.6	3,188,271.5	145,107.1	4,765.5	5,313.9
7.Energy converted	.	417,064.9	-85.4	.	.
8.Electricity generation	.	417,064.9	-85.4	.	.
9.Consumption for non-energy purposes	.	.	.	4765.5	.
10.Losses in transport and distribution	194,668.7	648,960.6	.	.	.
11.Statistical differences	0.0	0.0	19,756.6	0.0	0.0
12.Final consumption	1,247,321.9	2,956,375.8	125,265.1	.	5,313.9
13.Consumption by industry and construction	.	206,245.2	1,032.3	.	1576.1
14.Mining	.	3,276.6	155.9	.	0.1
15.Manufacturing	.	202,064.5	843.0	.	1,569.9
16.Electricity and water supply	.	47.3	6.4	.	5.2
17.Construction	.	856.8	27.0	.	0.9
18.Consumption by transport	.	27,949.7	123,661.8	.	368.5
19.Road	.	.	123,661.8	.	.
20.Air	.	.	.	.	.
21.Other	.	27,949.7	.	.	368.5
22.Consumption by households and other sectors	1,247,321.9	2,722,180.9	571.0	.	3,369.3
23.Households	1,247,321.9	2,070,801.0	.	.	3,232.8
24.Agriculture/fishing	.	8,166.6	160.0	.	93.1
25.Internal trade	.	228,265.1	.	.	.
26.Services	.	414,948.2	411.0	.	43.4

2007

:1

	() Diesel (1000 Liters)	() Oils and Lubricants (Tons)	() LPG (Tons)	() Olive Cake (Tons)	() Wood and Coal (Tons)	
584,370.4	3,357.7	144,269.0	.	8,789.6	.	
.	
.	
221.6	28.5	5.3	.	73.9	.	
584,592.0	3,386.2	144,274.3	14,413.1	264,396.3	.6	
-104,376.37	
-104,376.38	
.	3,386.2	.	2,066.2	.	.9	
.10	
312,257.8	0.0	0.0	0.0	0.0	.11	
167,957.9	.	144,274.3	12,346.9	264,396.3	.12	
22,117.3	.	5,708.5	.	266.0	.13	
8,263.5	.	115.9	.	1.0	.14	
8,689.1	.	5,293.5	.	261.5	.15	
216.7	.	123.5	.	1.5	.16	
4,948.0	.	175.6	.	2.0	.17	
131,717.1	.	260.2	.	8.2	.18	
131,717.119	
.20	
.	.	260.2	.	8.2	.21	
14,123.5	.	138,305.6	12,346.9	264,122.1	.22	
1,564.4	.	131,440.8	12,346.9	262,959.8	.23	
3,447.3	.	334.7	.	963.0	.24	
.	.	3,618.9	.	21.5	.25	
9,111.8	.	2,911.2	.	177.8	.26	

