Energy conservation indicators in Southern Mediterranean countries

Country report for Palestine

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plan bleu

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Content

Preface

The design, the implementation and the monitoring of national energy policies require relevant indicators reflecting the energy use performances at macro and sector level. Moreover, for developing countries the implementation of information systems on energy and greenhouse gas emissions indicators will be a key condition for the development of new mitigation financing mechanisms (NAMAs, sectoral mechanism, etc.) currently under negotiations for the new international climate governance regime. In fact these mechanisms will need Measures, Reporting and Verification systems (MRV) to prove the integrity of these actions. Also, for the Arab League States Energy Efficiency Directive, such indicators are crucial for the monitoring and the assessment of the National Energy Efficiency Action Plans (NEEAPs).

For these reasons and based on European experiences (ODYSSEE), PLAN BLEU, in cooperation with RCREEE and with the support of MED-ENEC, has launched the current Energy Efficiency Indicators Project in ten MENA countries, namely: Morocco, Algeria, Egypt, Lebanon, Syria, Jordan, Libya, Palestine, Tunisia and Yemen as a tenth member state of RCREEE. This project is aiming at i) strengthening the capacities of these countries in monitoring their energy policies by using the energy efficiency indicators approach ii) building and interpreting a range of basic common indicators for the region.

The project was carried out according to a two years process based on specific methodology including:

- A Participative approach associating national public and private experts
  - 4 workshops and working sessions held in Tunisia, Egypt, France and Morocco.
  - Selection, by the participants, of the common indicators to be developed in the project, based on the data availability and the relevancy for the country
  - Technical assistance throughout the project provided by the regional coordination
- Capacity building through " learning by doing" and experience exchanges
  - Data collection by the national experts with the support of RCREEE focal points, strengthening the cooperation between public and private experts
  - Common development of a simplified calculation tool for data collection and indicators' calculation used by the experts
  - Development of capacity for analysis and interpretation of energy indicators by national experts
  - Country reports developed by the national teams
- Dissemination of the results and the learned lessons
  - Organization of final seminar for the decision-makers in June 2012
  - Publication and wide dissemination of the results recorded in flyers, national and regional reports.

The project was coordinated by:

- Plan Bleu: Ferdinand Costes, El Habib El Andaloussi
- RCREEE: Amel Bida
- MED-ENEC: Florentine Visser
- ALCOR: Rafik Missaoui, Hassen Ben Hassine, Adel Mourtada.

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List of abbreviations

PEA	Palestinian Energy Authority
PNA	Palestinian National Authority
PCBS	Palestinian Central Bureau of Statistics
GDP	Gross Domestic Product
IEC	Israeli Electricity Corporation
LV	Low Voltage
MV	Medium Voltage
KV	Kilo Volt
KW	Kilo Watt
MVA	Mega Volt Ampere
GPP	Gaza Power Plant
JDECO	Jerusalem District Electricity Company
GEDCO	Gaza Electricity Distribution Company
RES	Renewable Energies
LPG	liquefied petroleum gas

I. Country General background

1. Economy and Population

The population of the Palestinian Territory was estimated about 4.1 million at midyear of 2010, distributed as (62%) in the West Bank and (38%) in Gaza Strip.
Palestine has witnessed rapid economic growth in the period between 1994-1999, with an increase in the rate of growth in the Palestinian gross domestic product to more than 10% per year. However, growth in GDP has decreased significantly during the peak of the second intifada (2000 - 2002), but growth resumed in 2003, approaching its previous levels before beginning of the second intifada in September 2000.
This point indicates that a real growth opportunity exists in Palestine during the normal stable political and economic conditions. The figures of the macroeconomic framework expected further growth in gross domestic product GDP by 15% by 2010 if the political situation is somewhat stable. Unfortunately, this did not happen due to continued political uncertainty and restraints imposed by Israel on the Palestinian economy.

2. Current Situation of the Electricity Sector

Electricity represents about 31% of the total Palestinian energy consumption. Main power sources are imports from Israel and other neighbouring countries (Egypt and Jordan), and the Gaza Power Plant.

Almost 88% of the local market demand is imported from IEC through around 230 connection points on Low Voltage (LV) and Medium Voltage (MV) networks. In 2009 all residential areas were connected to the electric system, except for some areas in the West Bank.

West Bank consumption of electricity – as measured by purchases of bulk power from Israel Electric Corporation (IEC) - increased at an average annual rate of 6.4% between 1999 and 2005.

