

CHAPTER Three

Socio - Economic Development in the oPt

Section One: Demographic Condition and Analysis of Educational Rights Protection in the oPt

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Chapter Three: Socio-Economic Development in the oPt

3.1. Demographic Conditions and an analysis of educational rights protection in the oPt

3.1.1 Demographic Conditions in the oPt

1.1. Introduction:

Demographic conditions have a huge impact on the protection of basic and fundamental human rights. Demographic information informs one of the condition of lifestyle that a population enjoys (life expectancy, population density, % of displaced persons etc); these being either directly or indirectly related to human rights enforcement and protection. In the case of demography however, one must be careful when attempting to determine whether it is a *cause* or *effect* of human rights' abuses. In order to locate the source or causal determinant of human rights' restrictions, one must ascertain whether demographic conditions in and of themselves *cause* a restriction to human rights or whether some other factor(s) restrict human rights, thus *causing* demographics appear as though they are the restrictors (Shuttleworth, 2008). This may not however be an accurate nor clear cut way of understanding how rights' abuses are created. Understanding demographics as a causal factor in human rights' abuses or understanding how rights' issues relate to demographic conditions and change is difficult. Mainly this is because it is natural as human rights' researchers to assign blame or responsibility to the cause(s) or causers of rights' violations and consider them to be a result of human driven/societal action. This is difficult in the case of demography as conditions may be seen to be naturally determined i.e. a result of natural environmental conditions (Reed, 2002). However, it is now understood that environmental factors are very rarely 'natural' in an 'uncaused' and 'uncontrolled' sense; thus one must look at which institutions, political actors or international/global powers that have caused them to be as they are. Cause and effect are closely linked here. For example, environmental conditions may create a drought which affects the demographics of a certain population and results in rights' violations i.e. denial of right to life, restriction on freedom of movement or the denial of the right to development. In this case however is it fair to say the environment caused a failure in rights protections? In this era of advanced technology and global environmental planning, it is more likely that the national and international institutions that failed to prevent, or respond to drought would be considered the cause of the demographic changes of the drought and thus the cause of human rights' violations (Paterson, 1996). Therefore, it may be helpful to consider demographics in terms of an *effect* of the human rights' violations of governments and other decision makers which have effected them to be in a certain way. In the case of the occupied Palestinian territory (oPt), population may be particularly dense in one area, or life expectancy may be lower than the world average, but it is unlikely that this is due to naturally occurring phenomena. Rather this will be a result of political decision making and regional/global effects i.e. Israeli occupation, the recent global financial crises, regional conflict etc.

‘Demography is the study of statistics such as births, deaths, income, or the incidence of disease, which illustrate the changing structure of human populations.’ (Oxford Dictionary, 2008).

Demographics include the statistical analysis of state, regional and world data on:

- Population
- Age
- Gender
- Birth rate
- Death rate
- Migration rate

1.2. International Human Rights Related to Demographics.

Below is a list of international and national rights laws/protocols that are related to demographic indicators in a number of ways:

Universal Declaration of Human Rights’ (UDHR):

Article 13:

(1) Everyone has the right to freedom of movement and residence within the borders of each state.

(2) Everyone has the right to leave any country, including his own, and to return to his country.

Article 15:

(1) Everyone has the right to a nationality.

(2) No one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality.

Article 17:

(1) Everyone has the right to own property alone as well as in association with others.

(2) No one shall be arbitrarily deprived of his property.

Article 25:

(1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

(2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.

Convention on the Elimination of all Forms of Discrimination against Women (CEDAW):

Article 9:

1. States Parties shall grant women equal rights with men to acquire, change or retain their nationality. They shall ensure in particular that neither marriage to an alien nor change of nationality by the husband during marriage shall automatically change the nationality of the wife, render her stateless or force upon her the nationality of the husband.

2. States Parties shall grant women equal rights with men with respect to the nationality of their children.

Article 16:

1. States Parties shall take all appropriate measures to eliminate discrimination against women in all matters relating to marriage and family relations and in particular shall ensure, on a basis of equality of men and women.

2. States Parties shall take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health care services, including those related to family planning.

Article 13:

(Summarized) Give women equal rights to conclude contracts and to administer property

Right to Development:

Development is linked to demography in a number of interesting ways. For example, the better development is the greater human life chances and living conditions will be, which is reflected in demographic statistics. For example, the better the state of human development, the higher life chances will be which is shown in a number of positive ways, e.g. infant mortality will be lower, there will be fewer displaced people within a state's borders and women rights will be better protected and implemented. There has been a resurgence of interest in development as a human and social right (Andreassen and Marks, 2010); however the right to development was enshrined in United Nations (UN) treaties many years ago:

For example, in 1981 in Article 22 of the African Charter on Human and Peoples' Rights asserts:

Article 22(1): "All peoples shall have the right to their economic, social and cultural development with due regard to their freedom and identity and in the equal enjoyment of the common heritage of mankind."

The right to development was subsequently proclaimed by the UN in 1986 in the "Declaration on the Right to Development," which was adopted by the United Nations General Assembly resolution 41/128.

The right to development asserts that humans have the right to enjoy and contribute to the sustainable development of their states/regions and enjoy similar lifestyle qualities with other humans (i.e. remove the disparity in life chances and life quality between peoples and nations). From demographic indicators, one can judge how well this right is being protected on the basis of the information they provide about lifestyle quality and human development (particularly in comparison with other regions).

Millennium Development Goals (MDG):

Adopted by world leaders in the year 2000 and set to be achieved by 2015, the Millennium Development Goals (MDGs) provide concrete, numerical benchmarks for tackling extreme poverty in its many dimensions. Those relating to demography, include:

MDG 3: Promote gender equality and empower women.

MDG 4: Reduce child mortality

MDG 7: Ensure environmental sustainability

1.3. The oPt's Adoption of International Rights' norms:

The oPt has neither signed nor ratified any of the aforementioned rights conventions and is thus not legally bound by their terms. It is noted here that the oPt has not refused to sign these conventions in opposition to the principles they adhere to, but rather, 'the Palestinian National Authority (PNA) is not entitled to accede to the UN Conventions on human rights' (UNDP, 2008). This is because as an 'occupied' region, the Palestinian territory is not afforded a globally recognized statehood and is thus unlikely to be invited to sign such conventions until it is given such status. However, although not recognized by the UN as a state, the Palestinian Liberation Organization (PLO) in 1974 was given formal recognition by all Arab States as the main body responsible for the representation of the Palestinian people, and at this same time, the PLO was afforded 'observer' status by the UN (A/RES/3237 (XXIX)). Therefore, although the oPt has not signed nor ratified any major international rights conventions/protocols, (with the exception of the Arab Right Charter (ARC) and the Cairo Declarations Human Rights (CDHR) it has been an observer to many of them²².

In terms of Palestine's 'occupied' status, many consider that Israel, as the occupier, is responsible for the upholding Palestinians' rights (Al-Mezan, 2010). This is due to a number of complex legal reasons. Israel has signed and ratified a number of international rights' treaties and as such it is legally bound by its terms, including many provisions relating to the protection of demographic rights abuses. The International Court of Justice (ICJ) asserts that in this case;

'The State's obligations under the Covenant apply to all territories and populations under its effective control' (PCHR, 2011).

²² In the case of those which detail educational rights, these include; the CRC (Israel signed 1990, ratified 1991) and CEDAW (Ratified in Israel in 1991- although the CEDAW optional protocol has not been ratified yet) amongst others.

This also would stand for any other legally binding rights treaties to which Israel is a signatory. Israel however officially denies this is the case claiming that its human rights obligations do not extend beyond ‘the territory of the State of Israel’ (CESCR, 1998). With regards to where this territory falls, Israel further claims that it ‘no longer exercises effective jurisdiction (over the West Bank and Gaza),’ having, ‘transferred actual authority and responsibility for over 90% of the population... to the Palestinian Council/Authority.’ (CESCR, 1998)

In the case of demographics and human rights’ abuses, it is fair to say that the PNA is responsible for some of these, whereas Israel is responsible for others. I.e. Israel may be determined responsible for restrictions in movement whereas the PNA may be responsible for some rights, mainly women's rights in the territory.

National Human rights relating to demographics²³

The third draft of the Palestinian constitution of 2005 creates the foundations of the PNA’s current Palestinian Basic Law. This Law was passed by the Palestinian Legislative Council in 1997 and later ratified by President Yasser Arafat in 2002. The Law was amended twice in 2003 and 2005. In 2003, the amendment was comprehensive and affected the whole nature of the Palestinian political system, where a prime minister was introduced. While in 2005 the amendment was minor to conform to the new Election Law (Palestinian Basic Law website, 2011). These constitutional and basic laws include a number of provisions relating to demographic rights’ protection (which mirror or match a number of the rights set out in international protocols), such as:

Palestinian Constitution, Article (20):

Freedom of residence and movement shall be guaranteed within the limits of law.

Article (21):

3. Private property shall be protected and, shall not be expropriated except in the public interest, and for a fair compensation in accordance with the law, or pursuant to a judicial order.

4. Confiscation shall be in accordance with a judicial order.

Article (22):

1. Social, health, disability, and retirement insurance shall be regulated by law.

2. The welfare of families of martyrs', prisoners of war, the injured, and the disabled, shall be regulated by law. The National Authority shall guarantee them education services, health and social insurance.

Article (23):

Proper housing is a right for every citizen. The Palestinian National Authority shall secure housing for those without shelter.

²³ Chapter Two of third revision of Palestinian National constitution: Public Rights & Freedoms

Article (28):

No Palestinian may be deported from the homeland, prevented or prohibited from returning to or leaving it, deprived of his (citizenship), or surrendered to any foreign entity.

Article (29):

Maternity and childhood welfare is a national duty. Children shall have the right to:

1. Comprehensive protection and welfare
2. Not to be exploited in any purpose, and shall not be allowed to perform works which might damage their safety, health, or education.
3. Protection from harm and cruel treatment
4. Law prohibits beating children and treating them cruelly by their relatives.
5. Shall be segregated in case they are sentenced form adults, and treated in a manner which is appropriate to their age and rehabilitation.

This shows a clear respect for human rights in relation to demography on the part of Palestinian state institutions. De Jure therefore, Palestine seems to uphold legislature that supports the protection of human development, freedom of movement, a protection of life and lifestyle. However the de facto rights' situation may differ from these sentiments. Therefore, one must consider the real application of human rights' provisions on the basis of examine demographic indicators and anecdotal/case study evidence.

Below is a matrix comparing the international with the national laws relating to demographic rights' protection:

International Laws	National Laws
<p>UDHR – Article 13. (1) Everyone has the right to freedom of movement and residence within the borders of each state.</p> <p>(2) Everyone has the right to leave any country, including his own, and to return to his country.</p>	<p>Palestinian Basic Laws (2003), Article 20. ‘Freedom of residence and movement shall be guaranteed within the limits of the law.’</p>
<p>UDHR - Article 15. (1) Everyone has the right to a nationality.</p> <p>(2) No one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality.</p>	<p>Palestinian Constitution, Article 7: Palestinian citizenship shall be regulated by law.</p> <p>101(a)(30) of the Immigration and Nationality Act (INA)- Palestinian National Authority</p> <p>Palestinian Constitution, Article 12: Palestinian nationality shall be regulated by law, without prejudice to the rights of anyone who legally acquired it prior to May 10, 1948 or the right of any Palestinian who resided in Palestine prior to this date and fled, was forced to immigrate, or prevented from returning thereto. This right passes on from fathers or mothers to their offspring. It does not cease or lapse unless voluntarily relinquished in the manner prescribed by law. A Palestinian cannot be deprived of his nationality.</p> <p>The acquisition and relinquishment of Palestinian nationality and the rights and duties of those with multiple citizenships shall be regulated by law.</p> <p>Palestinian Basic Law (2003), Article 28, ‘No Palestinian may be deported from the homeland, prevented or prohibited from returning to or leaving it, deprived of his citizenship, or handed over to any foreign entity.’</p>
<p>UDHR - Article 17. (1) Everyone has the right to own property alone as well as in association with others.</p> <p>(2) No one shall be arbitrarily deprived of his property.</p>	<p>Freedom of property ownership</p> <p>In the Palestinian National Authority, selling land to Jews is a crime punishable by death</p> <p>Palestinian Constitution (2003), Article 17: ‘Homes shall be inviolable; thus, they shall not be subject to surveillance, entrance or search, except in accordance with a valid judicial order, and in accordance with the provisions of law. Any consequences resulting from violations of this article shall be considered invalid. Individuals who suffer from such violation shall be entitled to fair compensation guaranteed by the Palestinian National Authority.’</p> <p>Palestinian Basic Laws (2003), Article 21, part 3: ‘Private</p>

	<p>property, both real estate and movable assets, shall be protected and may not be expropriated except in the public interest and for fair compensation in accordance with the law or pursuant to a judicial ruling.’</p> <p>Palestinian Basic Laws (2003), Article 23: ‘Every citizen shall have the right to proper housing. The Palestinian National Authority shall secure housing for those who are without shelter.’</p>
<p>UDHR - Article 25. (1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.</p> <p>(2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.</p>	<p>Palestinian Constitution (2003) Article 25: Work is a right, duty and honor.</p> <p>Article 33: A balanced and clean environment is one of the human rights. The preservation and protection of the Palestinian environment from pollution, for the sake of present and future generations, is a national duty.</p> <p>Article 29: Maternity and childhood welfare is a national duty.</p> <p>Article 26: Palestinian shall have the right to participate in the political life individually and in groups.</p>

*Source: Universal Declaration of Human Rights & Palestinian Constitutions, 2003 revised edition

1.4. Demographic Status in the oPt

The political changes and Israeli imposed restrictions have affected all aspects of life for the Palestinian people in the oPt and within the Palestinian Diaspora. The region has witnessed demographic and social changes; as a result of the 1948-war, 78% of Mandate Palestine was taken to form what is presently known as the State of Israel, where around 800,000 Palestinians were evicted from their lands and homes, while Palestinians who stayed in their homeland were effectively naturalized (against their will) (McDowall and Palley, 1987).

Currently, the total Palestinian population living in Mandate Palestine is estimated by the end of 2010 at 5.5 million, of which some 4.11 million live in the oPt and about 1.36 million in Israel (PCBS, 2010f est.). However, according to the Israel Central Bureau of Statistics (CBS), the total number of Palestinians in Israel in 2010 is estimated at 1,573,000 (CBS, 2011). In 2006, the official number of Palestinian residents in Israel was 1,413,500 people, totaling around 20% of Israel’s population

(CBS, 2007). Nevertheless, there are about 5.9 million Israelis, of Jewish faith, living in Mandate Palestine, of which, 5.4 million in Israel and about 0.6 million in Israeli settlements built illegally on Palestinian lands in the oPt (PCBS, 2008a).

Demographic Indicators:

The indicators used to analyze the demographic status and trends in the oPt have been divided into those which have a direct and indirect impact on human rights' protection. For example, some indicators clearly directly effect the protection of a specifically mentioned right from one of the aforementioned rights' charters/legislative documents. However, there are some that are related to lifestyle rather than rights' although they still have an impact on quality of life issues that relate to the general picture of rights' enforcement.

Table 3.1.1.1.: Demographic indicators and their relation with Human Rights

Indicator	Human rights' relevance
Population in the oPt	Indirect impact. Population density indicates quality of life, access to services etc.
Population annual growth rate (%)	Indirect impact. Compare this with growth in economy and services to determine lifestyle quality. Also indicates overcrowding and urbanization.
Population Projections	Indirect impact. How human rights fare in future years if changes are not made
The Infant Mortality Rate (IMR)	Direct impact. Right to life; right to development. Development linked with IMR.
Marital Status	Direct impact. Focus through a gender lens-look at cultural context of marriage and opportunities for women. Women's rights'
Housing (quality and % of population in camps)	Direct impact. Quality of life. Right to housing.
Crude death rate	Indirect impact. Right to life- plus and indicator into quality of life.
Crude birth rate	Indirect impact. Indicator into sex education, life opportunity
Life expectancy	Indirect impact. Right to life- indicator on quality of life.
Displaced persons (%)	Direct impact. Right to nationality and freedom of movement plus right to own property
% of women landowner	Landownership rights

Population in the oPt

In 2007, the Palestinian Central Bureau of Statistics (PCBS) conducted the Second Census in the oPt. The results indicated that the estimated total population living in the oPt at the end of 2010 was about 4.1 million inhabitants, of which 2.5 million inhabitants were living in the West Bank, including East Jerusalem, and 1.6 million were living in the Gaza Strip (PCBS, 2010f). Based on the 2007-Census data, the

PCBS projected the total population of the oPt until the year 2016. The projected population of the oPt in the mid of 2011 was 4,168,858 inhabitants, with an annual growth rate of 2.9% (PCBS, 2010a est.). Map 3.1.1.1 below shows the Palestinian population in the oPt's governorates in the mid of years 2007 and 2011:



Map 3.1.1.1: Palestinian population of the oPt (2007 & 2011)

Although agricultural lands make up the slim majority (61.2%) of the oPt's area, very few areas receive adequate irrigation for cultivation (WFP/ARIJ, 2010). Therefore, the

agriculture industry suffers and few wish to live in rural areas, hence, population density occurs in urban areas of the oPt. Approximately 73.8% of the total Palestinian population were documented in mid- 2011²⁴ to be living in urban areas, 16.9% of the population in rural areas and only 9.3% in refugee camps (PCBS, 2011a est.). It is noted however that lack of irrigated lands is not the sole reason that has made Palestinians leave agricultural lands (Human Rights Watch, 2009); Israeli occupation practices have also had a major impact on Palestinian emigration, through a number of measures such as forced land grab, annexing of Palestinian lands through the creation of the Segregation Wall.

According to the PCBS (2010f) the estimated number of males in the oPt at the end of the year 2010 was 2.1 million and 2.0 million females. The sex ratio is 103.1 males per 100 females, compared with 103.0 males in 2007 (PCBS, 2008b). However, according to the 2010 immigration survey, the population's age structure in the oPt indicated that the Palestinian community is young. About 41.3% of the total population is less than 15 years old, while 3.0% of the population is 65 years and above (PCBS, 2010b). This is due to the high fertility rate and decline in child mortality. Figure 3.1.1.1 shows population pyramids, presenting the age group and gender distribution of the 2010 population in the oPt.

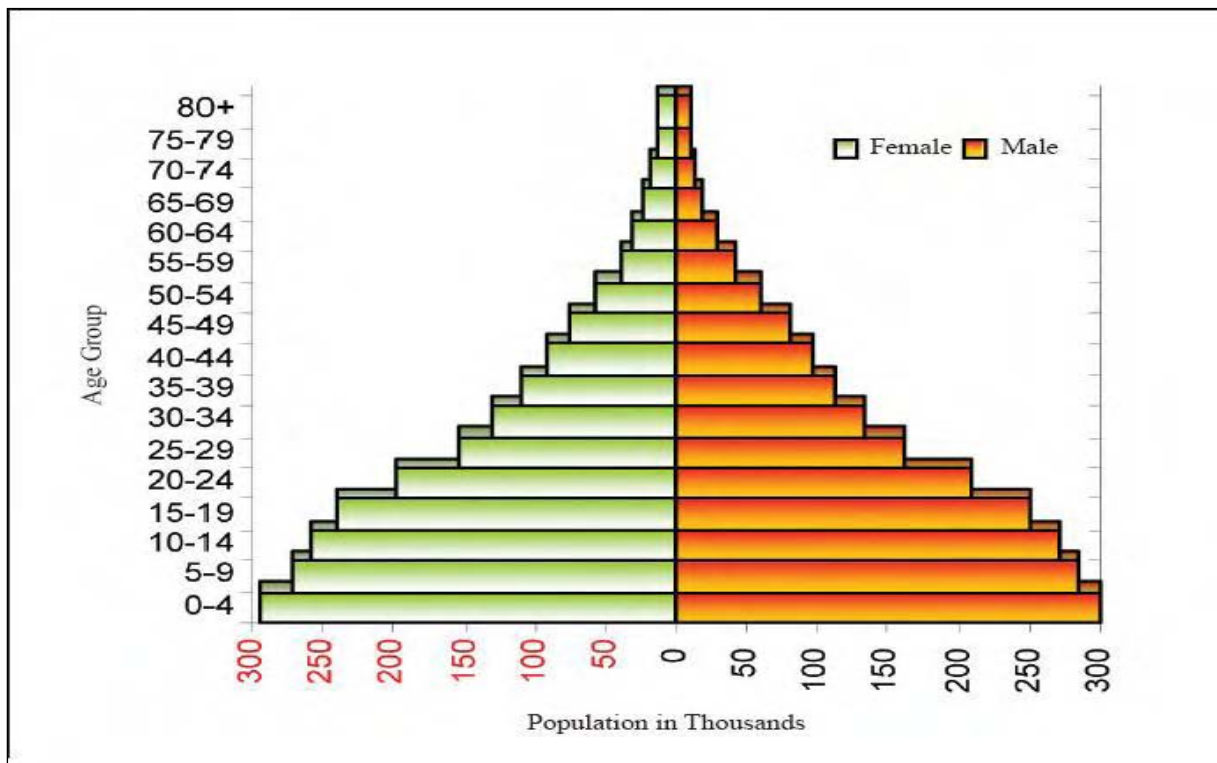


Figure 3.1.1.1: Population pyramid in the oPt, end of 2010

Source: Palestinian Central Bureau of Statistics, 2011g.

Table 3.1.4.2 shows areas “A”, “B”, “C” as well as “Nature Reserves” classification in the West Bank, according to the Oslo Agreement of 1995, and in addition to the Palestinian population distribution in these areas. The table below indicates that 93.5% of the Palestinian population living in Area “A” and “B”, while 6.4% of the

²⁴ This covers the West Bank and Gaza.

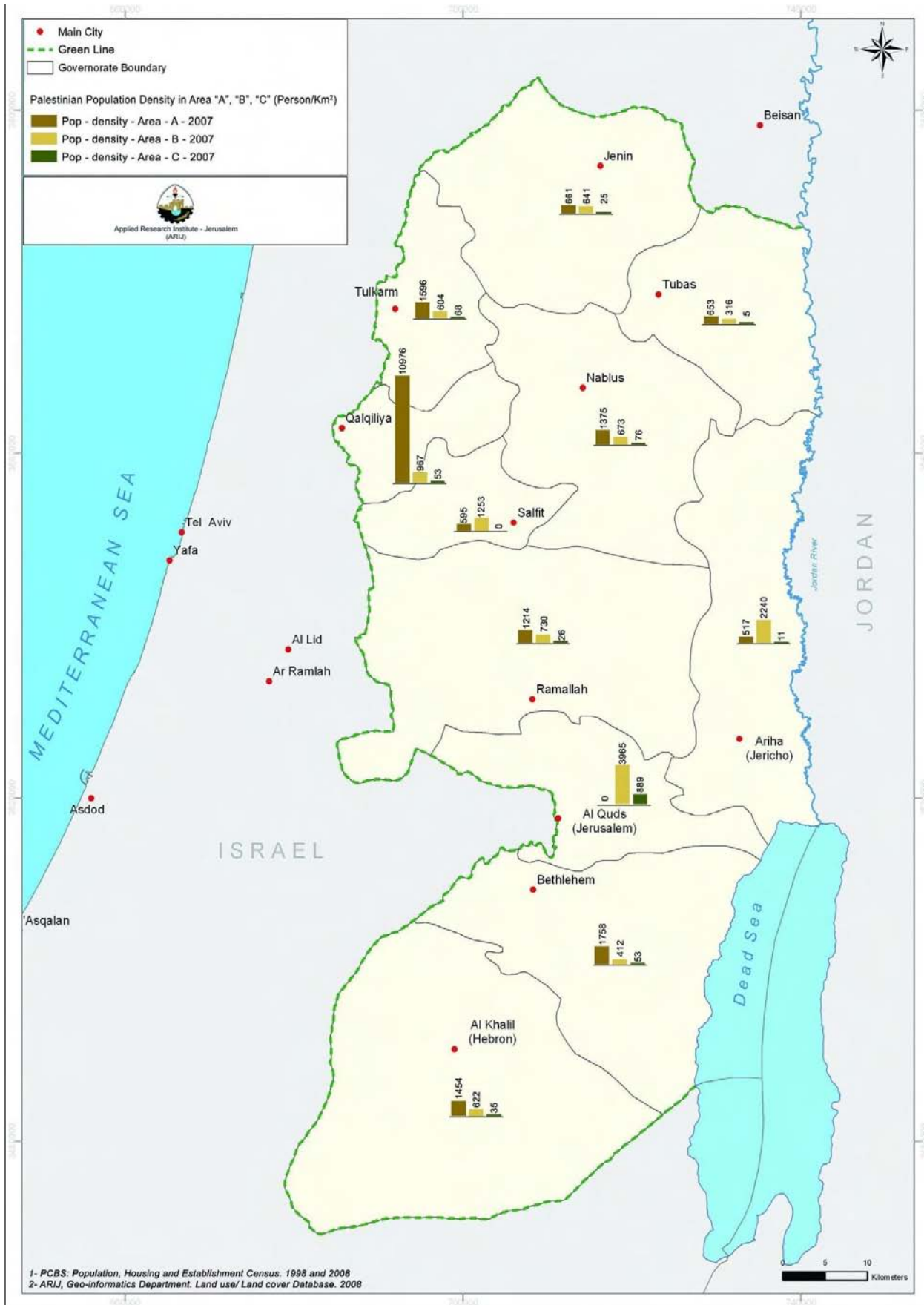
Palestinian population living in Area “C”. However, Area “A” and “B” comprises 36.0% of the total West Bank area while Area “C” comprises 61.0% of the total West Bank area.

Table 3.1.1.2: Classification of areas A, B, C & Nature Reserve by population, area and density

Area	Population (2007)	Area (km²)	Pop. Density per km²
Area (A)	1,436,330	1,005	1429.2
Area (B)	1,139,856	1,035	1101.3
Area (C)	176,396	3,456	51.0
Nature Reserves	2,826	165	17.1
Total	2,755,408	5,661	486.7

Source: PCBS, 2009; ARIJ GIS-Database, 2011

Map 3.1.1.2 shows the population density over areas A, B and C of the West Bank governorates (2007):



Map 3.1.1.2: Population density over areas A, B & C of the West Bank, 2007

The administrative divisions of the oPt are comprised of 16 Palestinian Governorates; 11 in the West Bank and 5 in the Gaza Strip. According to the "Local Community Survey", conducted by the PCBS in 2010, the total number of Palestinian local authorities stood at 479 in the West Bank, and 33 in the Gaza Strip.

Table 3.1.4.3 shows that Hebron Governorate have the highest population (620 thousand) out of all the Palestinian Governorates; accounting for 14.9% of the total population of the oPt. The Gaza Governorate has the second highest population (552 thousands), which amounts to 13.2% of the total population (PCBS, 2011a est.). On the other hand, the Jericho and Rafah Governorates have the lowest populations, each among the West Bank and the Gaza Strip, (47 and 195 thousand, respectively) (PCBS, 2011a est.).

Table 3.1.1.3.: Distribution of local authorities in the Palestinian Governorates by type of local authority, 2011

Governorate	Population*	Area in km ² **	Number of Local Authorities*
oPt	4,168,858	6,023	558
West Bank	2,580,167	5,661	525
Jenin	281,156	573	80
Tubas	56,642	366	21
Tulkarm	168,973	245	35
Nablus	348,023	614	64
Qalqiliya	100,012	174	34
Salfit	64,615	202	20
Ramallah and Al-Bireh	310,218	849	75
Jericho and Al Aghwar	46,718	609	14
Jerusalem	389,298	354	44
Bethlehem	194,095	608	45
Hebron	620,417	1,068	93
Gaza Strip	1,588,691	362	33
North Gaza	309,434	61	5
Gaza	551,832	72	5
Deir AL-Balah	230,689	56	11
Khan Yunis	301,138	109	8
Rafah	195,598	64	4

Source:* PCBS 2007

** ARIJ GIS Unit, 2011

The continuing growths in population have resulted in an increase the population density in all Palestinian localities (there has been no stagnation or decline in population density in any region). Furthermore, with a yearly growth rate of about 3.3%, the Gaza strip has the 7th highest population growth rate in the world (PCBS, 2010b est.) while the growth rate in the West Bank is 2.7% (PCBS, 2010b est.).

According to the UN World Projections Report (2008 revised edition); both the oPt and neighboring Israel fall in in the top ten most density populated territories in the World (See Table 3.1.1.4).

Table 3.1.1.4: The top ten most density populated territories in the world

Rank (Pop per km ²)	Country/Region Notes	Population	Area (km ²)	Density
1	Singapore	5,076,700	707.1	6,535
2	Bangladesh	142,325,250	147,570	1,069
3	Mauritius	1,288,000	2040	631
4	oPt	4,223,760	6,020	702
5	Republic of China	22,955,395	36,190	640
6	South Korea	48,456,369	99538	487
7	Lebanon	4,224,000	10452	404
8	Netherlands	16,690,000	41,526	402
9	Rwanda	9,998,000	26338	380
10	Israel	7,697,600	20770	371

*Source: UN World Projections Report; 2008

Population Projections

According to the PCBS projections, the population of the oPt increased by 12.1% for the period 2007-2011. In the West Bank, the population increased by 11.0% and by 13.8% in the Gaza Strip. The projection indicated that the Palestinian population will increase to reach 4.8 million by the year 2016; with an increase of about 29.5% between 2007 and 2016. The projection indicated that the population will reach 2.9 million in the West Bank and 1.9 million in the Gaza Strip by 2016 with an increase of 26.3% in the West Bank and 34.8% for Gaza in the same period. (Figure 3.1.1.2) This population growth will have a significant impact on the quality of life-style and rights' protection of a number of Palestinians within the oPt. For example, services will be stretched, resources limited and poverty potentially increased (if adequate economic systems are not put in place to ensure financial growth matches population increase).

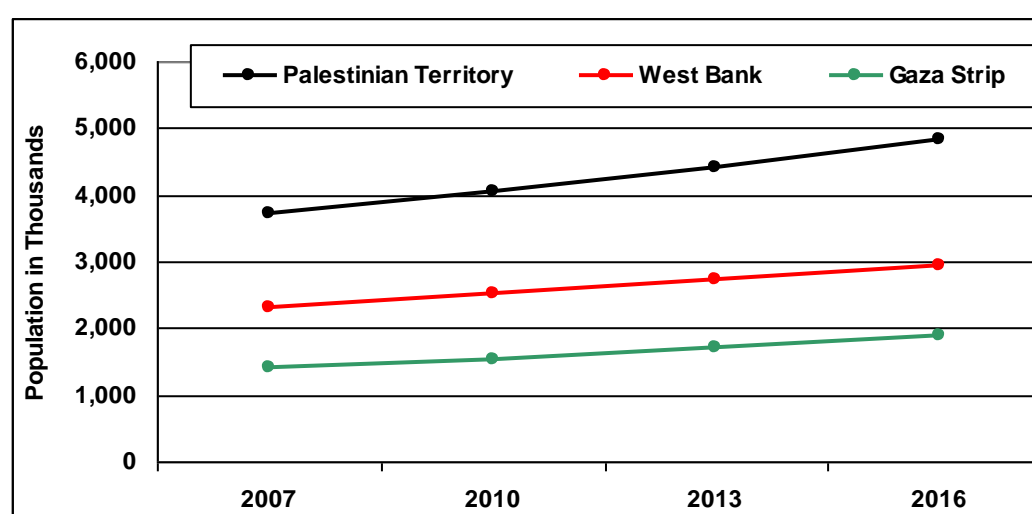


Figure 3.1.1.2: Palestinian population projection in the oPt from 2007-2016

Source: (PCBS, 2007) 25

²⁵ The population of the West Bank including people living in East Jerusalem

Household Size

The total estimated households in the oPt was 694,652; of which 457,357 household in the West Bank and 237,295 in Gaza Strip mid 2010 (PCBS, 2009a). Data revealed that there was a decline in the average households size in the oPt during the period (2007-2010), declined from 5.8 persons in 2007 to 5.5 persons in 2010. The noticeable decrease was in Gaza Strip where the rate declined from 6.5 in 2007 to 5.8 in 2010 (PCBS, 2010a). It is noted that the average number of members per household is higher for the oPt than it is for many other Arab and neighboring states, as shown in Table 3.1.1.5

Table 3.1.1.5: Average number of members per household for some Arab and neighboring states

State/region	Average household size	Year of data + source
oPt	5.5	2010*
Egypt	4.4	2010**
Jordan	5.3	2004***
Israel	3.74	2010 ****
Lebanon	4.23	2007*****

Source:

*PCBS (2010a).

** Egypt Central Agency for Mobilization and Statistics (CAPMAS) (2010)

*** Hashemite Kingdom of Jordan, department of statistics – next census to be undertaken- 2014

**** Israeli Bureau of Statistics (2010)

***** Lebanon Central Administration for Statistics (2007).

The higher household size can be attributed to a combination of factors. Firstly the fertility rate in the oPt is markedly higher than other states. Secondly, cultural factors such as families living together in close units also contribute to a higher household number. However, this is not a cultural trait unique to the oPt; most other Arab states share this phenomena. Therefore, the higher rate can be contributed to population growth and overcrowding along with increased fertility rate.

Larger households however have an increased chance of falling victim to poverty and the associated problems that come with this condition. For example, there is a direct positive correlation between larger household sizes and those falling under the UNRWA defined poverty line²⁶. The figure provided by UNRWA show that as of 2009, the relationship between poverty and household size effects the following regions: (Table 3.1.1.6).

Table 3.1.1.6: Poverty rates by household size and Governorate, 2009

Household size (No. of persons)	Poverty Rates						
	Nablus	Tulkarm	Jenin	Qalqiliya	Ramallah	Bethlehem	Hebron
1	6%	-	0%	6%	0%	-	10%
2 - 3	4%	5%	5%	7%	3%	3%	6%
4 - 5	14%	27%	19%	32%	12%	17%	26%

²⁶ UNRWA's poverty line is defined as of 2009 as: Each person living (or less than) 10.33 NIS a day

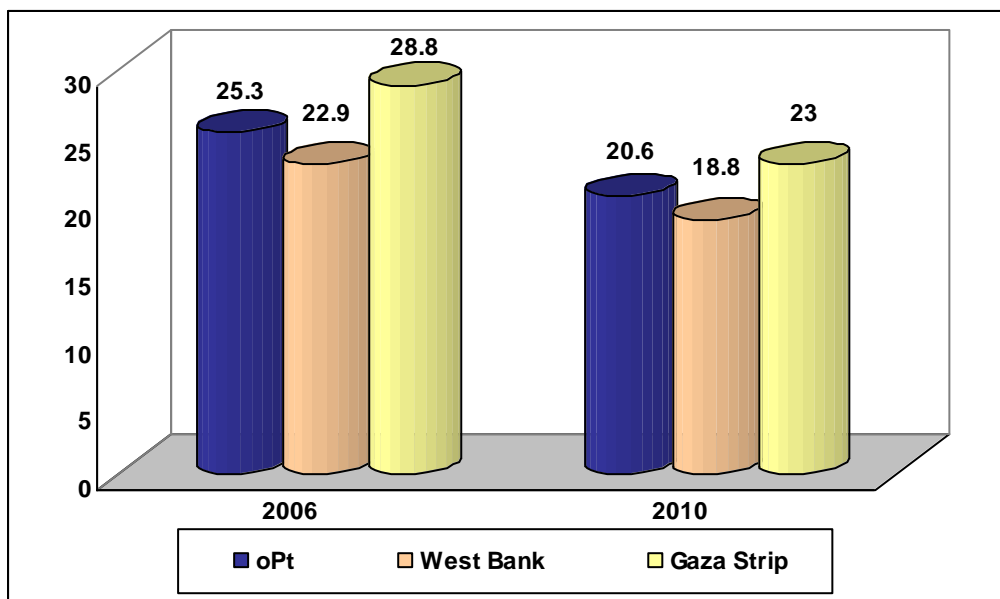
6 - 7	24%	26%	33%	33%	13%	27%	30%
8 - 9	26%	38%	40%	49%	20%	28%	36%
10+	44%	52%	42%	53%	46%	30%	57%

Source: UNRWA Report (2011)

The poverty rate among Palestinian households was 34.5% (23.6% in the West Bank, and 55.7% in Gaza Strip). The poverty rate according to the income patterns was 57.3% (47.2% in the West Bank, and 76.9% in Gaza Strip). Data revealed that 23.8% of the households in the oPt were suffering from deep poverty in 2007 according to consumption patterns, (13.9% in the West Bank, and 43.0% in Gaza Strip), while according to income patterns 48.0% of households were suffering from deep poverty (37.3% in the West Bank, and 69.0% in Gaza Strip) (PCBS, 2009a).

Human Trends

According to PCBS data, the growth rate in the oPt reached 2.9% in the mid- 2010. This percentage is high compared to other countries. The crude birth rate reached 32.8 births per 1,000 people and the crude death rate reached 4.1 deaths per 1,000 people in 2011 (PCBS, 2010a). Gaza Strip had the highest rates at 29.2 per 1,000 live births compared to the West bank at 22.1 per 1,000 live births (PCBS, 2011b) (See Figure 3.1.1.3).



Source:

Figure 3.1.1.3: Infant mortality rates by Region, 2006, 2010

Source: PCBS, 2011b

Fertility rate is declining in both the West Bank and the Gaza Strip, but still considered relatively high. The total fertility rate in the oPt declined from 4.6 in 2007 to 4.2 in 2010. In the West Bank, the fertility rate was 4.2 in 2007 and down to 3.8 in 2010. In Gaza Strip, it was 5.4 in 2007 and decreased to 4.9 in 2010 (MoH, 2008; 2011).

The fertility rate is high in the oPt, which is due to a variety of cultural factors, such as son preference, early marriage and a low percentage of women in the labor force

(PCBS, 2010b) The Total Fertility Rate (TFR) declined to reach 4.2 births per woman in 2010; in comparison to 4.6 in 2007 (MOH, 2011). However this is still much higher than most other Arab states (and Israel) (See Table 3.1.1.7):

Table 3.1.1.7: Fertility rate in some Arab and neighboring states

State/region	Fertility Rate (2009)
oPt	4.2*
Jordan	3.4
Syria	3.1
Lebanon	1.8
Egypt	2.8
Israel	3.0

Source: World Bank Group Country stats, 2010

* MOH, 2011. Data for 2010

Within the last 4 years the life expectancy increased from 70.2 years in 2007 to 72.2 years in 2010 (MoH, 2011). The average life expectancy at birth for Palestinians increased to reach 70.8 years for males and 73.6 years for females in 2010 (PCBS, 2010i). In comparison with the world average, which for 2009, is set at 69; the oPt clearly fares better (World Bank, 2010).

These improvements in human trends represent the improvement in the living standards, health services, and health awareness among people in addition to the gradual decline of children and infant mortality rates (PCBS, 2009a). This in turn indicates an increase in rights' protection in the territory, as the protection of rights is rated (Nb: not in a direct causal sense) to life expectancy and other life quality factors.

1.5. Palestinian Population in the Diaspora

According to paragraph 11 of UN resolution 194 (III), the recognition of refugees' right of return to their homes is stated as follows: "Refugees who wish to return to their homes and live at peace with their neighbors should be permitted to do so at the earliest practical date, and that compensation should be paid for the property of those choosing not to return and for loss of or damage to, property which under principles of international law or in equity, should be made good by the governments or authorities responsible." The concept of refugee rights is further supported by article 13 of the UNDHR: "Everyone has the right to leave any country, including his own, and to return to his country."

Many Palestinians forced to leave their homes have taken residence or refuge in neighbouring Arab states. In many cases their lives there are not easy ones and their rights are violated or disrespected by the governments and the societies in which they now live. For example, Palestinians in Lebanon face many challenges with regards to the protection of their labour rights. Restrictive Policy exists in Lebanon against Palestinian refugees; much of the legislation regulating the Lebanese labour market does not address the issue of Palestinians as workers and has left them in a legal midpoint (Khalil, 2009). This is just one example out of many and numerous reports

can be found regarding the erosion of Palestinians' rights in many other spheres and in many other nations (Hammer, 2005).

Right of Return

Another question at the very heart of the Middle East peace process is the Palestinians' right of return. The recognition of the Palestinian refugees' right of return entails also recognition of their individual and collective history. Refugees are the pure expression of the injustice that Palestinians have suffered for more than 63 years. Palestinian refugees have made clear that they will not accept financial compensation instead of full reparations, which include the right to return and property restitution (BADIL Resource Center, 2007). Furthermore, one can consider that the non-recognition of the right to return undermines also the right to self-determination since restricts Palestinian nationhood and obliges them to accept a state of permanent exile. One cannot think that returning means going back in time; return is something about the future, a fair and better future.

According to a BADIL study conducted in 2008, the total Palestinian refugee population comprises three-quarters of the entire Palestinian population worldwide. 4.7 million Palestinian refugees were displaced in 1948 and registered for assistance with the UN Relief and Works Agency (UNRWA), however, this number is recorded by the UNRWA's statistics at the end of 2010 to be 4,996,664 registered refugees (UNRWA, 2011a). Furthermore, an estimated 1.5 million Palestinian refugees were displaced in 1948 but not registered for assistance, 955,247 more refugees were displaced in 1967 (there are also an estimated 335,000 internally displaced Palestinians in Israel, and an estimated 129,000 internally displaced Palestinians in the oPt).(BADIL Resource Center, 2008). As a result, Palestinian refugees are the largest (and longest standing) single group of refugees in the world.

Moreover, PCBS statistical data also shows that refugees in the oPt constitute 44.0% of the total Palestinian population in the oPt. UNRWA's records in mid 2010 showed that the number of registered Palestinian refugees totaled 4.8 million, constituting 43.4% of the total Palestinian population worldwide. These refugees were recorded as being distributed in the following regions; 60.4% living between Jordan, Syria, Lebanon, 16.3% in the West Bank, and 23.3% in Gaza Strip (PCBS, 2011e). Furthermore, approximately 29.4% of Palestinian registered refugees live in the 58 refugee camps, of which 10 are in Jordan, 9 in Syria, 12 in Lebanon, 19 in the West Bank, and 8 in Gaza Strip (See Table 3.1.1.8 & Figure 3.1.1.4) (PCBS, 2011e).