Table 2: Energy Balance in the Palestinian Territory in Terajoules, 2007

Production and Utilization	Total	Energy Sources and Products				
		Solar Energy	Electricity	Gasoline	القطار bitumen	Kerosene
1.Primary production	8,831.18	5,191.17	.	.	.	.
2.Imports	45,020.89	.	11,477.78	4,721.01	199.20	185.96
3.Exports	.	.	.	.	.	.
4.Bunkers	.	.	.	.	.	.
5.Stock change	11.09	.	.	0.46	.	0.02
6.Total energy requirements	53,863.16	5,191.17	11,477.78	4,721.47	199.20	185.98
7.Energy converted	-2,360.66	.	1,501.43	-2.78	.	.
8.Electricity generation	-2,360.66	.	1,501.43	-2.78	.	.
9.Consumption for non-energy purposes	376.50	.	.	.	199.20	.
10.Losses in transport and distribution	3,037.07	700.81	2,336.26	.	.	.
11.Statistical differences	12,188.59	0.00	0.00	642.84	0.00	0.00
12.Final consumption	35,900.34	4,490.36	10,642.95	4,075.85	.	185.98
13.Consumption by industry and construction	1,912.56	.	742.48	33.59	.	55.16
14.Mining	327.70	.	11.80	5.07	.	.
15.Manufacturing	1,375.67	.	727.43	27.43	.	54.95
16.Electricity and water supply	14.22	.	0.17	0.21	.	0.18
17.Construction	194.97	.	3.08	0.88	.	0.03
18.Consumption by transport	9,019.40	.	100.62	4,023.68	.	12.90
19.Road	8,893.92	.	.	4,023.68	.	.
20.Air	.	.	.	.	.	.
21.Other	125.48	.	100.62	.	.	12.9
22.Consumption by households and other sectors	24,968.38	4,490.36	9,799.85	18.58	.	117.92
23.Households	21,807.53	4,490.36	7,454.88	.	.	113.14
24.Agriculture/fishing	193.39	.	29.41	5.21	.	3.26
25.Internal trade	986.88	.	821.75	.	.	.
26.Services	1,980.58	.	1,493.81	13.37	.	1.52

2007

:2

2007					
Diesel	Oils and Lubricants	LPG	Olive Cake	Wood and Coal	
.	.	.	241.42	3,398.59	.1
21,607.10	141.49	6,571.45	.	116.90	.2
.3
.4
8.19	1.20	0.24	.	0.98	.5
21,615.29	142.69	6,571.69	241.42	3,516.47	.6
-3,859.317
-3,859.31	.	.	0.00	.	.8
.	142.69	.	34.61	.	.9
.10
11,545.75	0.00	0.00	0.00	0.00	.11
6,210.23	.	6,571.69	206.81	3,516.47	.12
817.78	.	260.01	.	3.54	.13
305.54	.	5.28	.	0.01	.14
321.28	.	241.10	.	3.48	.15
8.01	.	5.63	.	0.02	.16
182.95	.	8.00	.	0.03	.17
4,870.24	.	11.85	.	0.11	.18
4,870.2419
.20
.	.	11.85	.	0.11	.21
522.21	.	6,299.83	206.81	3,512.82	.22
57.84	.	5,987.13	206.81	3,497.37	.23
127.46	.	15.25	.	12.80	.24
.	.	164.84	.	0.29	.25
336.91	.	132.61	.	2.36	.26

Annexes

:1

Annex 1: Calorific Value and Equivalent Weight of Different Fuels

Fuel	(³ /) Equivalent Weight (Ton/m³)	(/) Calorific Value (Gigajoules/Ton)	
Olive cake	1.00	16.75	
Charcoal	1.00	28.89	
Fuel wood	1.00	12.60	
LPG	0.54	45.55	
Gasoline	0.74	43.97	
Kerosene	0.81	43.21	
Diesel	0.87	42.50	
Lubricating oil	0.90	42.14	
Bitumen	1.04	41.80	

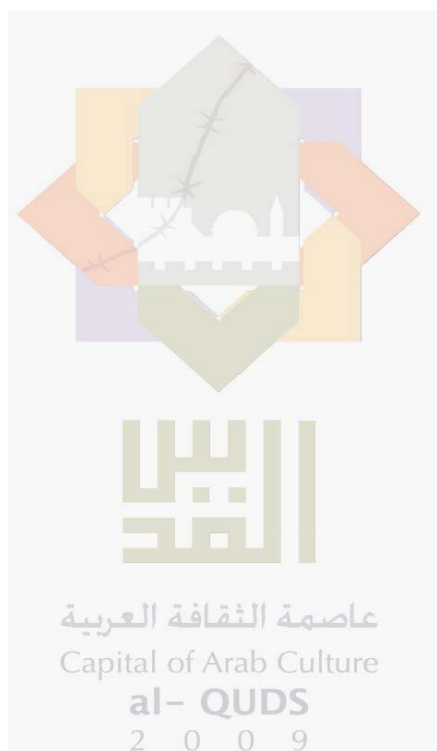


**Palestinian National Authority
Palestinian Central Bureau of Statistics**

**Energy Balance in the
Palestinian Territory 2007**

February, 2009

PAGE NUMBERS OF ENGLISH TEXT ARE PRINTED IN SQUARE BRACKETS.
TABLES ARE PRINTED IN THE ARABIC ORDER (FROM RIGHT TO LEFT).