Gaza's total consumption, purchased from IEC and Gaza Power Plant (GPP) increased by 80% between 1999 and 2005 at about 10% average annual rate. Most of this growth took place from 2003 onwards, and it coincided with the advent of power from GPP.

The West Bank in particular depends almost entirely on IEC for electricity supply. It is mainly supplied by three 161/33 KV substations: one in the south close to Hebron, a second in the north in the Ariel settlement close to Nablus, and a third in Atarot industrial area near Jerusalem. Electricity is supplied to the center of the West Bank largely through JDECO via 33kV and 11kV distribution lines at several connection points with the IEC including, Ramallah, Jericho, Bethlehem and the eastern part of Jerusalem.

The maximum capacity of electricity supply to the West Bank is about 550MVA, 30% directly by IEC which supplies electricity in bulk to 215 towns and villages, and 70% indirectly by IEC through JDECO which supplies electricity to East Jerusalem and in bulk to 165 towns and villages in the West Bank. West Bank is supplied also from Jordan, through a 20MW connection.

Gaza receives electricity from IEC and from a gasoil (diesel) based power plant with electricity generating capacity of some 140MW located inside Gaza (GPP), which is the only power generating facility in West Bank and Gaza. Gaza also receives a small power supply from Egypt (17MW). GEDCO distributes electricity within Gaza.

Some relevant characteristics of the Palestinian electricity supply are the following:

- Almost full dependency on Israel as the main source for power
- The contracted power and current power resources are insufficient to meet the growth in power demand that amounts around 7% annually
- Electric power supplied by Israel is managed through bilateral contracts between IEC and each one of the Palestinian municipalities, rural councils, or distribution utilities. That causes the Sector to be unreliable and unsecure.
- High costs of power generation and lack of adequate infrastructure for transmission system
- The diversity of distribution service providers in the West Bank, whether utilities or municipalities, results in providing a low quality service and high technical and non technical loss on the distribution system (around 25%, of which 15% are technical losses)
- 75% of the electricity consumption is sold to residential and services sector; the remaining 25% is distributed over the other sectors
- The high ratio of customers' accumulated arrears due to distributors holds back the municipalities and distribution companies from paying their monthly purchases bills to IEC. Consequently, the Israeli Ministry of Finance clear the payments of power purchase bills to IEC from the tax revenues of the Palestinian National Authority (PNA), which adds more financial burdens to the PNA and increases the ratio of net lending.

3. Renewable Energy

The use of RES is restricted mainly to solar energy (thermal energy) used to heat water and the inside of residential buildings, together with wood, coal, and peat combustion. Thermal solar energy represents 18% of the total energy consumption in Palestine. Some pilot projects have been executed to use solar energy for power generation so as to feed some outpatient clinics, schools, nomadic communities, and some small and distant villages situated far from the electric system, like Emnaizel (south of Hebron) and Atouf (north of the West Bank).

With respect to wind energy, a small project is currently under implementation at Al-Ahli Hospital, in Hebron, to generate 700 kW power. Palestine can be considered as a country of moderate wind speed, with very low wind speed (2.5-3.5) m/s in coastal regions, annual average (4-6) m/s in hilly regions, and very low wind speed (2-3m/s) in the Jordan Valley.

While the usage of biomass energy resulting from wood and agricultural waste combustion is limited to cooking and heating at some rural areas, it represents 9% of Palestine total energy consumption.

4. Oil and Gas Energy

The energy resulting from converting the oil and gas derivatives represents 51% of the Energy Local Market Total Consumption; most of it is used as vehicles fuels, in the heating and cooling systems, and in power generation at the Gaza Power Plant due to the inability to import gas. Such derivations include gasoline, diesel, and liquefied petroleum gas (LPG is used for cooking and heating). This sub-sector is characterized by:

- Full dependency on Israel as it is the sole source for this form of Energy.
- Since the PNA does not have the necessary storage facilities to locally conserve this type of products, it resorts to importing them almost on a daily basis, and this results in distribution crises and failure to meet the demand on Gas and Oil.

5. Natural Gas

In 1999, the PNA has granted a coalition lead by BG International Limited a Natural Gas Exploration License covering the entire marine area offshore the Gaza Strip over the term of 25 years. In 2000, BG Group and partners announced the successful discovery of two substantial Natural Gas wells later in the year 2000 confirmed the discovery. BG Group expects to extract about 950 billion square feet of Natural Gas from the Gaza Marine field, and 90 billion square feet from the Noa South field. The Natural Gas discovered offshore Gaza has a high commercial value as it is of a good quality (99.4% of Methane) and free of sulfur. Although nine years have already passed since they first discovered the Natural Gas, the field developer company is still unable to commercially market it.