Table 3.1.1.8: Population of Palestinian Refugees in Camps (Official and Unofficial), mid 2008

Area	Official camps	Unofficial camps
Gaza Strip ²⁷	492,299	-
West Bank ²⁸	191,408	1,614
WB & GS: Total	685,321	
Jordan	335,307	24,385
Total	359,692	
Lebanon	220,809	18,631
Total	239,440	
Syria	123,646	148,341
Total	271,987	
Grand Total	1,556,440	

Source: BADIL Center, 2010

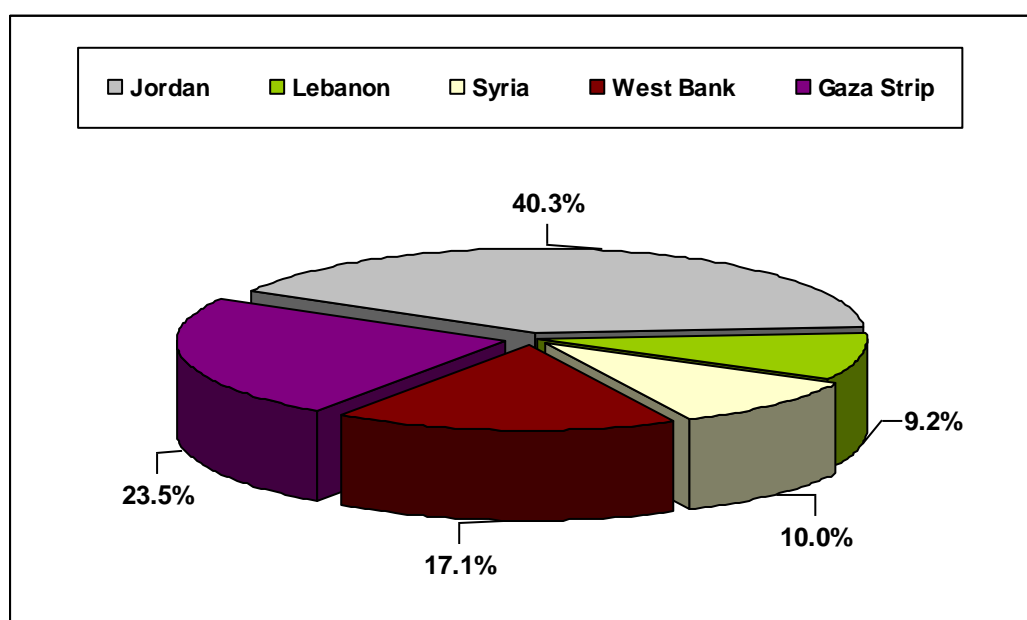


Figure 3.1.1.4: Percentage of Registered Refugees, 2011

Source: UNRWA, 2011a

²⁷ During the 1970s, the Israeli military administration destroyed thousands of refugee shelters in the occupied Gaza Strip under security prettexts. Large refugee camps were targeted in particular. Refugees were forcibly resettled in other areas of the occupied Gaza Strip, with a smaller number transferred to the occupied West Bank. In the occupied Gaza Strip, several housing projects were established for these refugees. Some of these projects today are referred to as camps. These include the Canada project (1972), the Shuqairi project (1973), the Brazil project (1973), the Sheikh Radwan project (1974), and the al-Amal project (1979).

²⁸ There are more than 4,220 ex-Gaza refugees distributed throughout West Bank camps.



Map 3.1.1.3: Population Refugees Camps, 2010

Also, when depopulated, most of the Palestinian villages were also destroyed, to prevent the return of the refugees. For example, in the districts of Jaffa, Ramla and Bir Saba, not one Palestinian village was left standing (BADIL Resource Center, 2007). As if that was not enough, some refugee camps have also been destroyed during the military invasions.

By forbidding those refugees the right to return to their homes, Israel is once again constantly violating the international law. The basis for the right of return in international law, and especially for the Palestinian case, is hard to refute on a moral and legal basis.

Box 1

Israeli Violations of International Law

- **Major Legal Principle Violated:**
 - Parties to military conflict and occupation are required to allow civilians to return to their homes following the end of fighting; no matter what their reasons for leaving.
- **International Law:**
 - **Geneva Conventions IV (1949):**
 - **Article 45:** “Protected persons shall not be transferred to a Power which is not a party to the Convention. This provision shall in no way constitute an obstacle to the repatriation of protected persons, or to their return to their country of residence after the cessation of hostilities”.
 - **Article 46:** “In so far as they have not been previously withdrawn, restrictive measures taken regarding protected persons shall be cancelled as soon as possible after the close of hostilities. Restrictive measures affecting their property shall be cancelled, in accordance with the law of the Detaining Power, as soon as possible after the close of hostilities”.
 - **Article 49:** “Individual or mass forcible transfers, as well as deportations of protected persons from occupied territory to the territory of the Occupying Power or to that of any other country, occupied or not, are prohibited, regardless of their motive. Nevertheless, the Occupying Power may undertake total or partial evacuation of a given area if the security of the population or imperative military reasons so demand. Such evacuations may not involve the displacement of protected persons outside the bounds of the occupied territory except when for material reasons it is impossible to avoid such displacement. Persons thus evacuated shall be transferred back to their homes as soon as hostilities in the area in question have ceased”.
 - **Geneva Conventions Protocols I (1977):**
 - **Article 85:** (4). “In addition to the grave breaches defined in the preceding paragraphs and in the Conventions, the following shall be regarded as grave breaches of this Protocol, when committed wilfully and in violation of the Conventions or the Protocol: (b) unjustifiable delay in the repatriation of prisoners of war or

- civilians; (5). Without prejudice to the application of the Conventions and of this Protocol, grave breaches of these instruments shall be regarded as war crimes”.
- **Universal Declaration of Human Rights (1948):**
 - **Article 13: (2)** “Everyone has the right to leave any country, including his own, and to return to his country”.
 - **International Covenant on Civil and Political Rights (1966):**
 - **Article 12: (4)** “No one shall be arbitrarily deprived of the right to enter his own country”.
 - **International Convention on the Elimination of all forms of Racial Discrimination (1969):**
 - **Article 5:** “State parties undertake to prohibit and to eliminate racial discrimination in all its forms and to guarantee the right of everyone, without distinction as to race, colour, or national or ethnic origin, to equality before the law, notably in the enjoyment of the right to leave any country, including one’s own, and to return to one’s country”.
 - **International Convention on the Suppression and Punishment of the Crime of Apartheid (1973):**
 - **Article 2: (c)** “Any legislative measures and other measures calculated to prevent a racial group or groups from participation in the political, social, economic and cultural life of the country and the deliberate creation of conditions preventing the full development of such a group or groups, in particular by denying to members of a racial group or groups basic human rights and freedoms, including... the right to leave and to return to their country, the right to a nationality”.
 - **International Response:**
 - **United Nations General Assembly:**
 - **Resolution 194 (III) (1948), article 11:** “refugees wishing to return to their homes and live at peace with their neighbours should be permitted to do so at the earliest practicable date, and that compensation should be paid for the property of those choosing not to return and for loss of or damage to property which, under the principles of international law or in equity, should be made good by the Governments or authorities responsible”.
 - **United Nations Security Council:**
 - **Resolution 237 (1967), article 1:** “Calls upon the Government of Israel to ensure the safety, welfare and security of the inhabitants of the areas where military operations have taken place and to facilitate the return of those inhabitants who have fled the areas since the outbreak of hostilities”.

The Palestinian population all over the world was estimated at the end of 2010 to total around 10.97 million, compared with 10.1 million at the end of 2006; distributed across the oPt, Israel and abroad (PCBS, 2010a est.). 37.5 % of Palestinians live in the oPt; 62% of which live in the West Bank and 38% in the Gaza Strip, 44.4% lives in

Arab countries, 12.4% inside the Green Line, and 5.7% lives in foreign countries (PCBS, 2010a est.). In terms of emigration, the PCBS provides the following data; Tables 3.1.1.9 and 3.1.1.10:

Table 3.1.1.9: Number of Emigrants and Returnees, 2005 – 2009

Year	Returnees	Emigrants
2005	7,077	5,841
2006	6,054	5,205
2007	5,000	7,290
2008	5,854	7,390
2009	6,426	7,122

Source: PCBS, 2009a

Table 3.1.1.10: Percentage and distribution of Palestinian Emigrants by Year of Emigration and Sex, 2010

Year of Immigration	Sex		
	Females	Males	Both Sexes
Before 2000	55.8	48.3	51.2
2000 – 2004	16.4	15.5	15.9
2005 - 2010	22.6	32.2	28.4
Not Stated	5.2	4.0	4.5
Total	100	100	100

Source: PCBS, 2011c

This highlights more clearly the extent of emigration and the scale of the Palestinian Diaspora. Unfortunately the national statistic database provides emigration figures by broad time frames and one cannot see in a more disaggregated sense where fluxes of emigration occurred. For example, it would be interesting to see in further details, which specific times (which months/years) emigration peaked at in the pre 2000 period²⁹.

The Right of Return is linked to the Right of self determination, however it is noted that neither of these issues are easily defined nor easily protected by international or national law. Prof. Waters undertook research into what limits there ought to be on a state's ability to create a homogeneous society, to increase or perpetuate non-diversity, or to create hierarchies within existing diversity in the context the Lieberman plan. His paper finds that there is no rule requiring states to condition transfer of territory on the consent of the affected population, and that norms protecting citizenship are considerably more complex than they first appear - even allowing ethnically targeted denaturalization in some cases (Waters, 2007). The general problem identified by his study is the complex nature of rights' protection in the case of land transfer and citizenship.

Some of these issues concern rights' protection in the oPt, whilst some obviously pertain to the countries in which Palestinians' now reside. Many Palestinians (if not all) maintain that they were forcibly removed from their homelands, making them

²⁹ This is of obvious interest as this is the period of great geographical and territorial change and political challenges (i.e. notably, the 1967 war, the first intifada, and physical changes in the Palestinian territory)

refugees of force, not willing migrants. It is claimed that Israeli occupation denied them the right to lands, security and natural resources, forcing them to leave oPt and take residence in neighboring or other world states/regions (PCHR, 2003; 2004). In leaving Palestine, the refugees suffered many problems concerning freedom of movement, nationality, ownership of property etc. Let's consider the complexity of these issues in turn:

1.6. Social Trends in the oPt

Marital Status

The social trends in the oPt improved during the last ten years, where the median age at first marriage increased to reach 25.4 years for males and 20.1 years for females in the oPt (PCBS, 2010d). Tables 3.1.1.11 and 3.1.1.12 shows the average age at first marriage in the oPt by region and in the oPt in comparison with some other Arab and neighboring states:

Table 3.1.1.11: Median Age at first marriage in the oPt by region and sex

Region	1997	2007	2008	2009
West Bank/ males	23.0	25.2	25.4	25.4
West Bank/ females	18.0	19.6	19.8	19.9
Gaza Strip/ males	23.0	24.0	24.0	-
Gaza Strip/ females	18.0	19.0	19.0	-
oPt/ males	23.0	24.6	24.8	-
oPt/ females	18.0	19.4	19.5	-

Source: PCBS (2010d)

Table 3.1.1.12: Median age at first marriage in the oPt and some Arab countries and Israel by sex, 2009

States/region	Average age at marriage (Male)	Average age at marriage (Female)
oPt*	24.6	19.4
Jordan**	29.5	26.5
Lebanon**	28.6	23.7
Egypt**	25.9	24.2
Israel**	25.5	24.8

* PCBS 2009a.

** United Nations Department of Economic & Social Affairs; 2008

It is noticed here that the oPt has a significantly lower first marriage age for both males and females in comparison to neighboring states. This could be due to economic pressures in the region leading to girls being married off to save economic burden on their families and to provide them with a more secure life. Many rights' groups have observed a link between declining economy and a lower age for first time marriage (Freedom House, 2010). However, about a quarter of all women, in 2001, had married by age 19 suggesting that a sizeable number of women married as teenagers. On the other hand, more than 25 percent had not married by age 27 suggesting that another sizeable group of women postponed marriage until their late 20s, older, or never (Abu-Rmeileh, 2008).

The marital status of women in 2009 saw 55.9% married, 6.1% widowed, 1.3% divorced, 0.2% separated and 36.5% single. The average age for a woman to marry was 19.5, while 9% of women over 30 had never been married compared to about 3% only for men (PCBS, 2009). On another hand, 4 % of men had multiple wives in 1997 (Gender Index, 2000).

According to the 2008 database of registered marriages and divorces, 92.3% of females were in the 15-29 year age group at marriage compared to 81.5% of males. The database also showed that 77.6% of divorced females were aged between 15-29 years compared with 55.9% for divorced males (PCBS, 2011d).

The 2010 data showed that 30.2% of marriages for ever married women (15-29 years) were to first consanguinity husbands while 54.9% of marriages were to husbands who were not blood relatives (PCBS, 2011d).

Available evidence indicates that there has been little change in cousin marriage rates during the past several decades among Palestinians living in the oPt. In the 2004 Department of Health Services (DHS) study (PCBS, 2004) 27.4 % of ever married women aged 14-49 were recorded as having married their first cousins. These rates are similar to the rates measured from the 2000 DHS and 1995 DHS. It is found that kin had higher odds of marriage than non kin, and further knowledge about marriage of cousins would be helpful to enhance the understanding of marriage in the oPt (Abu-Rmeileh, 2008).

The crude marriage rate and crude divorce rate reached 8.8 marriages per 1,000 people and 1.1 divorces per 1,000 people in the year 2008, respectively, compared with 8.4 marriages and 1.2 divorces per 1,000 people in 1997 (PCBS, 2008b).

The lack of data on this issue is most likely due to the culture sensitive issue of divorce in Arab culture and the reluctance of state institutions to investigate the phenomena: ‘Even discussing divorce has long been a taboo in Arab states.’ (Hassi, 2010).

Housing

Housing and urban planning trends have been affected by Israeli Occupation, which has a notable impact of Palestinian quality of life, their access to services, national infrastructure, and ultimately right to adequate standards of living. With the restrictions on land, the area available for building became smaller, which led to a lack of housing units and overcrowding in the housing units. However, the housing density decreased slightly in the oPt from 2.0 to 1.6 persons per room during the period 1997-2010 (PCBS, 2010g), with an average housing density in the West Bank of 1.5 persons per room and 1.8 in the Gaza Strip in 2009 (PCBS, 2010h).

In 2007 approximately 41.9% of the Palestinian households in the West Bank and 35.7% in the Gaza Strip live in housing units with 1-1.99 persons per room (PCBS, 2007). Again this is the most updated data provided by PCBS. The highest percentage

of households living in housing units with more than two persons is found in the Gaza Strip (54.5%), while in the West Bank, the highest percentage of households is found in households living in housing units with less than two persons (54.6%) (PCBS, 2007).

Since the eruption of the Second Intifada, the Israeli Occupation Forces (IOF) has demolished many Palestinian houses under the pretext of "security reasons", so as to build Israeli settlements and/or to construct the Segregation Wall. Between 2000 and 2006, the total number of Palestinian houses demolished in the West Bank was 1,934, in addition to 573 houses during the period from 2007 - 2010. In the Gaza Strip, the Israeli house demolitions were more intensive where the number of Palestinian houses demolished between 2003 and 2006 was 4,863 (ARIJ, 2006). Table 3.1.1.13 shows the number of demolished and threatened of demolition houses by year in the West Bank.

Table 3.1.1.13 : Violations in the West Bank (2007 – 2010)

Year	Demolished Houses	Houses threatened of Demolition
2007	129	389
2008	103	431
2009	145	1,457
2010	196	1,393
Total	573	3,670

Source: ARIJ Urban Monitoring Department (2011)

However, the housing conditions in the oPt improved during the last ten years, where around 91.4% of the oPt housing units had access to water public network, 99.9% had an access to public electricity networks, and 54.4% were connected to sewage public networks in 2010 (PCBS, 2010g). While in 2006, the percentage of housing units in oPt, connected to water, electricity, and sewage public network, was 90.8%, 99.2%, and 54.0% respectively (PCBS, 2010g).

Female Heading Household

Female-headed households are among the poorest in the oPt. Research shows that such households represent 9.5 percent of all households and that 73 percent of them live in extreme poverty; struggling to meet the basic needs of nutrition, housing, and clothing (Freedom House, 2010). The newly created Ministry of Women's Affairs aims to provide assistance to female heads of households and to the poor in society. It also encourages other government ministries to attend to the needs of poverty-affected populations by offering training, assistance, and employment. A number of international aid organizations also provide assistance to the poor in Palestine in the form of emergency aid programs, demonstrating the need for relief and assistance in order to protect the right to food, water and a good living standard (Freedom House, 2010).

1.7. Challenges facing the protection of demographic rights

A number of challenges face Palestinians with regards to the protection of the demographic rights. A few examples are, as follows:

- The Palestinian Diaspora is a highly sensitive issue in the oPt and raises many questions concerning human rights. As the recent statistics show, currently 63.4% of Palestinians live outside of their homeland; making them, after the Kurds, the largest modern Diaspora (Hyndman, 2000). The condition of Palestinian refugees existing outside of the oPt raises a number of human rights' issues. Of course many of these issues affect Palestinians living within the oPt but it is the diasporas that is of analysis here in this demography section. These include:
 - The rights of refugees
 - The rights of holding a nationality
 - The right of return
 - Freedom of movement in and across state borders.
 - Right to own property
- If the current situation continues, and the population increases, this will lead to a shortage in the housing units and to a future deterioration of the Palestinian households' living conditions. The PCBS projected the housing units needed in the five years between 2006 and 2010, to be 130,000.
- The overcrowding within houses and the expulsion of Palestinians from their homelands is a proven direct result of Israeli occupation (Human Rights Watch, 2010). Due to these occupying powers, demography is in such state as to deny Palestinians both their basic human rights and other substantive civil, legal and political rights. Forcing Palestinians from their lands, segregating areas within the existing territory and creating conditions that force urbanization and create ghettos, means that Palestinians' rights are further eroded.
- Many Palestinian women do not participate in decisions regarding their reproductive and sexual health: in a study published by the United Nations Development Fund for Women (UNIFEM, 2002) in 2002, 43.5 percent of women over 18 reported that they did not make the decision regarding their marriage, but that it was arranged by a male relative, and 44 percent of the women did not participate in decisions related to pregnancy and childbearing (UNIFEM, 2009). Fertility rates tend to be higher in less economically developed countries which have limited structures for the implementation of women's rights (Amnesty Report, 2008). This high fertility rate coupled with anecdotal evidence and survey results regarding the lack of women's empowerment in fertility choices, gives rise to concern about women's right and sexual education in the oPt. This is something that needs to be addressed, particularly as girls entering marriage at a younger age rise in economic decline (Amnesty International, 2008). The oPt is at present experiencing an economically crippling environment with soaring unemployment rates (approx 17.2% for West Bank and 37.8% for Gaza Strip) (PCBS, 2010f), meaning that

girls being married young to escape being an economic burden on their families is increasing along with lack of education regarding fertility (Freedom House, 2010). The Israeli occupation has a clear and marked effect on the lack of economic growth within the oPt, leading to the economic burden that is a factor in early marriage (World Bank, 2004).

- In addition to the Palestinians being deprived from their properties, including lands, building and other materials; Palestinians living in Area C are deprived to a greater extent of their human and civil/political rights (EWASH, 2010). For example residents of Area C face problems and restrictions involving the construction of houses on Area C lands, the construction and development of health clinics and educational institutions and the provision of electricity and water to their households. In addition, residents in this area face restrictions in the form of their inability to construct and pave road networks, not to mention the denial of their agricultural and environmental rights; most commonly abused through restrictions to their construction of barracks, cisterns and agricultural roads. The latter constitute major and damaging rights' violations, often because they deny access to vital resources such as water sources, sanitation and agricultural development (UNHCR, 2011).

1.8. Violations to demographic related rights in the oPt

Violations to Freedom/Right to nationality

In the case of Palestinians, they are granted a nationality; however, this nationality is not attached to statehood. This is not contra the principles of article 15 of the UDHR, and in legal terms nationality does not require attachment to a state, but a denial of statehood in the case of the oPt effects the nationality of Palestinians in many ways; in particular within the Diaspora. For example, as there is no state³⁰ of Palestine with official diplomatic relations and reciprocity agreements with neighboring Lebanon, this immediately creates an obstacle that prevents Palestinian refugees from obtaining work permits; especially within professional associations (Suleiman, 2006). Furthermore, holding a Palestinian nationality creates many forms of discrimination, i.e. Palestinians are not easily permitted to travel to Israel and are unable to live there without serious restrictions and or changing their nationality to that of 'Arab Israeli;' which is made very difficult by the Israeli state. Many Palestinians hold Jordanian nationality or seek a temporary Jordanian pass to avoid problems involving travel, freedom of movement and labor rights issues. This however is contrary to this right that supports freedom of chosen nationality (Jamjoum, 2011). Palestinians should not be forced to adopt Jordanian or other nationality in pursuit of rights' protection; they should be able to proudly hold the nationality pertaining to their historic and cultural roots and region of origin, and with this be afforded the rights' given to all other nationalities across the globe (Jamjoum, 2011). With regards to denial of nationality, Israel has created problems for those who left their lands before the new passport and ID system was in place. For those who left Palestine in the 1970's, they were

³⁰ Palestine is not recognized as a state by enough member states of the UN council and is not afforded the sovereignty and political powers of statehood by international/occupying powers.

registered under Israel's system of 'ce passé' whereby they had temporary permits granting them Palestinian identification. If that person returns now to the Palestinian territory, however, the system has lapsed and it require extensive steps being taken to reclaim Palestinian nationality; which is entirely in the decision making powers of the Israelis. This raises questions of the subjectivity/objectivity of nationality³¹ and whether denial of passport or ID constitutes a denial of nationality. But, either way, Palestinians' are clearly restricted and discriminated against in terms of travel opportunities and workers rights' in neighboring/other states; on the basis of their self-proclamation as 'Palestinian.' There are also numerous problems with Israeli nationality criteria and restriction that have an effect on Palestinians. Many Palestinians are living in the state of Israel or apply to live in the state of Israel in the belief that the state is formed on their original territories³². Yet, Israeli nationality conditions provide many restrictions to Arab who have or are granted the nationality; measures, which at best could be described as racist and discriminatory. Israel's nationality law and granting of citizenship is based on *jus sanguinis* as opposed to *jus solis*; meaning that citizenship is granted to Jewish persons on the basis of the right to return of the Jewish Diaspora³³. Israel defines itself as the 'Jewish state,' being one of just three surviving religious states³⁴ in the world. The defining of state institutions and nationality criteria on a clearly religious basis restricts Palestinians' living in Israel in a number of ways. For example, one of the conditions of Israeli citizenship is to partake in military service, although various exemptions can be granted. Certain ethnic groups, such as Arab Israelis, have received a blanket exemption³⁵ (Statman, 2009). Nationality and citizenship are therefore separate in some important areas. A Palestinian can become by nationality an Arab Israeli but do not enjoy full citizenship rights in the state of Israel.

Violations to the Right to freedom of movement

The denial of this right (freedom of movement) on the part of the Israelis is prevalent throughout the whole of the oPt. Palestinians' face numerous problems with regards to restriction of movement, which has a great impact on demographic features in the region, including people living in their villages and towns, some changes occurring in the population causing crowding in some areas, in addition to the Segregation Wall constructed by Israelis which is changing the Palestinian landscape (Gordon, 2004). Restriction of movement is not only in itself a human rights abuse but there are many other abuses that result from this impediment. For example, access to vital resources and services are denied by restriction of movement; for example, schools, hospitals, water resources, areas of land (PCHR, 2010). The problem however with determining the restriction of Palestinians as a human rights abuse comes from the wording in article 13 of the UDHR. As stated in article 13; everyone has the right to move and

³¹ Is nationality a spiritual condition felt between persons or is it something that needs be recognized in some official manner based on objective criteria?

³² Almost all are Arab Israelis, mainly residents from before the establishment of the State of Israel or their descendants (Jewish Virtual Library, 2009). This shows Israel's reluctance to grant new citizenship/ nationality rights to Palestinians not from this generation or decent thereof.

³³ The Law of Return (1950) grants every Jew, wherever he or she may be, the right to come to Israel as an *oleh* (a Jew immigrating to Israel) and become an Israeli citizen (Israeli Foreign Ministry, 2010)

³⁴ And arguably a theocracy.

³⁵ It is noted that as of 2011 Arab Israelis can partake in an alternative to IDF enrolment known as voluntary national service (Israeli Foreign Ministry Press release, June 2011).

reside freely within each state. But, given the lack of Palestinian statehood, it is hard to determine how this constitutes abuse as special rules seem to apply given its territorial status and occupation. However, it is clear that Israeli restrictions of movement into and around Israel constitute an abuse as Israel is clearly a state and every person (Palestinian or otherwise) should be allowed free movement within these boundaries. Of course it is difficult to determine which boundaries Palestinians should be granted free travel in and between because Israel as the occupier has never formally recognized any particular borders of the Palestinian territories. Therefore, Palestinians are under the arbitrary decision making power of Israeli authorities who often create new checkpoints, new boundaries and new restrictions within the oPt (Bannoura, 2011). Of course those services and natural resource that are denied as a result of restricted movement are human rights' abuses. The second part of UDHR article 13 pertains to the right of return which has been discussed in detail in the right of return section. However, what does deserve a mention here is the entrapment currently felt by Palestinians presently living in the oPt. The right of return often seems to capture the situation of those forcibly permanently (or for an extended time period) displaced from the oPt through conflict and occupation. However, there are additional problems with regards to those currently living in Palestine but wishing to leave the country for temporary purposes. The article states that any citizen should be able to leave their country and return when they wish. However, Israel controls entry and exit points into Palestinian territory and their control of the permit system which allows Palestinians to move between borders. There is anecdotal evidence of Israelis making it very difficult for Palestinians to travel across borders and indeed within Palestinian territory; sometimes denying movement altogether (PCHR, 2010). It is noted that freedom of movement is particularly restricted to residents of Gaza, where Israel has effectively created a 'blockade' in and out of the region (CBS, July 2011).

Furthermore, women in the oPt in particular do not enjoy complete freedom of movement. The Jordanian passport regulations that applied in the West Bank following the Oslo Accord of 1993 required women to secure the written permission of their "guardians" in order to obtain passports. This regulation was reversed when the Women's Affairs Technical Committee held a five-month advocacy campaign in 1996. The campaign resulted in women gaining the right to obtain passports without the consent of their guardians after the age of 18. However, while women who are aware of the change in this regulation can demand that this right be respected, officers at the Ministry of Interior continue routinely to require women to obtain written consent (Freedom House, 2010).

Denial of and violations to Property rights:

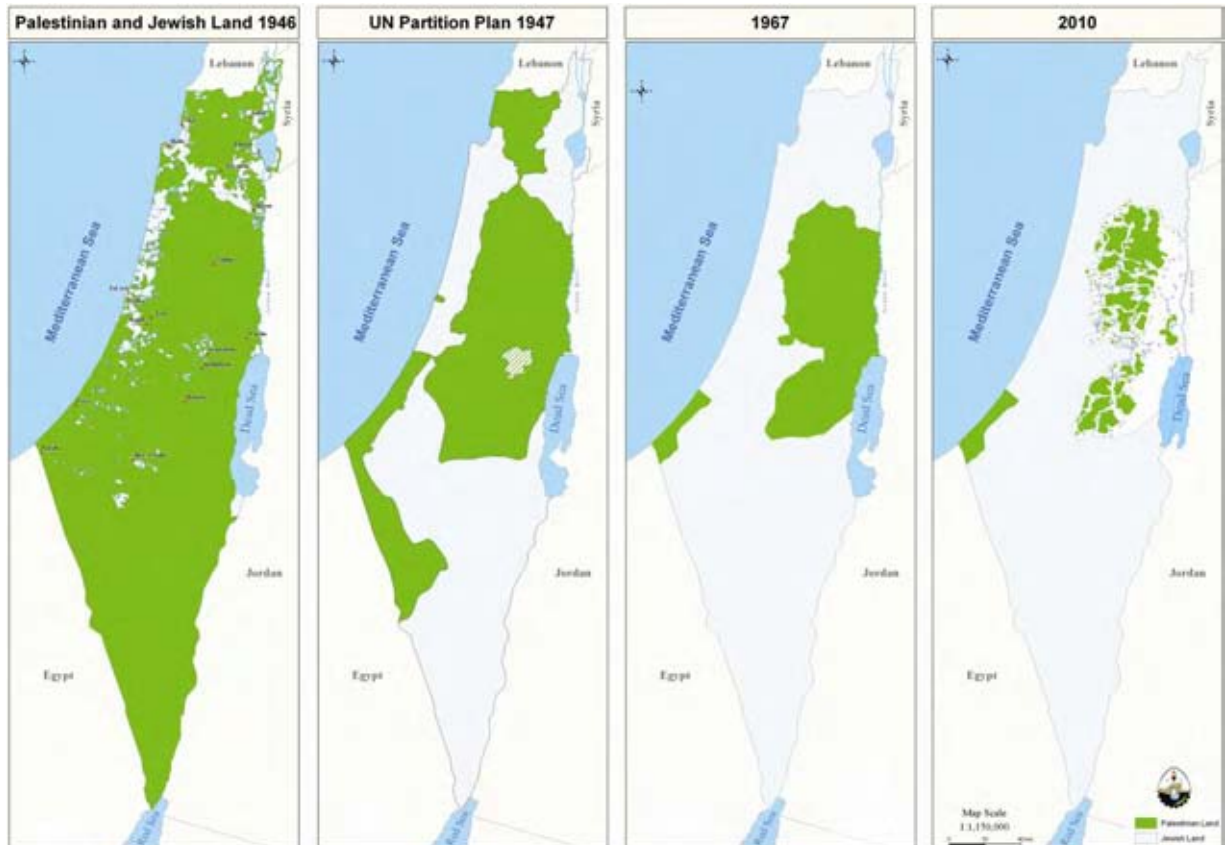
Property here is understood to entail lands, buildings, material structures and material possessions. The denial of property rights is a big issues amongst Palestinians in the oPt along with those in the Diaspora. Let's first deal with the first issue; property ownership. The first part of this declaration claims that everyone should have the right to own property; with the emphasis on the denoted 'everyone'. In terms of a woman's' right to own property in the oPt, there are significant issues. According to Freedom House (2010), Palestinian women have the legal right to own land and property and to exercise control over their property. However, 'prevailing traditions and customs, such as those that encourage women to give up their share of inheritance

to their brothers, or those encouraging men to keep property in their names rather than jointly with their wives, render the percentage of women owning property marginal' (Freedom House, 2010). This is a matter that is the control of and needs to be addressed by the Palestinian National Authority and should be seen as a Palestinian cultural and legal issue; not a result of Israeli occupation forces. The Jordanian law governing inheritance still applies in the oPt and gives women the right to half the share entitled to a man. Many Palestinian women-especially in rural areas-do not enjoy this right, as they are shamed by society if they claim their legal share of inheritance. Palestinian families in general prefer that their sons inherit so that the family possessions stay in the family and do not go to the family of the daughter's husband. PCBS further showed in its 1999 survey³⁶ that only 7.7 percent of women in the oPt owned or shared a house/real estate (5.7 percent in the West Bank and 11.1 percent in Gaza). The survey further detailed that 5 percent of women owned or shared a piece of land (5.4 percent in the West Bank and 4.3 percent in the Gaza strip) and only 1 percent owned a private car (1.3 percent in the West Bank and 0.4 percent in Gaza). It is noted however that no legal barriers prevent women from entering into businesses or economic-related contracts and activities; meaning that this discrimination lies at the de facto rather than de jure level and is a matter of culture and tradition rather than legally enforced prejudice.

In terms of the arbitrary deprivation of property in the oPt; this significantly effects Palestinians both in and outside of the oPt. Many Palestinians in the Diaspora live away from their homelands because of land destruction, land grab or forced sale of property or land to Israeli occupying forces. Many living inside the oPt have also suffered from these injustices. [Map 3.1.1.4](#) below shows the status of land ownership/confiscation before the Israeli occupation

With the establishment of the state of Israel on May 15, 1948, Israel began to arbitrarily deprive Palestinians of their lands and properties (Palestinian Academic Society for the Study of International Affairs, 2011). As Israel took control of all the Palestinian lands that were allocated to the Jewish state in addition to nearly 50% of the territory allocated to the Arab state under the 1947 UN partition plan, a total of 15,025,000 dunums were considered state lands (Abufarh, 2010). These lands and that which was built on them were arbitrarily deprived from the Palestinians. In terms of identifying the total number of properties taken and lands confiscated since the creation of the state of Israel, this is a difficult task. There is much anecdotal evidence of property destruction, land grab, expansion of settlements in the West Bank and of course the maps above provide an accurate account of Israeli seized lands. However, calculating exact losses has not been comprehensively covered and is very difficult to determine.

³⁶ This data is obviously dated but unfortunately, it's the most recently accessible data.



Map 3.1.1.4: Palestine Loss of Land, 1946 – 2010

Labor Rights (pertaining to Women)

A large percentage of women remain outside the labor force in the Palestinian territory. Another large percentage works as unpaid family members or in the informal sector, where they do not enjoy the benefits and protections provided by the Labor Law. According to the UNDP (2009), 90.5 percent of women in the Palestinian territory are outside the labor force. Of the women who received 13 or more years of education, 55.7 percent are outside the formal labor force, and less than 1 percent owns their own business (UNDP, 2009).

Female participation rate in the labor force is very low (17.7%) compared to males, of which 16.7% in the West Bank and 11.0% in Gaza Strip, against 66.7% for males; of which 69.0% in the West Bank and 62.5% in Gaza Strip (PCBS, 2010c). According to PCBS (2003), one of the main obstacles keeping women out of the labor force-apart from the declining economic situation-is the lack of adequate services to help women balance work with their reproductive roles. In addition, very few establishments in the oPt include child-care services (Freedom House, 2010).

More than one fifth of participants in the labor force were unemployed in the 1st quarter of 2011 at 21.7% as of 17.4% in the West Bank and 30.8% in Gaza Strip. Unemployment rate reached 27.3% among females compared to 20.5% among males (PCBS, 2010b).

According to a study by Women against Violence, 40 percent of Arab women with degrees are unable to find work (Electronic Intifada, 2009).

Women reportedly earn only 65 percent of men's wages in the West Bank and 77 percent in the Gaza Strip; many women earn less than minimum wage in the informal sector. Many women also work under discriminatory conditions and are denied their rights to maternity leave and weekly and annual holidays and vacations. Finally, time spent crossing Israeli checkpoints to reach job opportunities further extends women's working hours outside the home, leaving them less time to handle their domestic burdens (Freedom House, 2010). Only 9.5% of Palestinian women are economically active (Freedom House, 2010).

However, discriminatory family upbringing and social norms-especially in the rural areas-may hinder women from engaging in economic contracts. The new Palestinian Labor Law of 2000, although much advanced from previous law, still contains discriminatory provisions whereby women are not granted the same benefits and allowances as men (Freedom House, 2010).

Recommendations to improve demographic status in the oPt:

- To promote and create advocacy with regards to raising awareness of movement restrictions in the oPt. To create advocacy programs to be accessed and utilized by national and global decision makers.
- To implement procedures which encourage Israel to cease actions which restrict Palestinians' freedom of movement.
- To campaign at local, national and international levels against the restriction of movement within the oPt and between the oPt and neighboring states.
- To raise local, national and global awareness of nationality restrictions and prejudices towards Palestinians.
- To hold discussions with states in which Palestinians reside to look into the full protection of Palestinian nationals working, housing and family rights.
- Make national and global communities aware of Israel's illegal land possession in oPt. This should be undertaken in the hope that:
 - i. Israel will be held accountable in a legally defined manner for land possession and Palestinian dispossession.
 - ii. Global organizations and decision makers will be aware of land problems in the oPt.
 - iii. Moves can be made towards peace once Israel halts land grab and continued illegal settlement building.
- To introduce a gender focus into research concerning effects and impacts of Israeli land possession and Palestinian cultural issues that stop female land ownership and the full protection of women's rights.

- Population density in the oPt is currently a big demographic problem in the oPt, and as the population projections section shows, this will only become exacerbated in the coming years. Population density needs to be evaluated by decision makers at all levels and steps need to be taken to ensure:
 - i. Fair distribution of natural resources and lands.
 - ii. Adequate civil services in areas deemed as densely populated; i.e. services which have adequate facilities to deal with the number of persons within their jurisdiction. These cover; educational institutions, street cleaning, cooperatives, businesses, health care sector etc. This is the PNA's responsibility to implement and uphold.
- In order to reduce the (regionally) higher than average fertility rates steps need to be taken from national and global partners to increase education and awareness amongst female Palestinians of contraceptive measures available.
- To empower women to make their own reproductive decisions in order to control population growth

3.1.2 Education under Occupation:

An Analysis of Educational Rights Protection in the oPt.

2.1 Introduction:

At present, the right to education is high on the agenda of the international community, with the UN declaring 2005-2015 to be the ‘decade of education for sustainable development (DESD)’ (UN res 57/254, 2002). In 2002 the UN adopted this as a resolution, based on the belief that education is indispensable in achieving the sustainable development of states. In connection with this, the UN’s ‘Millennium Development Goals’ (MDGs), the ‘Education For All’ (EFA) movement, and the ‘United Nations Literacy Decade’ (UNLD), all created and implemented in the past ten years, emphasise the importance of a global standard of education in accordance with our fundamental human right to education. These all focus on the two essential tenants of the right to education;

- i. Access and,
- ii. Quality

In terms of education under occupation, Dr Mazen Hamada of Gaza’s Al-Azhar University is correct when he articulates that, ‘education is not only a basic human right and one that cannot be postponed or neglected during conflict or emergency, but it also has a key role to play in protecting and sustaining the lives of children and youths’ (Bartlett, 2010).

Global access to compulsory elementary education is the main focus of these groups/forums, coupled with an emphasis on an improvement in the quality of education received (i.e. reasonable class sizes, introducing technology into learning, increasing the number of fully trained teachers in a state etc.). This section shall look at both these areas, focusing on issues that affect the access to and quality of education in the oPt.

Education may have in this decade received particular emphasis from global institutions, but it is by no means a new or contemporary concept in terms of human rights. Education has been enshrined in rights treaties; dating back to the first member states signing the UDHR in 1948. Even before this time, education has been regarded across cultures as a prominent tool in eradicating poverty and increasing capabilities; thus strongly contributing to human development (McMahon, 1999). Furthermore, the importance of a good education is acknowledged by many states in their national constitutions/national laws; demonstrating the importance imbued upon it at the highest level of state’s legal systems.

It is almost universally undisputed that education is an essential component in both individual and state development. There is solid evidence that there is a direct positive correlation between a good/ lengthy education and increased mortality rate/ life chances; ‘educating children...has the greatest impact on eliminating poverty’ (World Bank Group, 2008). Due to the obvious importance an education that is a) compulsory and equally accessible in its early stages, b) equally accessible on the basis of merit in

its higher forms, and c) ‘adequate,³⁷’ has on individual and state development, ARIJ has conducted this report to investigate whether these standards are being upheld in the oPt.

Defining ‘education’:

Before proceeding with this investigation, it is essential to classify the concept of ‘education’ that is being analysed. Although it may seem to denote an obvious concept/set of practises, definitions of education can significantly differ from one another. ‘Education’ in its broadest sense means; ‘the imparting or acquisition of knowledge; mental or moral training; cultivation of the mind, feelings and manners’ (*Jones v Better Business Bureau, 1941*). *In a more technical sense however, education is, ‘The field of study that is concerned with the pedagogy of teaching and learning’ or ‘the knowledge or skill obtained or developed by a learning process’ (Oxford Dictionary, 2008)*. The latter pertains to formal education or classroom based education; this being the subject of discussion here. There are obviously specific field of education such as ‘vocational’ or ‘health education’. These are not the specific focus of this study; rather an overview of the availability of primary, secondary and tertiary education shall be considered along with a small focus on whether specialised education is available.

2.2 The International Right to Education

Right to education in International Treaties/Protocols:

Education has long been considered a basic and fundamental *human right*; it being enshrined in International protocol in 1948 upon the UDHR’s ratification by its first member states. Since then a number of International bodies, conferences and conventions have affirmed education as a human right and provided an international legal basis for its protection and enforcement by member states. These describe the right to education as a human right and attempt to establish some form of human *entitlement* to education. They deal with the importance of primary education being *universally compulsory* and higher forms of education being *equally accessible* on the basis of *merit*. They also deal with the necessity of a good *quality* education. Here are some prominent excerpts:

I. The Universal Declaration of Human Rights (UDHR)-1948:

Article 26 (1): ‘Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education should be made available on the basis of merit.’

II. The International Convention on Economic Cultural and Social Rights (ICECSR) - 1976:

Article 13 (Summarised): ‘The Right to education is Universal and should be conducted with the aim of achieving toleration and peace.’

³⁷ In terms of achieving literacy and the knowledge of relevant global skills

Article 14 (Summarised): ‘States shall make primary education compulsory and free of charge, and higher education should be available on the basis of merit.’

III. The European Convention on human rights (ECHR)- 1953

Protocol 1, Article, 2: ‘No person shall be denied the right to education. In the exercise of any functions which it assumes in relation to education and to teaching, the State shall respect the right of parents to ensure such education and teaching in conformity with their own religions and philosophical convictions’

IV. Convention on the Elimination of all forms of Discrimination against Women (CEDAW):

Part iii; Article 10 (Summarised): ‘There should be equal opportunities available for both genders in accessing and receiving the same style/level of education.’

V. Convention on the Rights of the Child (CRC) - 1990:

Article 28 (Summary): ‘States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity.’

VI. Declaration on Social Progress and Development, General Assembly. res. 2542 (XXIV)- 1979

Part II, Article 10 (E): (The state parties to ensure) ‘The eradication of illiteracy and the assurance of the right to universal access to culture, to free compulsory education at the elementary level and to free education at all levels; the raising of the general level of life-long education.’

VII. Arab Rights’ Charter

Article 41:

1. The eradication of illiteracy is a binding obligation upon the State and everyone has the right to education.
2. The States parties shall guarantee their citizens free education at least throughout the primary and basic levels. All forms and levels of primary education shall be compulsory and accessible to all without discrimination of any kind.

The Right to education in International Conferences:

Education has also been discussed at a number of prominent internationally hosted and attended conferences/ forums; which aim at setting/identifying global benchmarks for educational access and attainability. Some of these include:

- i. The 2000 World Education Forum held in Dakar (Senegal). This attempted to set out and prioritise ‘Education for All’ goals such as benchmarking Universal Compulsory education by 2015 (Goal 1), enhancing learning environments (Goal 5) and focusing on educational outputs (Goal 3) (UNESCO, 2007).
- ii. Dakar Framework for Action (2000) highlighted that “quality is at the heart of education” and, “a quality education is one that satisfies basic learning needs” (UNESCO, 2005).
- iii. UN Millennium Development Goals- Goal 2; ‘Achieve Universal Primary education (by 2015)’

The protocols’ legal standing:

In the case of the above protocols;

- The UDHR is *not* legally binding, but aims to guide the governmental behaviour/policy of all those states which are party to its terms; and in expressing the *universal* nature of human rights it would hope to express how all states (signatories or not) should treat their citizens. Furthermore, although not a legally binding document, the UDHR forms the basis of most contemporary international human rights laws which does bind all states. In addition, where the treaty is not legally binding, many rights’ scholars consider the document to be ‘politically obliging’ (Weissbrodt, 2007).
- The ICESCR, CEDAW, ECHR and CRC *are* legally binding to all states that have signed and ratified their terms.
- UN Resolution 2542 (XXIV) is not legally binding but acts as a form of strong guidance/recommendation regarding how states *should* behave in terms of aiding educational development.
- In the cases of the aforementioned International conferences, these obviously do not hold legally binding powers, but rather provide global benchmarks for educational improvement through discussion and implementation of a range of indicators that judge education access and success in developing areas; with the hope that all states/governments will recognise their benefit and take

steps to implement their suggestions. I.e. the MDGs intend to apply to all states regardless of their stance towards human rights protocols.