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Preface

Almost all countries in the world give special attention to energy statistics due to the important role of energy in reflecting the situation of infrastructure, the economic situation and the level of living standards of a society. In the Palestinian Territory, energy has additional attention 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 that address the needs of data users and decision makers and researchers in this field of study. An energy balance table was created to give a single comprehensive picture about production, conversion and consumption of all kinds of fuels in the country.

The PCBS is very pleased to present the fourth published energy balance in the Palestinian Territory 2007. This report is considered to be a cumulative summary of the available data from the activities and surveys conducted by PCBS and data from the administrative records.

This report presents statistical data on basic indicators related to energy consumption in different economic activities. Also, the report provides data on the consumption of energy in the domestic sector in the Palestinian Territory including the consumption, conversion and utilization of all kinds of fuels.

PCBS hopes that the results of this report will contribute to provide the necessary data for developing the energy situation in the different sectors, raising consumption efficiency in these sectors, and decision makers for national comprehensive development.

February, 2009

Luay Shabaneh, Ph.D
President

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Executive Summary

PCBS began publishing the energy balance sheet in the Palestinian Territory in 2001 in order to give a comprehensive picture of the energy situation for production, import and consumption in the different sectors. This report reflects the energy balance in the Palestinian Territory for the year 2007.

The data shows that imports of electricity in the Palestinian Territory reached 3,188 thousand MWh while production reached 417 thousand MWh most of it from the Gaza Power Plant. The data also shows that imports of diesel reached 584 million liters, 145 million liters of gasoline and 144 thousand tons of LPG.

Total energy imports in the Palestinian Territory reached 45,021 terajoules. Diesel represented nearly 48% of the total energy imports with 21,607 terajoules, and electricity represented about 25% of the total energy imports with about 11,478 terajoules.

Energy production in the Palestinian Territory reached 8,831 terajoules, of which 5,191 terajoules were solar energy, 3,399 terajoules were wood and charcoal and 241 terajoules were olive cake.

The report data shows that the final consumption of energy in the Palestinian Territory reached 35,900 terajoules. The household sector represented the highest consumer among all sectors in the Palestinian Territory with 21,808 terajoules shared about 61% of the total consumption. The transport sector represented 9,019 terajoules, while the industry sector shared 5% of the total energy consumption with about 1,718 terajoules.

Introduction

1.1 Introduction

Energy plays an important role in peoples level of living that is the presence of energy is considered to be one of the main elements in the welfare and level of living for citizens. Energy is also considered to be an indicator of the economic situation of the country, and so most official statistical bureaus devote attention to gathering, classifying and publishing statistics regarding energy. For a more comprehensive picture of the energy flow in the country, the energy balance table is created which reflects the energy performance in the country.

The idea of energy balance emerged in 1978 through the statistical division of the United Nations. The main purpose of the energy balance is to show (in one table) the over all picture of energy production, conversion and consumption for each fuel utilized in the country.

The data of this report is based on the administrative records and the data extracted from surveys conducted by the PCBS. This data was gathered and processed for the preparation of this report to cover energy production, conversion and consumption for each fuel utilized in the country in year 2007.

This report is considered to be an important accomplishment of the energy statistics program and a step toward focusing light on the energy situation in the Palestinian Territory, in the absence of the accurate and comprehensive data a bout this sensitive and essential subject. Some of the gaps in this report will be met through cooperation with the administrative records providers, and the conductor of the survey taking into consideration the importance of providing a comprehensive and accurate data about this subject.