II. Data collection process

1. Main sources of data

Major reference documentations (general census and regular national surveys published by PCBS, national studies of Palestinian Energy Authority and Palestinian Energy Efficiency Center, national databases, etc.)

Major initiations holding data and information:

Institution name	Address	Tel and fax	Email and Website
Palestinian Energy Authority	Ramallah – Palestine	+ 970 2 2984752 + 970 2 2986191	
Palestinian Central Bureau of Statistics	Ramallah – Palestine	+ 970 2 2982700	info@pcbs.gov.ps www.pcbs.gov.ps
Palestinian Energy and Environment Research Center	Ramallah – Palestine	+ 970 2 2986190	www.pec.com.ps
Palestinian Ministry of Finance	Ramallah – Palestine	+ 970 2 2978730	www.pmof.ps
General Petroleum Corporation (GPC)	Ramallah – Palestine		
Palestinian Federation of Industries (PFI)	Ramallah – Palestine	+970 2 2415310	www.pfi.ps
Palestine Electric Company PLC.	Gaza – Palestine	+970 8 2888600	www.pec.ps

2. Data availability

Sector	Energy data			Socio-economic data			Environmental data		
	Total* number of data	Available data**		Total number of data	Available data		Total number of data	Available data	
		Number	%		Number	%		Number	%
Macro	80	72	90%	60	60	100%	10	10	100%
Transformation sector	130	100	77%				10	0	0%
Transport sector	70	9	13%	150	0	0%	30	0	0%
Tertiary sector	30	9	30%	60	30	50%	10	0	0%
Residential sector	20	18	90%	80	28	35%	10		0%
Industry sector	80	9	11%	130	20	15%	10	0	0%
Agriculture & fishing	20	9	45%	80	50	63%	0	0	0%
Total	430	226	53%	560	188	34%	80	10	13%

*: Total number of data expected by the sheet "Energy & socioeconomic data"
**: Total number of data (collected or estimated) filled in the sheet "Energy & socioeconomic data". One value for one year is considered as a data.
***: The total number of data expected is in the :"Energy & socioeconomic data" for the years 2000-2009.

Data for macro level is generally available and particularly data on energy and socio-economic data.

End use sectors data are less available; this is mainly due to the variety and complexity of covered sub-sectors. The overall availability of data was 40% where a total 424 data item out of a total of 1070 were collected.

We must remember that the real availability data rate is around 60% because many branches are not present in the Palestinian economy.

3. Major difficulties met during the data collection

In collecting the needed data, some difficulties were encountered such as:

- Lack of government statistics
- Lack of surveys that collect and compile very specific data
- Periodic collection and updating of data is strongly influenced by the political context
- Level of analyses that requires sometimes very specific data
- Significant gaps in the completeness and quality of required data.

III. Indicator's calculation

1. Macro level indicators

Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Energy dependence Ratio	%	#DIV/0!	100%	100%	100%	100%	100%	100%	100%	100%	81%
Intensity of Primary Energy	toe/1000 $	0,00	0,21	0,24	0,23	0,23	0,26	0,24	0,24	0,21	0,20
Intensity of Final Energy	toe/1000 $	0,00	0,17	0,23	0,23	0,21	0,19	0,19	0,19	0,17	0,19
Ratio of final energy consumption to primary energy	%	#DIV/0!	82%	93%	99%	90%	73%	77%	77%	79%	93%
Ratio of National Energy Bill to GDP	%	0%	11%	12%	12%	25%	39%	37%	35%	28%	18%
Ratio of public subsidies for energy to GDP	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Average emission factor	teCO2/toe	#DIV/0!	1,70	1,43	1,44	2,24	2,30	2,16	2,10	1,97	1,97
Intensity of CO2	teCO2 / 1000 LC	0,000	0,353	0,351	0,335	0,514	0,590	0,518	0,512	0,416	0,397
Average Primary Energy Consumption per habitant	ktoe/1000 hab	0,000	0,249	0,248	0,263	0,283	0,334	0,287	0,298	0,269	0,269
Average Electricity Consumption per habitant	MWh/hab	0,000	0,653	0,663	0,669	0,761	0,681	0,653	0,795	0,797	0,894