2.3 Educational Management in the oPt

Education in the oPt was in the domain of the military governor and the civil administration until 1994, when, upon the establishment of the PNA, education fell under its control (Nafi & Saleh, 2006). Education in the oPt was initially run from two separate offices; the Ministry of Education (MoE) and the Ministry of Higher Education (MoHE). Since 2002 they merged to become the Ministry of Education and Higher Education (MoEHE) which remains the educational governing power to date. It is this ministry's policies that will be the subject of critique in this section. In terms of schooling, Data from 2010/2011 shows that of all schools in the oPt, approx 74.3% are government run, 12.65% are run by UNRWA and 13.1% are private schools (PCBS, 2011). In the Palestinian territory's education system, compulsory basic education includes Grades 1 to 10, this is divided into:

1. The preparatory stage (Grades 1 to 4),
2. The empowerment stage (Grades 5 to 10).
3. Secondary education (general secondary education and a few vocational secondary schools) covers Grades 11 and 12.
4. In tertiary or higher education, there are 13 universities (8 public, 3 private and 2 governmental). The two most recently established Universities are located in the Gaza Strip; The Gaza Women's University and Palestine University, opened in 2007 and 2008, respectively (PCBS, 2010n). Additionally, there are 15 University Colleges which offer vocational colleges (4 are private, 9 are governmental and 2 are UNRWA) (PCBS, 2010n). Further to this, there are 20 Community Colleges (offering specialised programs i.e. tourism or nursing qualifications). 8 of these are private, 9 are public and 2 Governmental (PCBS, 2010n). Finally, there is one Open University operating in the oPt (PCBS, 2010n).

UNRWA historically had and still has an influence on schooling in the oPt, with the The first refugee camp schools for were established by the Red Cross in 1949 (Maya, 2004). The first UNRWA elementary six-year schools begun in 1959-60 school year (Rugider, 1995). UNRWA schools offer Grades 1 to 10 and do not provide secondary education (Grade 11 and 12). UNRWA's education provision has played a major role in Palestinian territory education since 1967 (Nicoli, 2007).

The Ministry of Education and Higher Education (MoEHE) was first established and took responsibility in 1994 (MOEHE website). It has a responsibility for the whole education sector from pre-primary to higher education and for recruiting and training teachers as well. The MoEHE works as the liaison on training issues with the education directorates (Mustafa & Bisharat, 2008). The MoEHE is also in charge of managing governmental educational institutions and supervising private educational institutions and institutions run by UNRWA (MOEHE, 2008)

Education in Palestinian territory is centralized in regard to its curriculum, textbooks, instructions, and regulations. The administrative structure of the general education is composed of 22 fields' directorates (districts offices) of education, including 16 in the West Bank and 6 in Gaza.

At present, the PNA has taken some measures to create a nation -wide education program, and has enshrined the right to education in both constitutional and national law:

Education and Palestinian constitutional/ national law:

The PNA established a third draft of a national constitution which was ratified by the Palestinian legislative council in 2003. Article 24, parts 1-4 of that constitution states that:

- I. Every citizen has the right to education. It shall be compulsory until at least the end of basic grades, and it shall be free in public schools and institutes.
- II. The Palestinian National Authority shall supervise all levels of education and institutions, and shall strive to upgrade the educational system.
- III. The law shall guarantee the independence of universities, higher institutes, and scientific research centres, in a manner that guarantees the freedom of scientific research, as well as literary, artistic, and cultural creativity. The Palestinian National Authority shall encourage and support such creativity.
- IV. Private school and educational institutions shall comply with the curriculum approved by the Palestinian National Authority, and shall be subject to its supervision.

One can see the importance the PNA gives to the protection of educational rights and its stated endeavours to 'upgrade the educational system,' support student 'creativity' and create a 'national curriculum.' These are all positive articulations which clearly show the 'state's' support citizen's fundamental right to education.

Further to this are a number of policies (some in the planning and others in the implementation phase) created by the MOEHE which attempt to support both the right of compulsory access to primary education and the good quality of education at all stages. The set of policies most relevant to the current educational situation in the state is the **Education Development Strategic Plan (EDSP) 2008–2012**. This plan has *four* stated goals:

- 1) To increase access of school-aged children and students of all education levels and improve the ability of the education system to retain them (Access)
- 2) To improve the quality of teaching and learning (Quality)
- 3) To develop the capacity for planning and management and to improve the financial and management systems used (Management), and
- 4) To realize a gradual conversion of the higher education sector from a supply-oriented to a demand-oriented sector, which will gradually guarantee more

compatibility between higher education outputs and labour market(s) need from qualitatively and quantitatively (Relevance) (MOEHE, 2008)³⁸

Goals one and two are extremely similar to international standards and aims regarding improvements in educational standards (namely, improving access and quality). Goal four also matches international standards by aiming towards relevance of degrees to job sector availability (i.e. making degrees and subjects taught **relevant**). Goal three however is more directed at the national level; pertaining to national financial management and good governance of the educational sector within the oPt. In terms of a comparative matrix of policies at international/national level, one can see that:

International	National	Synonymous policy? (Y/N)
Accessibility- EFA (goal 2- Free and compulsory education), MDG (2) Achieve universal primary education.	PNA MOEHE development strategy plan (EDSP)- Nation wide access of education to both genders	Y
Quality- EFA (goal 6- improve quality of education)	PNA; EDSP- Improve quality of teaching and learning	Y
Relevance- n/a	PNA; EDSP- Make learning job relevant	N

For a developing country with a newly created education ministry this is a comprehensive set of projected goals in terms of realising the full protection of educational rights. However, these goals need to be more than mere articulated sentiments; there needs to be a real practical endeavour on the part of the MOEHE to implement these aims, along with a transparent process that reviews the progress of these goals' implementation.

Has the MOEHE as yet (2011) managed to make any improvements in these areas? Let us now consider each Goal and where the oPt currently stands in terms of reaching their stated aims by 2012. There are a number of measures in place with regards to reviewing and assessing whether the EDSP is meeting these stated goals. Firstly the Palestinian Education Initiative oversees reviewing the progress of these aims; having thus far tracked their progress in two annual reports³⁹.

Expenditure on education:

This amounts to the total public expenditure on education as a percentage of gross domestic product (GDP). Current and capital expenditures on education by local, regional and national governments, including municipalities (household contributions

³⁸ It is noted Goals 1 to 3 are aimed at pre-school, general, non-formal, higher education, and vocational education, whereas Goal 4 is only for higher education and vocational education.

³⁹ Global Education Initiative Global report 2009 (found at: www3.weforum.org/docs/WEF_GEI_AnnualReport_2010.pdf) and Global Education Initiative Annual Report 2010 (found at: members.weforum.org/pdf/GEI/GEI_Annual_Report_2010.pdf)

are excluded), expressed as a percentage of GDP (UN, 2007). UNSECO's world education profiling⁴⁰ also fails to provide any data for public expenditure on education as percentage of GDP (within the oPt). Nation Master's education expenditure statistics also fails to provide any accurate data on this matter, the UNDP also shows 'data unavailable' for this indicator.⁴¹

Culture of education in the oPt:

This pertains to general cultural attitudes held by Palestinians' regarding education. This is hard to judge quantitatively and is difficult, though not impossible assess in a qualitative manner. The best way to discover cultural attitudes towards education is through surveying and looking at rates of attendance. A survey conducted by the Bisan Centre in 2002 found that 60% of young people between the ages 10–24 indicated that education was their first priority (The World Bank and Bisan Center for Research and Development, 2006). Furthermore, in terms of world averages enrolment rate in primary and secondary education is high (World Bank Ed Stats, 2010) and drop-out rates low in comparison to other developing countries. However, the cultural difference in terms of gender views is apparent. This is seen clearly not so much in the early stages of education. In fact the higher proportion of those in the early stages of education who are wither out of school, dropping out of school or failing school are males as opposed to females.

A report by Rafah today claimed of Gazan students; 'even when there is an attack nearby, most students refuse to let it disrupt their work. If the power is cut, they continue by candlelight. If the shelling is too close for it to be safe to show a light, they shutter the windows and, if necessary, learn to ignore stifling heat' (Rafah today, 2009). This is just one example of the priority students' give to education and their perseverance to attain educationally, despite the difficult conditions of Israeli occupation.

'Closures, curfews and all sorts of constraints on the physical mobility of both teachers and students have clearly undermined the education fabric of the country... Needless to say, the impact on student achievement of those "special circumstances" is impossible to quantify.' (World Bank, 2006)

The oPt and International Rights' Law: A question of Statehood?:

The oPt is a tricky situation to explore in terms of its 'legal obligations,' as a state in enforcing educational rights' protection. In terms of international conferences which suggest global education targets (such as the MDGs and the Dakar Action goals), the oPt is not excluded from these; although as discussed these targets have no legal powers to hold states' accountable. However, with regards to legally binding rights' treaties/covenants' (such as the ICESCR), there are *two* major reasons why it is difficult to determine which measures the oPt is legally obliged to put in place or conform to regarding state education. The first is that the oPt has neither signed nor ratified any of the aforementioned rights conventions and is thus not legally bound by their terms. It is noted here that the oPt has not refused to sign these conventions in

⁴⁰ Available at: http://www.childinfo.org/files/MENA_Palestine.pdf

⁴¹ Available at: <http://hdrstats.undp.org/en/indicators/38006.html>

opposition to the principles they adhere to, but rather, ‘the Palestinian National Authority is not entitled to accede to United Nations Conventions on human rights’ (UNDP, 2008). This is because as an ‘occupied’ region, the oPt is not afforded the globally recognised status of statehood and is thus unlikely to be invited to sign such conventions until it is given such status. However, although not recognised by the UN as a state, the Palestinian Liberation Organisation (PLO) in 1974 was given formal recognition by all Arab States as the main body responsible for the representation of the Palestinian people, and at this same time, the PLO was afforded ‘observer’ status by the UN (UN General Assembly, 1974). Therefore, although the oPt has not signed nor ratified any major international rights conventions/protocols, (with the exception of the Arab Rights’ Charter and Cairo Declaration of Human Rights’ in Islam); it has been an observer to many of them⁴². It is noted here however that the oPt has signed and ratified the ‘Arab Rights’ Charter’ (2008), which makes provisions for education as a human right (see rights section):

In terms of the oPt being ‘occupied,’ it is Israel’s sole and total responsibility, as the occupier, for upholding Palestinians’ educational rights (Al-Mezan, 2010b). This is due to a number of complex legal reasons. Israel has signed and ratified a number of international rights’ treaties such as, the ICESCR. As such it is legally bound by its terms, including those provisions on education. The International Court of Justice (ICJ) asserts that in this case;

‘The State's obligations under the Covenant apply to all territories and populations under its effective control’ (PCHR, 2010).

This also would stand for any other legally binding rights treaties to which Israel is a signatory.⁴³ Israel however officially denies this is the case claiming that its human rights obligations do not extend beyond ‘the territory of the State of Israel’ (CESCR, 1998). With regards to where this territory falls, Israel further claims that it ‘no longer exercises effective jurisdiction (CESCR, 1998) over the West Bank and Gaza,’ having, ‘transferred actual authority and responsibility for over 90% of the population... to the Palestinian Council/Authority’ (I). Many rights organisations disagree. The PCHR for example uses the 50th article of the Geneva Convention to support their belief that Israel is responsible for educational conditions within the oPt:

‘The Occupying Power shall, with the cooperation of the national and local authorities, facilitate the proper working of all institutions devoted to the education of children’ (PHCR, 2011).

Under this understanding, where one places the onus of responsibility with respect to rights enforcement/protection in the oPt, depends on how one understands which state party has territorial control and thus the control of implementing international law in the oPt. The answer to this however is not necessary a case of being either/or; *either* the Israeli state *or* the PNA. This approach is not necessarily reflective of how *de facto* territorial control and rights enforcement operates in the oPt; especially in the

⁴² Such as ICESCR, CEDAE, CRC

⁴³ In the case of those which detail educational rights, these include; the CRC (Israel signed 1990, ratified 1991) and CEDAW (Ratified in Israel in 1991- although the CEDAW optional protocol not yet ratified) amongst others.

sphere of education. With regards to education, both the Israeli government and the PNA have roles to play in ensuring the right to education is comprehensively implemented and enforced across the oPt. Yes, Israel occupies Palestinian lands and must take some responsibility for the humanitarian conditions in which the occupied live (including good educational provisions). However, Israel has relinquished much control over administration of these areas⁴⁴ and the PNA established in 1994, now holds this power. Thus it is not accurate to claim that Israel is fully responsible for educational rights protection; the PNA has a fully functioning MOEHE and controls (Palestinian administered areas of) the oPt's schooling (school's budgets, HE provisions, national curriculum etc). Other areas such as restriction of access to schools and other activities are the responsibility of Israel but it is essential to understand how the two different powers affect rights protection in the oPt.

Table 3.1.2.1: Palestinian and Israeli responsibility in terms of rights' protection.

PNA's authority/ responsibility (the responsibility of the MOEHE):	Israel's authority/ responsibility:
<ul style="list-style-type: none"> • Creation, implementation and enforcement of effective national education laws. 	<ul style="list-style-type: none"> • To stop measures that hinder Palestinians fulfilling their right to education within their territories; specifically:
<ul style="list-style-type: none"> • Enforcement of the right to education through the effective governance of the ministry of education 	<ul style="list-style-type: none"> • To halt the bombing of schools and other education facilities in Gaza. To halt the restriction of access of material to Gaza necessary for education.
<ul style="list-style-type: none"> • The PNA's responsibility to review Palestinian cultural practices that hinder the full functioning of the right to education. Where these are identified, it is the PNA's authority to implement measures that target these 	<ul style="list-style-type: none"> • To stop the restriction of Palestinian students in a way that hinders their educational opportunities. • In the areas where it is their duty to do so (mainly in area c), make sure educational rights' are being protected.

Source: Indicators collected from world goals and protocols (i.e. MDGs)

The differences in responsibilities can be expressed in terms of *positive* and *negative* rights protection (Joseph: 2011). In the context of Palestinian education, in all those areas under the administrative control of the PNA, it is the PNA's responsibility to positively implement, enforce and protect education rights. Israel however must not hinder or violate those rights in any way and must take responsibility for those areas in the oPt which it administers i.e. Area C (Oslo Interim Agreement; 1995).

⁴⁴ See Area A, B, C classification for further information.

Limitations:

The main limitation to this research comes from weaknesses in the national statistics available for educational data in the oPt. For example, there is not available updated data (2011) for all of the selected indicators, nor even for 2010. Furthermore, only some indicators provide disaggregated data for specific regions, whereas most sort the data into two broad areas (the west bank and Gaza Strip). Much of this data however is only as recent as 2007/2008, reporting from NGO and Rights' groups reporting have been used to estimate more recent issues with regards to educational access and quality in the oPt.

Further to this, although the World Bank Group, UNESCO and UNICEF often provide more current data, with less data presented as missing, however, they regrettably do not provide disaggregated data for the oPt. Therefore, the averages they produce with regards to certain indicators are far from representative. For example, in some regions of Gaza there are thought to be 37 children per classroom (in state run/UNWRA schools) whereas in the West Bank the average is more like 22 (PCBS, 2011). Therefore, a mean average of 29.5 is not truly representative any regions' average.

2.3 Status of Education in the oPt**Indicators used in the report and the international goals from which they derive:**

Set 1; Education for all (EFA) goals⁴⁵:

- **Goal 2:** Provide free and compulsory primary education for all.
- **Goal 4:** Increase adult literacy by 50%- it should be 50% better than in 2000. The needs of women should receive particular attention.
- **Goal 5:** Achieve gender parity by 2005 and gender equality by 2015.
- **Goal 6:** Improve the quality of education.

Set 2; Millennium Development Goals (MDG) (related to education):

- **MDG 2:** Achieve universal primary education.
- **MDG 3:** Promote gender equality and empower women

Set 3; 'E-Learning Curricula for Primary and Secondary Education' (E-LPSE):

⁴⁵ NB: only the goals relevant to this project have been highlighted; to include all would be outside of this research's scope.

- **Goal 1:** To introduce computer use (ICT) into Primary and Secondary education; making education relevant to global skills and the use of technology in future careers.

With these aims in mind⁴⁶ a number of indicators have been selected to test (within the context of the oPt):

- a) **Accessibility** of education- focusing on compulsory primary education.
- b) **Quality** of education- focusing on quality of teaching, quality of all national curriculum and quality of material educational provisions (i.e. physical classroom quality).
- c) **Equality within education-** focusing on gender equality in education at all stages
- d) **Relevance of education-** focusing on technology in schools and the fit of particular studies to the Palestinian job market.

The *indicators* that shall be used in the report are as follows:

Table 3.1.2.1 List of Indicators used:

Accessibility	Quality	Equality ⁴⁶	Relevance
Net enrolment rate in Primary education	Number of students per teacher	Literacy rates (male/female)	Number of computers in schools
Primary completion rate	Classroom size Failure rate	Female graduate opportunities in labor force.	State of job market in comparison to specialism's taken (relevance of degrees).
Primary and Secondary drop -out rates	Number of fully trained teachers.		
	Youth Literacy rates (15-24)		

The aforementioned educational indicators shall now be considered and then the report shall look at where the PNA and the Israeli state stand in terms of their responsibility to implement educational rights:

⁴⁶ It is noted that although gender equality is judged by specific indicators, all the other indicators covered shall consider a gender comparison (where appropriate and where data is available)

Issue 1: Accessibility:

Indicator 1: Net enrolment rate is defined as:

‘Net primary enrolment rate in primary education is the number of children of official primary school age (according to International Standard Classification of Education "ISCED 97"⁴⁷) who are enrolled in primary education as a percentage of the total children of the official school age population. Total net primary enrolment rate also includes children of primary school age enrolled in secondary education. Where more than one system of primary education exists within the country the most widespread or common structure is used for determining the official school age group.’

According to the World Bank Group’s Education statistics (in conjunction with UNESCO), one can see that in 2010, the net enrolment rate was judged to be **80%**⁴⁸. According to the World Bank Group, in 2009, the World average in terms Net Primary enrolment was **89.7%**:

This decline in children enrolled in Primary education in the oPt is worrying, especially given the MDG’s aim of 100% primary enrolment by 2015 (MDG 2).

The same data -base reports that as of 2009, there were **112,604** primary school children out of school in the oPt.

Primary and secondary drop -out rates:

In terms of drop- out rates, the World Bank Group records that in terms of primary education the gross drop- out rate for the oPt is **1.5 %** (World Bank Ed Stats, 2010). The Palestinian Central Bureau of Statistics (PCBS) on the other hand provides more comprehensive data regarding primary drop -out rates; distinguishing by gender and region. PCBS finds that for the year 2010/11. The total drop- out rate (both male/female) for west bank and Gaza is **1.03%**. However, it is noted that the PCBS does not detail whether this data covers drop -out rates for primary or secondary education. It is assumed that as it does not mention a specific level of education that this drop -out rate covers both stages. However, this is not consistent with PCBS’s previous data that disaggregates data for drop-out rates for primary and secondary education.

The PCBS and MOEHE do not however provide disaggregated data (by region, sex, schooling level) for drop -out rates for 2009/10. It is therefore this data which is under consideration for this indicator. A total is not calculated for West Bank and Gaza for these years, but separate averages by region have been presented. The total drop- out

⁴⁷ Primary education is defined by ISCED97 as programmes normally designed on a unit or project basis to give pupils a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, art and music.

⁴⁸ Available at: <http://web.worldbank.org/WESTBANKSITE/EXTERNAL/TOPICS/EXTEDUCATION/EXTDATASTATISTICS/EXTEDSTATS/0,,menuPK:3232818~pagePK:64168427~piPK:64168435~theSitePK:3232764,00.html>

rate per region was calculated by adding the male and female rates and finding a mean average (as shown in Figure 3.1.2.1).

The total (mean) drop -out rate for primary education in the West Bank (2010) is **0.635**. The mean average primary drop- out rate calculated for Gaza Strip for 2010 was **1.15%** (PCBS, 2010a). The distribution of these students who dropped out, by sex is:

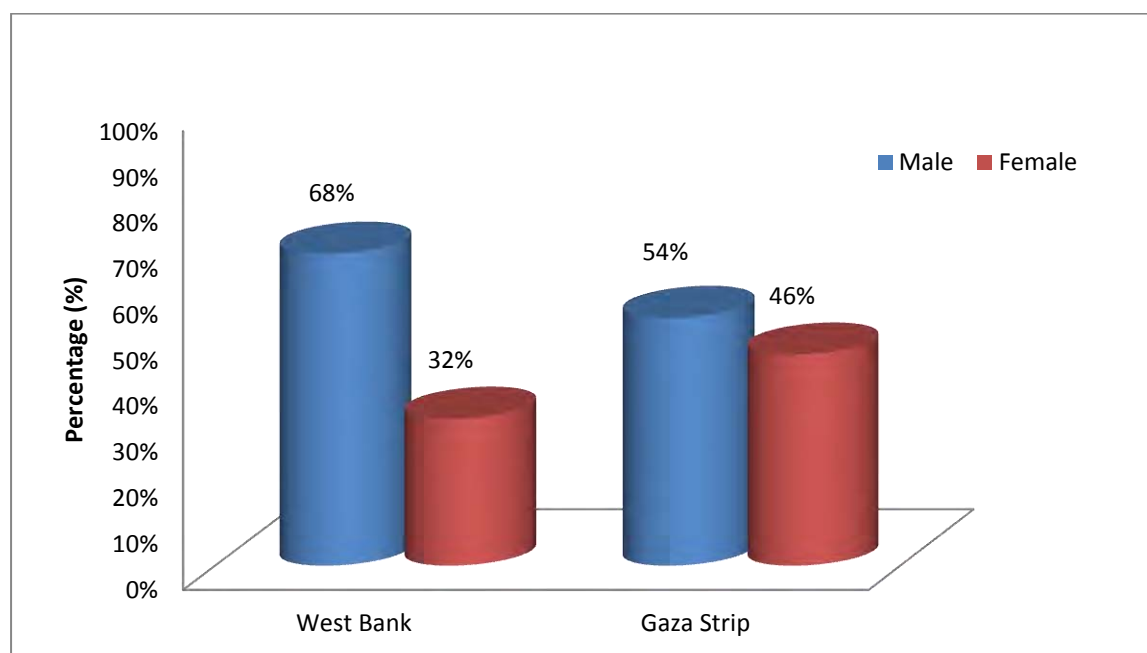


Figure 3.1.2.1: Primary drop- out percentage for West Bank and Gaza Strip (disaggregated) - 2010:

Source: PCBS, 2010c

Indicator 2: Secondary drop- out rates:

In terms of Gross secondary drop- out rates for the whole of the oPt (West Bank and Gaza Strip), PCBS claims that for 2006/2007 the rate was 3.4%. For 2009/10 however the total rate is not presented so West Bank and Gaza Strip data have been presented separately:

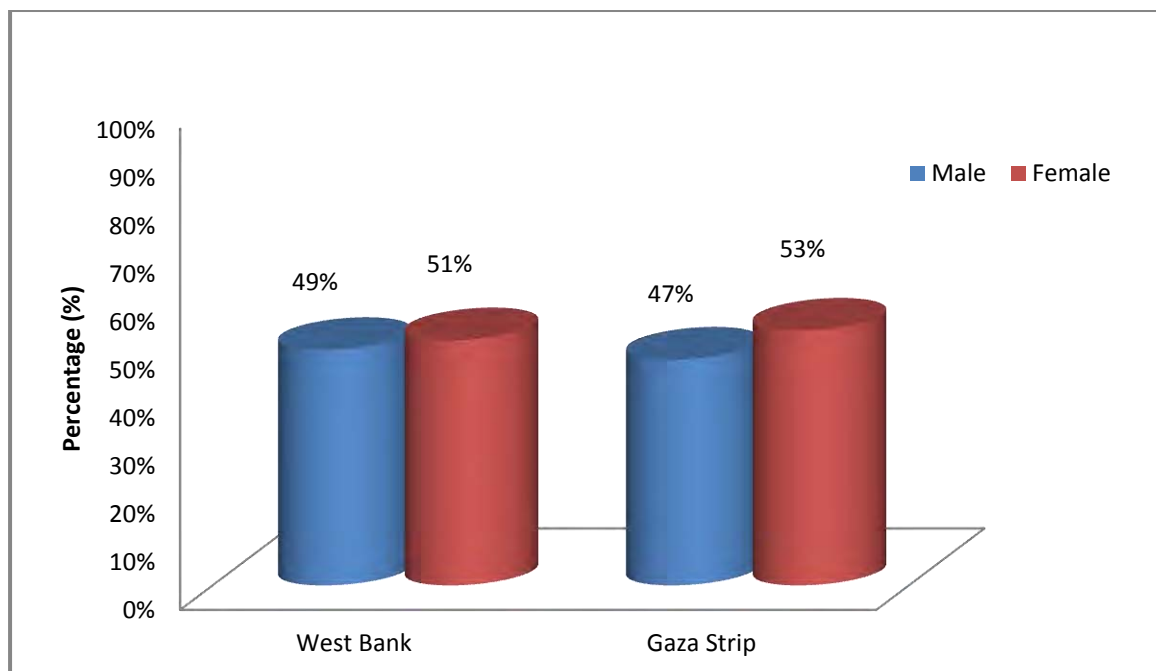


Figure 3.1.2.2: Secondary level drop -out percentage for West Bank and Gaza Strip (2010)

Source: PCBS, 2010d

In terms of the pattern of drop- out rates since the creation of the MOEHE in 1994:

Here is the most updated annual trend series of data for drop -out rates for the entire oPt by gender:

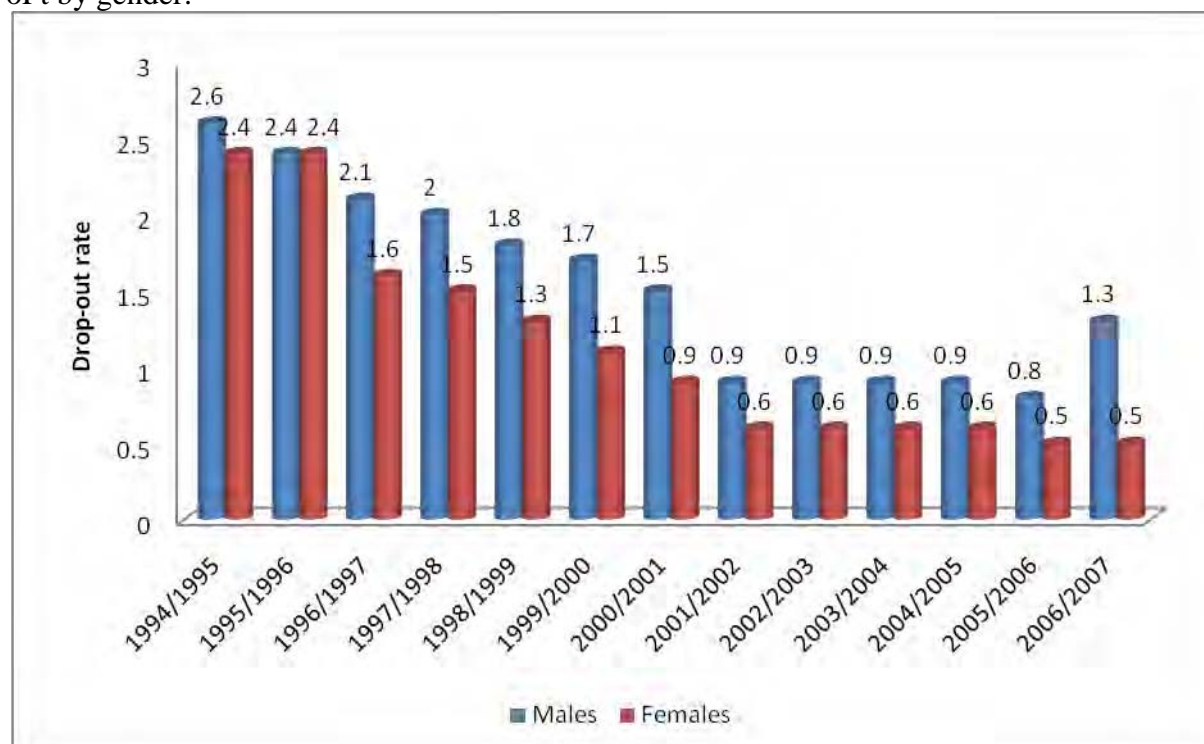


Figure 3.1.2.3: Primary drop-out rates by gender for the West Bank and Gaza Strip – 1994-2007.

Source: PCBS, 2008a

At the primary level of education, males are more likely than females to drop out; but for both sexes the rate of primary drop out is relatively low.

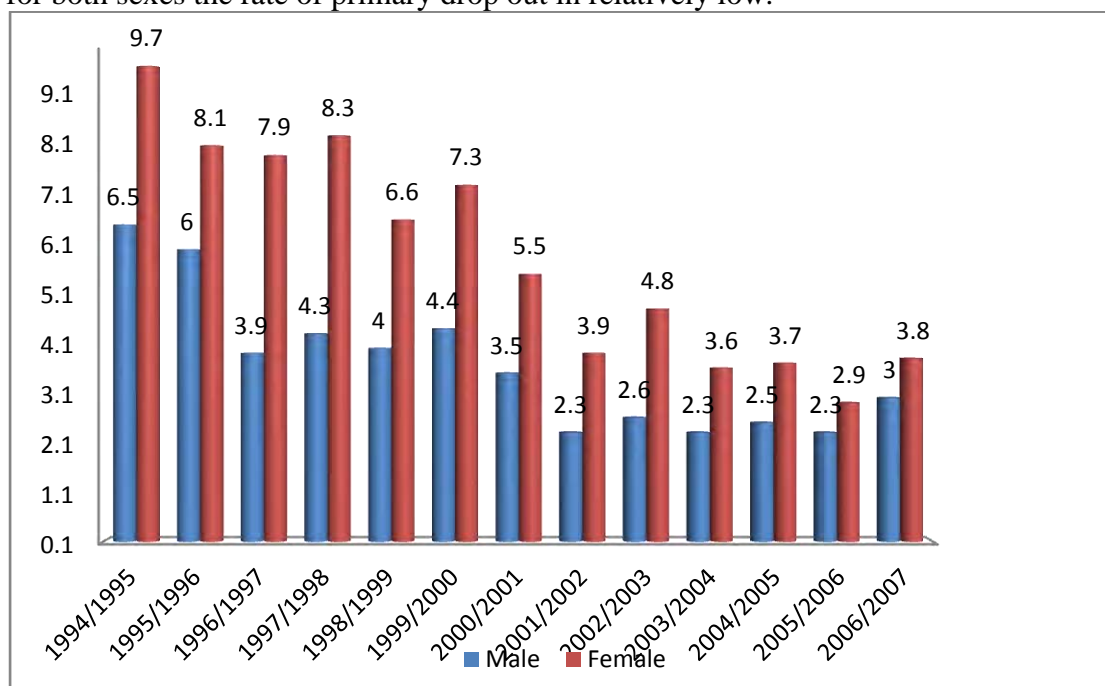


Figure 3.1.2.4 Secondary drop-out rates by gender for the West Bank and Gaza; 1994-2007.

Source: PCBS, 2008b

The female drop out is generally higher than males but that for both sexes the rate is relatively low and in comparison with data provided for 2006/7; the gender disparity in drop-out rates having disappeared. This is a very positive change in terms of gender equality in Palestinian education.

Indicator 3: Primary completion rates:

UNESCO Definition: ‘This is also known as the “percentage of cohort reaching grade 5”, and is the percentage of a cohort of pupils (or students) enrolled in the first grade of primary level of education in a given school year that are expected to reach 5th grade. The calculation is made by dividing the total number of pupils belonging to a school-cohort who reached each successive grade of the specified level of education by the number of pupils in the school-cohort i.e. those originally enrolled in the first grade of primary education, and multiply the result by 100 (UNESCO, 2009)’

UNICEF (2008) shows the gross primary completion rate in the oPt to be 96%. This shows both male and female rates of primary completion to be very high. In terms of world averages, the average percentage of males completing primary education is 90% (World Bank, 2010); and for females, the World Average (as of 2010) is 87% (World Bank, 2010). There is no national data for this indicator, hence external sources have been used and presented here.

In terms therefore of both male and female completion of primary education, the oPt fares better than the world average; which is a very positive sign. The bigger concern

is those who do not get enrolled in the first place or those who drop out of education or those who fail the curriculum. Although gender parity is on its way to be achieved, one still sees the pattern that males drop out more frequently at primary levels of education whereas the trend is reversed and females drop out more frequently at secondary level. It is noticed that investigation needs to be done concerning why this gender disparity still exists.

Analysis of educational accessibility:

Positives:

- Current low drop-out rate for both males and females
- Impressive reduction in drop-out rates for both Primary and Secondary education over the years 1994-2007.
- High level of primary completion for both males and females
- Improvement in gender disparity in secondary level drop-out rates

Negatives:

- Still existing gender inequality in drop-out rates at different stages of education
- Decline in enrolment rates (both male and female)

Issue 2: Quality

Indicator 1: Youth and Adult Literacy rates:

Youth Literacy is defined as:

‘The number of persons aged 15 to 24 years with ability to read and write with understanding a short simple statement on their everyday life, and with ability to make simple arithmetic calculations, divided by the population in that age group’ (UNESCO Institute for Statistics, 2008).

Adult Literacy is defined as:

‘Percentage of persons aged 15 and over who can read and write’ (UNESCO Institute for Statistics, 2008):

‘The following charts show the literacy levels for both youths and adults of various age groups, for the years 1997-2010 (PCBS, 2010):

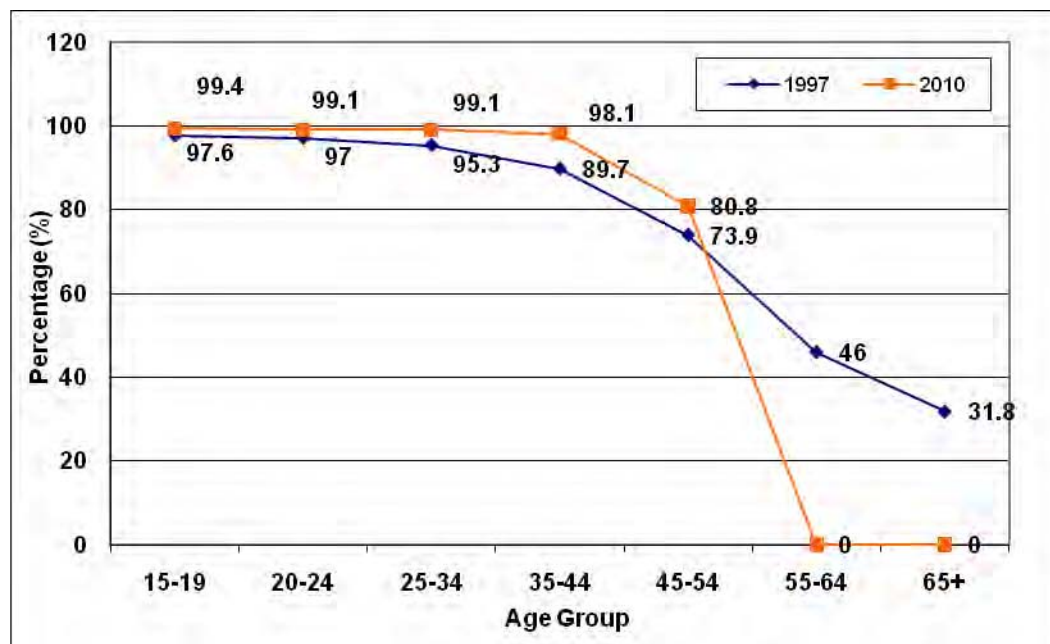


Figure 3.1.2.6: Literacy rates of the oPt population (15yrs and over) by age group (1997-2010)

Source: PCBS, 2010b

PCBS claims that the national (total) youth literacy rate (as defined above) for the years 2007/8 was 94.3%. It does not however disaggregate data by gender population.

The World Bank Group claims that (as of 2010) the average youth literacy rate across the ‘Middle East and North Africa’⁴⁹ is 90% meaning The oPt has comparatively reached better than average levels of literacy. In fact the Palestinian education sector deserves further praise as the World Bank Group report, as of 2009, that total Palestinian Youth Literacy has reached an impressive 98%-99%; putting the region well on track to achieving the World Education Forum’s 100% Literacy goal.

Furthermore, the fourth EFA goal aims to ‘increase adult literacy by 50%- it should be 50% better than in 2000. The needs of women should receive particular attention’ (EFA, 2009). In the case of the oPt we see that (according to the World Education Forum) in the year 2000 total youth literacy was at 89% compared to an estimated 98% in 2009:

⁴⁹ For area classification see: <http://data.worldbank.org/topic/education>

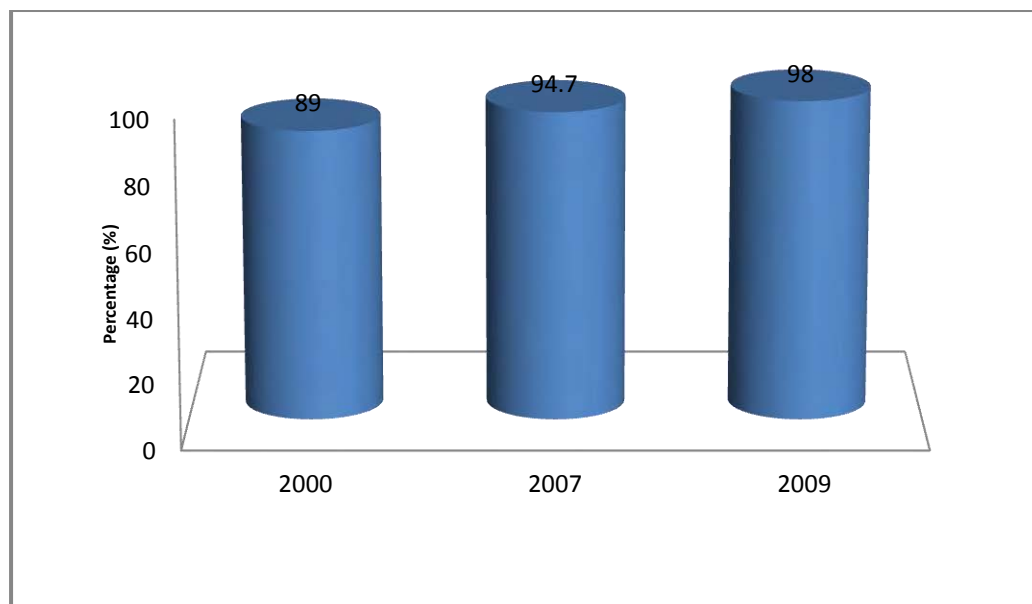


Figure 3.1.2.7: Total Youth Literacy rate (West Bank and Gaza Strip) - 2000-2009

Source: PCBS, 2010b

However, PCBS statistics show that although in total there exists a high level of literacy; there is a marked difference between female and male literacy rates; 2009 data showing that the literate population constitutes Male- 99% and Female- 87%, respectively (PCBS, 2009).

3.34. Indicator 2: % of trained teachers at primary/secondary schools:

The quality of trained teachers at primary level does not seem to be of concern in Palestinian schools. The World Bank's Education Statistics database reported that in 2009, the % of teachers who were fully trained in primary schools was an impressive 100%. There is however no data available for secondary education. There are no national statistics available for this indicator, hence the information provided is from the World Bank Group.

3.35 Indicator 3: Failure rates:

The PCBS's most recent data from 2009/2010 shows that the gender difference in primary level failure rates for in the West Bank and Gaza Strip are:

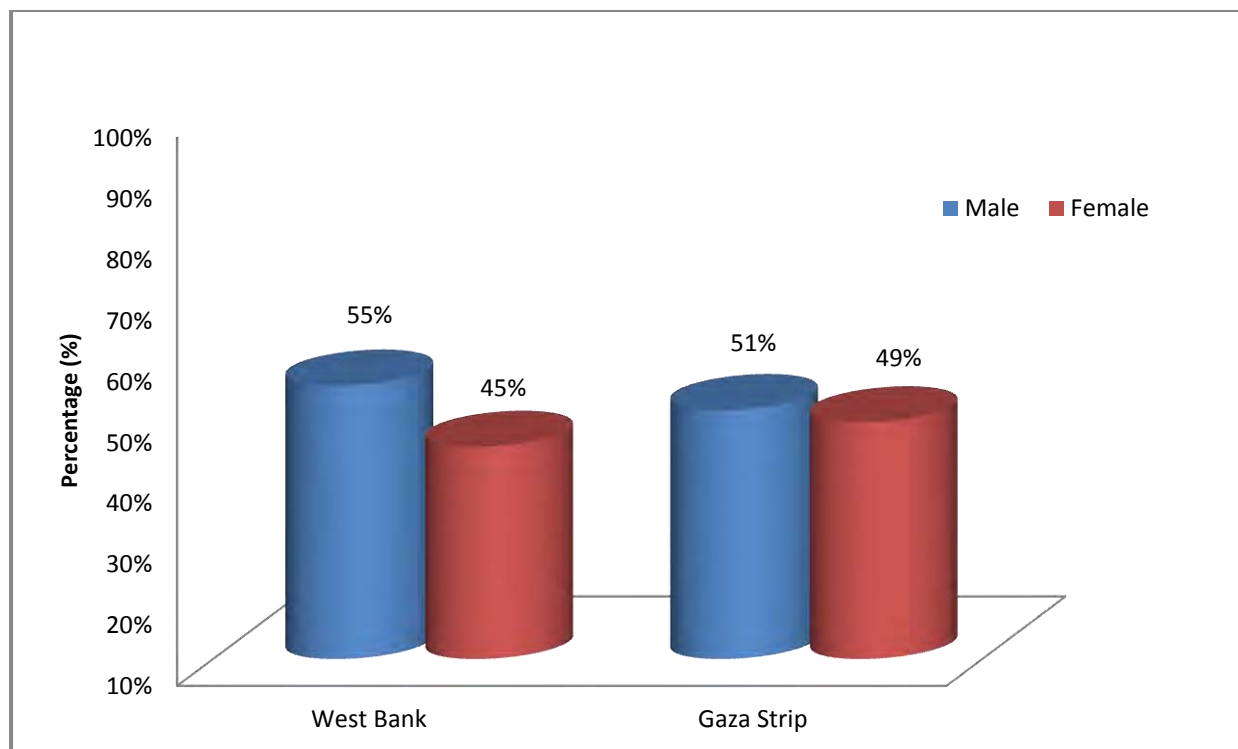


Figure 3.1.2.8: Primary level failure rates (male/female) disaggregated for West Bank and Gaza Strip (2010).