1.2 Report Objectives

This report aims to present statistical data about the main indicators related to energy in the Palestinian Territory, achieving especially the following:

- Covering energy production, conversion and consumption for each fuel in different sectors in one table.
- Providing necessary data for research and analysis purposes.
- Providing necessary data for policy makers and interested persons in energy field.

The report provides data on the following indicators:

- Imported energy in the Palestinian Territory by type of energy.
- Energy consumed by different sectors by type of energy.
- Energy used for electricity generation in economic sectors by type of energy.
- Energy losses and stock change for different types of energy.
- Energy consumption in the sectors of economy, household and agriculture.

1.3 Report Structure

This report is divided into five chapters: The first chapter contains the introduction, aims and the structure of the report. The second chapter contains the concepts and definitions for this report. The third chapter presents the energy balance components and the final shape of the Palestinian Territory energy balance. The fourth chapter explains the methodology of this report according to the methodology of the surveys and the administrative records which were considered to be sources of this report. Also it explains the methodology of calculating the estimations. The fifth chapter handles data quality through spreading the main notes on the data and estimations of the data sources of this report.

Chapter Two

Concepts and Definitions

Motor 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} .

Kerosene

Medium oil distilling between $150^{\circ}C$ and $300^{\circ}C$. Its specific gravity is around 0.80 and the flash point above $38^{\circ}C$. It is used in sectors other than aircraft transport.

Diesel

Heavy oil distilling between $200^{\circ}C$ and $380^{\circ}C$. Its flash point is always above $50^{\circ}C$, and its specific gravity is higher than 0.82.

Lubricants

Viscous, liquid hydrocarbons rich in paraffin waxes, distilling between $380^{\circ}C$ and $500^{\circ}C$, obtained by vacuum distillation of oil residues from atmospheric distillation. Its flash point is greater than $125^{\circ}C$, an ash content less than or equal to 0.3% and water content less than or equal to 0.2%.

Liquefied Petroleum Gases (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 propane and butane or mixture of them. It is obtained from natural gas or by fracture of crude petroleum.

Bitumen

Solid or viscous hydrocarbon with a colloidal structure, brown or black in color. It is used mainly in road construction.

Fuel Wood

All wood in the rough used for fuel purposes.

Charcoal

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

Joule Unit

Energy unit, it is defined as the energy resulting from the movement of a one-Newton body to a distance of one meter.

Metric Ton Unit

Mass unit, a Metric ton = 1000 kg.

Mega Watt-Hour

Energy unit, a 1 MWh = 10^6 Watt \times 3600 Second
= 3.6×10^9 Watt-second

Other prefixes are used for referring to the multiplications of the units, Kilo = 10^3 , Giga = 10^9 and Tera = 10^{12} .

Solar Energy

The energy from the sunrays that are used for heating, electricity generation, drying and other forms.

Olive Cake

The olive cake (jeft) is the olive solid remainder after the olive pressing.

A set of special symbols was used in the tables of this report. The representation of these symbols are:

(.)	Not applicable
(0.0)	Less than 0.05
MWh	Mega-Watt.hour

Energy Balance in the Palestinian Territory

Any system of energy accounts should be based firmly on the first law of thermodynamics, which states that the amount of energy within any closed system is fixed and can be neither increased nor diminished unless energy is brought into or sent out from that system.

An overall energy balance is a supply and use account that shows (ideally in a single table) the origins and uses of all sources of energy used in a given country during the year (or maybe another time period). Such a balance must necessarily express all forms of energy in a common accounting unit, and will show the relationship between the inputs and outputs of the energy transformation industries. The joule is the common energy unit recommended by the United Nations for general application.

3.1 Preparation of Energy Balance Components

The energy balance table consists of 10 columns of data for individuals or groups of fuels, and 26 rows identifying the different categories of production, conversion and utilization of energy.

3.2 Description of the Rows

Primary Production (row 1): Reports the quantities of fuels extracted or produced, calculated after any operation for removal of inert matter. In general, production includes the quantities consumed by the producer in the production process as well as supplies to other producers of energy for transformation or other uses.