*Base Year =2004

- Palestine is entirely dependent on imported energy supply, specifically electricity and oil products
- The intensities vary little over the decade which indicates that there is a correlation between changes in the energy consumption and GDP
- Increase of electricity consumption per capita on average by 4% per year. i.e. 36% of the whole variation between 2001 and 2009.
- The energy bill weighs heavily on the finances of the Palestinian Authority

2. Energy transformation sector indicators

The Energy produced from petroleum derivatives represents 51% of the local energy market demand; most of it is used as vehicles fuels, in the heating and cooling systems, and in power generation at the Gaza Power Plant due to the inability to import gas; all gas and oil products are imported from Israel almost on a daily basis, and this is due to the lack of local storage facilities.

The main aspects for the Sector of Oil Derivatives Distribution and Local Consumption are as follows:

- High prices to consumers; this is due to the oil international price fluctuations and the effect of the dollar exchange rate, although the PNA contributes in subsidizing the prices of this sector from the Public budget. The unit price is controlled by the General Petroleum Corporation (GPC) that is the official governmental institution in charge of the Management and Monitoring of the Oil and Gas Sector. The GPC is affiliated with the Ministry of Finance.

- The distribution of oil derivatives is done through 261 distribution stations, 52 gas stations in the West Bank and Gaza Strip, in addition to 1085 gas distribution agencies in the West Bank; these stations and agencies get a distribution license from the GPC in addition to some other related ministries and institutions.
- The GPC monitors the stations to ensure the quality control as per the set specifications and to prevent price manipulations. Moreover, it cooperates with the security services to monitor and prevent the smuggling of gas from Israel into West Bank areas.
- Some illegal gas distribution points are spread where they can get access to some oil products from some Israeli sides, and this threatens the public safety and deprives the PNA from the tax revenues of such products.

The only power generating facility in West Bank and Gaza is a gasoil (diesel) based power plant with electricity generating capacity of some 140MW located inside Gaza (GPP), and due to the inability to import gas, this power plant is working on gasoil (diesel) with an average consumption of 700,000 Liter/day when working at full capacity.

Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
%			0%	0%	0%	0%	0%	0%	0%	0%
%			9%	28%	32%	41%	28%	34%	35%	35%
%			22%	25%	36%	34%	41%	39%	40%	34%
%										
toe/GWh			384,62	340,54	241,21	254,35	209,09	221,05	216,60	253,08
%										
toe/GWh			384,62	340,54	241,21	254,35	209,09	221,05	216,60	253,08
%		89%	89%	79%	87%	71%	68%	74%	71%	80%
teCO2/GWh			0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
teCO2/GWh										

- The apparent efficiency of the transformation sector is particularly low because of the weight of electricity production. Generally electricity production has a low efficiency
- Despite the rehabilitation programmes several factors have adversely affected the electricity network, such poor maintenance in the network, have lead to an increase of technical and non technical loses.
- The low share of renewable energy for electricity production should not overshadow the significant mobilization of solar energy particularly for solar water heating. According to Palestinian Central Bureau of statistics, solar energy represents 9.9% of final energy consumed in 2003.
- Significant improvement of specific consumption of power generation with an average rate of 6 % per year, i.e. 34% on the whole period between 2002 and 2009.
- Palestinian authority has to develop and invest in power supply to meet future power demand. A substantial unserved demand for electricity exists particularly in Gaza strip.

3. Industry sector indicators

The industrial sector in Palestine includes some 15,000 registered companies in the West Bank and Gaza. The majority of these are small and medium family-owned businesses, and only about 100 of the manufacturing, mining and construction enterprises in Palestine have a workforce of more than 100 employees. The contribution of the industrial sector to GDP is approximately 16%, and the industrial sector absorbs around 13% of the total work force and with 7-8% of the total energy consumption.

Industrial sectors represented by PFI include food and beverages, construction, stone and marble, pharmaceuticals, chemicals, metal and engineering, textiles, garments and leather, paper, printing and packaging, handicrafts, plastic and rubber, and furniture.