Source: PCBS, 2010e

As for the same indicator in terms of (regionally) secondary level failures rates, PCBS (2010) finds that:

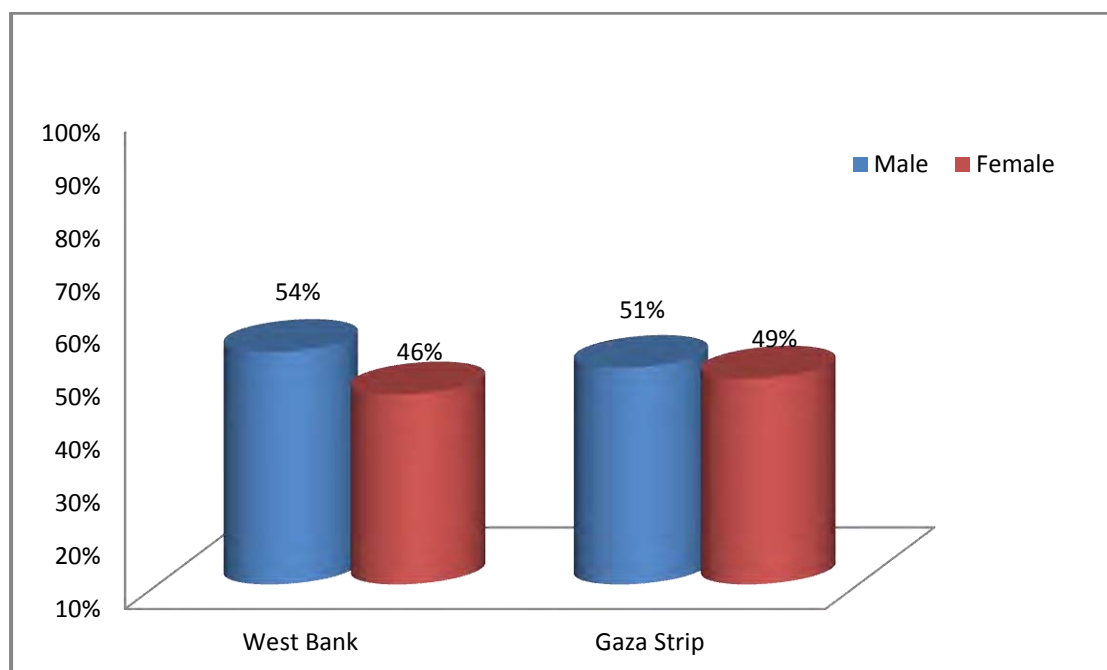


Figure 3.1.2.9: Secondary level failure rates (male/female) disaggregated for West Bank and Gaza Strip.

Source: PCBS, 2010f

It is noticed that failure rates, in comparison to drop-out rates are more greatly equal in terms of gender.

Issue 3: Relevance:

Indicator 1: Computer use

Computer and internet use is undoubtedly important for a global education and teaches practical job skills:

‘In order for students to be successful, they must have a global view of their future. The Internet is one of, if not the most important, tool a person has to be successful in their future. It provides jobs, resources and communication all over the world. It is essential that children learn to use and learn from the Internet’ (Leary, 2010).

The above indicator pertains to computer use in classrooms and relevance of ICT education, but at present very little reliable comprehensive data has been provided on this issue. However there is some data available regarding internet penetration and ICT access within homes in the West Bank and Gaza Strip, provided by PCBS:

Table 3.1.2.2 Percentage of Households who have some ICT tools at Home by Region (2009):

ICT Tools:	Gaza Strip:	West Bank:	oPt:
Computer	45.6	51.1	49.2
Telephone Line	40.0	51.4	47.5
Internet at Home	30.9	27.2	28.5
Mobile Phone	93.2	91.9	92.4
DVD Player	5.3	28.9	21.0
Dish	91.2	92.4	92.0
TV Set	93.2	97.0	95.7
Video Player	6.0	20.3	15.6

Source: PCBS, 2009a

PCBS also provides information on the percentage distribution of persons (10 yrs and over), by region and location type who have the use of the computers in their home:

Table 3.1.2.3: Percentage distribution of persons’ (10 yrs and over) usage of the computer and selected indicators (2009)

Selected Indicators:	Total:	Do Not Use:	Use:
Region:			
oPt	100	42.9	57.1
West Bank	100	42.7	57.3
Gaza Strip	100	43.2	56.8
Sex:			
Both Sexes	100	42.9	57.1
Males	100	37.1	62.9
Females	100	48.7	51.3
Age:			

10-14	100	15.5	84.5
15-19	100	15.8	84.2
20-29	100	38.3	61.7
30-39	100	57.4	42.6
40-49	100	68.1	31.9
50+	100	85.7	14.3
Type of Locality:			
Urban	100	41.8	58.2
Rural	100	47.3	52.7
Camps	100	42.5	57.5
Qualification:			
Less than Secondary	100	48.1	51.9

Source: PCBS, 2009b

Finally, PCBS provides disaggregated (regional) data for the percentage of internet usage at home:

Table 3.1.2.4 Percentage Distribution of Internet in House Holds by Governorate and type of education.

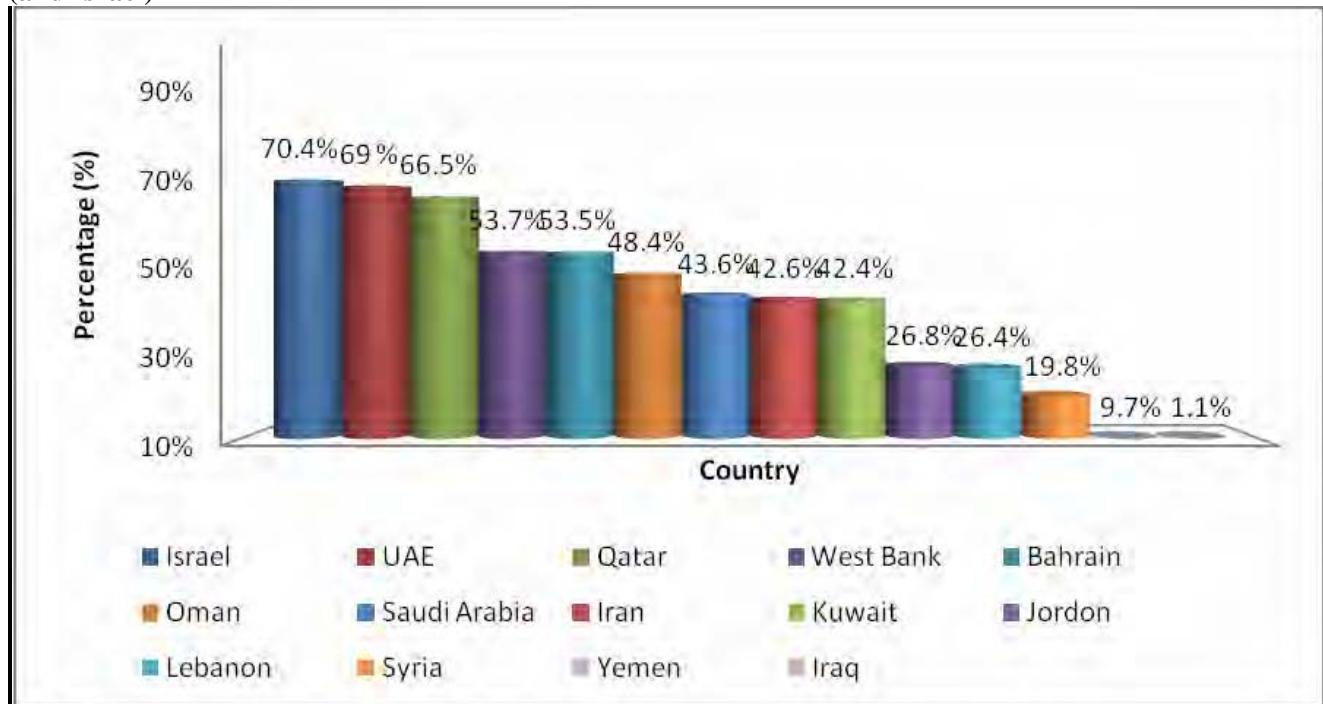
Governorate and Type of Locality:	Total:	Not Available (%):	Available (%):
Palestine Territory	100	71.5	28.5
West Bank	100	72.8	27.2
Jenin	100	80.5	19.5
Tubas	100	88.5	11.5
Tulkram	100	75.7	24.3
Nablus	100	68.5	31.5
Qalqiliya	100	72.0	28.0
Salfit	100	76.7	23.3
Ramallah & Al-Bireh	100	67.1	32.9
Jerico & Al-Aghwar	100	76.7	32.3
Jerusalem	100	61.8	38.2
Bethlehem	100	70.2	29.8
Hebron	100	81.9	18.1
Gaza Strip	100	69.1	30.9
North Gaza	100	69.4	30.6
Gaza	100	67.6	32.4
Deir Al Balah	100	66.9	33.1
Khan Yunis	100	69.8	30.2
Rafah	100	74.4	25.3
Type of Locality			
Urban	100	69.9	30.1
Rural	100	80.2	19.8
Camps	100	68.5	31.5

Source: PCBS, 2010g

These data from these tables give one some indication of the extent of inetrnet and ICT product/services usage throught the oPt, but does not give us information the level of computer or internet usage in Palestinian education or national curriculum. One cannot therefore ascertain from this data whether these people shown to be using the internet or other ICT services have gained there computer skills and knowedge of technological processes from formal education or from some other source.

Below is a comparison of internet penetration amongst the population of the West Bank and other Arab States (and Israel):

Figure 3.1.2.10: Internet penetration for the West Bank and a selection of Arab States (and Israel)



Source: Internet Stats, 2011

Indicator 2: Internet/ computer use in classrooms:

Unfortunately there is limited reliable data on this issue, which is something that needs to be urgently addressed. National statistic providers do not give any comprehensive data for this issue. In fact it appears that there is no reliable statistic for this indicator (for any year). There are however a number of anecdotal reports from NGOs and charitable groups who claim that the lack of computers in Palestinian schools is of concern regarding students ability to learn globally relevant technological skills. For example, a loan from the Overseas Private Investment Corporation (OPIC), the U.S. Government’s development finance institution (given in 2011), will enable tens of thousands of school children in the West Bank to purchase laptop computers and receive training on their use (OPIC, 2011). This aid has obviously been given in response to the need for computers in schools; meaning the PNA’s MOEHE is not providing adequate resources in its national curriculum. Of course the weakness in this data is that it shows the aid in provision of computers in

the West Bank but not for Gaza. For obvious reasons (the Israeli imposed restriction of goods in Gaza) computer use is not improving in Gaza. What is worrying however is the lack of data to inform researchers of how the situation presently stands.

Indicator 3: Job relevance of subjects/degrees taught:

Here Higher Education shall be the focus of reporting. In terms of relevance of degrees, this considers the state of the national job market in comparison to specialism's being taught. It also focuses on this issue from a gender lens.

The importance of focusing on women in education and the work-place:

'Worldwide women own only one percent of the world's wealth, have only a 10 percent share in global income, and occupy just 14 percent of leadership positions in the private and public sector. And, while women produce half of the world's food, they own a mere one percent of its land' (CEDPA, 2009)

Issue 4: Equality- women in graduate opportunities:

Women in the Palestinian workforce:

How many women there are in the oPt's non agricultural workforce is important because it provides a great deal of information about the relevance of degrees women gain. With regards to the number/ gross number of women in higher/tertiary education, the statistics differ across data sets. According to PCBS, the ratio of Male/Female Palestinian pupils receiving Higher Education degrees in 2009 was 1/ 0.9219, respectively. PCBS' further claims that for the year 2007 the ratio of male to female (of the gross total) enrolled in higher education was 1/ 1.05405, respectively.

The data therefore reports that male/female enrolment in universities and higher education institutes is roughly equal (PCBS, 2009). However, in terms of women using their education to secure relevant jobs in the work place, worryingly, women make up just 31% of the total workforce across the West Bank and Gaza Strip (World Bank, 2008).

In terms of the percentage of those women in employment (as of 2010), women in agricultural work made up 21.4, leaving 78.6% in other employment (PCBS, 2010h). Of this 'other employment' labour groups suggest the majority of these works in the service and textiles industry, meaning that very few women enter degree level jobs.

The World Bank general central database further records that in 2007, in the oPt women with tertiary education account for 82% of unemployed women compared to only 12% for men in 2007 (World Bank, 2007). This shows how women with advanced education are particularly vulnerable in the state.

The PCBS provides comprehensive data regarding gender disaggregation in the Palestinian labour force:

Table 3.1.2.5 Percentage distribution of Employed Persons in the Palestinian Territory by Economic Activity and Sex (2007-2010)

Economic Activity and Sex	2010	2009	2008	2007
Males				
Agriculture, Hunting & Fishing	9.9	9.9	10.7	11.1
Mining, Quarrying & Manufacturing	12.2	12.8	13.0	13.3
Construction	15.8	14.3	13.1	13.4
Commerce, Hotels & Restaurants	21.5	21.7	22.7	22.1
Transportation, Storage & Communication	7.0	6.6	5.9	6.8
Services & Other Branches	33.6	34.7	34.6	33.3
Total	100	100	100	100
Females				
Agriculture, Hunting & Fishing	21.4	20.5	28.8	36.8
Mining, Quarrying & Manufacturing	7.5	8.9	9.2	9.5
Construction	0.3	0.1	0.4	0.2
Commerce, Hotels & Restaurants	8.1	7.4	7.5	7.8
Transportation, Storage & Communication	0.9	1.3	0.6	0.4
Services & Other Branches	61.8	61.8	53.5	45.3
Total	100	100	100	100

Source: PCBS, 2010h

In terms of relevance, one can ask- what is the point of women entering higher education to obtain specialised knowledge when there are limited opportunities available to them in the workforce? This data (high female participation in education, low female participation in educated jobs) seems strange when one considers the recent efforts made by the PNA and the MoEHE to focus on gender equality in both education and the work force. However, when one considers cultural factors such as the prevalence of a strongly patriarchal society and gender stereotyping in terms of the female's role as one of housekeeper, wife and child-bearer, rather than skilled labour participant, one can understand the lack of female participation in the Palestinian job market (Kassem,2011). However, if females are characterised in this way by a number of social and institutional mechanism, why then is educating females sought if their participation in the labour force is not. To put it simple; why educate a women to stay in the home and not use her degree in some job relevant way. It would be interesting to conduct research to understand whether females moving into higher education is a progressive step towards female skilled labour force participation, whether female education is done against Palestinian culture and from the persuasion of foreign decision makers or if there are some other reasons.

With all these measures in place, why is it that, *de facto*, women are severely under-represented in certain areas of the workforce? For example, PCBS notes a very low level of representation for women in the upper echelons of public office. Although women represent 13 percent of the staff in administrative positions, they hold only 3 percent of top decision-making posts-such as legislators and upper-level public servants (PCBS, 2010k; 2010l).

Freedom house further reports that Palestinian women have one of the highest fertility rates in the region: 5.7 children per woman. Socio-political, cultural, and economic factors influence these high fertility rates, including pressures placed on women to bear more children to compensate for deaths related to armed conflict. The early median age of marriage (18 years), in addition to the low percentage of women in the labour force, are additional contributors to the high fertility rates. Families tend to marry a daughter early when the family is economically unable to provide for her education; high transportation costs are involved in commuting to the nearest secondary school (Freedom House, 2010). However, despite these assertions statistics also show that nearly fifty percent of all students reaching degree level education are female (MOEHE, 2010). The question then that requires answering is; why do the MoEHE and other PNA institutions spearhead schemes for gender equality but then deny women fundamental rights to participate in civil society and in the workforce through the continuation of sexist cultural practises? This is perhaps the biggest example in terms of gender rights in education and the labour force of a disparity in de jure and de facto provisions for rights protection. Although a number of different women's rights' groups exist and have effected change the legal right to female participation, there are obviously some de facto barriers (culture, societal factors) that are holding women back from utilising their education:

‘Women's advocacy groups in general have been more successful in seeking changes in formal legislation than in winning changes in law enforcement practices and cultural attitudes that inform law enforcement. Convincing society to change its perception of a woman's role remains a daunting task’ (Freedom House, 2010).

One also sees that the question of relevance raises some interesting questions with regards to the previous discussion. The above section discusses the lack of opportunity with regards to students moving throughout the region to receive specialised Higher Education courses. However, even if Gazans were permitted to receive Higher Education elsewhere in the oPt, what would be the *relevance* of their degrees once returned to Gaza? Economic conditions as a result of Israeli control of the region means as of 2010 unemployment was approximated at 45% , with over 75% of persons living below the World Bank group defined ‘poverty line’ (Palestine Monitor, 2010). With construction and planning halted as a result of occupation, with economic decline and the restriction of planning and implementing new services in the region; a specialised degree is at present of limited practical use in the region.

Type of Schools:

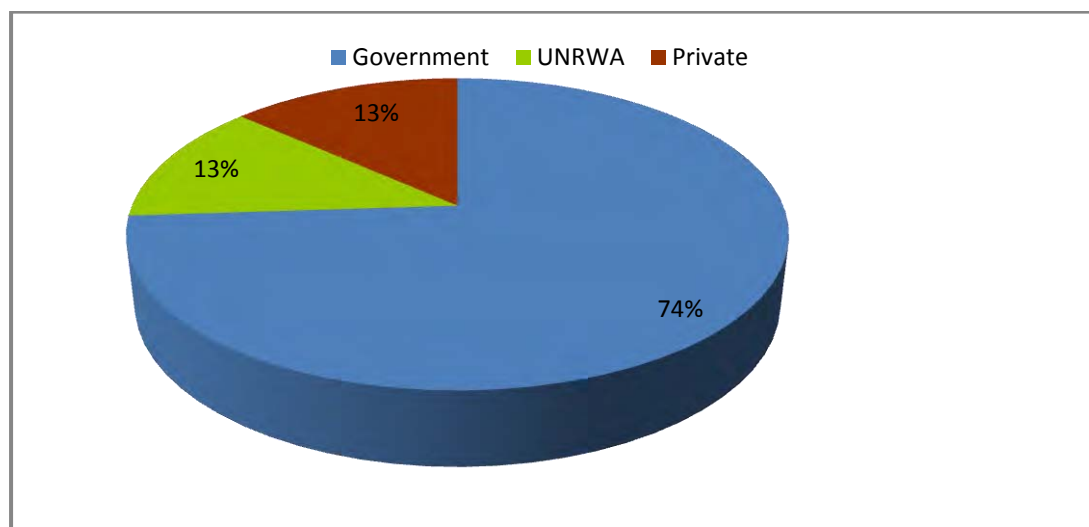


Figure 3.1.2.11: Types of school within the oPt

Source: PCBS, 2010m

It is worth mentioning the different types of schools in the oPt, as these often offer different quality of education. Although all three are under the central control of the PNA’s MoEHE and share the same curriculum, statistically, some types of school seem to provide a better education than others. One can see this in the class size, teacher to pupil ratios, drop -out rates and failure rates in the different types of schools:

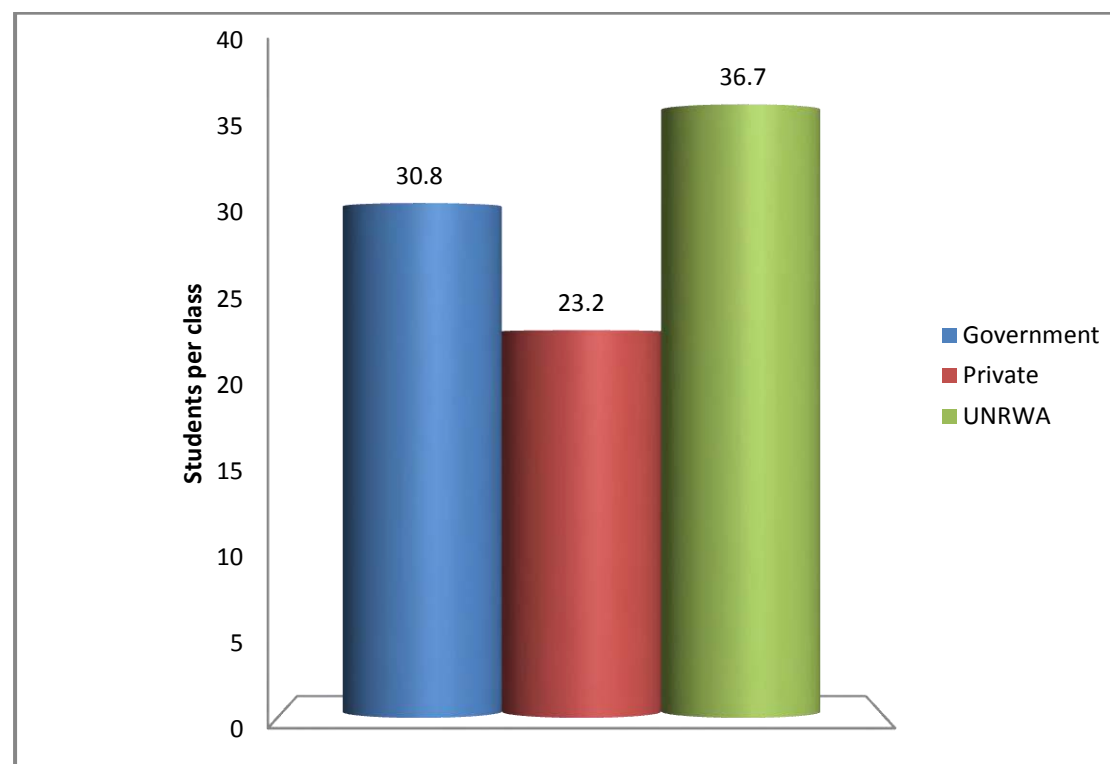


Figure 3.1.2.12: Primary level class size by school type for the oPt (2011):

Source: PCBC, 2011a; ‘Average of students per sub-class in elementary level by supervising authority and region’ - 1994/5-2010/11

It is seen that class sizes in UNRWA schools are significantly larger than both private and government schools.

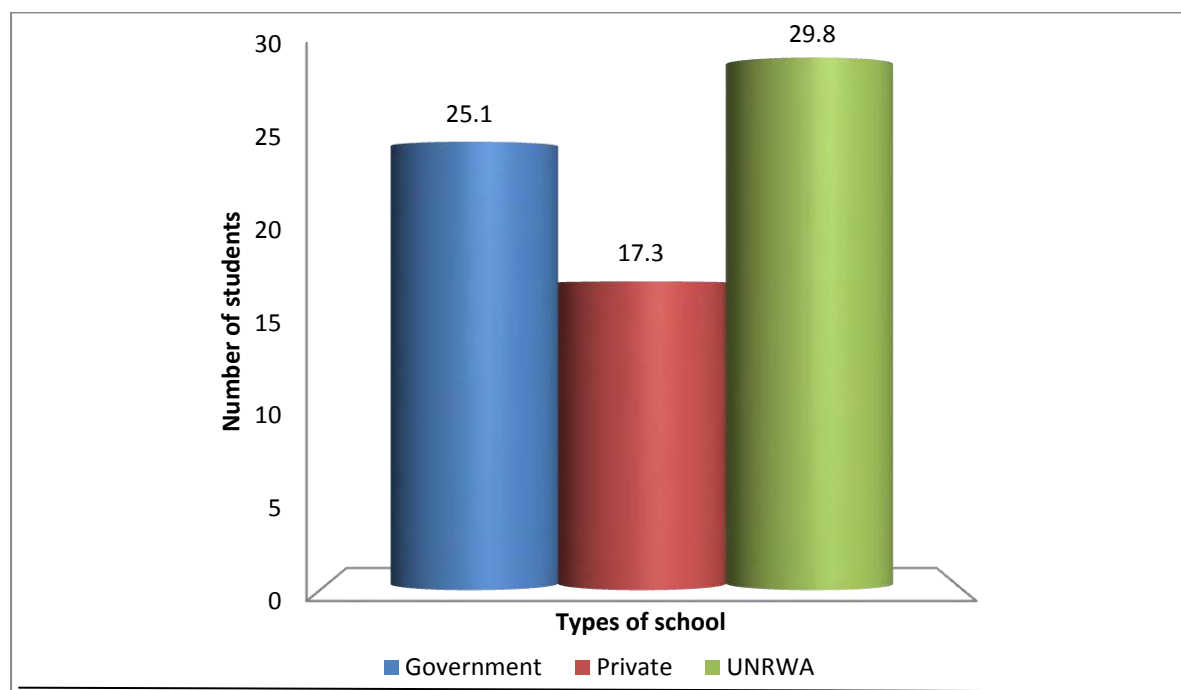


Figure 3.1.2.13 Primary level- numbers of students per teacher by school type, for the oPt (2008):

Source: PCBS, 2008c

Again, UNRWA fare worse than the other types of national schooling, with a much larger number of pupils per teacher.

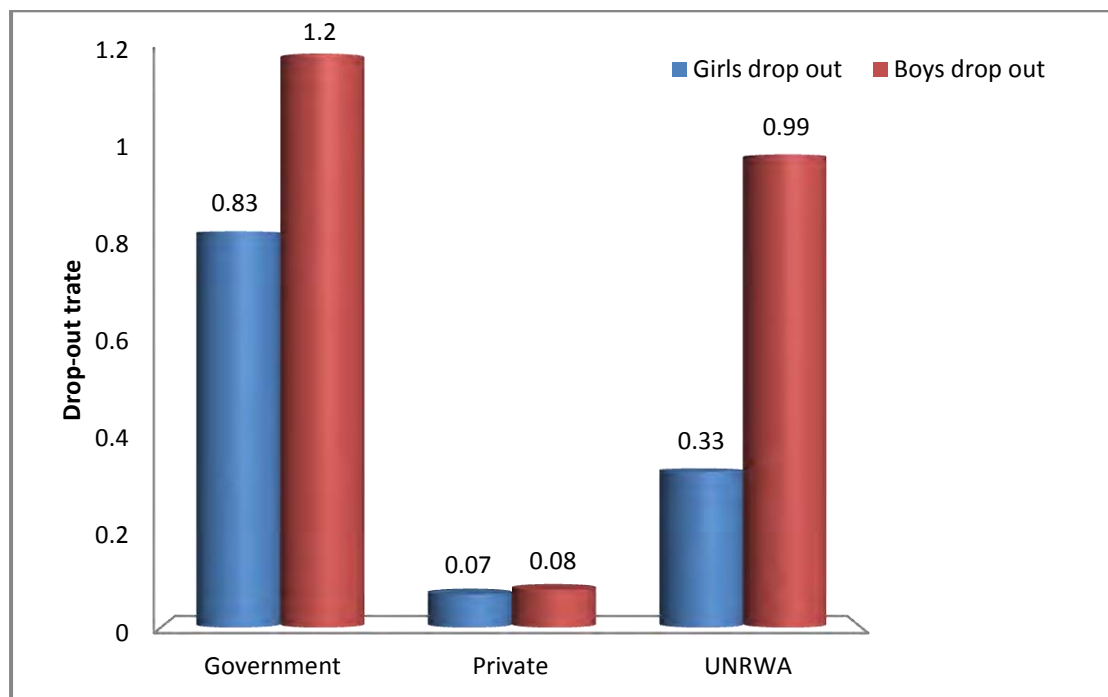


Figure 3.1.2.14 Primary drop-out rates (disaggregated by sex) by school type for the West Bank (2009/10).

Source: PCBS, 2010o

UNRWA schools perform better here with a lower drop- out rate than government schools, but as expected substantively higher than government schools.

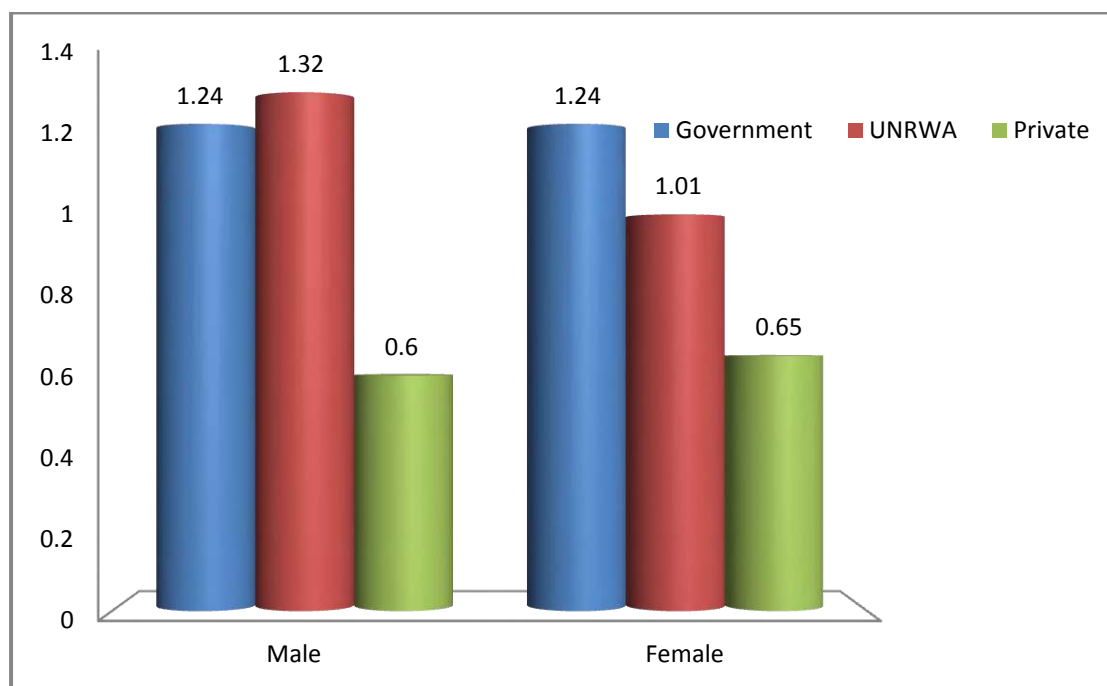


Figure 3.1.2.15 Primary drop- out rates (disaggregated by sex) by school type for Gaza Strip (2009/10)

Source: PCBS, 2010p.

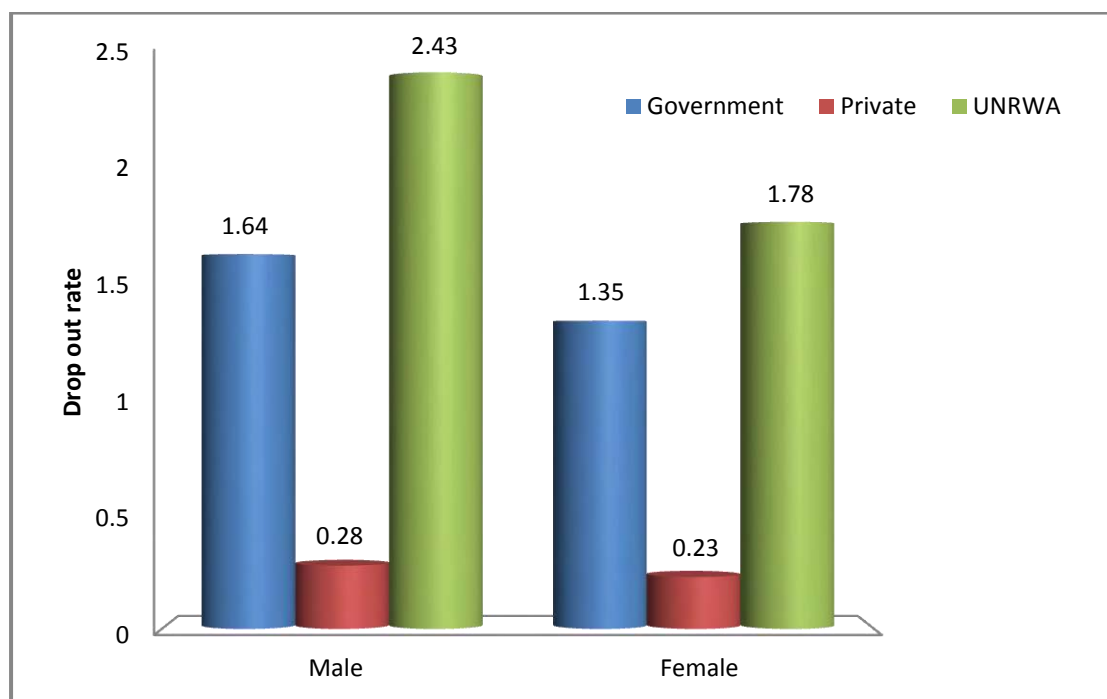


Figure 3.1.2.16: Primary drop- out rates by school type and sex, for the West Bank (2009/10)

Source: PCBS, 2010o

Figure 3.1.2.17 shows that primary school failure is much higher in UNRWA schools than any other type of institution.

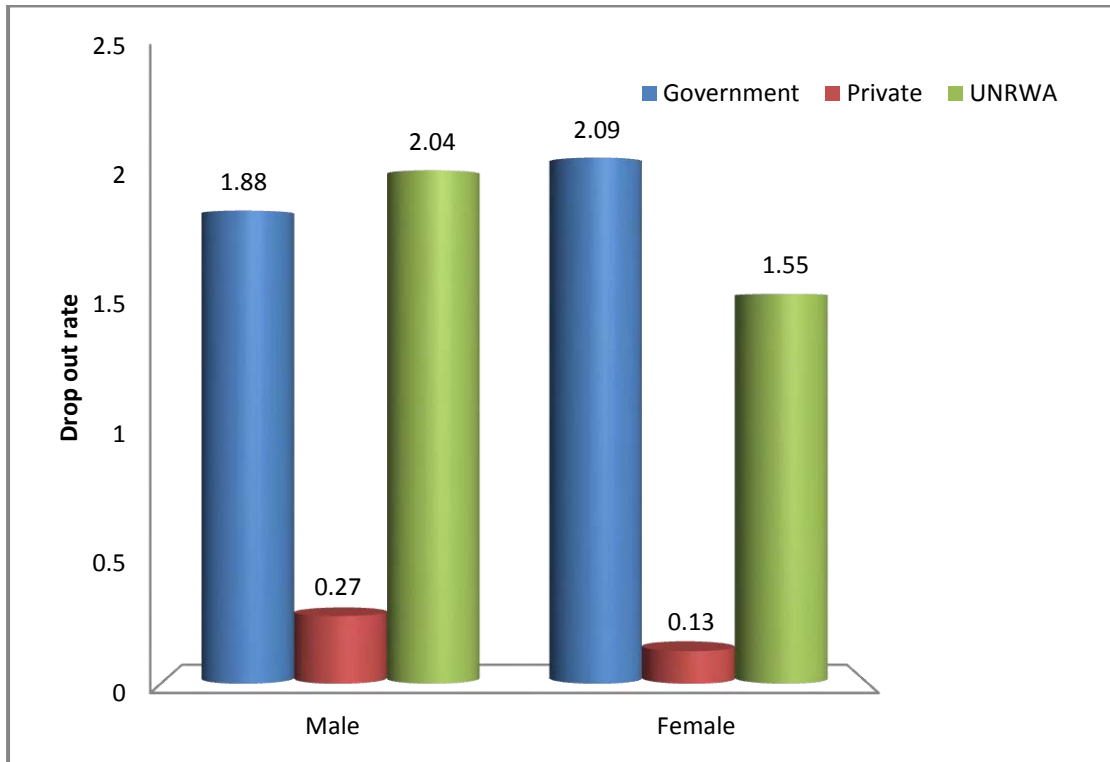


Figure 3.1.2.17: Failure rate, by school type, region and sex for Gaza (2009/10).

Source: PCBS, 2010q

Here the difference in school types and drop- out rate in Gaza is not consistent. We see boys are more likely to drop out of UNRWA schools (but only by a small percentage) whereas girls are more likely to drop-out from government schools is higher (again by a relatively small percent)

2.5 The effects of Israeli Occupation on Palestinian education.



Photo 3.1.2.1 IDF soldier checks school children’s bags in Hebron

Picture courtesy of Jeff Ngan @ Wordpress.org

Restriction of movement (select examples):

There are almost 38,000 students in grades 1-12, attending 147 schools, (135 Government schools, and 12 UNRWA schools⁵⁰) throughout Area C (UNICEF, 2010)

Area C accommodates approximately 150,000 people. It covers roughly 62 per cent of the West Bank and – according to the terms of the Oslo Accords– is under full Israeli security and administrative control (UNICEF, 2010).

The number of Palestinian villages/towns/regions and populations facing problems with restriction of movement are too many to analyse here. However, a couple of examples of how Israeli caused restriction of movement effects educational access and attainment will be provided here. It is strongly noted to the reader that these cases are not unusual/anomalous cases but unfortunately make very much represent many Palestinian children's educational experiences. These examples are used to represent the general situation of receiving education under occupation:

Al-Ramadin village, Hebron:

Although this village geographically lies north of the green line (thus lying in Palestinian administrated territory) the Alternative Information Centre notes that 'Israel has in effect, appropriated the municipal lands and declared the village a closed military zone' (AIC, 2011). Many of the villagers have to travel through numerous Israeli controlled check points to reach facilities such as schools. Because the students are often sporadically delayed at checkpoints for 'security reasons' they are failing to obtain the national standard of education and many are dropping out (AIC, 2011). Unfortunately, the only evidence we have for this is from case study evidence, such as that collected by the Palestinian Alternative research Centre, as there are no national statistics in terms of disaggregated data (quantitative national statistics) for specific regions to prove the drop- out rate is higher in Area C regions; only case studies and on the ground surveying to go by.

Ineffective educational management in Area C:

According to the Oslo Interim agreement signed in 1993 between the PLO and the Israeli Government, Israeli remained in control of areas of lands in Palestinian territory determined as Area C. Therefore, the International Court of Justice's ruling that 'the State's obligations under the Covenant apply to all territories and populations under its effective control' (PCHR, 2010), applies in this case to Israel as the occupying power. Israel is responsible for education in these areas; with evidence demonstrating that there are substantial problems with the educational sector in these territories. However, no disaggregated data is provided for this region so it is difficult to statistically compare the level of education access/quality in Area C, with other regions in the oPt. However, a number of NGOs and journalistic organizations have investigated the problems in terms of Palestinian students fulfilling their right to

⁵⁰ Private schools are not mentioned.

education in Israeli controlled Area C. According to a number of human rights groups, students face a number of issues in these regions:

I. Access to schools:

Area C like other Palestinian areas in the West Bank is facing rising fuel prices and increasing poverty (One World South Asia, 2011). Many schools are far from residential localities and access to schools is becoming an increasing problem (PCHR, 2011). Further to this, there are over 500 Israeli measures (checkpoints, segregation point, and settlements) which restrict children's access to school; making children late for classes, stopping them on some days from receiving lessons and creating psychological problems for the children (i.e. humiliation, fear). In addition, an increasing number of incidents have been recorded in 2010 in which Palestinian students were prevented from accessing schools and had their safety compromised by Israeli security forces. Thirty-six such incidents were documented in the West Bank in 2010, purportedly involving security measures such as road closures searches, harassment or assaults at checkpoints by Israeli authorities and settlers (UN General Assembly Security Council, 2011)

II. Israeli destruction of schools:

According to OCHA 15 schools received stop work or demolition orders since 2000. A prominent example of this is Khirbet Tana School in the Nablus Governorate, which was demolished twice in 2010 and received a stop work order in February 2011 (OCHR- oPt 2011a & 2011b). The total number of schools demolished or destroyed is debate however, one report claims that in the Gaza War, 280 of the 641 schools were damaged and 18 destroyed (Amnesty International, 2010).

Education & lack of economic growth:

According to a 2008 USAID report, 'The Israeli occupation and *intifada* have combined to undermine economic growth (in the oPt)' (USAID, 2008). This means that the demand for Higher Education graduates in the Palestinian territory is low. In addition the demand for Higher Education Palestinian graduates is Israel is also low, because although they have sound economic growth; 'Israeli labour markets primarily hire Palestinians for low skill jobs that require minimal educational attainment' (USAID, 2008). Therefore, education is impacted by the opportunities available. There is therefore limited *relevance* for many Palestinians, in pursuing or obtaining a Higher Education degree.

Belligerence in Gaza:

In the past five years, the situation in the West Bank, with regards to suffering belligerent acts from Israel has decreased/stabilised, whereas in Gaza the situation has rapidly declined. This had had a severe and marked effect on both the access to and quality of education in Gaza. The situation in Gaza, much of it a result of Israeli belligerence, shows education to be in a far worse condition than any other area in the Palestinian territory; and with children making up 47% of the population in Gaza, it is critical that education is performing at its best there. Educational data from the PCBS confirms this, showing that between the years 2007-2010/11, in the Gaza region, class

sizes were larger, overcrowding in schools was a far bigger problem, the number of students per teacher was greater and the number of schools available was less than in the West Bank (PCBS, 2011a). Worryingly there is no data available regarding student drop- out rate (for either sex) in the Gaza region. Several of these issues deserve attention here.

i. Lack of materials and damaged schools.

In Operation Cast Lead or ‘the Gaza War’ of 2008/2009, it is estimated by the UN that **18** schools were entirely destroyed and a further **280** damaged (UN, 2009). The Al- Mezan human rights Centre reports that of these schools effected, **7** were deliberately attacked and **33** of the schools destroyed or damaged were UNRWA schools (Al- Mezan, 2010). Now, in 2011 these schools are unable to be rebuilt or refurbished as the Israeli blockade on Gaza restricts many building materials being imported into the region (Gisha centre for Legal Rights’, 2010). Due to this, many schools suffer overcrowding and/or poor building quality. Further economic conditions in Gaza have contributed to the quality of education there. For example, electricity and fuel shortages in the region have greatly impacted both students ease of access to schools and their experiences when there. For example, the lack of electric or fuel for lighting or heating determines that many students are forced to attend lessons in ‘darkness and in cold’ (UNRWA, 2010). This hardly provides conditions conducive to settled or constructive learning. Gisha: the legal centre for freedom of movement, also reports on this claiming that, ‘the Gaza Strip presently experiences 8-12 hours of scheduled power outages per day, which disrupt the normal functioning of humanitarian infrastructure, including health and education institutions’ (Gisha, legal centre, 2010). In terms of fuel shortages, they report that, ‘since April 9th, 2008, the Israeli blockade on fuel supply to the Gaza strip has paralysed 50% of the educational sector’ (Gisha, legal centre, 2009). This is because almost half of students at all levels of education are unable to reach their educational institutions (Gisha, legal centre, 2009). Further to this, In July 2010 the United Nations Integrated Regional Information Networks (‘IRIN’) news reported that roughly 39,000 Palestinian children from Gaza would not have schools to attend, following the destruction or severe damage of schools and kindergartens during the 2008-2009 Israeli war on Gaza, and the continued inability to repair or rebuild due to the severe Israeli-led siege on Gaza and lack of construction materials .This means that the second of the MDG’s will fall further out of reach if there are not enough schools to send students to.