Imports (row 2) and **Exports** (row 3): Report the quantity of fuels obtained from or supplied to other countries. Amounts are considered as imported or exported when they have crossed the political boundary of the country, whether customs clearance has taken place or not. The amount of fuels in transit should not be included. In the energy balance format, imports are positive numbers, and exports are negative numbers and carry a negative sign (-).

Bunkers (row 4): Refer to the amount of fuels delivered to ocean-going ships or aircrafts of all flags engaged in international traffic. Consumption by ships engaged in transport in inland and coastal waters, or by aircraft engaged in domestic flights, is not included. The minus sign is used for entries under this item.

Stock Changes (row 5): Report the difference between the opening stock level and closing stock level for stocks held on national territory, and in this report the period is the year 2007. A stock build is shown as a negative number and a stock draw is shown as a positive number.

Total Energy Requirements (row 6): it is computed as: (6) = **production** (row 1) + **imports** (row 2) - **exports** (row 3) - **bunkers** (row 4) ± **stock changes** (row 5)

Energy Converted (row 7): This sector represents quantities of fuels transformed to obtain derived energy products.

Consumption for Non-Energy purposes (row 9): Refers to the quantity of energy products consumed as raw materials in the chemical, petrochemical and other industries, not in order to produce energy. The minus sign is used for entries under this item.

Losses in Transport and Distribution (row 10): Refers to the losses of fuels and electrical energy, which occur outside the utilities or plants before reaching the final consumer.

Statistical Differences (row 11): Calculated as follows: (11) = total energy requirements (row 6) ± energy converted (row 7) – losses in transport and distribution (row 10) – consumption for non-energy uses (row 9) – final consumption (row 12).

Final Consumption (row 12): Refers to the consumption of primary and derived energy by industry, construction, transports, households, agriculture and other sectors.

Consumption by Industry and Construction (row 13): Broken down into the iron and steel industry, chemical industry and other industries and construction. Consumption in the chemical industry refers to the use as fuel only. Fuels used by the energy sector, and all inputs into energy conversion, such as fuels used by industrial/self producers of thermal electricity, are excluded.

Consumption by Transport (row 18): Includes all fuels consumed by road traffic, by ships engaged in transport in inland and coastal waters and aircraft engaged in domestic flights, and by rail ways.

Consumption by Households and Other Sectors (row 22): Covers households, agriculture (including hunting, forestry and fishing), trade and services sectors.

3.3 Description of the Columns

Column (1): It consists of charcoal and fuel wood.

Column (2): It consists of olive cake.

Column (3): It consists of liquefied petroleum gas.

Column (4): It consists of oils and lubricants.

Column (5): It consists of diesel.

Column (6): It consists of kerosene.

Column (7): It consists of bitumen.

Column (8): It consists of gasoline.

Column (9): It consists of electricity.

Column (10): It consists of solar energy.

Chapter Four

Methodology

This section presents a documentation of the main characteristics of the methodology used in preparing this report, and the methodology used in data collection from the different sources, which includes the economic surveys series, foreign trade statistics, prices statistics and the household energy surveys.

4.1 Preparing Report Methodology

The preparation of this report depended on administrative records as well as on the surveys carried out by PCBS to obtain data on energy. The data covers the following forms of energy:

- Electricity.
- Petroleum products: diesel, gasoline, kerosene, oils and lubricants and LPG.
- Coal, wood, olive cake and bitumen.
- Solar energy.

The energy balance for the Palestinian Territory was prepared in two forms: the first in physical units and the second in Joule. International energy conversion factors were used following United Nations recommendations to convert the different types of energy into a common energy unit (Joule).

Foreign trade statistics has provided the import and re-export data of energy forms: the economic surveys provided data about the value of the purchases, energy used in production, stock change, and energy used in generating electricity and losses in the different economical activities. The department of price statistics provided the average consumed price for the different energy forms.