Abbreviation	Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BSEC	*Specific energy consumption for the Cement*	toe/t										
	Specific energy consumption for the Phosphate											
	Specific energy consumption for the Phosphoric acid											
	Specific energy consumption for the T. Super Phosphate											
	Specific energy consumption for the Steel											
	Specific energy consumption for the Paper											
	Specific energy consumption for the Sugar											
FEIIS	Final Energy Intensity of Industry Sector	toe/1000 $	0,000	0,062	0,074	0,066	0,087	0,057	0,063	0,046	0,045	0,057
IEBR	Ratio of Industry sector Energy Bill to Added Value	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IESR	Ratio of public subsidies to added value	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IESRGB	Ratio of public subsidies for energy to Government Budget	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IELSR	Ratio of public subsidies for electricity to added value	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IICO2	Intensity of CO2	teCO2/ 1000 LC	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
IAEF	Average emission factor of industry sector	teCO2/toe	#DIV/0!	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

4. Tertiary sector indicators

The services sector plays a leading role in the Palestinian economy; the sector contributed more than 51% of the GDP and 60% of the total workforce. The services sector include: domestic trade, tourism, communications, engineering design, financial services, software services and others. The energy consumption in this sector represents around 7% of the total energy consumption.

Abbreviation	Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
FEITS	Final Energy Intensity of Tertiary Sector	toe/1000 $	-	0,047	0,039	0,040	0,033	0,029	0,035	0,052	0,038	0,054
TDRSHR	Diffusion Rate of Solar Water Heaters in tertiary sector	m²/1000 hab	-	-	-	-	-	-	-	-	-	-
TEBR	Ratio of energy bill to added value in tertiary sector	%	-	-	-	-	-	-	-	-	-	-
TELSR	Ratio of public subsidies for electricity to added value	%	-	-	-	-	-	-	-	-	-	-
TESRGB	Ratio of public subsidies for energy to Government Budget	%	-	-	-	-	-	-	-	-	-	-
HECNG	Energy Consumption per night guest	kgoe/Nigh Guest	-	-	-	-	-	-	-	-	-	-
TICO2	Intensity of CO2	teCO2/ 1000 LC	-	-	-	-	-	-	-	-	-	-
TAEF	Average emission factor	teCO2/toe	#DIV/0!	-	-	-	-	-	-	-	-	-

5. Residential sector indicators

The results of the Housing Conditions survey in 2010 (by PCBS) indicated that 0.9% of households in the Palestinian Territory live in a villa , 47.8% live in a house, while 50.2% live in apartments. The average number of rooms in the housing unit in the Palestinian Territory is 3.6. The average housing density in the Palestinian Territory in general is 1.6 person per room. The data show that 71.6% of households in the Palestinian Territory need to build new housing units during the next ten years, while 37.2% of households in the Palestinian Territory are capable to build additional housing units. The energy consumption in residential sector represents around 62% of the total energy consumption.

- Slight improvement in energy consumption per dwelling
- Stable final energy intensity despite a significant increase in electricity consumption
- Significant increase in electricity consumption per dwelling on average by 3.3 % per year, i.e. 30 % on the period 2001-2009
- Impressive rate of solar water heaters in household sector

Abbreviation	Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
UCED	Unit Consumption of Energy per Dwelling	kgoe/Dw		653,81	775,45	895,82	711,37	679,93	599,52	622,81	555,01	593,06
SCEM²	Specific Consumption of Energy per area unit	kgoe/m²										
UEICD	Unit Consumption of Electricity per Dwelling	kWh/Dw		2569,50	2556,72	2895,59	2936,82	3127,08	3061,50	3346,83	3413,10	3335,99
SCEIM²	Specific Consumption of Electricity per m²	kWh/m²										
RIPE	Intensity of Residential Sector	toe/ 1000 $		0,106	0,141	0,148	0,115	0,115	0,113	0,113	0,101	0,104
RELSR	Ratio of public subsidies for energy to private consumption	%		0%	0%	0%	0%	0%	0%	0%	0%	0%
RESRGB	Ratio of public subsidies for energy to Government Budget	%		0%	0%	0%	0%	0%	0%	0%	0%	0%
RAEF	Average emission factor	teCO2/toe		0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
RICO2	Intensity of CO2	teCO2/ 1000 LC		0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
RDRSHR	Diffusion Rate of Solar Water Heaters in Residential sector	m2/1000 hab		447,4	453,4	464,5	445,9	430,9	390,1	375,0	360,7	368,4
ERACR	Equipment Rate of Air conditioning in Residential sector	Unit/Dw		0	0	0	0	0	0	0	0	0
ERFR	Equipment Rate of refrigerator in Residential sector	Unit/Dw		0	0	0	0	0	0	0	0	0

6. Transport sector indicators

The data of the Ministry of Public Works & Housing shows that the total Paved road network length in Palestinian Territory was 4,686.3 km at the end of 2010 out of which 4,389.3 km in the West Bank (332.7 km bypass roads, and 847.5 km settlement roads), and 297.0 km in Gaza Strip.