Another important factor with regards to fulfilling the right to a good *quality* education is the quantity and quality of educational supplies and classroom equipment such as notebooks, computers, stationary, chairs, desks etc. All of these items however are restricted by the Israeli government and therefore do not find their way into Gaza (Amnesty International, 2010). This obviously has a huge impact on the quality of education being received by students in this area, which in turn has a knock- on effect on later academic study and training, the percentage of skilled workers available along with numerous other negatives effects on development that come from severe problems in education quality.

Education and restriction of movement

Restriction of movement in Gaza (and indeed throughout the West Bank) plays a huge role in student's ability to access education. In terms of accessing Higher Education outside of Gaza, at present, this is a virtual impossibility for most Gazans (MAAN News Agency, 2009). The PNA education plan integrates education across all the oPt and where some universities may teach some specialisations, others do not. The PNA planned for national education to be this way as due to the close physical proximity of the West Bank and Gaza, students could easily reach cities in either to conduct the specialised study of their choice (MoEHE, 2008) Education Development Strategic Plan 2008–2012: However, now, although no further away in distance, students from Gaza are unable to reach universities in the West Bank due to a series of restrictions put in place by the Israeli authorities, meaning that many cannot pursue the specialism's they desire to (Al- Mezan, 2010b). The report claims that; 'the arbitrary restrictions that Israel imposes on access to higher education within the oPt violates international law. It cannot be viewed as being *compatible with the nature of the right to education*, which loses its core content in the absence of the effective ability to access the educational institutions' (Al- Mezan, 2010b). Furthermore of the 49 Universities in the oPt, just 12 are in Gaza and lack many of the specialisms and teaching quality required for a sound teaching program (Gisha, 2011a).

Psychological impact of the Gaza offensive

Even in cases where education facilities are good (adequate class sizes, fully qualified teachers, equipment etc) and access is easy (transport available, close to residence, no external restrictions etc) the impact of political violence will have a profound and marked psychological and emotional effect on the children in Gaza. This will in turn affect their educational performance. It is also noted here that the stage of impact at present in Gaza is one of post traumatic and traumatic stress. There are individuals suffering with the trauma of past events/attacks and those living in the current stress and uncertainty of war. In terms of this impact on educational attainment, in the Gaza offensive of 2008/9 it is estimated by the PCHR that the death toll reached 1,417; 313 of these were children, this being more than 1 in 5 of every person killed. PCHR further claims that 1606 children sustained injuries in the attacks (PCHR, 2011). Injury and death are also commonplace since the war with both adult and child deaths being recorded as recently as June of the month (Euro news, 2011). What effects then does living with the memories of and amid current atrocities have on young people? A grim report produced by Queens University Belfast claimed that Operation Cast Lead caused 98% of children in Gaza to suffer with war related psychological trauma(s) (Pringle, 2009). The same report found that many children in Gaza suffered with the following problems:

- i. Nervousness
- ii. Fear of attack
- iii. Violence in schools
- iv. Hopeless about the future



Photo 3.1.2.2 Child mourns the death of a classmate shot dead by IDF forces whilst attending class

Source: Picture courtesy of Rafah.org (2011)

Education in Jerusalem

Many Arab children attending schools in Jerusalem face a number of discriminatory practises from Israeli authorities, in terms of the quality of education being received in comparison to their Jewish Israeli counter-parts. Today, four different authorities govern the education system in East Jerusalem: Jerusalem Education Administration (JEA), the Islamic Waqf, the private sector, and UNRWA, the United Nations agency for Palestine refugees (Kestler-D'Amours, 2011)

According to 2010-2011 statistics provided by the East Jerusalem Education Directorate, the JEA runs 50 schools in East Jerusalem, which are attended by 38,785 students, or 48 percent of the total number of Palestinian students in the city. An additional 22,500 Palestinian students attend 68 different private schools in East Jerusalem (Ma'an, 2011).

According to the report issued by the Association for Civil Rights in Israel (ACRI), the Arab neighbourhoods of East Jerusalem lack more than 1,000 classrooms needed to accommodate schoolchildren. Of the nearly 90,000 children between 5 and 18 years old living in East Jerusalem, fewer than half were enrolled in municipal public schools last year, the report said. The report further claimed that Students who do not make it into public school because of the classroom shortage are forced to consider private schools, often at a steep cost, and end up being 'priced out' of a good education, and resultantly many students end up at home. The report additionally

claimed that many existing classrooms were "small, crowded, unventilated and lacking support classes or playgrounds" (ACRI, 2010)

In addition to this, a 2009 Al Jazeera report claimed that Israeli officials admit there is a huge gap between education systems in the East and West of Jerusalem, but they put it down to bureaucratic reasons and the fact that within the municipality few are lobbying on behalf of Palestinian residents. Furthermore, Al Jazeera reporter, Sherine Tadros visited Shaafat Elementary school and found that it was a converted animal barn, with no ventilation, overcrowding and minimal resources (Al-Jazeera, 2009).

Further problems have been identified in Arab schools in East Jerusalem, concerning the nature of the curriculum being implemented there. Palestinian activists, parents and students are fighting against the Israeli Authorities' recent push to impose an Israeli curriculum on East Jerusalem schools, which threatens the city's Palestinian culture and identity "Through the move of distortion in the Palestinian curriculum, the Israeli occupation authorities are willing to complete the project of achieving total domination over both the Palestinian land and the Palestinian human while depriving him from his culture and his history, thus tampering with the collective identity of Palestinians," said Abdel Karim Lafi, the head of the Parents' Committee Union, during a press conference in East Jerusalem in September (Kestler-D'Amours, 2011)

The Association for Civil Rights in Israel produced The East Jerusalem School System – Annual Status Report in September 2011. It highlighted many flaws in the curriculum 'forced' by Israeli authorities on Arab students in East Jerusalem schools, and the discrepancy in quality of education received by Arab children in this district and their Jewish counter-parts. The main findings of the report are, as follows:

Despite the Israeli government's obligation to provide free education, thousands of children in East Jerusalem remain outside of the school system each year. The continued neglect of the Arab school system in Jerusalem has caused:

- a severe shortage of classrooms, teaching in crowded classrooms – many in inadequate buildings,
- high dropout rates
- Thousands of children, who have no other choice, attending unofficial schools, where they have to pay tremendous fees to receive the education they should have been getting for free.

Table 3.2.1.6 Distribution of Palestinian Students by Type of School in Jerusalem

Type of School	Number of students	Percentage
Official public schools	42,000	45%
"Recognized but unofficial" schools	26,000	28%
Private, Waqf and UNRWA schools ⁵¹	20,000	22%
Students not registered in any system	4,387	5%
School-Age Population East Jerusalem	92,387	100%

Source: ACRI, 2011.

⁵¹ Jerusalem Municipality Educational Almanac (2010-2011) and conversation from August 22, 2011 with MANHI East Jerusalem.

Furthermore, on September 5, 2011 ACRI submitted an amended petition to the Jerusalem Administrative Court about the current administration budgets of the official public schools in East Jerusalem. The purpose of the administration budgets is, as their name suggests, to cover the daily costs of the administration of educational institutions such as electric and water bills, photocopying, supplies, cleaning materials and so on. In the original petition submitted exactly one year ago, ACRI relied on calculations made by MANHI, according to which there was a NIS 10,600,000 (\$3,029,000) budget gap between the budget necessary for this purpose and the budget actually given to the official Arab schools. In response, the municipality said that the calculations, which, as aforesaid, were made by the municipality's own professional body, were inaccurate, were unprofessional and could not serve as the basis of a "real" financial demand.

Forcing the Curriculum:

The residents of East Jerusalem understand the attempt to impose the Israeli curriculum on them as yet another unilateral and aggressive act adding tension to life in the city and further violating their basic rights. Conversely, the use of the PNA curriculum in East Jerusalem is supported not only by the signed political agreement but by international law and the right to education, both as a customary duty and as recognized in international conventions Israel has signed and ratified.

The question of the curriculum in East Jerusalem, if there is one, should be discussed as part of political arrangements. If truly concerned with the level of education in East Jerusalem Israeli authorities could act vigorously to reinforce the inadequate and neglected educational infrastructure (ACRI, 2011).

2.6 Bridging the gap: The disparity in educational statistics in the West Bank and Gaza.



Photo 3.1.2.3. Children sit in make-shift tent in Gaza attending lessons in a UNRWA school (2010)

Source: Picture courtesy of PCHR: 2011 education report (see bibliography).

Disparity in statistics:

As this report has already detailed, there is grave disparity between the educational quality received in the West Bank and in Gaza. This has for the most part been presented through case studies and NGO reports. This section however presents a brief statistical overview of the difference in educational quality being received in the two regions. This data is taken from the PCBS who provide disaggregated data for a number of selected educational indicators, over regions. The two issues quantitatively covered here shall be:

- i. Overcrowding
- ii. Failure rates

In terms of overcrowding, Gaza students are on average far more likely to experience this problem than students of the West Bank. In terms of data, PCBS shows that in 2010/11 the average class size at elementary level in a state run school in the West Bank was 28.6 whereas in Gaza the number was significantly higher at 37.7. In terms of secondary level education, in the West Bank the average class size was recorded as 25.3 whereas in Gaza the number was 37.7 (PCBS, 2011a).

It is noticed that in both regions, the number of students in secondary UNRWA run schools has no recorded data. This is unhelpful, as UNRWA institutions make up nearly 13% of all schools in the oPt and as a relief agency for refugee children, those receiving education there, typically come from vulnerable sections of Palestinian society (PCBS, 2010m). NGO reporting however claims that these are the most overcrowded secondary schools (PCHR, 2011); some examples in Rafah Gaza claim there are more than 50 pupils attending classes in poorly developed cramped buildings. In addition, the overcrowding conditions in Gaza schools may have been underestimated by PCBS's average. Further, data from PCBS details that in the West Bank the total number of students (primary and secondary) recorded for 2010/11 was 669,872. The total number of schools registered in the West Bank (state, private and UNRWA) is 1,971. If worked on a mean average this would make approx 340 students to every school. However, in Gaza, there are a total of 458,479 students but just 679 schools. This means in comparison to the West Bank, if worked out as a mean average, there would be 675 students. This difference is obviously vast.

Drop out/failure rates:

For both regions, the West Bank and Gaza strip, drop-out rates are equally relatively low; providing no major cause of concern. However, failure rates are a bigger problem. Student's failing to meet national standards points to a number of problems—mainly; lack of quality in education, poverty or disruption in environmental surroundings. PCBS data shows us that failure rates for the West Bank are low, but frustratingly for this period there is no complete data for the Gaza region.

Table 3.1.2.67 Drop out and failure average by region (including level and sex of school) - 2007/8

Region	Level	Failure rate			Dropout rate		
		Total	Male	Female	Total	Male	Female
oPt	Total	:	:	:	1.2	1.5	1
	primary	:	:	:	0.9	1.3	0.5
	Secondary	0.9	1	0.7	3.4	3	3.8
West Bank	Total	1.4	1.5	1.3	1.1	1.3	0.9
	primary	1.5	1.6	1.3	0.8	1.1	0.6
	Secondary	0.8	0.9	0.7	2.9	3	2.9
Gaza Strip	Total	:	:	:	1.4	1.7	1.1
	Primary	:	:	:	1	1.5	0.5
	Secondary	1	1.2	0.7	4.1	3.1	5

Source: PCBS, 2008a; 2008b

Conclusion and Recommendations:**Positive developments:**

Between 2007/8 and 2010/11 the PNA have:

1. Increased literacy rates.
2. Reduced drop- out rates in both primary and secondary education
3. Reduced the average class size across the West Bank and Gaza Strip.
4. Recognised and owned up to their responsibility for failures in education in the state.
5. Created a challenging but reachable five year policy plan in order to rectify failures and improve both access to and quality of education.
6. Signed the Arab Charter of human rights and expressed a desire to honour other international rights conventions.
7. The MoEHE has created two Universities, three University Colleges and One Community College since 2007.

Areas of Concern:

1. Difference in education standards between the West Bank and Gaza Strip.
2. High failure rates in both regions.
3. Lack of information about use of technology in classrooms and after learning

4. Increasing fuel costs, poverty and unemployment and their impact on education
5. Israeli occupation leading to restricted access to schools and psychological impact on students (fear, humiliation, poor educational performance).
6. Ineffective education in Area C.
7. Overcrowding in Gaza schools and UNWRA schools across both regions.
8. Discrepancy in Males/ Female literacy rates
9. Belligerence in Gaza leading to physical damage of schools and psychological damage of students.
10. Restricted access to Gaza meaning lack of opportunity to develop educational institutions in the region.

Recommendations:

1. National Statistical Databases to develop its method of data collection (increase range and scope of areas covered by indicators). Collect data from regions NGO's have reported suffer particular difficulties (i.e. Area C, areas near checkpoints and regions in Gaza).
2. MoEHE to make transparent the steps they will take to ensure their five year policy on improving educational access and quality is successful.
3. Stop the restriction of goods into Gaza that will help improve education i.e. stop the ban on building materials, school books, chairs desks etc
4. For the MoEHE to focus on schooling standards in Gaza; to make a 'national standard' of educational attainment and ensure this is routinely followed up.
5. MoEHE to investigate why drop-out is occurring in schools across the oPt and to create National strategy to deal with increasing school attendance.
6. For the PCBS in partnership with local and national education initiatives, to find data on drop out and failure rates that covers specific region, governorates and municipalities. This will help create a clearer picture of region drop out and potential reasons for this.

7. For in-depth studies to be conducted (at the national level) regarding reasons for pupil failure. To examine classroom conditions, psychological condition of failing students, Israeli occupation effects on education
8. MoEHE to deal with the issues of over-crowding in schools (where it is in their ability to do so)
9. The MoEHE to review the national curriculum.

3.2 The Health Sector in the occupied Palestinian territory

1. Introduction

In 1994, the Palestinian National Authority (PNA) took responsibility for the supervision, regulation, licensing, and control of the whole health service sector in the occupied Palestinian territory (oPt). Health services are provided mainly by the Palestinian Ministry of Health (MoH), the private sector, Non-Governmental Organizations (NGOs), and the United Nations Relief and Works Agency (UNRWA). People get their health services from primary health care (PHC) clinics and hospitals. MoH bears the heaviest burden as it has the responsibility for ensuring equitable and affordable access to quality health services for all Palestinians. The MoH is also responsible for formulation of laws and regulations related to health issues.

Palestinians in the oPt often report being negatively affected by the conflict and the Israeli military occupation practices. In the Gaza Strip health services have been in a critical situation as a result of both the Israeli siege and infrastructure damage, including; hospitals, clinics and ambulances, caused during the Israeli war from December 2008 to January 2009.

Generally speaking, the health services and status in the oPt have improved during the period 2007-2010. The development of health services can be clearly viewed through the increase in the number of PHC centers in the oPt, where the number has increased from 665 in 2007 to 706 in 2010 (MoH, 2008; 2011).

The MoH believes that individuals and communities in the oPt have the right to health. And its committed to resolving the wider determinants of health such as politics, security, economics and the environment that are currently having a negative impact on health. In the 'Palestinian National Health Strategy,' the MoH considers public health as a priority and as everyone's responsibility. The key public health functions are to protect the health of the population, improve and promote health, and to improve the equity and quality of health service delivery (MoH, 2010b).

2. The Right to Health

While many human rights are related to health, there are also specific provisions for it in article 12 of the International Covenant on Economic, Social and Cultural Rights (1966): **"The right of everyone to the enjoyment of the highest attainable standard of physical and mental health"**.

The right to health is listed in a number of other international legal instruments, including the World Health Organization (WHO) Constitution, the Universal Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination against Women, the Convention on the Rights of the Child and Article 25 of the United Nations (UN) Universal Declaration of Human Rights.

“The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction or race, religion, political belief, economic or social condition” WHO Constitution 2007. This right encompasses health care and those conditions essential for good health, such as safe water, adequate food, sanitation and shelter. This right includes access to good quality, affordable and culturally acceptable health services, and to information related to health issues. As with all rights, ensuring non-discrimination is at the heart of the ‘Right to Health’ as well as the right to participate in decision making around health issues.

The International Covenant on Economic, Social and Cultural Rights (1966) in Article 12 states that steps for the realization of the right to health include:

- Reduce infant mortality and ensure the healthy development of the child;
- Improve environmental and industrial hygiene;
- Prevent, treat and control epidemic, endemic, occupational and other diseases;
- Create conditions to ensure access to health care for all.

To clarify and operationalize the above provisions, the UN Committee on Economic, Social and Cultural Rights adopted a General Comment No. 14 on the Right to Health in 2000.

The General Comment: "The right to the highest attainable standard of health" sets out that the right to health extends not only to timely and appropriate health care but also to the underlying determinants of health, such as; access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including sexual and reproductive health ([WHO factsheet No 323, 2007](#)). [Figure 3.2.1](#) below presents the definition of health care and underlying determinants of the right to health as stated by the General Comment No. 14.

The Right To Health



Figure 3.2.1: Right to Health Elements

(Source: WHO factsheet No 323, 2007)

According to the General Comment, the right to health contains four elements:

1. **Availability** of public health and health care facilities, goods and services.
2. **Accessibility** to health facilities, goods and services. Accessibility has four overlapping dimensions: Non-discrimination, Physical accessibility, Economical accessibility (affordability), and information accessibility.
3. **Acceptability**: All health facilities, goods and services must be respectful of medical ethics and culturally appropriate as well as sensitive to gender and life-cycle requirements.
4. **Quality**: Health facilities, goods and services must be scientifically and medically appropriate and of good quality.

The human rights-based approach places people at the centre of the development process. Under the human rights-based approach, health is not only seen to be related to environment, but also to rights such as the right to gain information about environmentally harmful activities, freedom of association and the right to participation, as well as the right to legal remedies and administrative review (WHO, 2007). Human rights are by their very nature indivisible, interdependent and interrelated. The realization of the right to health depends on the realization of the right to a healthy environment, whereas healthy environment is a precondition for the fulfillment of other rights, such as the right to life and the right to work.

Box 1

Four distinct relationships between public health and human rights figure 3.2.2 below:

1. Human rights violations such as torture may affect public health adversely.
2. Public health programmes may violate human rights obligations when, for instance, certain groups are discriminated against in the delivery of health services.
3. Public health programmes may promote human rights, for example by enabling healthy people to use their participatory rights.
4. The promotion of human rights may correlate positively with the improvement of health. The rights to education and information, for instance, enable people to receive information on disease prevention (WHO, 2008).

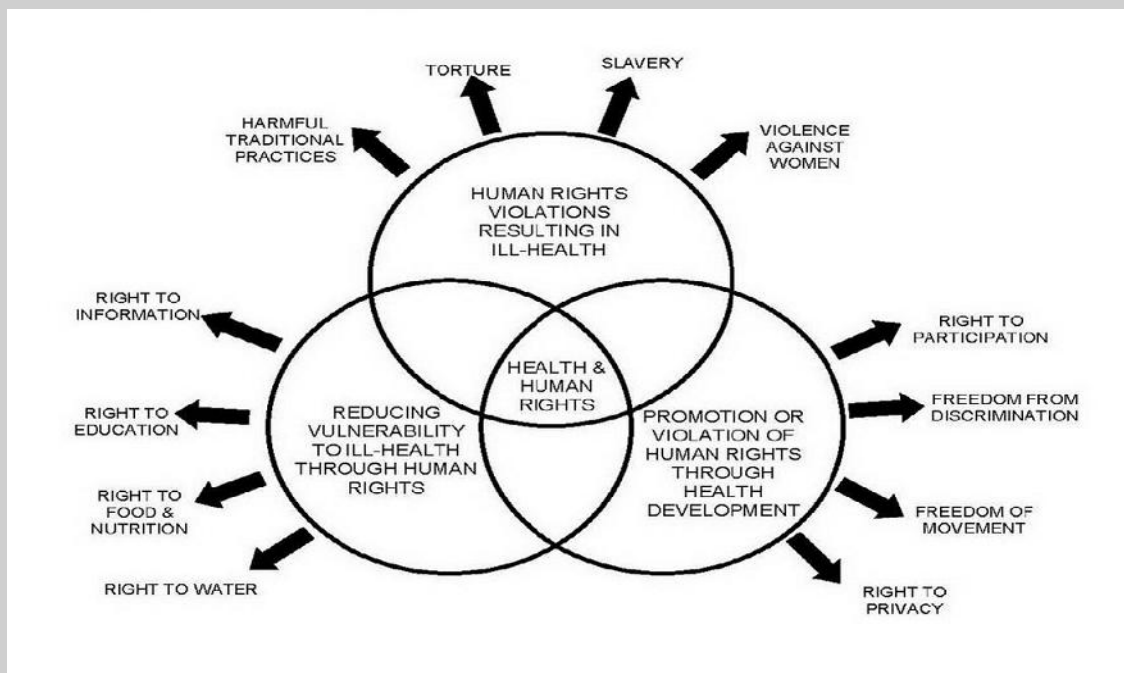


Figure 3.2.2: Linkages between health and human rights

(Source: WHO, 2008)

International Agreements ratified by the PNA

The PNA has ratified various international declarations such as the Convention on the Elimination of All Forms of Discrimination against Women and the Convention on the Rights of the Child (MoH, 2010b). The PNA is also committed to achieving the Millennium Development Goals (MDGs). However, this is a high challenge given, the lack of control it has over issues that are having such negative impact on health. Key

challenges within the power of the MoH towards achieving the health MDGs lie in (MoH, 2010b):

- ✚ Ensuring that available funds and other resources are used on those interventions that are for the public good
- ✚ Ensuring an effective and efficient management environment
- ✚ Human resource development

3. Legal Instruments at the National Level

Institutional Legal Framework of the Public Health Care System

The public health law and the health insurance and treatment referral systems in addition to the instructions derived from it that deal with the different health services and medicines covered by the health insurance and mechanism of prescription, are the main legal framework of the public health care system in the oPt.

The Palestinian MoH is the main provider of health services for all the Palestinians, its vision to promote the Palestinian health sector to ensure the delivery of high-quality and safe health services for all Palestinians.

The management and regulatory role for the MoH include setting policies, national strategies and plans, regulations and monitoring standards for health sector, supervising and monitoring different health services and licensing of different health facilities and health professionals. A priority of the MoH is to standardize and institutionalize its regulatory functions and processes to ensure their continuation despite changes in staff and management (MoH, 2010b).

Palestinian strategies, policies and laws regarding health

✚ **The Public Health Law**

The Public Health Law No. 20 was approved by the Palestinian Legislative Council in 2004. This legislation outlines the responsibilities of the MoH including its role as provider and regulator of the health sector. The law also highlights the role of the MoH in aspects of public health including combating diseases and ensuring food, water, and environmental safety.

✚ **Public Health Insurance System**

The public health insurance in the oPt was stipulated by the Council of Ministers No. 113 in the year 2004, is based on the right of all citizens to get health services and to meet all their needs and their obligation to share expenses. The current health insurance has provided a generous basket of services provided by the health

institutions of the MoH as well as services purchased from other institutions inside or outside oPt, also provide drug benefits for its citizens. This health insurance depends greatly on the fees paid by civil servants.

No Smoking Law

Legislation on the no smoking law was passed in 2005. The law bans smoking in public places and also forbids the selling of cigarettes to those less than 18 years of age. However, the law has never been enforced. There is no system to oversee and enforce the law nor are their penalties imposed for non-compliance.

Palestinian National Strategy on Cancer Prevention (PNSCP) 2009

The general objective of the Strategy is rate reduction of cancer incidence, morbidity and mortality in Palestine. The PNSCP is an integral part of the Palestinian Strategy for the Prevention and Control of Noncommunicable Diseases and part of the Palestinian National Health Strategy (PNHS), as well (MoH, 2009b).

Annual National Health Work Plan 2010

This work plan gives the sub objectives, programmes and activities outlined in the 3 year National Strategic Health Plan 2008-2010. The work plan then goes on to give strategic actions, indicators of achievement, planned outputs, estimated costs and names for accountability purposes for work to be undertaken within the 2010 planning cycle. All the work also falls within the framework of the health component of the Palestinian Reform and Development Program 2008-2010.

The objectives of the Plan were: a) identify and be transparent about what needs to be done, by when, with what outputs, the top priorities and who is accountable to help achieve the objectives of the National Strategic Health Plan 2008–2010 and the planned health outcomes in the Palestinian Reform and Development Plan 2008–2010; and b) help strengthen the process of institutionalizing health planning in the MoH.

The top 5 priorities in the work plan for 2010 also remain as in the 2009 work plan: Rationalized health expenditure, quality improvement, human resource development, Strengthening the health information system and improvement of the secondary and tertiary infrastructure.

Palestinian National Health Strategy 2011 – 2013

The Palestinian National Plan 2011-2013 presents the Palestinian national strategic health priorities and is intended to help international partners to channel support in

line with these priorities. The priorities and programs in this sector strategy, agreed during a consultative process with stakeholders, are reflected in the national plan.

The three years strategy outlines priorities that will lead to further development of the MoH, as a state institution providing good governance and leadership in overseeing and regulating the Palestinian health sector. This strategy serves as a major building block to further develop the MoH into a state institution that will serve a future independent Palestinian state. It provides strategic areas for support within the framework of internationally agreed criteria for what constitutes a sound strategy. It also provides for a concerted effort that will ultimately ensure that ill health is prevented among Palestinian people and that those who need health services have access to and receive quality, safe health care.

MoH operates on the deeply held value that all Palestinians have the right to health. As such, the priority areas focus on state building and better governance, health promotion, accessible, quality and safe service delivery, and sustainability through appropriate health financing mechanisms and competent human resources in order for this right to be achieved.

The National Health Strategy included the strategic framework for the coming three years (2011 – 2013), the strategic actions and the overall budget.

4. Health Status in the occupied Palestinian territory

Health Services

As aforementioned, health services in the oPt are provided mainly by the Palestinian MoH, the private sector, NGOs, and the UNRWA. People get their health services from PHC clinics and hospitals.

Primary Health Care Service:

There are a total of 706 PHC clinics in the oPt, 572 in the West Bank and 134 in the Gaza Strip. Thereby, the average ratio of persons per center is 5,734. In the West Bank there are 394 MoH PHC centers and 59 in the Gaza Strip. UNRWA operates 59 PHC centers, 41 in the West Bank and 18 scattered in 8 refugee camps in the Gaza Strip. The NGO sector operates 194 PHC centers and general clinics, 137 of them in the West Bank and 57 in the Gaza Strip (MoH, 2011) Table 3.2.1 below.

The number of PHC centers in the West Bank has increased from 532 in 2007 to 572 in 2010. In the Gaza Strip the increase was from 133 in 2007 only to 134 in 2010 (MoH, 2008; 2011). For more details about the previous years (2007 – 2010) see Table 3.2.10.

Table 3.2.1: Distribution of PHC center by Governorate and Provider, oPt 2010

Governorate	Population	Provider			Total	Pop. Per Center
		MoH	NGOs	UNRWA		
West Bank	2,513,283	394	137	41	572	4,394
Jenin	274,001	46	17	6	69	3,971
Tubas	54,765	8	2	2	12	4,564
Tulkarm	165,791	30	7	2	39	4,251

Nablus	340,117	43	16	3	62	5,486
Qalqiliya	97,447	17	14	3	34	2,866
Salfit	63,148	17	10	1	28	2,255
Ramallah	301,296	55	15	6	76	3,964
Jericho	45,433	11	4	4	19	2,391
Jerusalem	382,041	22	19	4	45	8,490
Bethlehem	188,880	19	17	2	38	4,971
Hebron	600,364	126	16	8	150	4,002
Gaza Strip	1,535,120	59	57	18	134	11,456
North Gaza	297,269	12	9	3	24	12,386
Gaza	534,558	15	24	4	43	12,432
Deir al Balah	222,866	15	10	5	30	7,429
Khan Younis	291,737	12	6	2	20	14,587
Rafah	188,690	5	8	4	17	11,099
Total	4,048,403	453	194	59	706	5,734

Source: MoH, 2011

Secondary and Tertiary Health Care Service

There are 76 hospitals in the oPt with 5,108 beds resulting in 13 beds per 10,000 of population. 51 hospitals are located in the West Bank and 25 in the Gaza Strip (MoH, 2011). The hospitals services are operated by MoH, NGOs, UNRWA and the private sector, Table 3.2.2 below. For more details about the previous years (2007 – 2010) see Table 3.2.10.

Table 3.2.2: Distribution of Hospitals and Beds in the West Bank and Gaza Strip by Service Provider, 2010

Provider	West Bank			Gaza Strip			oPt		
	No. of Hospitals	No. Beds	% Beds	No. of Hospitals	No. Beds	% Beds	No. of Hospitals	No. Beds	% Beds
MoH	12	1,367	44.6	13	1,635	80.0	25	3,002	58.8
UNRWA	1	63	2.1	0	0	0	1	63	1.2
NGOs	20	1,185	38.7	8	310	15.2	28	1,495	29.3
Private	18	448	14.6	2	28	1.4	20	476	9.3
PMS*			0.0	2	72	3.5	2	72	1.4
Total	51	3,063	100	25	2,045	100	76	5,108	100
Bed/ 10,000 pop.	2,513,283**	12		1,535,120**	13		4,048,403**	13	

Source: MoH, 2011

* PMS: Palestinian Military services

** Total number of Population

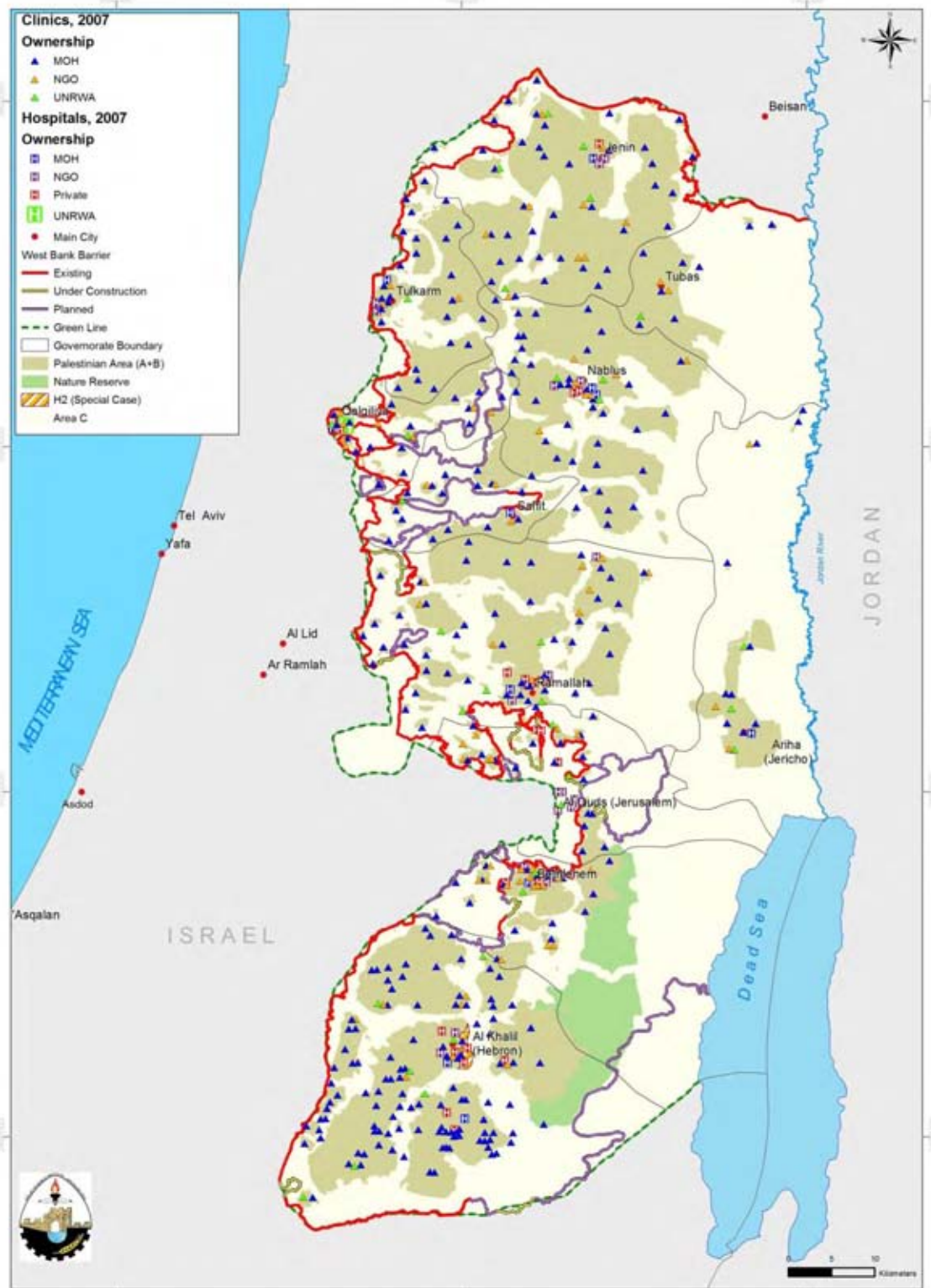
Table 3.2.3 below shows the distribution of the hospitals in the oPt according to the governorate in the year 2010.

Table 3.2.3: Distribution of Hospitals and Beds in the oPt's Governorates by Service Provider, 2010

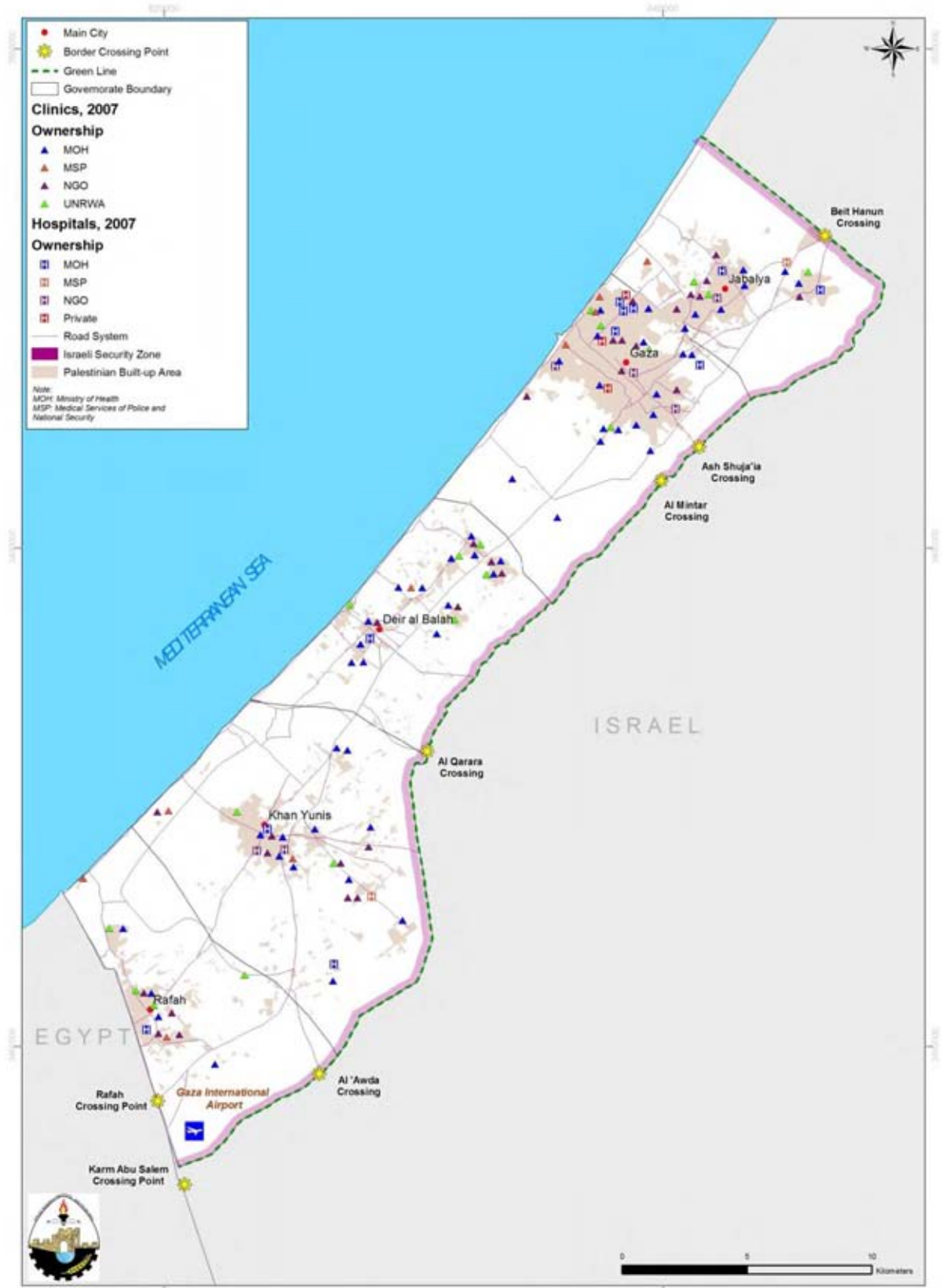
Governorate	MoH		UNRWA		Non governmental		Total	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
West Bank	12	1,367	1	63	38	1,633	51	3,063
Jenin & Tubas	1	123	0	0	2	47	3	170
Tulkarm	1	108	0	0	2	45	3	153
Nablus	2	267	0	0	4	249	6	516
Qalqiliya	1	56	1	63	1	17	3	136
Salfit	1	50	0	0	0	0	1	50
Ramallah	1	164	0	0	7	154	8	318
Jericho	1	54	0	0	0	0	1	54
Jerusalem	0	0	0	0	9	567	9	567
Bethlehem	2	299	0	0	6	268	8	567
Hebron	2	246	0	0	7	286	9	532
Gaza Strip	13	1,635	0	0	12	410	25	2,045
North Gaza	2	109	0	0	2	58	4	167
Gaza	6	853	0	0	2	28	13	1,119
Deir al Balah	1	101	0	0	0	0	1	101
Khan Younis	2	480	0	0	3	86	5	566
Rafah	2	92	0	0	0	0	2	92
Total	26	3,037	1	63	49	2,008	76	5,108

Source: MoH, 2011

Map 3.2.1 & Map 3.2.2 below present the distribution of hospitals and primary health care centers in the West Bank and Gaza Strip.



Map 3.2.1: Distribution of Hospitals and Clinics in the West Bank



Map 3.2.2: Distribution of Hospitals and Clinics in Gaza Strip

Through the last years the MoH has been working hard to improve the hospitals' infrastructure of the MoH, including the establishment of the Palestinian Medical Complex in Ramallah in 2010, the central blood bank in 2009 and the consolidation of the 5 facilities into one entity serves as a national centre of excellence (MoH, 2010b).

Private and NGO hospitals make an important contribution to the provision of secondary and tertiary care services. Around 39.3% of the total hospital beds in 49 hospitals are managed by the NGOs and private sector. The private sector which includes 6 distinguished East Jerusalem hospitals provides specialized medical care services and rehabilitation.

Regarding the distribution and availability of hospitals and beds on governorate level, it's clear that Bethlehem Governorate has the highest rates among all the oPt's governorates in terms of both hospitals per 100,000 population and beds per 10,000 population; with 4.2 and 30, respectively. While the lowest rates are found in Deir Al Balah Governorate with 0.4 hospitals per 100,000 and 4.5 beds per 10,000 [Map 3.2.3](#) below for more details.

The rate of hospitals per 100,000 of population in the oPt has declined from 2.0 in 2007 to 1.9 in 2010; in the West Bank it declined from 2.3 in 2007 to 2.0 in the year 2010, also in Gaza Strip it declined from 1.7 in 2007 to 1.6 in 2010 (MoH, 2008; 2011)

The rate of beds per 10,000 of population in the oPt has declined from 13.1 in 2007 to 12.6 in 2010; in the West Bank it declined from 12.5 in 2007 to 12.2 in the year 2010, also in Gaza Strip it declined from 14.1 in 2007 to 13.3 in 2010 (MoH, 2008; 2011).



Map 3.2.3: Distribution of hospitals per 100,000 and beds per 10,000 of population according to governorate, 2010

The tertiary care services are not available in the governmental facilities and thus are purchased by the MoH from the local private sector, East Jerusalem hospitals, and from some hospitals in the neighboring countries. In 2010 a total of 53,025 patients were referred for treatment to non governmental hospitals of which 66% were in the West Bank area and 34% in the Gaza Strip. Gaza Governorate ranked first in terms of the number of transfers reaching 17,645 (33.3% of the total) Table 3.2.4.

Table 3.2.4: Distribution of Number of Referral Cases by Cost & Governorates, oPt, 2010

Governorate	Number	Cost (million NIS)
West Bank	34,938	250.5
Jenin	2,562	22.5
Tubas	419	2.9
Tulkarm	1,917	19.3
Nablus	4,225	38.3
Qalqiliya	985	8.6
Salfit	731	5.5
Ramallah and Al-Bireh	5,132	39.1
Jericho	752	5.7
Jerusalem	8,322	33.3
Bethlehem	2,942	23.7
Hebron	6,917	51.5
Other	3	0.034
Unknown	25	0.1
Outside Palestine	6	0.09
Gaza Strip	18,087	96.4
North Gaza	214	1.8
Gaza	17,645	93.4
Deir al Balah	69	0.3
Khan Yunis	108	0.6
Rafah	41	0.2
Others (West Bank)	9	0.05
Unknown	1	0.005
Outside Palestine	-	-
Total	53,025	346.9

Source: MoH, 2011

From the total number of referred cases 23,186 cases were referred to East Jerusalem hospitals, 4,362 to Egypt, 3,219 patients referred to Jordan, and 3,870 to Israel (MoH, 2010a). However, during 2010 the need for referrals abroad from Gaza increased because of the war and the ongoing siege.

The total cost of the cases where services were bought from outside the MoH during the year 2010 amounted to 346.9 million NIS compared to 265.6 million NIS in the year 2007; (Figure 3.2.3) (MoH, 2008; 2011). Cancer was the primary reason for transfers, followed by eye diseases, diseases of the urinary tract, internal diseases and neurosurgery.