4.2 Data Sources

Economic Surveys 2007

The main objective of these surveys is to collect data on the basic economic indicators covering the main economic activities (industry, internal trade, service, transport, storage and communication and construction). Data related to production inputs of goods was used to provide data on energy purchases, energy used in production, energy used in generating electricity and losses in the different economical activities.

Foreign Trade Statistics

The main objective of the foreign trade statistics is to cover data related to flow of goods to the Palestinian Territory. Foreign trade statistics data was used to obtain data related to the imports and re-exports of the different energy types.

Prices Statistics

Through the price statistics program PCBS is gathering data about consumer prices depending on a complete system covering the ways of gathering prices, resources and its geographical distribution.

The prices data is gathered in the field through personal interviews by a team trained for this purpose and from retail, shops and the different service shops from the main cities of the Palestinian Territory.

Household Energy Survey

The PCBS provides data that covers the needs of data users about energy consumption and the forms of energy in this sector. To cover this data a questionnaire of the household energy survey was connected with the labor force survey, which carried out by PCBS quarterly. The questionnaire contains questions about the consumption amounts and forms of energy; this questionnaire also includes questions about the use of energy forms in the household activities and the equipments that consume energy in the household sector. PCBS carried out two rounds of the household energy survey in year 2008.

Agriculture Statistics

It provides the amount of pressed olives through which the amount of olive cake is estimated. The quantities of fuel consumed in this sector are also estimated through the structural agricultural survey.

Informal Transport Sector

Transport statistics through the informal transport survey sector provides data for the expenditure on fuels through which the consumed fuels are estimated.

National Accounts

Consumed energy in the informal construction sector was estimated based on the national accounts data. The expenditure on the informal sector is about 54.8% of the total expenditure on the construction sector for the year 2007.

Finance and Insurance Survey

The survey covers all financial institutions through the comprehensive survey for financial institutions and insurance companies.

Household Consumption and Expenditure Survey

Household Consumption and Expenditure Survey provides many indicators about living conditions in the Palestinian Territory such as expenditure and consumption, and different energy types through indicators about expenditure.

Palestinian Energy and Natural Resources Authority

The Energy and Natural Resources Authority provides the electrical energy imports from Israel, and also the diesel consumed in the electric generator station in the Gaza Strip, and also provides the electric power produced in the station.

4.3 Consumption Estimations of the Economic Sectors

The statistical tables of the energy forms for the economical indicators were requested. These indicators are:

- The value of purchases from the mentioned energy forms (electricity, petroleum products, coal and wood).
- The value used in production from the mentioned energy forms.
- The value of stock change and losses from the mentioned energy forms.
- The value used in electricity generation from the mentioned energy forms.

These indicators are requested through the economic surveys and the data processing is performed that is changing the sample numbers into numbers that present the whole frame through weighting equilibrium. The value of the stock change is estimated by subtracting the stock at the end of the year from the value of the stock at the beginning of the year.

4.4 Solar Energy Estimations

In estimating the solar energy in water heating the following are to be considered:

1. The surface area of the plate of the solar heater is considered to be 1.7 m².
2. The annual incident solar irradiance is about 2,000 KWh/m².
3. The number of the estimated plates for the year 2007 was 942,479.
4. The efficiency of the solar water heater was considered to be 45% and the losses in water distribution is 13.5%.
5. The annual heat production from the solar energy for consumption is calculated as:
Heat_{out} = Mirror area × annual incident solar irradiance × Number of Mirrors × efficiency = 0.45 H_{inp}
Heat production in year 2007 = 1.7 × 2,000 × 942,479 × 0.45 [KWh].

Chapter Five

Data Quality

This section provides the most important points concerning the statistical quality of the energy balance in the Palestinian Territory 2007 depending on the calculations of the data quality for the surveys and the administrative records that were used as sources for this report, in addition to special technical notes, which should be taken into consideration.

This chapter is divided into two sections, the first one presents data quality according to the sources, and the second section presents the special technical points concerning the energy balance in the Palestinian Territory 2007.