The total number of licensed vehicles in the Palestinian Territory in 2010 was 182,466, out of which 121,565 in the West Bank and 60,901in Gaza Strip, the percentage distribution of licensed vehicles in the Palestinian Territory in 2010 shows that the majority were private cars 63.9%, on the other hand, the percentage of trucks and commercial cars was 18.8%, Taxis formed 6.3% of the total vehicles. The percentage of agricultural tractors in the Palestinian Territory was 0.9%, while the remaining vehicles, formed 10.1%. The sector contributed more than 7.8% of the GDP and the energy consumption in this sector represents around 24% of the total energy consumption.

Abbreviation	Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TrFEI	Final Energy Intensity	toe/1000 $	0,000	0,034	0,044	0,044	0,053	0,051	0,050	0,047	0,044	0,052
STEHE	Share of household expenditure for transport	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
EUCC	Average Energy Unit Consumption of Cars	kgeo/car/year										
EUCC G	Average Energy Unit Consumption of gasoline Cars	kgeo/car/year										
EUCC D	Average Energy Unit Consumption of diesel Cars	kgeo/car/year										
AEFTS	Average emission factor of transport sector	teCO2/toe										
MR	Motorization rate	persons / Vehicle										
ICO2	Intensity of CO2	teCO2/1000 LC										
SCRW	Specific consumption for Rail ways	kgoe/ p.km										
SCAT	Specific consumption for air transport	kgoe/ p.km										
SCMT	Specific consumption for maritime transport	kgoe/ t.km										
SEAT	Specific emission factor for air transport	kgeCO2/p.km										
SEMT	Specific emission factor for maritime transport	kgeCO2/t.km										

7. Agriculture and fishing sector indicator

Agriculture sector is considered important for the country not only for its direct contribution to the national economy (nearly 6.3% to Gross Domestic Product), but also as a symbol of Palestinian culture. It plays a role in environmental protection, enhancing biodiversity, and combating desertification. It is worth mentioning that agriculture sector gives job opportunities to over 20% of the population as well as it is the main or secondary source of income for a large segment of the population.

The area devoted to agriculture is about 186 thousand hectares; 90% of these hectares are in the West Bank and 10% in the Gaza Strip. Despite its small geographical area, Palestine is characterized by a great diversity in its topography and altitude.

Rain-fed agriculture is the predominant pattern governing farm systems in the country. The average rainfall, that is usually concentrated between November and May, ranges between 100-700 mm per year. The amount of water used in agriculture is estimated at around 175 million m3 per annum, represents 64% of the total water used in the country. In Gaza Strip irrigated farming is predominant representing 66% of the cultivated area, while just 5.5% of the cultivated area in the West Bank are under irrigation mainly in Jericho.

Regarding the fishing sector, it is only available in Gaza Strip with an average amount of 2.3 Thousand Tone production per year.

Abbreviation	Indicators	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
FEIA	Final Energy Intensity of agriculture	toe/ 1000 LC	0,0000	0,0000	0,0000	0,0000	0,0162	0,0174	0,0208	0,0182	0,0161	0,0174
FEIF	Final Energy Intensity of fishing	toe/ 1000 LC										
SCF	Specific consumption for fishing	toe/ tone	0	0	0	0	0	0	0	0	0	
SDCA	Share of Dry cultivated area	%	89%	89%	89%	90%	89%	90%	89%	88%	89%	
SICA	Share of Irrigated cultivated area	%	11%	11%	11%	10%	11%	10%	11%	12%	11%	
SEWMP	Share of equipped wells with Moto pumps	%										
SEWEIP	Share of equipped wells with electro pumps	%										

IV. Conclusion

- Improve Data collection from the surveys include information on monetary expenditures and physical quantities, including fuels and electricity, as well as information of other socio-economic, demographic, and infrastructural data.
- Further training and education in energy indicators can enhance a country's skill base. Often countries lack sufficiently skilled people to design, implement and evaluate energy efficiency policies and measures
- Indicators constitute a communication channel to promote the exchange of information.
- An energy system-based lead indicator set can be used to develop consistent and coherent future indicator

V. References and relevant websites

Palestinian Central Bureau of Statistics publications:

Census statistics

Population and social statistics

National accounts

Statistical Atlas

Energy balances