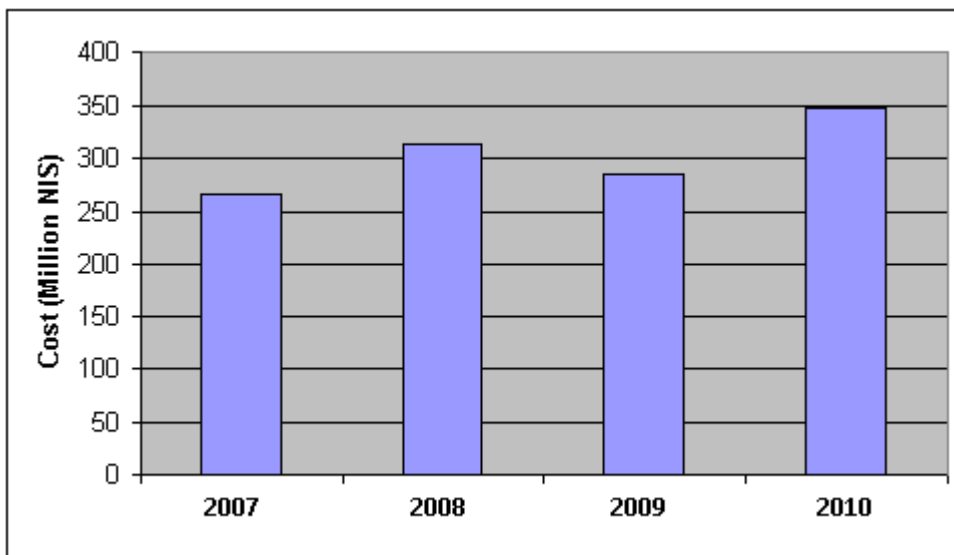


Figure 3.2.3: Cost of cases bought from outside the MoH

Source: MoH, 2008, 2009a, 2010a, and 2011

According to the table above too much money from the national budget is spent on medical referrals abroad. The MoH needs to change the way it deals with the need for tertiary specialist care, including developing capacity building in the oPt through human resource development and the establishment of quality facilities. All of this will improve the health service delivery and increase in client satisfaction and reduce these referrals abroad.

3.2.4.2. Health Status (Indicators)

The Palestinian population is going through an epidemiological and demographic transition. Much suffering lies behind the standard health indicators. People often report being negatively affected by the conflict and the Israeli military occupation practices. These are contributory factors to the epidemic of chronic diseases.

Within the last 4 years the life expectancy increased from 70.2 years in 2007 to 72.2 years in 2010 (MoH, 2011). Fertility rate is declining in both the West Bank and the Gaza Strip, but still considered relatively high. The total fertility rate in the oPt has declined from 4.6 in 2007 to 4.2 in 2010. In the West Bank, the fertility rate was 4.2 in 2007 and down to 3.8 in 2010. In Gaza Strip, it was 5.4 in 2007 and decreased to 4.9 in 2010 (MoH, 2008; 2011).

Live Births and Still Births

According to the MoH there were 125,587 live births during the year 2010, of which 64,795 were males and 60,792 females (48.4%). The highest number of live births in the West Bank was reported in the Hebron Governorate, amounted to 19,652, whereas the least number of live births was reported in the Tubas Governorate, amounting to 1,142. In Gaza Strip the highest number was reported in Gaza Governorate amounting to 21,901 cases.

The number of reported still births was 616, of which 329 were males and 287 females; 91 cases were reported in the Nablus Governorate, whilst just one cases was

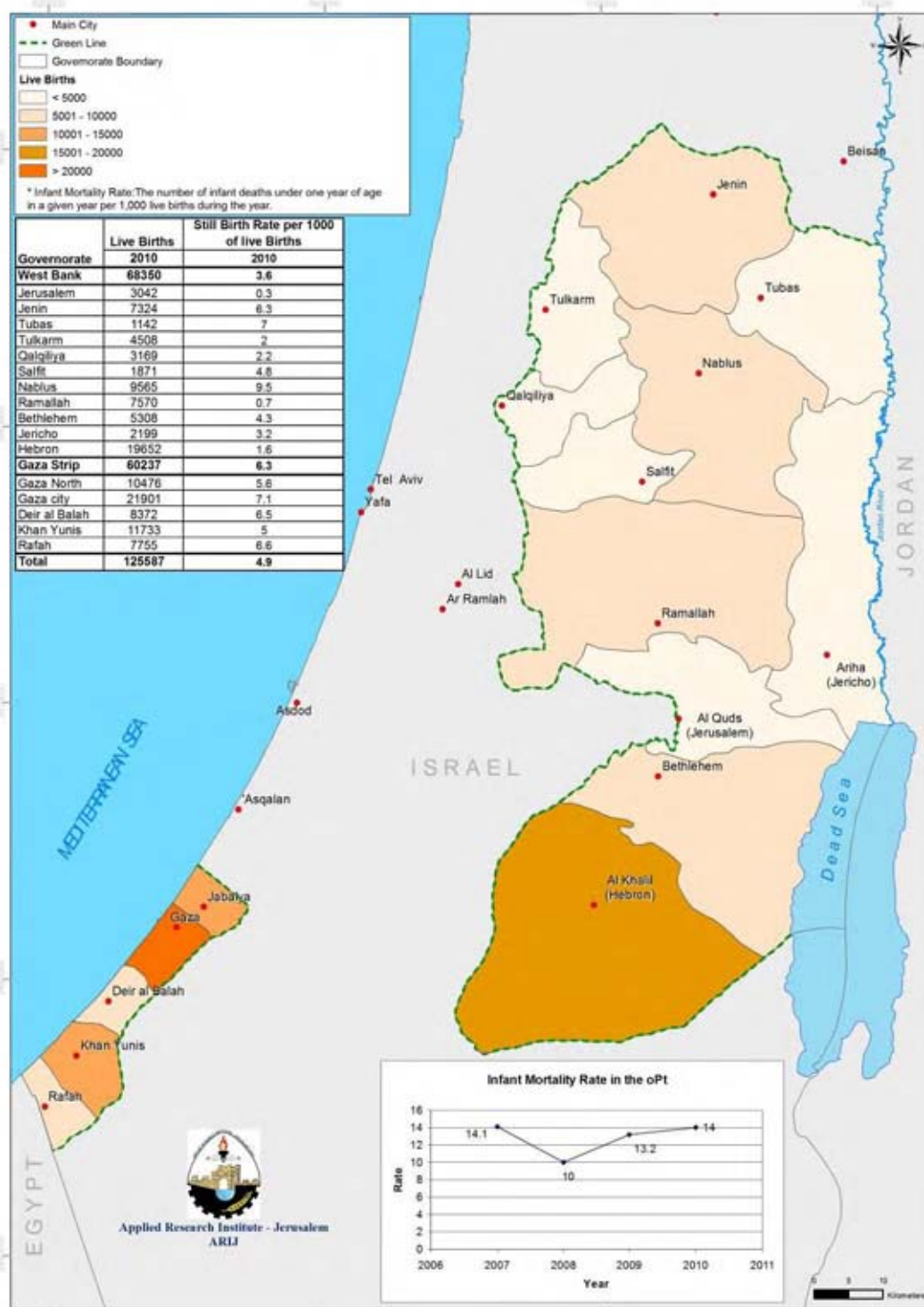
reported in the Governorate of Jerusalem (Table 3.2.5). In Gaza Strip the highest number of still births was reported in Gaza Governorate with 155 cases. Map 3.2.4 shows the total number of live births and the rate of still births in the oPt governorates in the year 2010.

Table 3.2.5: Distribution of Live and Still Births by Governorate, years from 2007- 2010

Governorate	Still Births		Live Births			
	2007	2010	2007	2008	2009	2010
Jenin	53	46	7,515	7,884	7,473	7,324
Tubas	0	8			1,290	1,142
Tulkarm	0	9	4,356	4,024	4,378	4,508
Nablus	0	91	8,891	8,965	9,096	9,565
Qalqiliya	0	7	2,832	2,853	2,739	3,169
Salfet	17	9	1,033	1,551	1,623	1,871
Ramallah and Al- Bireh	0	5	7,410	5,253	9,104	7,570
Jericho	0	7	1,236	1,390	1,452	2,199
Jerusalem	0	1	2,312	2,691	2,473	3,042
Bethlehem	27	23	4,415	4,835	4,911	5,308
Hebron	0	32	17,859	16,613	18,605	19,652
West Bank	97	238	57,859	56,059	63,144	65,350
North Gaza	NA	59	6,241	NA	9,197	10,476
Gaza	NA	155	19,476	NA	19,244	21,901
Deir al Balah	NA	54	6,012	NA	7,406	8,372
Khan Younis	NA	59	15,058	NA	10,491	11,733
Rafah	NA	51	1,438	NA	7,113	7,755
Gaza Strip	NA	378	48,225	NA	53,451	60,237
oPt	97	616	106,084	53,059	116,595	125,587

NA: Not Available

Source: MoH, 2008, 2009a, 2010a, and 2011



Map 3.2.4: live births and the rate of still births in the oPt governorates in 2010.

Mortality Rate

The total number of reported deaths in the oPt in 2010 was 10,733 of which 6,757 were in the West Bank and 3,976 in the Gaza Strip. In the West Bank, Hebron Governorate recorded the highest number of reported deaths, reaching 1,362 cases (20.2% of total deaths in the West Bank), whilst Jericho Governorate marked the

lowest number of death with 114 cases (1.7% of the total deaths in the West Bank) Table 3.2.6. In Gaza Strip the highest number of reported deaths was in Gaza Governorate with 1,372 cases (34.5% of the total cases in Gaza Strip) and the lowest in Rafah Governorate with 551 cases (13.9% of the total cases in Gaza Strip). The primary cause of death was heart diseases, followed by cerebrovascular diseases, cancer, respiratory disorders and lastly, natural death (MoH, 2011).

Table 3.2.6: Mortality Rate by Governorate, 2010

Governorate	Number of Deaths	% per 1000 population
Jenin	996	3.64
Tubas	193	3.52
Tulkarm	604	3.64
Nablus	1,215	3.57
Qalqiliya	275	2.82
Salfet	209	3.31
Ramallah and Al-Bireh	1,001	3.32
Jericho	114	2.51
Jerusalem	316	0.83
Bethlehem	472	2.50
Hebron	1,362	2.27
West Bank	6,757	2.69
North Gaza	643	2.16
Gaza	1,372	2.57
Deir al Balah	614	2.76
Khan Younis	797	2.73
Rafah	551	2.92
Gaza Strip	3,976	2.59
oPt	10,733	2.65

Source: MoH, 2011

For more details about the previous years (2007 – 2010) see Table 3.2.10.

Infant Death

According to the Infant Death statistics, the total number in the West Bank was 795 cases, Jenin Governorate recorded the highest number of infant death with 170 cases, where as Jericho Governorate recorded the least number with 15 cases, Table 3.2.7 below.

The main causes of infant deaths are prematurity, low birth weight, and congenital malformations. No Data was available for Gaza Strip in the MoH Report 2010, but for the year 2009 the total number of infant death in Gaza Strip was 466 cases (MoH, 2010a). Map 3.2.3 shows the Infant Mortality Rate (IMR) in the oPt during the last years from 2007 until 2010.

Table 3.2.7: Infant Death by Governorate, 2010

Governorate	Number of Deaths	Percentage from the total number of deaths
Jenin	170	21.4
Tubas	32	4.0
Tulkarm	67	8.4

Nablus	167	21.0
Qalqiliya	33	4.1
Salfet	17	2.1
Ramallah and Al-Bireh	128	16.1
Jericho	15	1.9
Jerusalem	22	2.8
Bethlehem	28	3.5
Hebron	116	14.6
Total	795	

Source: MoH, 2011

Transport Accidents

According to the MoH annual reports, the total number of deaths caused by transport accidents in the West Bank during 2007-2010 was 370. The number of deaths has doubled from 64 in 2007 to 131 in 2010 (Figure 3.2.6).

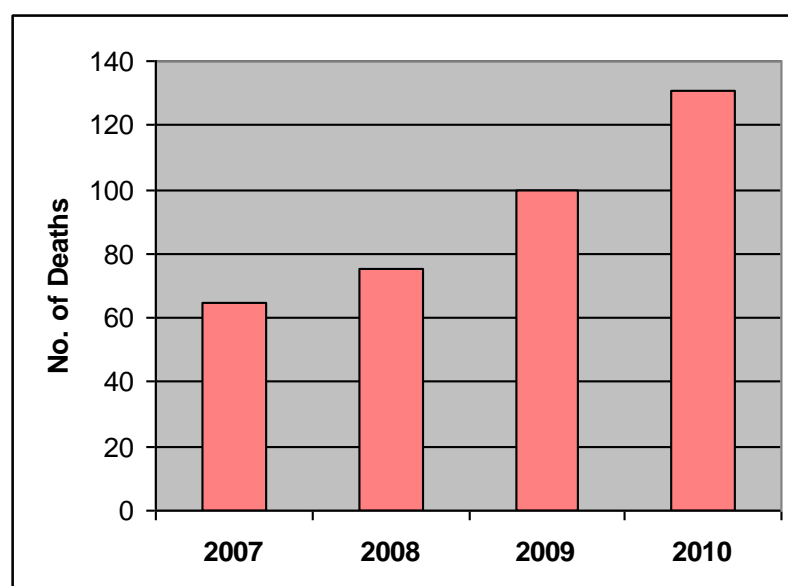


Figure 3.2.4: Total number of Deaths caused by Transport Accidents in the West Bank

Source: MoH, 2008, 2009a, 2010a, and 2011

Regarding car accidents, in 2010 the total number of people affected by car accidents registered at the MoH amounted to 7,412; 5,508 males and 1,904 females, and amongst them there were 41 deaths. The Ramallah and Al-Bireh Governorate captured the highest number of recorded car accident injuries reaching 1,704, followed by the Nablus Governorate, which experienced 1,401. . Tubas Governorate recorded 58 injuries, the lowest proportion of car accidents injuries registered, Table 3.2.8. No data regarding this was available for the Gaza Strip during the last 3 years.

Table 3.2.8: Distribution of Car Accidents by Governorate and the Result of the Accident in the West Bank, 2010

Governorate	Deaths	Injury	Total
Jenin	8	815	823
Tubas	2	56	58
Tulkarm	6	556	562
Nablus	9	1,392	1,401
Qalqiliya	3	395	398
Salfet	0	199	199
Ramallah and Al-Bireh	4	1,700	1,704
Jericho	0	328	328
Jerusalem	NA	NA	NA
Bethlehem	1	714	715
Hebron	8	1,216	1,224
Total	41	7,371	7,412

Source: MoH, 2011

Diseases

The health status assessment of any society is important to allocate the sources of infirmities, to guide to treatment, to contribute to health planning, and to evaluate the quality of health care. Diseases are the most common infirmities that afflict individuals and impair their normal functioning. Diseases can be classified into two general groups; communicable and non-communicable diseases (Chronic diseases).

A) Non – Communicable Diseases (Chronic Diseases)

The Non – Communicable Diseases (NCDs) are now a key challenge for the health system in the oPt. Several factors including politics, urbanization, globalization, the Israeli occupation, poverty and unemployment, and transitions in food consumption patterns are contributing to the increasing prevalence of risk factors such as smoking, unhealthy diet and lack of physical activity. This corresponds with a rise in the incidence of NCDs in the oPt and the increasing prevalence of diabetes, cardiovascular diseases and neoplasm.

The much greater threat to health today is in the form of NCDs. In general, the MoH depends on mortality data for NCDs (heart diseases, cerebrovascular, malignant neoplasms, diabetes and others) to assess the changes in the health status. In 2010, the percentage of deaths from heart diseases in the West Bank was 25.4% from all the death cases (MoH, 2011).

One in ten people living in the oPt and two thirds of those older than 60 years old have at least one chronic disease according to 2006 Palestinian Family Health Survey. Based on MoH mortality data for the West Bank, the leading causes of deaths are heart diseases, cerebrovascular diseases and malignant neoplasms. Among women, breast cancer is the most prevalent cancer while lung cancer is the most common cancer among males.

In 2010, 1,350 new cancer cases were reported in the West Bank, of which 53.3% are

females and 46.7% are males. The ratio of cancer mortality among total deaths was 10.8% (MoH, 2011). In comparing the percentage of cancer deaths in the West Bank between 2007 and 2010, there was an increase from 10.3% from the total deaths in 2007 to 10.8% in the year 2010. The rate of reported cancer cases in the West Bank was 53.7 per 100,000 of the population. The highest rates were registered in Nablus and Tulkarm governorates with 127.3 and 80.8 per 100,000 of the population respectively, while the lowest rate was 10.5 per 100,000 of the population and was registered in Jerusalem Governorate.

In order to respond to this chronic diseases problem, the MoH produced a national policy and strategy on non-communicable diseases and worked with all stakeholders on the prevention of ill health and on the promotion of health. They put greater effort working on effective interventions to decrease the burden of chronic diseases, such as the enforcement of the public health and anti-smoking laws, the implementation of effective educational programs and the promotion of healthy lifestyle initiatives.

The MoH established the National Center for Non Communicable Diseases in 2009, which is expected to have a major role in the development of a national surveillance system that will address the number, type and location of evidence, based screening facilities. In addition, it will address the development and implementation of disease specific national strategies and guidelines for early detection and treatment programs.

B) Communicable Diseases

Through the last 20 years the MoH was able to control many infectious diseases; since 1982 no cases were registered of leprosy or diphtheria in the oPt, and no cases of Acute childhood Flaccid Paralysis were registered since 1988. Also, for many years, not a single case of rabies or cholera has been registered despite the presence of all these Diseases in the neighboring countries. In spite of the control and reduction of many Infectious diseases challenges remain in terms of reducing the spread of many communicable diseases and the continued control of them, such as meningitis, hepatitis, Brucellosis, Tuberculosis, and acquired *Human immunodeficiency virus* (HIV).

According to the MoH, the number of communicable disease mortality in the West Bank reached increased from 471 deaths in 2007 (with a rate of 19.85 per 100,000 people) to 566 deaths in 2010 (with a rate of 22.5 per 100,000 people). The distribution of mortality by sex in 2010 was 56.7% among males and 43.3% among females (MoH, 2008; 2011). For Gaza Strip the number of communicable disease mortality in 2007 was 157, 62.4% were males and 37.6% were females (MoH, 2008). No data are available for the Gaza Strip in the MoH annual reports of 2009 and 2010.

In general, the incidence rates of many infectious diseases in the oPt declined due to the MoH efforts in monitoring health service programs and in controlling illnesses and diseases in the oPt. Some communicable diseases can be prevented by the use of vaccines. The rate of immunization has been accelerating to cover around 95% for all

vaccines. However, the most relevant strains of vaccine-preventable diseases include poliomyelitis, acute flaccid paralysis, measles, tuberculosis, tetanus, and mumps.

A number of bacteria and virus strains are of serious concern in the oPt. Viral aseptic meningitis is considered endemic, while meningococcal meningitis, bacterial meningitis, is the most potentially life-threatening disease in the oPt. Viral hepatitis (A, B and C) are of concern and are also endemic in the oPt.

The Acquired Immuno-Deficiency Syndrome (AIDS) in the oPt is relatively low when compared to other countries. The first case of AIDS to be reported in the oPt was in 1988, and since then the overall registered cases have numbered to 66, of which 51 cases had acquired AIDS and 15 were HIV carriers (MoH, 2011). Most of the cases are among males with 53 cases, which represent 81.8% of all the cases, and over 50% of the reported cases are estimated to be due to heterosexual transmission. From the total registered cases 48 cases died; which represent 72.7% of the total number, and 14 cases are still alive, while the fate of 4 cases is unknown (MoH, 2011).

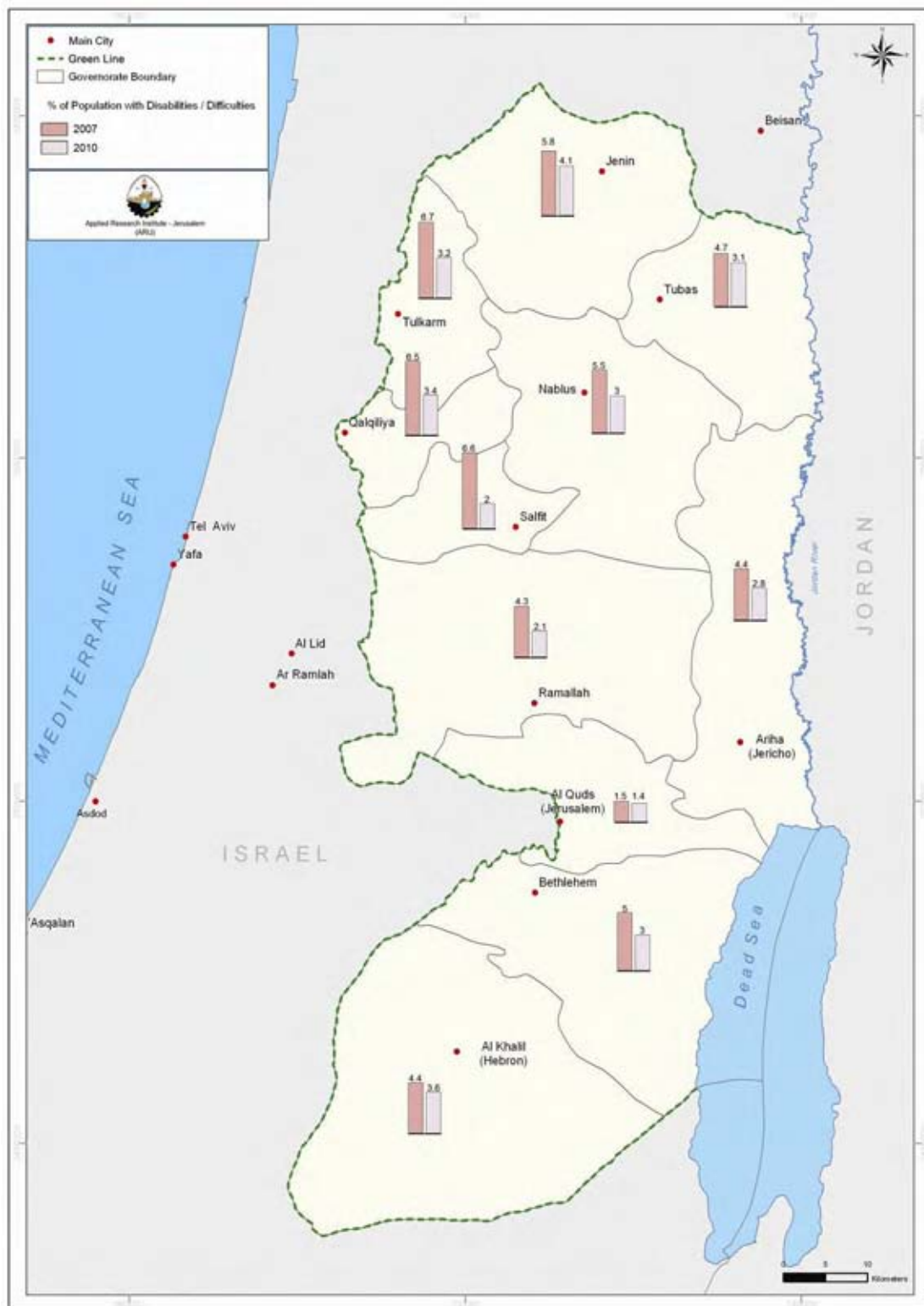
The Palestinian health system, similar to other neighboring Arab countries, faces several challenges regarding sexually transmitted diseases, including behavioral aspects, privacy, stigma, patient follow up and treatment, medical awareness, lack of qualified experts and access to and the user-friendliness of clinics and special centers. (MoH, 2010b).

Community mental health

Regarding the mental health status in the oPt; the incidence rate of mental disorders has increased from 50 cases per 100,000 of population in 2007 to 85.6 cases per 100,000 population in 2010. High levels of violence due to military occupation, the threat of, or the witnessing so, in addition to loss of security and the arrest and detention of different Palestinian age groups, have all resulted in frequent traumatic events and stress disorders with an incidence rate of 31.1 and 81.3 per 100,000 in the West Bank and Gaza Strip, respectively. Rafah Governorate recorded the highest rate among the oPt governorates with 235.8 per 100,000 of population and Ramallah and Al Bireh Governorate recorded the lowest rate with 56.1 per 100,000 of population (MoH, 2011). In general, the social and psychological status in the oPt impact the public health, whereby the stress or any mental or physical tension brought about by the pressures of the daily life affect the health status. In addition, exposure to other biological or chemical agents such as microorganism infections, food and soil contaminations, water and air pollution, sewer over flow, solid and hazardous wastes, and radiation pollution are of concern for potential impact on the overall Palestinian health status.

Disabilities

According to the Disability survey 2011 of the PCBS about 113 thousand person are disabled in the oPt; 75 thousand person in the West Bank, representing 2.7% of the total population, and 38 thousand cases in the Gaza Strip; representing 2.9 % of the total population. The prevalence of disability among males is 2.9% and 2.5% among females. The highest percentage of disabilities was in Jenin Governorate with 4.1% of the total cases, while the lowest cases were in Jerusalem Governorate with 1.4%. [Map 3.2.4](#) shows the percentage of disability / difficulties of the Palestinian population in the West Bank governorates in the years 2007 and 2010.



Map 3.2.5: Percentage of Disability / Difficulties of Palestinian Population in the West Bank

The majority of disabilities are of mobility type with 49% of the total disabled persons in the oPt; of which 49.5% are in the West Bank and 47.2% are in the Gaza Strip. The learning disability comes second with 24.7% of the total disabled persons in the oPt; 23.6% in the West Bank and 26.7% in Gaza Strip. [Figure 3.2.7](#) below shows the percentage of each disability in the West Bank and Gaza Strip in 2010. It's worth mentioning that some cases might have more than one type of disability.

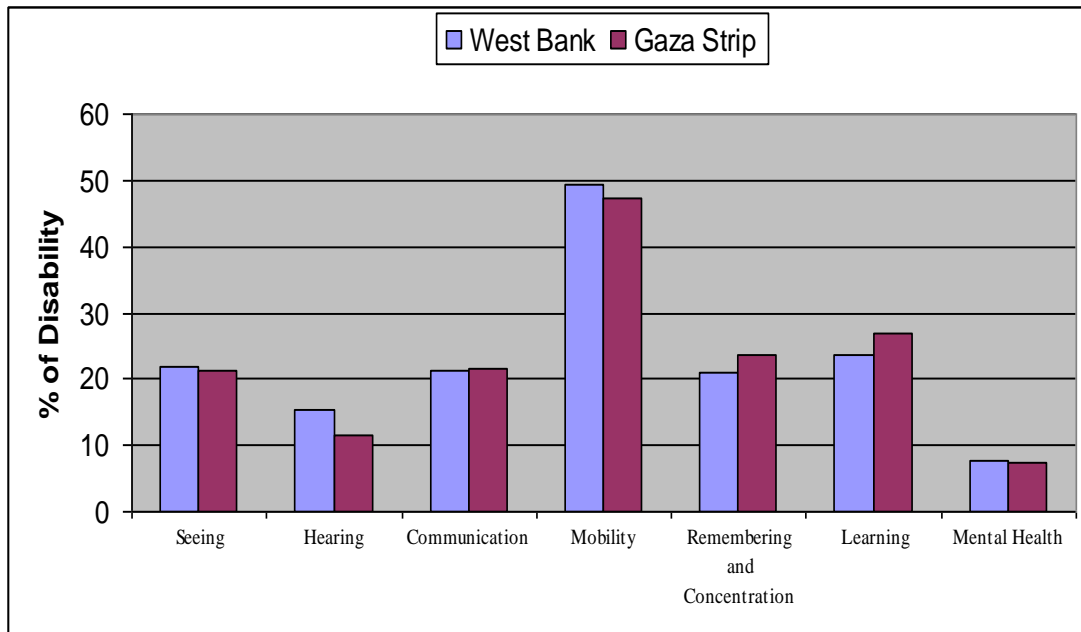


Figure 3.2.5: Percentage of disability by type and region for 2010

Source: PCBS, 2011

Regarding disability cases resulting from injury caused by the Israeli soldiers during the second intifada, there were 2,133 reported disability cases from September 2000 until December 2010. The highest number of cases was reported in Nablus Governorate with 661 cases and the lowest was in Jericho Governorate with two cases; see [Table 3.2.9](#) below for more details. Most of these cases are among males with 2002 cases which represent 93.9% of the total number of cases. Over 35% of the cases are in the lower extremities and 15.8% of the cases in the upper extremities. There is no data available on this issue for the Gaza Strip.

Table 3.2.9: Distribution of reported Disability Cases by governorate, from September 2000 until December 2010

Governorate	Number of Cases	Rate per 100,000 population
Jenin & Tubas	474	144.2
Tulkarm	29	17.5
Nablus	661	194.3
Qalqiliya	69	70.8
Salfet	11	17.4
Ramallah and Al-Bireh	123	40.8
Jericho	2	4.4
Jerusalem	105	27.5
Bethlehem	281	148.8
Hebron	378	63.0
Total	2,133	84.9

Source: MoH, 2011

Summarizing the main health Indicators:

The following Table 3.2.10 shows the main health indicators mentioned in the previous sections from the year 2007 until 2010.

Table 3.2.10: Main Health Indicators from 2007 until 2010

Indicators	oPt				West Bank				Gaza Strip			
	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
No. of Primary health Care Centers	665	672	693	706	532	542	559	572	133	130	134	134
No. of PHC centers of the MoH	414	425	440	453	356	370	381	394	58	55	59	59
No. of Hospitals	77	NA	75	76	53	NA	50	51	24	NA	25	25
Hospitals per 100,000 population	2.0	Na	1.9	1.9	2.3	NA	2.0	2.0	1.7	NA	1.7	1.6
Rate of Beds in the Hospitals	13.1	NA	12.9	12.6	12.5	NA	12.4	12.2	14.1	NA	13.5	13.3
Life Expectancy	70.2	NA	71.8	72.2	NA	NA	NA	NA	NA	NA	NA	NA
Fertility Rate	4.6	NA	NA	4.2	4.2	NA	NA	3.8	5.4	NA	NA	4.9
Mortality rate per 1000 population	1.6	1.7	3.0	2.65	2.6	2.7	2.6	2.69	NA	NA	3.5	2.59

Source: MoH, 2008, 2009a, 2010a, and 2011

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Human Resources

According to the MoH figures in 2010, there was 21,881 staff working cross the governmental and non- governmental health sectors in the oPt. The rate of physicians in relation to the population was 20 physicians per 10,000 persons, whereas the rate of dentists was 5.2 per 10,000, 10 pharmacists per 10,000, and the rate of nurses and midwives for 10,000 of population were 17.3 and 1.4, respectively. Table 3.2.11 below shows the distribution of the health professionals in the oPt in 2010.

Table 3.2.11: Distribution of health professionals in the oPt, 2010

Profession	West Bank	Gaza Strip	oPt
Physicians	5,491	2,602	8,093
Dentists	1,707	410	2,117
Pharmacists	2,908	1,176	4,084
Nurses	4,610	2,400	7,010
Midwives	458	119	577
Total	15,174	6,707	21,881

Source: MoH, 2011

The number of MoH health staff in 2010 was 8,048, 46.3% of them in the West Bank and the remaining 53.7%, in the Gaza Strip. The number of physicians was 3,409 in a rate of 8.4 physicians for 10,000 of population. 65.1% of them are general physicians, 26.5% are specialist and 8.4% are dentists. In comparison, the number of nurses and midwives working staff in the MoH was 3,856 of which 56.4% in the West Bank and 43.6% in Gaza Strip. Table 3.2.12 below shows the development of the manpower in the MoH in the oPt during the years 2007-2010.

Table 3.2.12: Development of the Manpower in MoH during the years 2007-2010

Profession	2007	2008	2009	2010
West Bank	4,952	5,474	5,795	6,226
General Physician	527	605	647	653
Specialists	233	253	276	310
Dentists	45	48	48	47
Pharmacist	148	167	168	172
Nurse	1,592	1,785	1,811	1,975
Midwife	157	175	192	200
Paramedical	530	613	729	752
Administration & Services	1,720	1,827	1,924	2,117
Gaza Strip	7,825	7,825	8,731	8,393
General Physician	928	928	1,579	1,567
Specialist Physician	733	733	665	594
Dentists	176	176	252	238
Pharmacist	243	243	253	240
Nurse	1,794	1,794	1,592	1,597
Midwife	104	104	87	84
Paramedical	814	814	783	759
Administration & Services	3,033	3,033	3,520	3,314
oPt	12,777	13,299	14,526	14,619

Source: MoH, 2011

Health Insurance:

The current health insurance system in the oPt is providing a wide services and drug benefits for the citizens. In 2010 the health insurance covered approximately 98,088 families (474,988 people) in the West Bank Governorates; in addition 7,135 families have a free of charge insurance (MoH, 2011). The highest number of insured families was recorded in Hebron Governorate with 23,336 families; while the lowest was in Tubas Governorate with 1,172 families, Table 3.2.13 below for more details. The total amount of revenues in 2010 from insurance in the West Bank was approximately 84.6 million NIS, in additions to 17.8 million NIS from the Co-Payment in some services (medicine, X-ray and labs). It is worth mentioning that in Gaza Strip all the populations (100%) are covered with the MoH health insurance.

Table 3.2.13: Distribution of Insured Families by Type of Insurance and Governorate, West Bank, 2010

Governorate	Type of Insurance						
	Voluntary	Group Contracts	Compulsory	Workers in Israel	Social Welfare	Ministry of Prisoners Affairs	Free of Charge
Jenin	193	2,628	6,909	415	1,513	1,410	1,290
Tubas	24	300	414	53	179	109	93
Tulkarm	120	1,190	4,902	409	327	605	521
Nablus	531	5,630	8,104	434	1,057	1,631	1,664
Qalqiliya	75	976	2,326	312	229	428	94
Salfit	40	607	1,960	191	144	31	37
Ramallah	585	4,203	8,355	653	379	1,645	825
Jericho	52	640	1,054	5	30	72	128
Jerusalem	177	757	2,539	384	82	412	530
Bethlehem	244	2,048	3,658	486	685	838	267
Hebron	253	6,213	11,052	1,672	792	1,668	1,686
Total	2,294	25,197	51,315	5,014	5,417	8,850	7,135

Source: MoH, 2011

The total number of insured families in the West Bank has been increased during the last years from 83,487 families in 2007 with total revenues amounted 81.9 million NIS to 105,222 families in 2010 with total revenues 84.6 million NIS (MoH 2008; 2011).

5. Limitations and Challenges facing the Palestinian Health Sector

Israeli Occupation Impacts on Public Health

The overall conditions of health in the oPt have been heavily affected by the Israeli occupation. Health services are mainly affected by the Israeli practices against the Palestinians such as; the damages of infrastructure, curfews and closures, aggressions against health personnel, and attack against hospitals and health centers.

The number of Palestinian deaths and injuries as a result of the Israeli Occupation is a terrible tragedy. From the beginning of the Second Intifada (in September 2000) to the

end of December 2009, 7,198 Palestinians had been killed in the oPt (PCBS, 2010) and around 35,099 had been wounded until the end of December 2008 (PCBS, 2009). The majority of deaths and injuries were in the age range of 18-29 years, the deaths cases comprised 53.3% of the total in the oPt. These numbers represent only those killed and wounded as a direct result of the Israeli military aggression, excluding the victims of closures and lack of access to healthcare, as such as victims of the deteriorating socio-economic conditions (PCBS, 2010).

The construction of the Segregation Wall has also placed a heavy burden on the health status of the Palestinian population in the West Bank. The isolation and disintegration wrought by the Wall, together with the discriminatory Israeli checkpoint and permit systems, pose a systemic challenge to local and national health care services in the oPt. When completed, the Wall will make it much more difficult for Palestinians to reach hospitals and medical centers situated in nearby cities. Access will be controlled by Israeli occupying forces and based on the Israeli permit system. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Report in 2010 about the impact of the Segregation Wall on the health, the total number of people living in the closed areas behind the wall (Seam Zone)⁵² that continue to suffer restricted access to health services is 7,800 persons. The requirement for visitor permits to enter the Seam Zone prevents doctors from providing health services, and ambulances from reaching patients (OCHA, 2010).

When the Segregation Wall is completed around 33,000 Palestinians in the West Bank will reside between the Wall and the Green Line, in addition to the majority of the Palestinian residents of East Jerusalem (OCHA, 2010). The greater part of Palestinians is in Bethlehem Governorate, where nine localities of approximately 22,000 residents will be cut off from the urban centre (Bethlehem city), and thus access to specialized medical care will be restricted (OCHA, 2010).

The Wall constrains Palestinians from accessing health facilities and health providers from servicing the Palestinian population. The Wall with its associated permit, gate and checkpoint regime directly infringes the right to health of the Palestinian population as a whole, as it isolates East Jerusalem from the remainder of the oPt (OCHA, 2010).

The restrictions in access to East Jerusalem hospitals started before the construction of the Segregation Wall; Palestinian patients must apply for permit through a complicated and time consuming process. Since 2007, with the completion of most of the wall in the Jerusalem area, the access for Palestinian people with permits is channeled through designated wall checkpoints only. West Bank residents are only allowed to use three out of 14 checkpoints: Qalandiya, Gilo and Zaytoun.

Between October 2000 and September 2008, the Israeli human rights organization

⁵² Seam Zone: is the area east of the Green Line and West of the Segregation Wall.

"B'tselem" has reported 66 death cases in the oPt directly related to delay caused by the limited mobility (B'tselem, 2008). Of these 66 deaths, 16 were in Gaza Strip and 50 were in the West Bank. 23 of the cases were in Nablus Governorate which is an area that has had many problems with Huwwara checkpoints. Generally, most of the death cases were in the northern parts of the West Bank. In many of the reports, ambulances have been held for hours, regular cars have been forced to take detours on dirt roads and women have been forced to give birth on the road.

Box 2

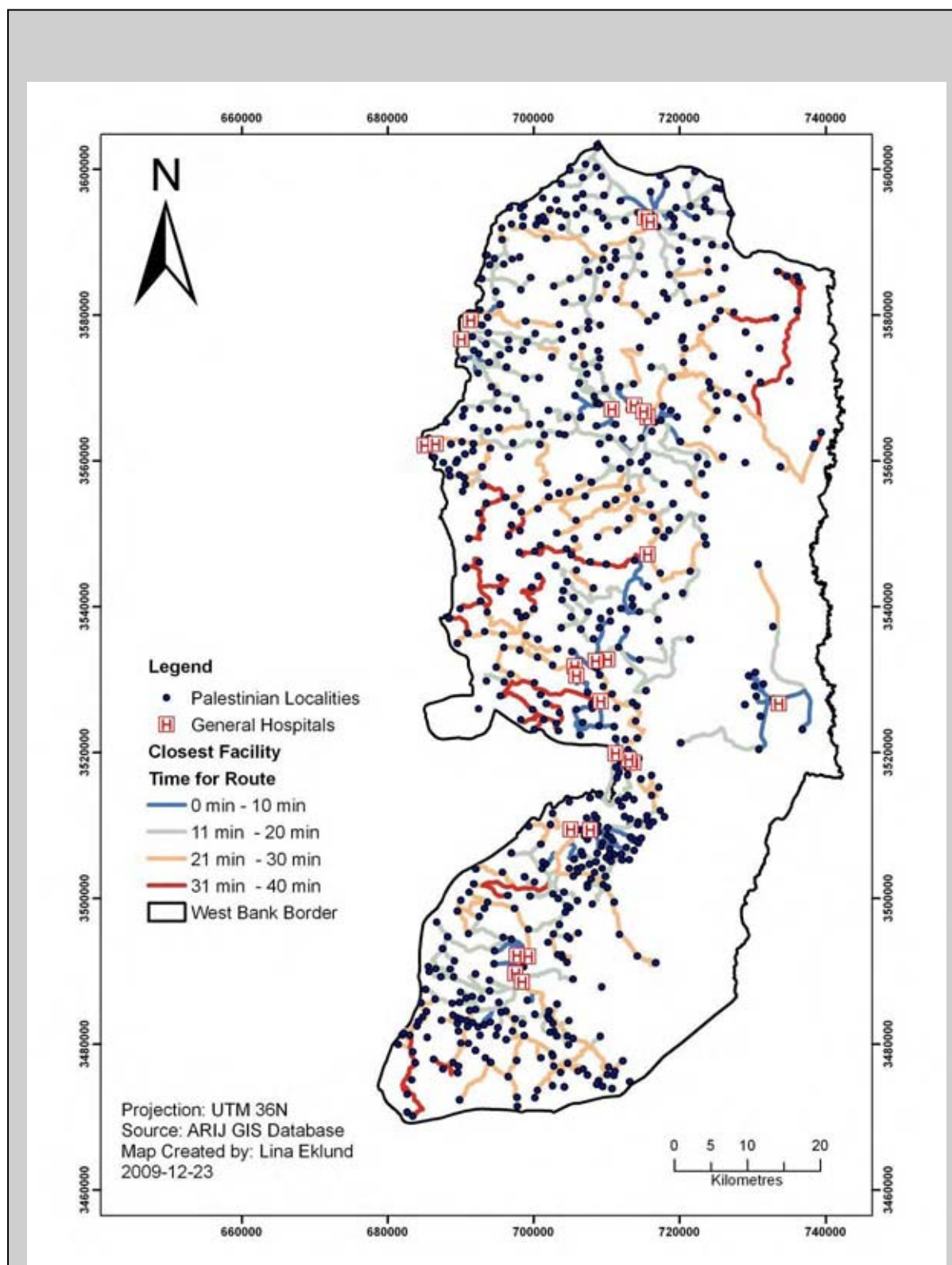
In the study "Accessibility to Health Services in the West Bank", three scenarios was considered to estimate the time needed to reach the general hospitals in the West Bank; Scenario 1: was to consider the current situation in 2010, (Scenario 2: considered that all the barriers and checkpoints in the West Bank are closed) if you are not going to present its results then there is no need to mention it, and the Scenario 3: considered that there are no checkpoints or barriers in the West Bank (Eklund, 2010)

The results of the Study showed that according to Scenario 1 there were 48 localities in the West Bank with a total population of 25,084 (1% of the West Bank population) having no accessibility to general hospitals (no routes were found), see Table 3.2.14 and Map 3.2.5 for more details. The results also showed that 284,915 people (12% of the West Bank population) have to pass through at least one checkpoint when going from their community to the quickest reachable general hospital (Eklund, 2010). Even when taking Scenario 3, five of the localities were still without route to a general hospital whereas the remaining localities have route.

Table 3.2.14: Number of localities per governorate with no accessibility to hospitals and the affected population

Governorate	No. of Localities	Population
Jenin	9	4,868
Tubas	5	440
Tulkarm	0	0
Nablus	3	758
Qalqiliya	9	10,089
Salfet	1	0
Ramallah and Al-Bireh	1	234
Jericho	1	4
Jerusalem	3	1,757
Bethlehem	3	2,135
Hebron	13	4,799
Total	48	25,084

Source: Eklund, L, 2010



Map 3.2.6: Closest Facility Routes – visual output of the Closest Facility Analysis.

The Israeli authority used Palestinian patients as tools in the conflict, violating their right to life and the right to access medical treatment. The exploitation of patients, including patients with life-threatening diseases, for political or economic purposes constitutes a grave violation of human rights and medical ethics.

Inner Political Situation Impacts on the Right to Health in the Gaza Strip

Because of the political situation, the process of state building is messy and loaded with tensions. Awareness of such issues among the development partners in the health sector helps to reduce frustrations and to ensure more realistic time frames and expectations. However, the political context must not be used as an excuse for failure to strengthen the health system and service delivery.

State building specific to the MoH is both about improving its ability to function as a state institution and it's working across the state on public health issues that have a multi-sectoral perspective. This must include public health issues such as accidents and epidemics and health systems strengthening especially human resources and health financing.