5.1 Data Sources

Foreign Trade Statistics

The foreign trade statistics program has many strong points in the methodology and data processing that are consistent with international standards and recommendation. The foreign trade statistics in the Palestinian Territory include all goods that are imported or exported. The power of the foreign trade statistics is that it provides real numbers gathered through total counting of data and does represent estimations. But it is worth mentioning the following important notes:

- Data does not cover the quantities that are not included in interchange between Israel and the Palestinian National Authority (about 20% of the total interchange according to Ministry of Finance).
- For petroleum products, administrative records of General Petroleum Corporation covers the major part of data related to imports, the other part is covered by value added tax invoices from the Ministry of Finance.
- For electricity data, administrative records of the Palestinian Energy Authority were used to provide data on electricity imports in the Gaza Strip. In the West Bank, data was compiled from the electricity value added tax invoices for the local communities from the Ministry of Finance. The data does not cover those parts of Jerusalem, which were annexed by Israel in 1967.

Economic Surveys 2007

In dealing with data from economic surveys, the following notes should be taken into consideration:

- The response rate of data for this survey is relatively high if it is compared with the response in other countries. There are some rejection states which affect the accuracy of data especially when the rejector establishment has an important weight in its economic activity.
- All data depends on establishment records. If these records were not available, that is, for small establishments in most cases, the respondent was asked to give approximate estimates.
- There were many difficulties during data collection in Jerusalem because of the special political situation of the city, which affects the response rate and data accuracy.

Household Energy Surveys

In dealing with data from the household energy surveys, the following notes should be taken into consideration:

- There are sampling errors as a result of studying a part of the society and not all of it, and non sampling errors through the fact that some of the households were not in their houses and the interviewers could not meet them, Some errors occurred due to the way the questions were asked by interviewers, misunderstanding of the questions by the respondents and using estimations to answer the questions related to consumption.
- This survey was implemented twice in the year 2008 (April and July) and data is estimated according to the results of the surveys in that year. The consumption of electricity and charcoal and fuekwood and olive cake was estimated for 2007 according to 2008 surveys. The non-response cases reached around 15.0% and 11.4% in both surveys respectively.

Expenditure and Consumption Survey

Since the data reported is based on a sample survey and not on a complete enumeration, they are subject to sampling errors as well as non-sampling errors. Non-statistical errors in general are referred to the nature of PECS, which can be summarized as follows:

- Many of the households consider the requested specific details of the survey as intervention in their life.
- Some of households think that the survey is related to social assistances or related to taxes.
- Hesitation of the households in Jerusalem area in giving their data because they were afraid of Israeli procedures against them if they participate in any Palestinian survey or activity.
- Errors due to non-response because households were away from home or refused to participate.

5.2 Technical Notes

- The energy balance in the Palestinian Territory covers the imports of all kinds of energy in the Palestinian Territory excluding that part of Jerusalem, which was annexed forcefully by Israel in 1967.
- The balance tables cover data related to the main types of energy (electricity, petroleum products, biomass and solar energy). It is important to note that there are other types of energy (coke, other petroleum products, animal and vegetal residues and electricity generation from wind and solar energies) that are not included due to the lack of data, and rarity of such energies.
- The technical losses in electricity in the Palestinian Territory are considered to be 18% based on the Palestinian Energy and Natural Resources Authority.
- In all calculations related to gasoline, we deal with the average of all available types of gasoline. A common price and conversion factor were used.
- In all calculations related to oils and lubricants, we deal with the average of all available types of oils and lubricants. A common price and conversion factors were used.
- In all calculations related to wood and coal, a convenient conversion factor was taken for each year according to the quantities.
- The efficiency of the mirror of the solar water heater and the factor of losses in water distribution were taken from the Palestinian Energy and Natural Resources Authority.
- Government consumption was considered to be 3% for electricity and diesel.
- The amount of olive cake was considered to be 40% of the pressed olives.
- The ton unit in the tables refers to a metric ton.

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