The conflict of authorities between the two Palestinian governments in Gaza and Ramallah has negatively impacted the economic and social conditions of the Palestinian population in the Gaza Strip. In 2009 health services were negatively affected by a general strike organized by the public service employees in the Gaza Strip.

In 2009, the Ramallah MoH ceased the referral of Palestinian patients to Israeli hospitals. Cancer patients in need of advanced medical treatment not available in the Gaza Strip found their treatments interrupted without any suitable medical alternatives. Moreover in 2009, the MoH in Gaza took control of the Department of Medical Referrals Abroad (DMRA). The effective operation of the DMRA in the Gaza was halted for more than one month. A number of patients from the Gaza Strip died as a result, while the health of hundreds of others deteriorated severely (PCHR, 2009).

Unethical Practices in the Health Care Sector

There are many forms of corruption in the public health system. These forms were categorized in accordance with framework set by the conference on Corruption and Good Governance in the Arab World in 2004. The conference revealed that corruption in the oPt is reflected in a number of behaviors engaged in by those holding public office, which are: bribery, nepotism, favoritism, wasta, looting of public fund and blackmailing (AMAN, 2007). It was indicated that nepotism is the most popular form of corruption in the oPt: These types of corruption have gained a social legitimacy, as they are rooted in the social culture (AMAN, 2007)

The leading factors to corruption or that increase the possibilities of practicing corruption can be summarized as follows:

1. Structure of the public health insurance system and the absence of accountability
2. Weakness of transparency and accountability mechanisms

3. Social culture legitimizing corruption
4. Lack of resources and pressure enforced on the resources of the public health care system (AMAN, 2007).

6. Principal Failures and Violations to the Right to Health in the oPt

Discrimination

The environmental situation and the health services provided in the urban areas of the oPt are considered good compared with the rural areas, where most of the population lives. In the rural areas, the lack of sanitation and poor hygiene practices continue to compromise the health conditions in these areas. Moreover, the scarcity of hospitals, PHC centers and health care staff affects rural areas in inappropriate way, where only a quarter of children have access to a doctor. Consequently, infant and newborn mortality remain high in rural areas. Poor water quality and sanitation infrastructure, as well as pollution, add to the health problems in the oPt's rural areas. Causing mainly waterborne diseases⁵³ that affected children and their nutritional status i.e. diarrhea. Major governorates affected from such diseases are Nablus and Tulkarm where over than 25% of the population are infected (ARIJ, 2010).

The improvement of health services in the oPt rural areas would promote the human rights situation in the country, both by realizing the rural populations' right to health, and at the same time promoting the principle of non-discrimination. The improvement of the rural population's access to water and sanitation and the reduction of pollution would improve their human rights to health, water, housing and clean environment. On the other hand, the promotion of human rights, such as the right to education and information, would advance health through, for instance, improved sanitation practices. Community participation would help further the country's health policies in a non-discriminatory manner and improve the effectiveness of public health interventions.

Accessibility

According to the information gathered and analyzed in the study titled "Vulnerability Assessment of Palestinian Communities in the West Bank" in 2011⁵⁴, the percentage of localities that access health centers or clinics is 78.6%. These results also indicate that there is a total of 363 health centers, with an average of 5 health centers per locality. The majority of these health centers, 65%, are privately run (ARIJ, 2011).

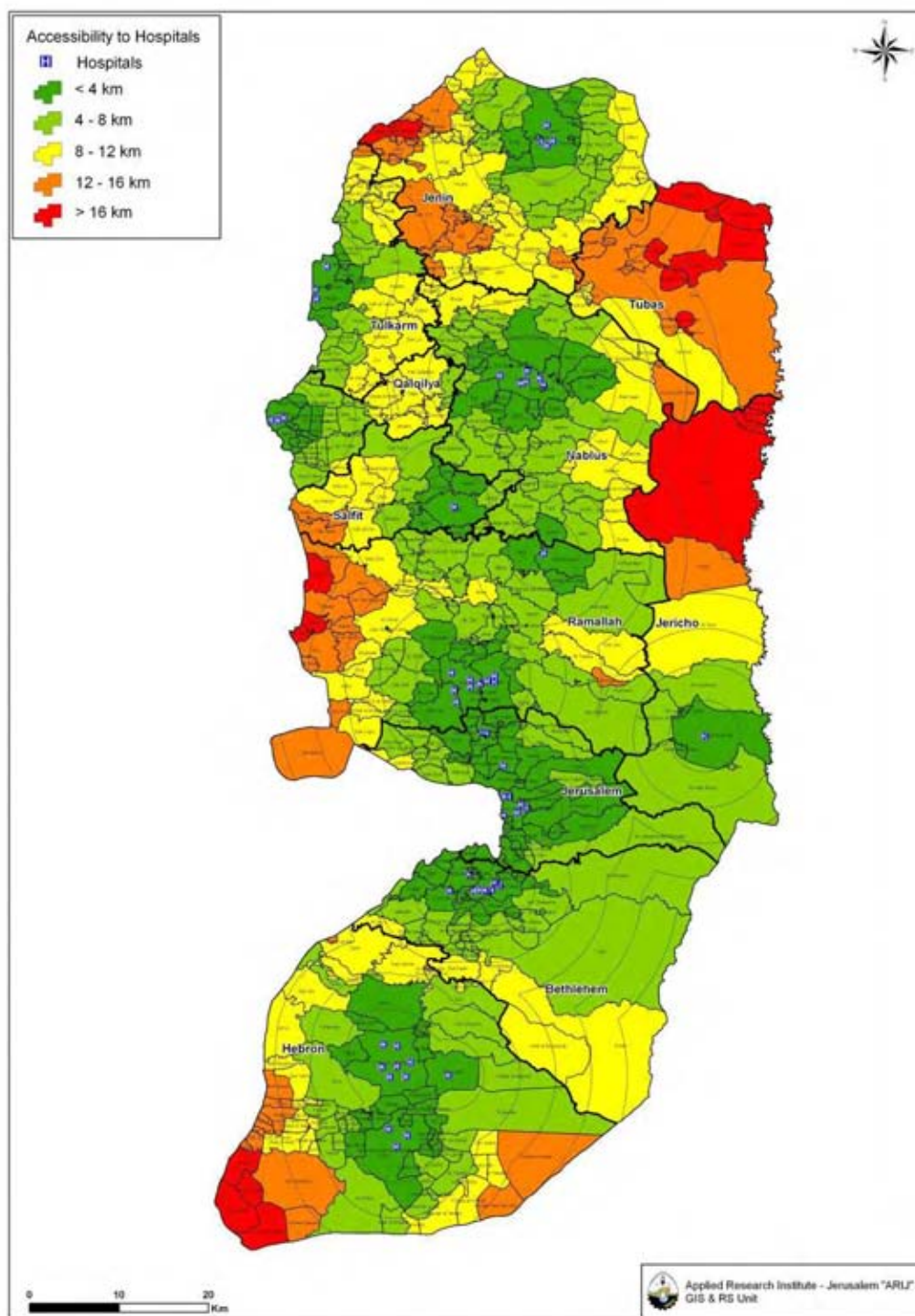
In many cases, localities either do not have enough health care centers, or they do not have health centers at all. For these reasons, many residents have to travel to other cities or localities in order to reach alternative health care centers. The results indicated that residents of the localities with no health care centers travel to 159 health

⁵³ Waterborne Diseases: the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from public water system that is deficient in treatment.

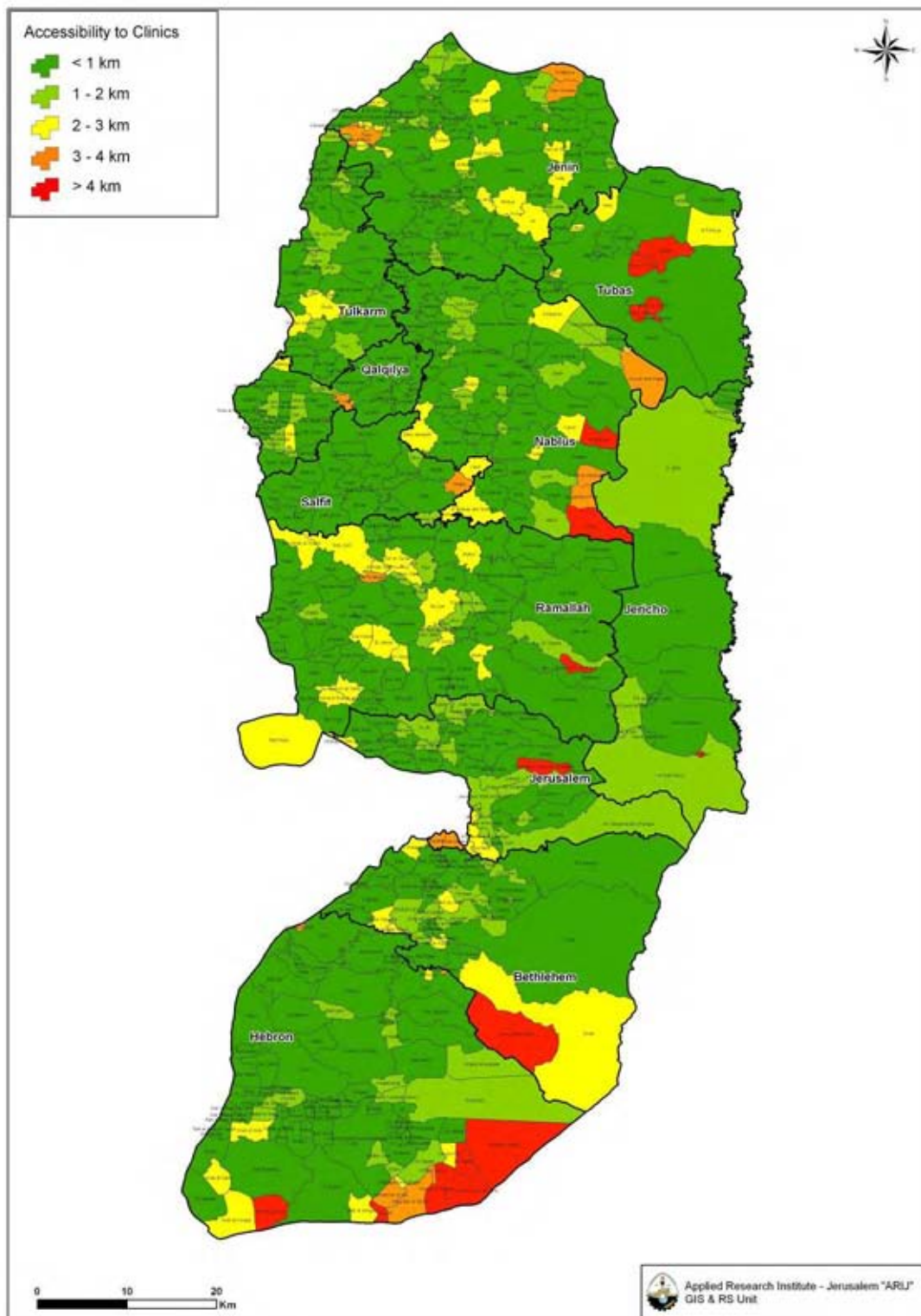
⁵⁴ The study was conducted by ARIJ and Funded by the Cooperative Housing Foundation (CHF) International through the Community Infrastructure Development Program (CID).

care centers over the West Bank, with an average traveling distance of 13.60 km and an average cost of 35.38 NIS. In addition, and as a result to many Israeli practices such as the existence of permanent and partial checkpoints, residents face obstacles when traveling to 5% of these alternative health centers (ARIJ, 2011).

The following Map 3.2.6 shows the accessibility for the general hospital in the West Bank, where as Map 3.2.7 shows the accessibility for the PHC Centers in the West Bank



Map 3.2.7: Accessibility to Hospitals in the West Bank



Map 3.2.8: Accessibility to Primary Health Care Centers in the West Bank

Good Governance

Good governance in the health sector means setting and achieving clear goals such as ensuring equity in access to services, quality of services and patients' rights (MoH 2010b). The governance must be concerned with ensuring that health services and public health are responsive to people's needs and with transparency and accountability. All the citizens and civil society should have the right to audit and discuss the work of the MoH and hold it accountable for achieving national health objectives and planned results. It is recognized that the provision of development assistance needs to be geared to achieving good governance.

The MoH is working on developing good governance in health including: (MoH 2010b)

- ✚ Leadership in guiding the strategic direction for health policy development and implementation.
- ✚ Advocating for health as a priority in national development
- ✚ Regulating the behavior of stakeholders involved in the delivery of health interventions
- ✚ Establishing accountability mechanisms
- ✚ Promoting public policy and legislation in other areas of government that impact on peoples' health
- ✚ Decentralization of management

Transparency: Providing the health services in a transparent manner will decrease the possibilities of corruption. The existence of laws and regulations in the health sector, and policy to introduce the health care system to the public as well as providing data and publishing reports are all important items to be observed in order to measure the transparency in providing the health services for citizens. It is very clear that there is no clear policy at the MoH institutions or health insurance institutions to promote health systems and to introduce them to the public. Patients learn their rights and duties and how to use the health services through personal experience or through knowing someone who has undergone a health problem and benefited from these services. It is very important to have an educational and information system to educate and inform the public about their rights, duties and the ways to benefit from the health services.

The MoH reports which are published on the web page are providing the public with important information about the health services but the data provided in them are not enough to evaluate the level of transparency in providing the health services and doesn't reach high number of the public.

Accountability: The periodical reports which the different departments submit to the MoH, and the field visits conducted by the general administration to supervise and monitor the work of hospitals and health centers are the main follow up process that the MoH depend on to evaluate and monitor the work of the MoH institutions and the health services providing. These mechanisms of accountability suffer from the lack of an independent follow up body because the MoH itself is the party that provides the services and at the same time the one that follow up the work of its institutions and departments.

Conclusion and Recommendations

It is important that the MoH has to strengthen coordination, collaboration and regulatory mechanisms and their enforcement and reduce duplication of effort between all the stakeholders in the health sector; MoH, UNRWA, NGOs, in order to improve the accessibility, quality and affordability of health services in the PHC centers and hospitals especially for the poor people.

Also the MoH needs to change the way it deals with the need for tertiary specialist care, including developing capacity building in the oPt through human resource development and the establishment of quality facilities. All of this will improve the health service delivery and increase in client satisfaction and reduce the referrals abroad.

The following recommendations will improve the health care sector:

- ✚ There is a need for better management in health facilities, especially hospitals, to improve the quality of service delivery, reduce inefficiencies and contain costs.
- ✚ Expand the categories of service providers in the health workforce (eg. community health workers and paramedics) and upgrade their capacity and skills as they play an important role in improving the health care services
- ✚ Public health structures and integrating fragmented health services should be strengthened to unify data reporting for a successive health and nutritional assessments.
- ✚ Primary health care through developing information and data collection strategy should be improved.
- ✚ National surveillance to identify disease trends and their associated risk factors should be conducted.
- ✚ Updating immunization programs, enhancing the capacity for the control and treatment of diseases, and developing psychosocial infirmities are necessities.
- ✚ Health education and information should be promoted.
- ✚ Restructuring the health insurance system and treatment abroad while enhancing transparency and accountability.
- ✚ Creating a social culture that rejects corruption practices and fights it through awareness campaigns, and supporting the public's access to information

3.3 Palestinian Economy – Main Indicators

1. Environmental Sustainability and Economic Development

Sustainable environmental economic development within the occupied Palestinian territory (oPt) has been marginalized since the economic focus of the past 40 years has been dominated by the demands of overcoming economic restrictions of the occupation (Abdelnour, 2010). The definition of the term “sustainable development” has come to imply that economic development and environmental concerns are integrated in a way that meets the immediate needs of the current populations, without undermining the ability of future generations to meet their own needs (UN, 1987). Included in the definition is the concept of interdependence, not only between generations, but between different groups of people of the same generation. Therefore, the economic rights and responsibilities of the Palestinian population in achieving sustainable environmental and economic development are inherently linked to the nature of its relationship with its neighbor, dominant economic partner and occupier; Israel.

The important precursor for environmental protection and sustainable development is Palestinian control over the natural resources within its borders; an issue that has been made clear over the past decades, but has yet to materialize (Al-Naqib, 2003). The occupation has fragmented the continuity of the natural landscape, human capital accumulation and the physical infrastructure, and has severely limited the ability of the Palestinian National Authority (PNA) to implement a comprehensive and effective national strategy, or for the general public to become involved in carrying out sustainable environmental development. The struggle for this most basic human right, the right to live in a clean, safe and sustainable environment, has been thwarted by the lack of sovereignty over natural, technological and social resources as well as the lack of autonomy and authority of development planning and implementation (Issac and Hosh, 1997; Al-Naqib 2003).

2. Legal and Institutional Aspects of the Palestinian Economy

Israeli Palestinian Bilateral Economic Cooperation and Paris Protocol

The only legal framework that governs economic relations between Israel and the Palestinian National Authority are based by the Paris Protocol of April 29, 1994. This is followed by several agreements between the two sides, which have created different joint bilateral committees in agriculture, transport, and legal aspects; among others.

The current structure of the short-term economic arrangements between the Israeli and Palestinian economies, constructed under the Paris Protocol, is essentially based upon: (Aix group, 2005)

1. Free movement of goods between Israel and the oPt without any barriers.
2. No internal economic borders.
3. Uniform arrangements in the West Bank and Gaza Strip which are treated as one economic (and political) unit.

The Paris Protocol on Economic Relations established a Joint Economic Committee (JEC), to discuss several issues such as; investments, operation of crossings, Palestinian workers in Israel, cash transfer to Gaza and economic development in general; as well as a fiscal cooperation that allows having some flow of tax revenue to the PNA ([Government of Israel, 2009](#)).

As mentioned in the Economic Monitoring Report to the Ad Hoc Liaison Committee in 2011, the economic growth observed in the West Bank and Gaza Strip is arguably donor-driven and sustainable growth remains hampered by Israeli restrictions on access to land, water, a range of raw materials, and export markets. For the past few years we can see economics grow in the oPt, but it is mostly reflected by the importance of donor aid; unemployment is still very high especially for youth and investments move in a slow way.

It is important to project and set the basis for future economic growth, investing in infrastructure and education for people to sustain future trade regime.

In order to raise the economy of Palestinians, a focus on developing the trade market is really important. Currently, most of its imports (81% in 2008) and exports (89%, in 2008), depend on Israel, please refer to the “trade” section of this chapter for more details. Opening future markets will give a gap of opportunity to compete and have access to the low prices, and producers will benefit from the high prices from the world market, giving them as well opportunities to increase their quality and productivity of their business. The principal barrier for trading in the West bank and Gaza are the impermeability of borders and differences in regulations and currencies ([World Bank, 2011a](#))

Institutional Development

Considerable improvement in public financial management quality has occurred in recent years, and enactment of the new public procurement law is expected this year. The PNA continues to strengthen key institutions as well as providing basic social services that lead to impressive outcomes, for example placing West Bank and the Gaza Strip well above average in comparison with middle income countries ([World Bank, 2011a](#)).

There has been considerable progress in 2010 in mobilizing domestic resources, improving tax revenues in good percentage over the last 2 years. These are the results from increased enforcement and stronger efforts of collection. Improvements in the Public Financial Management have also enhanced specially in budget preparation and accounting.

The 2011-2013 National Development Plan that was formulated by the PNA, set out several strategic objectives and priorities for the Palestinian economy sector. The five strategic objectives of the economy sector are:

- Ensuring positive investment in Palestine;
- Enhancing the competitiveness of Palestinian products and services;
- Promoting economic integration and access to external markets;
- Ensuring a vibrant labor market and combating unemployment; and

-Strengthening consumer protection institutions (PNA, 2011).

The oPt's foreign trade with other countries is vital for economic growth. The idea of having different markets aside from trade with Israel gives it another dimension of progression and improvements in their products and labor force in general. The signed agreements by Palestinian Liberation Organization (PLO) include the Interim Association Agreements with the European Union (EU), European Free Trade Association (EFTA), Turkey, and free trade arrangements with the United States and Canada.

Interim Association Agreement on Trade and Cooperation between the EU and the PLO (IAA):

It was signed on February 17, 1997 between the PLO and the European Commission. This agreement came as an outcome of the Barcelona Process and grants reciprocal duty free treatment on industrial products that comply with the rules of origin. This relation involves economic and political cooperation in the oPt.

A new idea was propelled in Paris on July 2008, "The Barcelona Process: Union for the Mediterranean". The idea involves a multilateral partnership that includes all EU Member States and the European Commission, other members and observers of the Barcelona Process (Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Jordan, PNA, Israel, Lebanon, Syria, Turkey and Albania), and also four new members which are Mediterranean coastal states (Croatia, Bosnia and Herzegovina, Montenegro and Monaco). This new initiative is expected to upgrade the political level of EU's relationship with its Mediterranean partners 'by providing more co-ownership; and by making these relations more concrete and visible through additional regional and sub-regional projects (Paltrade, 2010b).

Interim Agreement between the EFTA States and the PLO

This agreement was signed between the EFTA States (Liechtenstein, Norway, Iceland and Switzerland) and the PLO for the benefit of the PNA on November 30, 1998 and entered into force on July 1, 1999. The Agreement provides for duty free treatment to Palestinian and EFTA industrial products. Duty free is granted to some Palestinian and EFTA processed agricultural products, fish and other marine (Paltrade, 2010b).

Interim Free Trade Agreement with Turkey

This agreement was signed between Turkey and the PLO in 2004. It intends to strengthen economic cooperation as well as raising the standard of living for the two parties by the elimination of all restrictions on commodities, including the agricultural products. The intention is to expand the mutual trade with fair competition between the two parties, encouraging mutual investments (Paltrade, 2010b).

Greater Arab Free Trade Area

The Greater Arab Free Trade Area (GAFTA) was signed in 2002. It is a multilateral agreement between 18 Arab countries that aims to reach full liberalization of trade within 10% each year in a ten-year-period and an elimination of all customs barriers and other non-tariff barriers that restrict the flow of goods between the Arab States. The oPt began to apply the reductions of tariffs since 2005 by 16% for a period of five years, and 20% in 2009. Recently, the Palestinian Customs started to refund the value

of customs duties paid by Palestinian importers for goods subject to customs exemption under this agreement, as a requirement of the membership of the oPt in the GAFTA (Paltrade, 2010b).

Arrangement of Free Trade WBGS and the USA

This Arrangement was signed in the oPt in 1996, as an extension of the free trade agreement signed Between USA and Israel in 1985, making it easier for the entrance of their products. It allows the entry of products of United States and the oPt into their respective markets exempted from duties (Paltrade, 2010b).

Free Trade Arrangement between the PLO and Canada

This Arrangement was set between the oPt and Canada in 1999 after the free trade agreement with Israel, which is why it is considered an extension; it allows the entry of products of both parties into their respective markets exempted from duties and focuses in the liberalization of markets for products in both sides. It also states that Canada will support a program of economic development in the oPt (Paltrade, 2010b).

As mentioned before, monthly trade statistics released by the PCBS show that 92.5% of total Palestinian exports in May 2011 were going to Israel, which is the best proof that the initiatives into having these agreements and arrangements are good, but unfortunately they have not had the same impact on real life than the one they intended to. The level of trades is still similar than before they existed and in some cases it even declined

Investments and Public Procurement

The investment climate in the oPt benefits from low corruption, low taxes, and good investor protection mechanisms. According to Transparency International's Global Corruption Barometer 2010, 59% of those surveyed in the oPt said that corruption has declined in the last 3 years, and only 22% said that it has increased. The 2011 Doing Business report ranked the oPt ahead of its neighboring countries; Jordan, Egypt, Lebanon, and Syria in 4 out of its 9 core indicators, including taxes and investor protection. On the contrary, the oPt's rankings in starting and closing a business were near the bottom.

The PNA is working in having more attractive investments plans as a need to diversify and have more growths in the oPt's economy. As a part of those efforts, developing a legal framework represents a vital procedure to guarantee investments security and help during the process.

1. The PNA established different institutions to promote and attract investment. The Palestinian Investment Promotion Agency (PIPA) and The Palestinian Industrial Estate and Free Zone Authority (PIEFZA) were established to take a proactive role in promoting the oPt 's potential to investors and provide a One-Stop-Shop to assist them in different aspects like licensing their projects, acquiring permits, obtaining incentives, and income tax exemptions, promotion and supervision in the industrial Estates. Industrial estates and free zones were one of the main strategies to attract investment and develop the economy, as a key source for employment generation and technology transfer among others. The planned industrial zones include: Gaza

Industrial Estate (The only one operating at this time), Jenin Industrial Estate, Khadoury Information Technology Estate in Tulkarm, The Agro – Industrial Park in Jericho, Bethlehem Industrial Estate, in addition to the industrial zone in Tarkumia (Paltrade, 2010a).

2. The PNA has created a framework of economic laws to encourage and support foreign and local investments in the oPt.

- The two major laws are: ‘the Law on the Encouragement of Investment’ and ‘The Industrial Estates and Free Zones law’. They promote protection of investors and investments; Specific incentives for projects; Prohibition of discrimination against any investor on the basis of nationality and expropriation of investment; In the event of expropriation for a public purpose, enterprises will be compensated at fair market value; Protection of all confidential information; Preferential treatment permitted on a narrow basis arising from bilateral or multilateral agreements; and free transfers of foreign currency and freedom for repatriation of income generated from investment in the oPt; Investors may invest in any sector of the Palestinian economy under the free admission principle (Paltrade, 2010a).

- The Capital Markets Authority Law - which provides an environment to achieve stable and sound non-banking financial market activities like securities, issuance and trading activities, insurance activities, and leasing activities. Safeguard the interest of the investors and the public. And regulate disclosure of any adequate information and data of the non-banking financial sector (Paltrade, 2010a).

- The Palestinian Monetary Authority Law (central bank) enacted in 1997, and the Banking Law enacted in 2002 includes extensive provisions for the licensing and supervision of banks in a liberal manner within the guidelines of international best practices, by the Palestinian Monetary Authority (PMA) (Paltrade, 2010a).

- Private foreign investors can benefit from political risk insurance with coverage up to US\$ 3-5million per project, during a 15-years period. Co-insurance is also available to increase investment coverage capacity. This investment Guarantee fund is administered by the Multilateral Investment Guarantee Agency (MIGA) and is funded by the World Bank (Paltrade, 2010a).

3. The international agreements and arrangements listed above.

4. International investments conferences with information about investing in the oPt

5. New laws are about to be revealed. New Companies law, New Investment Law, New Industry Law and Movable Assets Law. All of this will modernize the way companies are registered and regulated, will change the investment incentive; the way the industry is regulated and will help enterprises access finance allowing them to use movable assets as collateral.

The PNA interministerial working group is working in a new public procurement law. It reflects the internationally recognized good practice and Model Law on Procurement. This law and regulation will form the basis for an effective and transparent public procurement function.

3. Current Economic Situation in the oPt

1. Macroeconomics:

Real (GDP) per capita has widely fluctuated since the mid-1990s. Responding to the Second Intifada and consequent Israeli imposed trade restrictions in 2000-2002, GDP per capita sharply decreased, while rebounding to 1994 levels in 2003-2005, when restrictions were slightly relaxed. With the onset of the Gaza Strip blockade, GDP per capita then dipped once more before recovering in 2007 with the advent of Prime Minister Fayyad's government. By 2009, it had returned to its 1994 levels (IMF, 2010).

There existed a wide divergence in output paths between Gaza Strip and the West Bank with Gaza's GDP per capita showing a downward trend from 2007 to 2009, as a result of the Israeli imposed blockade, and the West Bank's per capita growth steadily rising since 2007. Recovery in Gaza Strip only began in 2009, while the West Bank's GDP per capita is projected to reach 60% above its 1994 levels by 2013 (IMF, 2010; UNESCO, 2011).

The West Bank's improved macroeconomic conditions can be explained by two factors: the solid economic management by the PNA which boosted business and investor confidence, and the relaxation of Israeli restrictions on movement and access of goods and people. Since growth has mostly been confined to the non-tradable sector, it has been noted by the World Bank that donor aid inflows have played a substantial role in driving economic growth; thereby also making it unsustainable in the long run (World Bank, 2010).

In Gaza Strip, the situation is still difficult regardless of the mid-2010 lifting of restrictions on the imports of consumer goods and investments in donor-supervised projects. Restrictions on exports and private sector imports of raw materials and capital goods, as well as movement of people across external borders, has led to unemployment rates comparable to some of the highest in the world (World Bank, 2011b).

Overall, the situation in the oPt has a marked potential for economic progress and ability to participate in the international market, so long as sound economic policies are successfully implemented by the PNA, to help generate long term sustainable growth. The uncertainty caused by the surrounding political situation and ongoing occupation has inhibited the PNA's ability to deliver such plans. In addition, the Palestinians' dependence on aid, (they receive the highest amount of aid per capita in the world) has also inhibited sustained economic growth (Portland Trust, 2011a). For the economy to reach its potential, the Israeli restrictions on economic activity need to be annulled, and the development and implementation of a international trade regime to facilitate closer ties between the private sector and educational institutions must be developed (IMF, 2011; World Bank, 2011a).

Performance of the Palestinian Economy, released by the Palestinian Central Bureau of Statistics (PCBS) in May 2011, showed real GDP rising to US\$ 5,728million in 2010 with US\$ 4,381million in the West Bank and US\$ 1,347million in Gaza Strip

(base year 2004) (PCBS, 2010i). Real terms growth reached 9.3 % of GDP in 2010 compared with 2009, with Gaza Strip experiencing an overall annual growth rate of nearly 15% of GDP albeit starting from a very low point, and the West Bank reaching 7.6% growth of GDP. Table 3.3.1 below presents the national GDP, Gross Disposable Income (GDI), and Gross National Income (GNI)

Table 3.3.1: GDP, GNI, and GDI, in the oPt

Year	Region	GDP (US\$ Million)	GNI (US\$ Million)	GDI (US\$ Million)
2007	oPt	4,554.10	4,993.90	6,907.10
	West Bank	3,317.20	3,676.80	4,825.90
	Gaza Strip	1,236.90	1,317.10	2,081.20
2008	oPt	4,878.30	5,409.80	8,308.50
	West Bank	3,716.70	4,159.40	5,897.30
	Gaza Strip	1,161.60	1,250.40	2,411.20
2009	oPt	5,241.30	5,716.70	7,682.60
	West Bank	4,071.50	4,467.20	5,643.70
	Gaza Strip	1,169.80	1,249.50	2,038.90

Source: PCBS, 2010d and 2011d

As from the table and the national accounts' estimates for 2010, the national GDP in the oPt has shown a yearly increase over the years from 2007-2010, and hence an increase in the GNI. This was as a result of the West Bank's figures where the figures have shown an increasing pattern over that period, while the situation is different in Gaza Strip as a result of the Israeli siege and war on Gaza Strip.

Per capita GDP in the oPt increased by 15.3%, from US\$ 1,303 in 2007 to US\$ 1,502 in 2010, it was US\$ 1,925 in the West Bank, and US\$ 876 in the Gaza Strip, Per Capita GDP has increased over the period from 2007-2010 in the West Bank, while in Gaza Strip the case is completely different; per capita GDP has decreased over the same period. This is attributed to the Israeli siege and war over the Strip. Between 2009 and 2010 per capita GDP increased by of 4.7% in the West Bank and 11.4% in Gaza Strip (Figure 3.3.1). Per capita GDI, which is total personal income minus personal current taxes, reached its highest in 2008 for both Gaza Strip and the West Bank at US\$ 1,097 and US\$ 2,735, respectively (PCBS, 2011i).

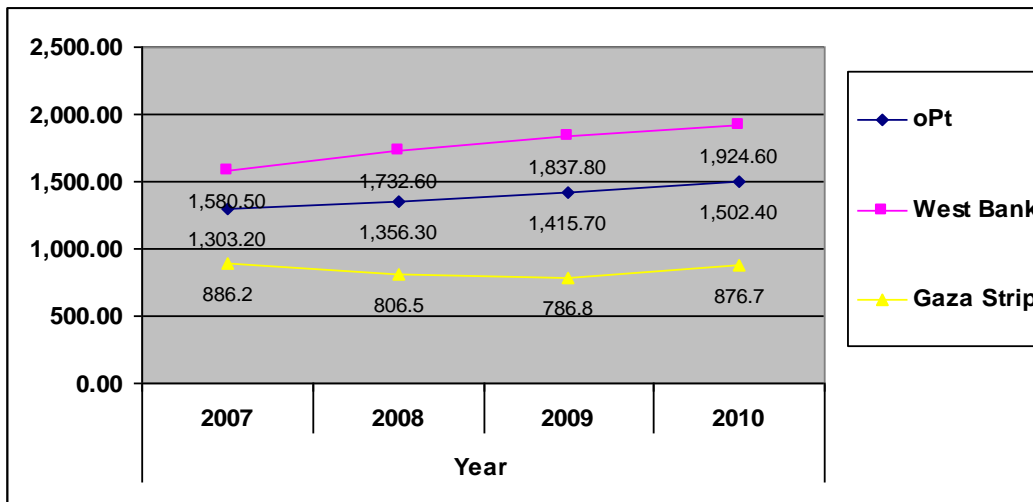


Figure 3.3.1: Real GDP per Capita at constant prices (base year 2004)

Source: PCBS, 2010e & 2011e

Economic Activities Contribution to GDP:

Although the relative size of services has shrunk in the past years, it continues to dominate Palestinian economic activity, contributing US\$ 1,196 million to GDP in 2010. The next biggest sector was public administration and defense (US\$ 799million), followed by mining, manufacturing and utilities (US\$ 707million), and wholesale and retail trade (US\$ 635million) and construction (US\$ 526million) (PCBS, 2011e) (Figure 3.3.2).

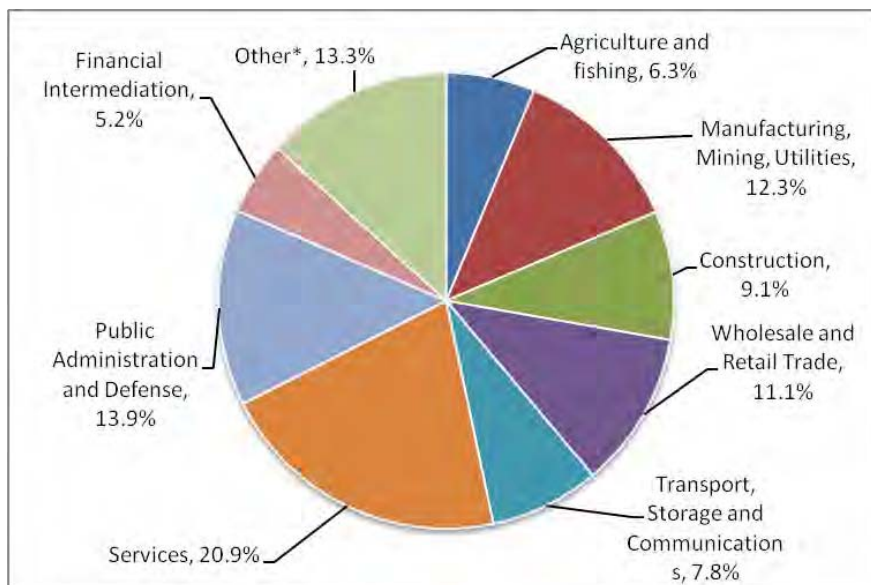


Figure 3.3.2 Contribution of economic activities to GDP for 2010 at constant prices[^]

Source: PCBS, 2011e

[^]The data excludes those parts of Jerusalem annexed by Israel in 1967
 *Other includes public owned enterprises plus households with employed persons, plus VAT on imports and net plus custom duties minus FISIM

2. Fiscal Balance

The value of external donations exceeded US\$ 3billion in 2009 increasing by almost 500% in the last decade. On a per capita basis this means the Palestinian population received one of the highest levels of aid in the world. With a GDP of only US\$ 6.2billion in 2009, aid effectively represented just less than half of the economy. It is a dominate source of finance for the PNA's budget, covering 42% of recurrent government spending in 2009 and accounting for 38% in 2010 (Portland Trust, 2011b).

As economic growth has been confined to the non-tradable sector moving towards sustainable economic growth necessitates investment in the private sector's capacity and institutions, investment in education reform which is geared towards meeting the modern demands on the workforce and most importantly would entail a lifting of Israeli restrictions on movement and access for people and goods. The last point is imperative since Israel controls resources necessary for development, telecommunications, construction and touristic areas. Furthermore, they place general restrictions on economic activity which severely inhibits the ability of certain sectors to develop to their full potential. For example, the World Bank found that if Israel were to allow the PNA to use additional water sources, the agriculture sector, which is estimated as the third largest employer in 2007, 2008 and 2009, would increase the number of persons employed in the sector from 117,000 to 227,000 (Hareuveni, 2011).

The top three growth areas in 2010 were hotels and restaurants, construction and agriculture and fishing. After dropping from US\$ 60million in 2007 to US\$ 50million in 2008, hotel and restaurants activity rose up again to reach US\$ 55million in 2009 to US\$ 80million in 2010 (Table 3.3.2). The increase in construction contribution to GDP is obvious when comparing the contribution in 2007 with that in 2010. Construction activity also increased significantly by 36% in the first three quarters of 2010 compared with the same period in 2009. The fourth quartered of 2010 however experienced a decline of 6%. While contributing significantly to overall GDP, manufacturing activity fell by 6% in 2010 which reflects the increase in imports from Israel and the restriction of exports especially in Gaza Strip. The agriculture and fishing increased from US\$ 252million in 2007 to US\$ 360million in 2010 The agricultural sector in Gaza Strip grew by almost a third in 2010 due to the loosening of restrictions by Israel on the import of agricultural inputs along with limited agricultural exports (Portland Trust, 2011a).

Table 3.3.2 : Value Added by Economic Activity for the oPt* at constant prices

Economic Activity	GDP (US\$ Million)			
	2007	2008	2009	2010
Agriculture and fishing	252.2	286.1	293.2	360
Mining, manufacturing, electricity, and water	695.6	761.1	747.7	706.6
Mining and quarrying	20.8	21.5	22.6	23.2
Manufacturing	527.8	539.3	539.8	507.8
Electricity and water	147	200.3	185.3	175.6
Construction	299.1	314.4	387.7	525.6

Wholesale and retail trade	486.8	528.3	566.5	634.7
Transport, Storage and communication	399	388.7	421	446.5
Financial intermediation	272.9	280	269.1	297.2
Services	1,009.10	1,060.80	1,157.5	1,196.00
Real estate, renting and business services	387	397.9	437.3	430.9
community, social and personal services	60.8	75.5	88.7	93.1
hotels and restaurants	59.6	49.9	54.6	79.9
education	377.7	402.5	429.4	442.5
health and social work	124	135	147.5	149.6
Public administration	658.8	685.2	750.6	798.8
Households with employed persons	3.6	3.7	4.6	4.6
Less: FISIM	-257	-275.3	-231.9	-236.5
Plus: Custom duties	283.8	328.9	345.5	408.1
Plus: VAT on imports, net	450.2	516.4	529.8	586.4
Total	4,554.10	4,878.30	5,241.30	5,728.00

Source: PCBS, 2011j

*The data excludes those parts of Jerusalem which were annexed by Israel in 1967

3. Labor Force

The participation rate in labor force in the oPt during the period 2007-2010 ranged from 41.7% to 41.1% (PCBS, 2011h). Over this period the West Bank always has higher participation rates in the labor force than in the Gaza Strip. The highest in the West Bank was registered in 2007 (44.1%) while for the Gaza Strip it was in 2008 (38.1%). During the same period the number of workers has increased by 7.7% from 691 thousands to 744 thousands (PCBS, 2011i). Table 3.3.3 below presents some selected labor force indicators over that period.

Table 3.3.3: Labor Force Indicators in the oPt (2007-2010)

Indicator	2007	2008	2009	2010
size of labor force(thousands)	882	908	951	976
participation rate in labor force	41.7	41.2	41.6	41.1
workers (thousands)	691	666	717	744
%change in number of workes	8.5	-3.5	7.6	3.7
nominal average daily wage (NIS)	81.9	87	91.3	91.7

Source: PCBS, 2011i

The unemployment rate in the West Bank and Gaza Strip has declined very slowly over the past two years after increasing in 2008, yet regional differences are marked. Unemployment rate in the West Bank declined from 17.7 in 2007 to 17.2 in 2010, although this rate has increased in 2008 to reach 19% but kept on decreasing after that (Figure 3.3.3). In Gaza Strip, unemployment jumped from 29.7% to reach its highest rate in 2008 at 40.6% declining to 37.8% in 2010 (PCBS, 2008b; 2009a; 2010b; 2011c).

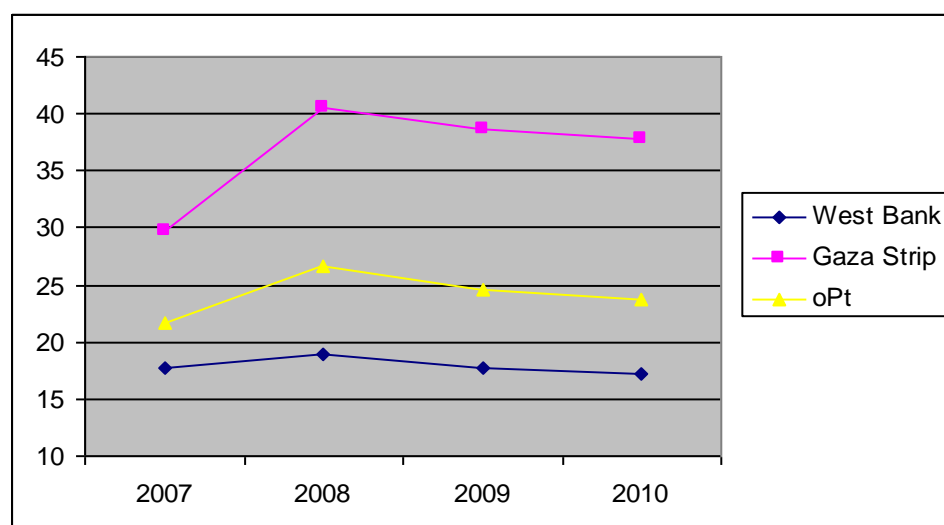


Figure 3.3.3: Unemployment Rate during the period 2007-2010

Source: PCBS, 2008b; 2009a; 2010b; 2011c.

For 2007-2010, all governorates in the Gaza Strip registered employment rates below 65% while the West Bank governorates registered between 64% and 88% employment rates of the labor force. The highest unemployment rates are observed in Tulkarm (22.3%) and Hebron (21.4%). The unemployment rate is higher in Gaza Strip with Khan Younis and Rafah governorates registered with the highest unemployment rates in 2010 at 44.7 and 36.4 respectively (Table 3.3.4). The highest daily wage is registered in Jerusalem Governorate with 114 NIS where the lowest is in Khan Younis Governorate (50 NIS) (PCBS, 2011c).

Table 3.3.4: Employment, Underemployment, Unemployment, and average daily wages for 2010 by Governorate (*Excluding Israel and Settlements)

Region/Governorate	Employment Rate	Underemployment Rate	Unemployment Rate	Average Daily Wages *
West Bank	75	7.8	17.2	85.8
Jenin	73.3	11.3	15.4	75.3
Tubas	79.1	9.1	11.8	79.6
Tulkarm	69.8	7.9	22.3	76.8
Nablus	81.6	4.7	13.7	74.9
Qalqilya	73.1	7.1	19.8	76.1
Salfit	81.2	3.6	15.2	82.2
Ramallah & Al-Bireh	81.7	2.2	16.1	99.9
Jericho & Al-Aghwar	85.8	1.5	12.7	75.7
Jerusalem	86.2	1.9	11.9	113.6
Bethlehem	63.6	15.2	21.2	91.9
Hebron	65.9	12.7	21.4	77.7
Gaza Strip	56.2	5.7	37.8	58.2
North Gaza	62.6	1.6	35.8	58
Gaza	64.9	0.6	34.5	60.9

Dier Al-Balah	55.1	5.9	39	59.2
Khan Younis	40	15.3	44.7	50.2
Rafah	54.7	8.9	36.4	60.7
oPt	69.2	7.1	23.7	77.9

Source: PCBS, 2011c

Unemployment rate among females was lower than males in 2007 but recently the situation is opposite. In 2010, the unemployment rate among males and females were 23.1 and 26.8, respectively (PCBS, 2011c). The unemployment rate among females in Gaza Strip is way higher than that in the West Bank; in 2010 it was 47.8 in Gaza Strip and 19.7 in the West Bank (Figure 3.3.4). It is worth mentioning that the unemployment rate among females has increased over the period from 2007-2010 in both the West Bank and Gaza Strip. While for males the unemployment rate has increased in 2008 to 27.2 and decreased in the following years to reach 23.1 in 2010 (PCBS, 2011c).

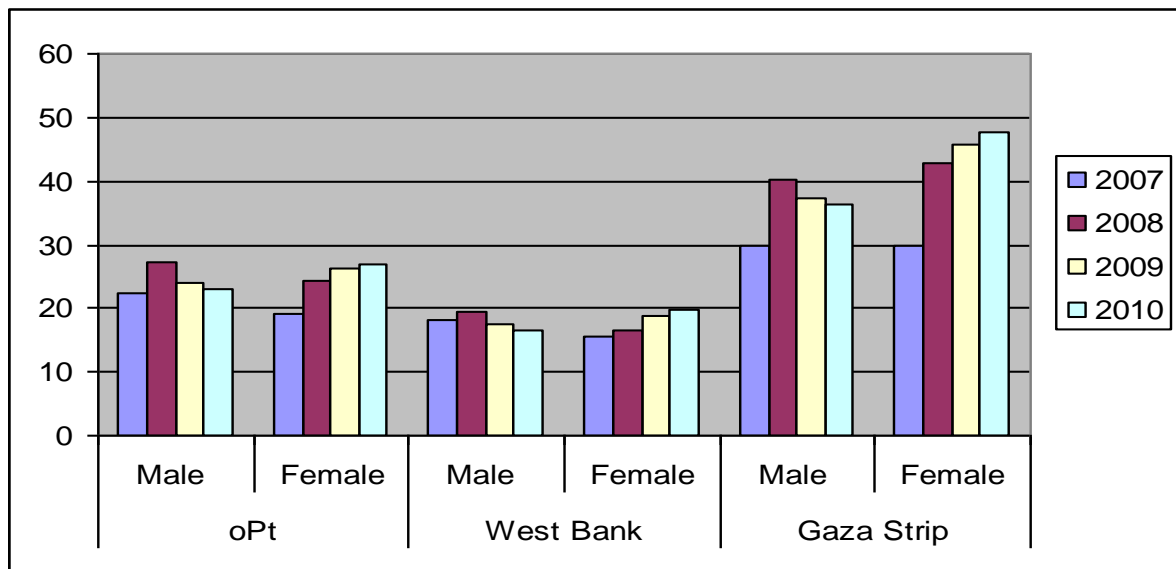


Figure 3.3.4: The unemployment rates among Palestinian labor force by sex and region

Source: PCBS, 2008b; 2009a; 2010b; 2011c

The distribution of employment by sector reveals that the private sector in the oPt is by far a more important employer than the public sector representing 65.5% of employed persons working in the private sector in 2010. In the West Bank 69.6% of the employed persons are working in the private sector, while in Gaza Strip a different trend is observed. Employment by the public sector in Gaza Strip has increased from 39% in 2007 to 46.1% in 2010. Daily average wage in Gaza Strip has dropped from an average of 65.5 NIS per day in 2007 to 58.2 NIS in 2010. The West Bank experienced the opposite trend with an average daily wage of 88.4 NIS in 2007 increasing to 102 NIS in 2010 (PCBS, 2011c).

Regarding the distribution of the employed persons in the oPt by economic activity for 2010, the highest rate of employed persons is found in services and other branches with 38.3% of the employed persons working in this sector, followed by commerce,

hotels and restaurant, then by construction. As shown from Figure 3.3.5., the percentage of employed persons in the agricultural sector between the period from 2007-2010 has declined in favor of other sectors.

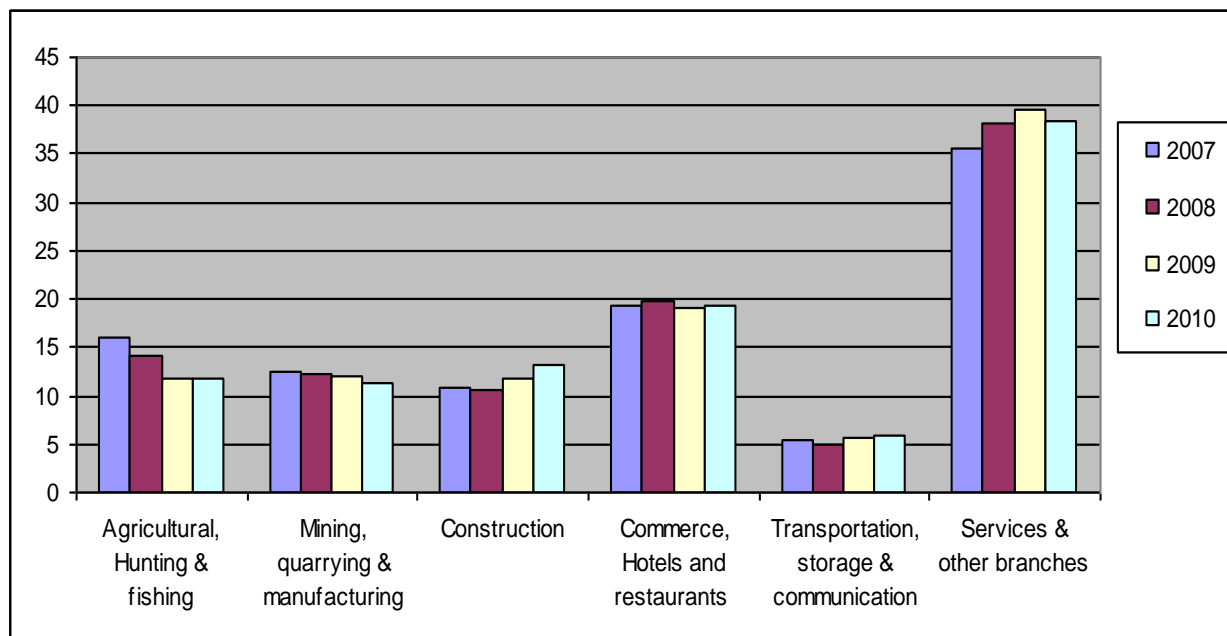


Figure 3.3.5: Distribution of Employed Persons by economic activity in the oPt

Source: PCBS, 2011c

In the Gaza Strip and West Bank, the services sector is the highest employer throughout the same period, with around 61% in Gaza Strip and around 34% in the West Bank. Construction and transportation, storage and communication registered the highest wages over the same period, with daily average wages in 2010 at 117 NIS and 104 NIS, respectively for all regions employing the Palestinian labor force (PCBS, 2011c).

From 2007-2010 around 10% of the entire Palestinian labor force was employed in Israel and the settlements, with 100% of them coming from the West Bank as the blockade on Gaza Strip inhibits the movement of workers across external borders. Employment in Israel and the settlements is dominated by construction, registering nearly 49% of total Palestinian employment in these areas during 2007-2010. The average daily wage for those employed in Israel and the settlements was substantially higher than those who are employed within the oPt registered at 130 NIS in 2007 to 158 NIS in 2010 (PCBS, 2011c). This is almost double the daily wage of the employees working at the West Bank, and triples the daily wage of those working in the Gaza Strip.

Table 3.3.5: the distribution of the Palestinian employees by sector and the average daily wages (NIS)

Year	Sector	Percentage Distribution	Average Daily Wage (NIS)
2007	Public Sector	22.7	79.3
	Private Sector	68.4	69.0
	Israel & Settlements	8.9	130.0
2008	Public Sector	24.2	79.2
	Private Sector	65.7	74.7
	Israel & Settlements	10.1	138.3
2009	Public Sector	25.2	84.4
	Private Sector	64.6	77.0
	Israel & Settlements	10.2	148.1
2010	Public Sector	24	85.2
	Private Sector	65.5	74.3
	Israel & Settlements	10.5	158.0

Source: PCBS, 2011c

Workers situation and remises

The impact of Israeli employed Palestinian labor force has always had a marked effect on the Palestinian economy. The Income from Palestinian workers in Israel represented more than one quarter of GNI until 2002. GNI as well as salary has been declining over the years, for example, Palestinians are estimated to be earning on average 40% less in 2002 relative to 1999. The Second Intifada led to the erosion of the Palestinian production base, of which one-third had been lost between 2000 and 2005 due to destruction, closure and lack of maintenance (Avis, 2010).

A growing Palestinian population has been living in a stagnant economy, with many more existing in poverty than ten years ago. The proximate cause of this dismal economic situation remains the military occupation and the manifold limitations imposed on movements of persons and of goods. It is crucial therefore that movement and trade restrictions be lifted if there is to be an improved economic performance in the oPt (Avis, 2010).

The scarcity of job opportunities in the oPt is in large part the consequence of an undermined productive base. According to data collected by PALTRADE, the number of industrial establishments declined from 3,900 in June 2005 to 200 in December 2008, while the number of workers fell from 35,000 to 1,900 over the same period (Avis, 2010).

Diminished job opportunities have in turn pushed down wages a Palestinian can expect to get and can be seen to encourage workers to seek employment in Israel either legally or illegally. The average income in Israel is 20% higher than that of the OPT, however this is still below Israeli minimum wage of 20.7 NIS per hour. A Palestinian agricultural worker may receive a third of the minimum wage, 50-60 NIS for an eight hour day (Avis, 2010).

It is this economic context that drives many Palestinians to seek work in Israel despite the many difficulties. It is estimated that there are around 20,000 Palestinian permit holders employed in the settlements with an additional 10,000 who work there without permits. Additionally around 20,000 Palestinians work in Israel. This reality caused by the lack of alternatives involuntarily provokes settlements growth (Avis, 2010).

Further, the international community must exert more pressure on Israel to facilitate the implementation of the Palestinian free trade agreements and lift all impediments of access and movement in order to make it possible for the Palestinian private sector to realize benefits from such agreements. Similarly, the EU must also exert pressure on Israel to respect the Euro-Med partnership in which Israel and the PLO are members and to recognize the EU-PLO Interim Association Agreement (Paltrade, 2010c)

4. Prices and expenditure

The Consumer Price Index (CPI), used to measure inflation, reflected an increase of 17.1% in prices from 2007 to 2010 for the average period in the oPt (base year 2004) with the largest price rises in Gaza Strip, followed by Jerusalem and the West Bank (PCBS, 2011j). The increase during 2010 was due to rising prices of food and beverages, housing and housing appliances, education services as well as an increase in the prices of cloth and clothing. The decline in inflation noted during 2009 was aided by the easing of Gaza's blockade.

Table 3.3.6: Consumer Price Index (Average Period), 2007-2010

Region	2007	2008	2009	2010
West Bank	110.04	120.83	121.52	126.67
Gaza Strip	108.87	124.08	129.57	131.79
Jerusalem J1	110.28	118.13	122.32	128.74
oPt	110.12	121.01	124.34	129
%Change for oPt	-	9.8	2.7	3.57

Source: PCBS, 2011j

As with other price indices, food price index reflected an increase of 25% for the oPt rising from 115.14 NIS in 2007 to 144.63 NIS in 2010 (PCBS, 2011k). The major rise was between 2007 and 2008, from 115 to 135 (Figure3.3.6).

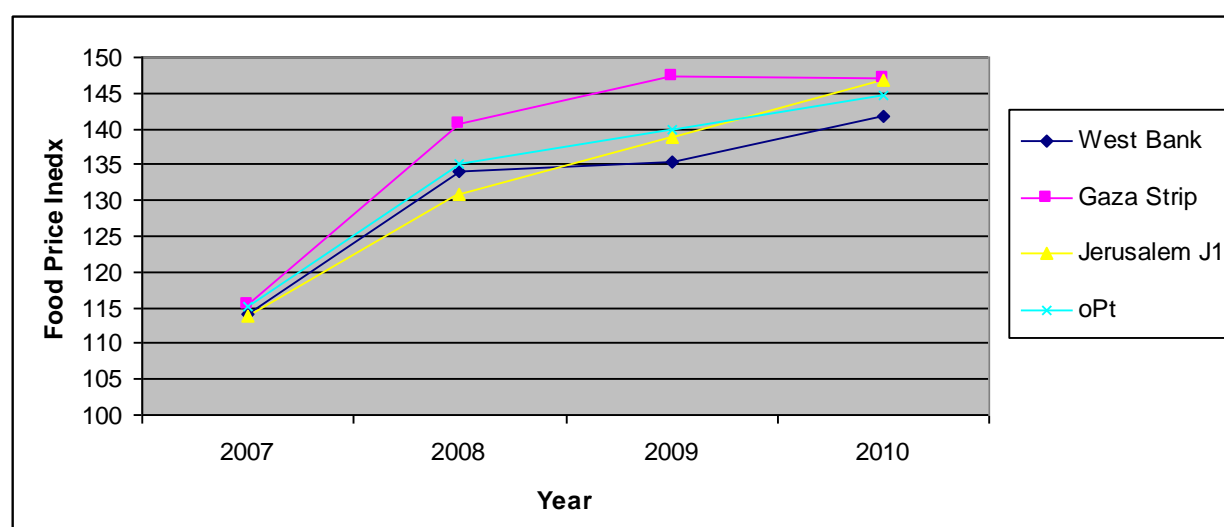


Figure 3.3.6: The Change in Food Price Index by region during 2007-2010

Source: PCBS, 2011k

Staple food prices (rice, flour, salt, sugar and lentils) and animal protein food prices (beef, goat meat, chicken and chicken eggs) experienced the largest percent increase, while fruit and vegetable prices coming mainly from local origin registered a negligible increase (Table 3.3.7). Jerusalem Governorate registered the highest food prices and Gaza Strip with the lowest over the entire period from 2007-2010.

Table 3.3.7: Average consumer prices for selected foods in the oPt, 2007-2010

Item	Origin	Price Unit	Prices in NIS			
			2007	2008	2009	2010
Medium Size Banana	Local	1kg	3.29	4.14	4.42	3.68
Greenhouse cucumber	Local	1kg	2.67	3.05	2.91	2.92
Greenhouse Tomato	Local	1kg	2.76	3.52	2.73	4.01
Medium Size Potato	Local	1kg	2.38	2.8	2.64	3.09
Medium size Potato	Israel	1kg	2.26	2.7	2.62	3.17
Local Dry onion	Local	1kg	2.38	2.42	2.72	2.75
Fresh chicken without feather	Local	1kg	11.81	15.36	16.71	17.01
Fresh Goat Meat with bones	Local	1kg	49.8	59.19	64.14	66.1
Fresh beef meat	Local	1kg	39.39	46.16	49.93	48.52
Chicken eggs	Local	Carton/2kg	13.74	15.92	16.86	15.41
Short Grain Profiled Rice	Australia	Sack/25 kg	94.09	135.28	165.96	154.18
Haifa White Flour	Israel	Sack/60kg	139.54	206.52	178.11	165.14
Lentils	Local	1kg	5.04	6.13	7.13	7.58
Fine White Sugar	Israel	1kg	4.36	3.8	3.77	4.23
White Table Salt	Israel	1kg	1.8	1.59	1.86	2.1

Source: PCBS 2008c, 2009b, 2010g, 2011k

Regarding the expenditure, it is noticed that there was an increase in the average per capita expenditure (current prices) in 2010 compared with 2007. In 2010, the monthly average per capita expenditure in the oPt was 147.5 JD while it was 95.4 JD in 2007. In the West Bank the monthly per capita expenditure increased by 48.8%, from 116.3 JD 2007 to 173.1 JD in 2010, while in Gaza Strip it increased by 72.4%, from 59.8 JD in 2007 to 103.1 JDs in 2010. By the type of locality, the average monthly per capita expenditure in urban areas is the highest; in 2010 it was 152.1 JD, while it was 144.3 JD in rural areas and 118.1 JD in refugee camps (PCBS, 2008d & 2011f).

In 2010, percentage per capita expenditure on food groups to the total expenditure was 36.4%, followed by the percentage expenditure on transport and communication was 15.2. The monthly average household expenditure in 2010 on various goods and services in the oPt was around 886.9 JD (average household size 6.0), 993.8 JDs in the West Bank (average household size 5.7) and 680.7 JD in Gaza Strip (average household size 6.6) (PCBS, 2008d & 2011f). In 2010, 4.4% of monthly average household expenditure was on tobacco and cigarettes, 3.5% on education, 2.8% on personal care and only 1.5% on recreational activities (PCBS, 2011f).

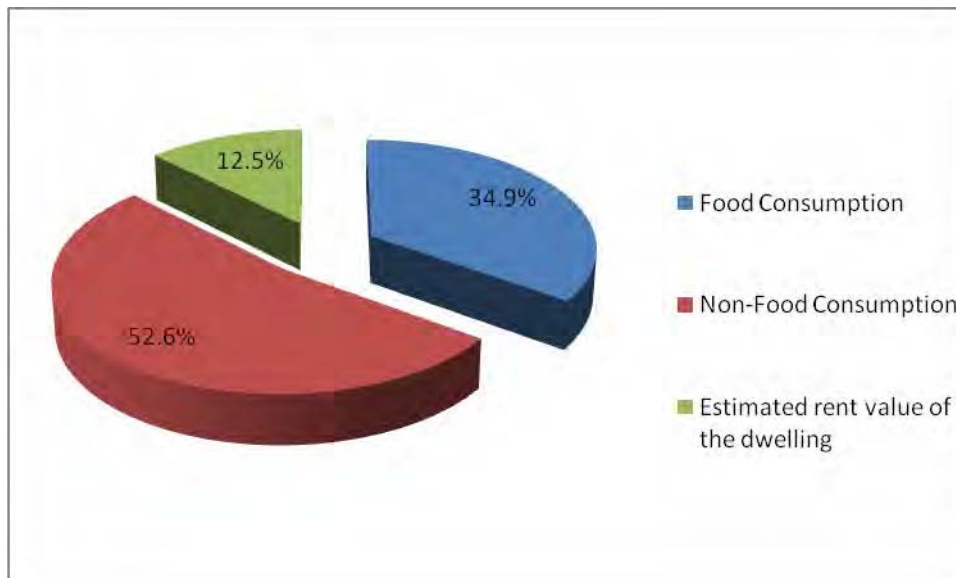


Figure 3.3.7: Percentage distribution of monthly average household expenditure in the oPt, 2009

Source: PCBS, 2010f

In 2009, 8.5% of household consumption was on meat and poultry, 8.1% on housing, 6.5% on clothing and footwear, 5.7% on bread and cereals, 4.9% on medical care, 4.4% on vegetables, legumes & tubers, and 3.8% on tobacco (PCBS, 2010f).

5. Trade

Internal trade activities in the oPt are usually family owned; most firms have an average of only two workers. The participation of the internal trade sector in the oPt's GDP has increased from 13.0% in 2007 to 15.1% in 2009. The result of the economic surveys series in 2010 showed that the internal trade sector constituted the largest

percentage of all establishments in the economic sectors, where it contributes to 59.8% in 2009 with 61,340 establishments (PCBS, 2010a). The number of employees in the internal trade sector also increased, from 105,228 persons in 2007, to 125,033 persons in 2009; where this sector employed 42.7% of the total employees in the economic sectors represented in the economic surveys series (PCBS, 2010a). The compensation of employees in internal trade sector increased from US\$ 135,698 in 2007 to US\$ 158,602 in 2009. Table 3.3.8 below presents the main indicators of internal trade sector in the oPt.

Table 3.3.8: Main indicators of the Palestinian Trade Sector in Thousand US\$

Indicator	Years		
	2007	2008	2009
No. of Establishments	57,613	57,987	61,340
No. of Employees	105,228	112,107	125,033
Compensation of employees	135,697.80	144,142.60	158,602.30
Output	1,103,010	1,343,839	1,513,899
Intermediate consumption	267,963.70	291,550.90	301,034.80
Gross Value Added	835,046.60	1,052,288	1,212,864

Source: PCBS 2010c

Since 1967, trade in the oPt has been overwhelmingly oriented towards Israel. Trade relations with Israel were formalized through the Paris Protocol, as explained previously in this report.

The Palestinian net trade balance has always recorded a deficit, as the imports have always exceeds exports. The changes of exports are minor compared to those in imports. The net trade balance for 2010 recorded a deficit of US\$ 3,989.2million, making an increase by 37.9% compared to 2007 (Figure 3.3.7). This increase in the deficit resulted from a major increase in imports by 33.5% while exports only increased by 9.8%. As a result of the increase in both exports and imports (mainly imports), over the period from 2007-2010, the transaction trade volume has also increased over the same period from US\$ 3,797million to US\$ 4,948.5million in 2010 (PCBS, 2008a & 2011).

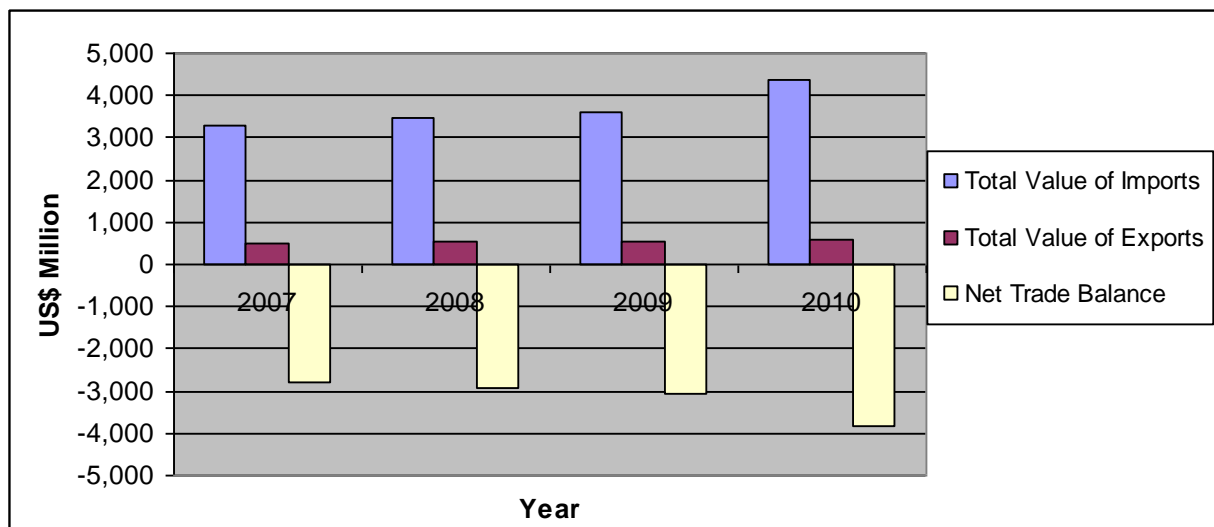


Figure 3.3.8: Total value of imports and exports and net trade balance in the oPt

Source: PCBS, 2008a; 2009c; 2011g; 2011i

Because of Israel's non-recognition of many of third party trade agreements, its extensive movement, restriction of access and continuous control of Palestinian borders, crossing points and other outlets for Palestinian trade, the levels of trade in the oPt over the past 15 years have not increased, and in some cases have declined. This has directly resulted in a near total dependence on the Israeli market for Palestinian exports. Although Palestinian trade partners come from over 100 countries, for 2008, Israel accounted for nearly 89% of the oPt's exports and 81% of its imports. It represented 73.6% of total value of imported commodities and over 87% of the total value of commodities were exported to Israel in 2009 (Figure 3.3.9 & 3.3.10), showing a decrease by 9.2% compared to 2008 (PCBS, 2009c and 2011).

Monthly trade statistics released by the PCBS showed that 92.5% of total Palestinian exports in May 2011 were going to Israel (PCBS, 2011h). This utter dependence has resulted in imbalances in the Palestinian economy, both structurally and functionally. Most Palestinian foreign trade is routed through Israeli ports and airports. Internal Palestinian trade, within the West Bank, and between the West Bank and the Gaza Strip goes through roads and passages controlled by Israel. Despite Palestinian dependence on the Israeli market, Israel has managed to reduce its dependence on Palestinian imports to around 1% of its total imports, while it reached in recent years up to 8% of total imports (Paltrade, 2010c).

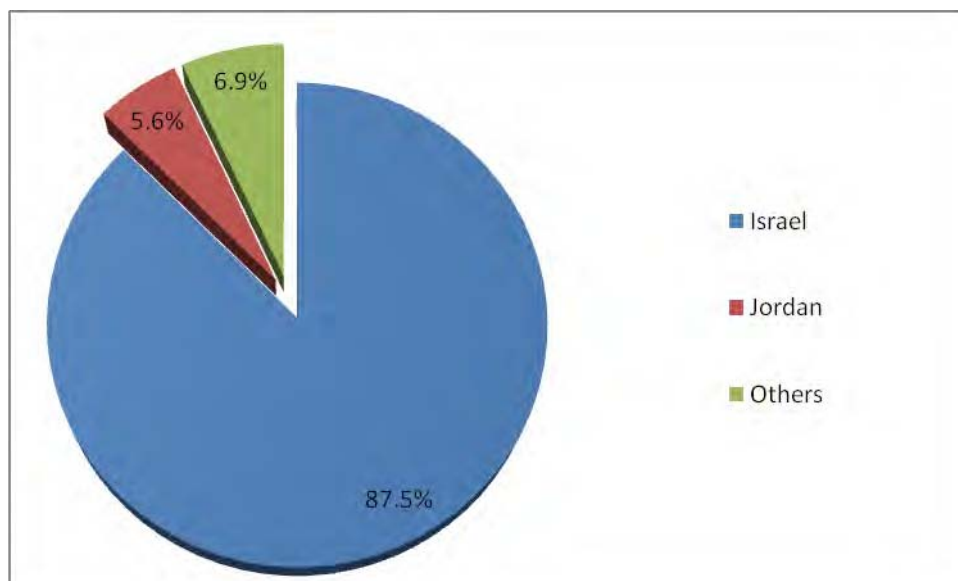


Figure 3.3.9: Percentage of Palestinian Exports by country, 2009

Source: PCBS, 2011i

Palestinian foreign trade is impeded on a macro and a micro scale. According to a World Bank report released in April 2011, one of the most harmful aspects of the Israeli occupation is the uncertainty it creates for traders. The extensive regulatory procedures which are difficult to determine since they are in a constant state of change or are simply impossible for Palestinian producers to adhere to, have been significant in inhibiting opportunities for economic growth from trade.

With a population of nearly double that of the West Bank and Gaza Strip and a per capita GDP nearly five times higher, Israel offers the most lucrative potential market Palestinian producers. Yet, their access to it is consistently inhibited by the complex and ever changing Israeli regulatory system. In addition, regardless of the fact that the Paris Protocol calls for each side to recognize the other's certification provided the certification is adequate, Israel does not accept health and safety certifications from the PNA and requires that all goods must be inspected and certified by Israeli authorities. Since it is illegal for the Israeli citizen to enter the Palestinian controlled territory, many goods and products are effectively banned by this requirement (Paltrade, 2010b).

Regardless of such significant obstacles, international trade has managed to grow. Total imports increased from US\$ 3,284million to US\$ 4,385million from 2007-2010 representing 33.5% increase for the whole period (PCBS, 2011g). From 2007-2009, total imports from Israel increased from US\$ 2,443million to US\$ 2,615 million; representing a 7% increase for the whole period. The trade balance recorded an increasing deficit throughout the whole period making a final 6.3% increase from 2009 to 2010. The increase in the trade deficit in 2010 was caused by an increase in imports of 7% compared to the increase in exports of 8.8% (PCBS, 2011c, 2011g).

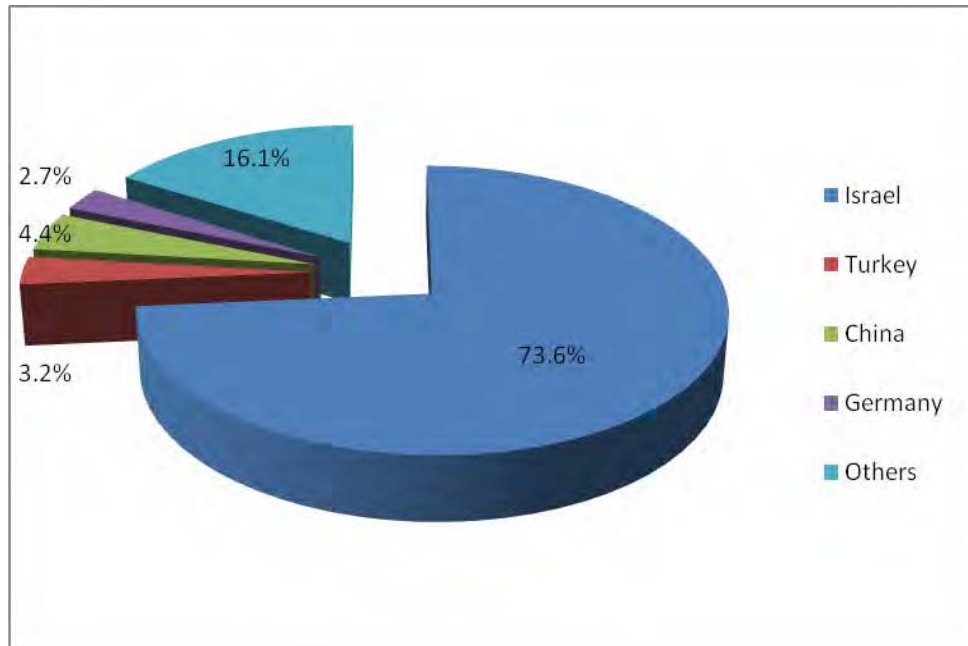


Figure 3.3.10: Percentage of Palestinian Imports by country, 2009

Source: PCBS, 2011

As mentioned before, it is clear that the Paris Protocol has not proved an effective as its objectives of expanding and diversifying Palestinian trade have not been met. This leaves the oPt lacking a proficient trade policy regime, while at the same time it is limited by underdevelopment of necessary institutional, regulatory and physical infrastructure that facilitates trade. Without sovereign control over its trade routes, borders and trade negotiations or its independent trade policies which need to be supported by a basic legal framework, Palestinian foreign trade will remain impeded and along with it, the overall growth of the economy (World Bank, 2011c)

Flow of goods

The Palestinian economy has faced obstacles regarding the movement of goods, stemming from, on one hand, internal barriers and closures, and on the other hand, from external barriers. These obstacles, which were set by Israel, and claimed to be based on security reasons, are still the main reasons as to why the exports of the oPt's products are not moving, and resultantly limit the productivity of the Palestinian economic sectors.

Restoring the free flow of goods is necessary for Palestinian economic advance. Without a stable export market, Palestinian industries lack the scale to be competitive. Border control regime blocks this competition, making it hard to expand in three main fields: Within the Palestinian Territory; Between the Palestinian Territory and Israel; and between the Palestinian Territory and other foreign markets (Aix group, 2005)

Free flow of goods within the oPt

The absence of a physical or direct link between the Gaza Strip and the West Bank will have negative consequences on the economies of both areas. The separation barrier has already caused damage to the economy in the West Bank by separating many towns from parts of their agricultural lands (Aix group, 2005).

Free flow of goods between the oPt and Israel

Israel has been the Palestinian economy's main trading partner since the late 1960s. The political changes, the interim economic agreements and the escalation of the conflict have not changed this reality. Moreover, for the Palestinian economy, the advantages of having a relatively large economy open to trade at their doorstep offers considerable potential (Aix group, 2005).

Free flow of goods between the oPt and other foreign markets

In the past decade, Israel has not only been the central market for Palestinian goods, but also served as the central passageway for goods from the Gaza Strip. The market is controlled by Israel, which makes it difficult to have more trading partners and making good transactions between them.

The challenge of establishing economic stability and sustained development in light of the limited local market capacity should be geared towards developing an export-based economy linked to diverse markets. The World Bank clearly states that ending the Palestinian economic crisis depends upon the ability of the private sector to trade in international markets, that is, the opening of external borders. In order for the Palestinian export sector to grow it needs to restore and expand its export base and to improve the stability and credibility of the flow of goods. Alternative routes should be created in order to guarantee the security of the products and the easy access of the exports (Aix group, 2005).

6. Palestinian Industrial Sector

The Palestinian industrial sector (manufacturing and mining) plays a significant role in the economic development of the oPt. The sector is represented by the Palestinian Federation of Industries (PFI), the private national institution. The industrial sector includes more than 15,000 registered enterprises, with more than 81 thousand employed persons. The majority of the industrial enterprises are private family owned small enterprises employing less than 10 workers. The number of large industrial enterprises in the oPt is still very limited, with only about 100 of the manufacturing, mining and construction enterprises having a workforce of more than 100 employees (USAID & PFI, 2009).

The Palestinian industrial sector is categorized by a wide variety of products that include; textiles and garments, stone and marble, food processing and beverage, engineering and metal industries, chemical industries, pharmaceuticals, construction industries, handicrafts, paper and printing, furniture, footwear and leather products, and plastics. Table 3.3.9 below represents some indicators of the major industries in the oPt.

Table 3.3.9: Number of enterprises and employees of the major industries in the oPt

Sector	Number of enterprises	Number of employees	% Market share
Leather and Shoe Industry	230	2,500	40
Metal Industries	120	1,000	35
Chemical Industries	60	900	35
Construction Industries	350	18-26 workers per enterprise	70
Handicraft and Traditional Industries	1,020	1,200	30
Textile Industries	1,000	10,000	40
Stone and Marble Industries	1,124	8,000	50
Pharmaceuticals Industry	6	1,200	55
Veterinary Industry	8	120	45
Food Industry	224	8,000	50
Plastic Industry	100	1,000	70
Paper Industries	300	2-150 workers per enterprise	60

Source: (USAID & PFI, 2009)

Stone and Marble Industry:

Stone and marble sector is a vital component of the Palestinian economy. Palestinian stone characteristics differ but most Palestinian stone types meet international standards and safety specifications. The West Bank has a rich stock of good quality stone, both soft stone and hard stone (marble), and represents the largest natural resource stock available to the Palestinian economy (USM Catalogue, 2004). There are approximately more than 300 quarries in addition to 1,000 factories and workshops in the oPt (USM, 2011). The vast majority of these quarries are located in the Hebron area followed by Bethlehem area. It is estimated that the oPt yields yearly more than 100 million tons of raw stone and about 25 million m² of stone constituting around 4% of the world's total production of stone and marble (USM, 2011). This industry has a yearly sales value of around US\$ 400million, 60% of which comes from exports to Israel and about 15% comes from international markets, and generates approximately US\$ 60million of exports,. In addition the industry supports 15,000 to 20,000 direct jobs and contributes approximately to 5% of the GDP (USM, 2011).

There are eight Israeli quarries in Area C of the West Bank where Israel utilizes the Palestinian natural resources and at the same time imposes restrictions on the Palestinians and prevents Palestinian companies to exploit them. These quarries represent a systematic pirating of Palestinian natural resources and violation to the international law. It is estimated that the annual gravel yield of the Israeli quarries

located in the West Bank is 12 million tons, with an estimated total potential value of US\$ 900million per year (MNE & ARIJ, 2011).

From an environmental point of view mining is considered as a destructive developmental activity. The negative impacts of mining on the environment are generally large. The impacts of mining operations involve deforestation, damage to or destruction of the natural vegetation, in addition to significant disturbance to wildlife. Leakage from the disturbed stone cutting facilities into groundwater could be a potential source of surface and groundwater contamination. Moreover, when the used water runs into the soil, it could affect the soil stability and cause soil erosion. Other considerations include dust and noise and air pollution. Large amounts of particulate materials and dust are produced from quarries and stone cutting facilities as many of them located near residential areas. Particulate materials cause health problems especially to the respiratory system.

7. Tourism

Historical Palestine, “the holy land”, has many places of historical and religious significance. Tourism represents an important sector in the economy of the oPt and its sustainability both in terms of economic growth and environmental concerns, remains subject to external factors. The future economic development of the oPt is highly dependent on the tourism sector.

During the Second Intifada in 2000, tourism activities dropped substantially and employment in the sector decreased by 52% (ARIJ, 2007). For 2010, hotel guests totaled 577 thousands persons, and stayed a total of 1.25 million nights. More than half of the guests are from the European continent; about 37% of the total number of guests came from the European Union countries, 16% from other European countries, while around 12.5% came from the United States and Canada. Room occupancy rate reached 35%, showing an increase of 9% compared with 2009 and an 82% increase since 1999. The number of guests increased by 28% compared with 2009, while the number of operating hotels decreased by 5% compared with 2009 (PCBS, 2011b).

Table 3.3.10: Selected Hotels' indicators in the oPt from 2007-2010

Indicator	2007	2008	2009	2010
No. Hotels	82	87	100	95
No. Rooms	4,109	4,346	4,552	4,929
No. Beds	9,088	9,466	9,815	10,543
No. Guests (thousands)	315,866	446,133	452,625	577,383
No. Guests nights (thousands)	673,458	1,127,286	1,042,290	1,285,661
Average rooms occupancy	1,033.3	1,560.7	1,481.3	1,747.3
Workers in hotels	1,264	1,071	1,514	1,795

Source: PCBS, 2011b and 2011i

The impressive growth in hotel and tourism activities from 2007 to 2009 indicates the need to ensure that its further growth runs in tandem with efforts to diversify the oPt economy as employment in tourism activities has also experienced impressive growth

and therefore faces vulnerability in the event of slack tourism (UNEP, 2009). Achieving environmental sustainability of the tourism industry also faces significant obstacles. Since tourism tends towards seasonality, the sudden influx of people and the concentration of touristic activities put stress on natural resources. Water usage and waste production experience sudden and substantial increases while transportation associated with tourism activities increases air pollution and green house gas emissions in the region (UNEP, 2009).

The number of operating tourism establishments increased 75% from 1,276 in 2007 to 5,258 in 2009 while employment in these establishments increased from 60% from 6,144 workers in 2007 to 15,576 in 2009. Compensation to workers amounted to US\$ 28.1million in 2007, while value added was US\$ 203.4million (PCBS, 2008e). In 2009, the value added from tourism in the oPt was US\$ 176.4million of which US\$ 165.3million in West Bank and US\$ 11.1million in Gaza Strip (PCBS, 2010h).

Table 3.3.11: Main Economic Indicators for Tourism Enterprises in the oPt, 2009

Indicators	Number of institutes	Number of employed persons	Compensation of employees in 1000US\$	Gross value added in US\$m	Output in US\$m
Handicrafts and Traditional Goods factories	199	637	1,787	4.4	7.7
Souvenir shops	2,110	4,495	3,194	67.3	77.4
Restaurants and Hotels & Similar	2,718	9,773	26,063	83.1	139.4
Travel and Tourism Agencies	227	660	2,285	21.4	24.7
Tour guide offices	4	11	84	0.2	0.2
Total	5,258	15,576	33,413	176	249

Source: PCBS, 2010h

4. Good Governance in the Palestinian Economy:

For many years, the development experiences of the third world countries have been superbly varied. Forty years ago developing countries looked a lot more like each other than they do today, for instance, India and South Korea, by any standards, were extremely poor. The two countries were so far behind the industrial world that it seemed nearly inconceivable that either could ever attain reasonable standards of living, let alone catch up.

In the other third world countries, they were characterized by bad national practices weaknesses in practicing good governance. Transitional countries however are characterized by arbitrary governance, weak protection of civil liberties, and inadequate regulatory and legal framework to guarantee property rights, enforce contracts, and reduce transaction costs. These problems divest these countries of needed productive investment and economic growth.

The Palestinian political situation and its implications for economic and social conditions represent a special case. In spite of all the agreements that have been signed between Israel and the oPt there is still no control of the land, which causes several political instability.

The divide that has occurred in the political and geographical system between the two halves of the country has been accompanied by a lack of transparency and lack of free access to exchange of information. As a result, it has become difficult for citizens to create a basis for holding public official accountable. This situation has encouraged the monopolization of power and resources and the exclusion of certain people or groups from jobs in the public sector; causing as well instability for actual and future private investors. Several projects are working on improving good governance, but it is difficult because of a lack of interaction with other institutions, absence of a law that guarantees the right of access to information, and lack of agencies that specialize in fighting corruption.

Donors in the oPt now widely accept that the quality of governance does matter for development performance and aid effectiveness. They have expanded their work on governance and political issues which include:

- Supporting the development of international agreements and initiative on governance with the PNA.
- Substantial funding and technical assistance for governance reforms and capacity building for the Palestinian government.
- Promoting policy process that foster participation in the oPt

5. Conclusion:

The oPt is still totally dependent to Israel's economy, and has very little freedom to open new paths to diversify its economy in the trading field, mainly because of Israeli's control of Palestinian borders and crossing points. Israel's dependence in the oPt has reduced nearly 8% in the last years meaning that the oPt does not have the same opportunity to diversify the market and create a competitive business environment.

It is important to recognize that the Paris Protocol is not working the way it is supposed to work and it should be re-evaluated with the new economic demands that the market has now a days, not the ones that existed during 1994 – 1999. Market and relationships have changed and so should the agreement adapt to new demands.

No matter the intentions on making trade agreements with other countries, it is difficult to change the situation the oPt lives now according to relations with the exterior and trade diversification. New protocols need to be discussed and respected between Israel and the oPt in order to have different perspectives about the opportunities in the future. For these reasons is vital importance to re-establish another policy between Israel and Palestine to stop preventing the economy from development and grow and to consider West Bank and the Gaza Strip as one single entity to approach sustainable economic development.

3.4 Energy Sector in the occupied Palestinian territory

1. Introduction

Energy is a fundamental prerequisite of every life. Energy gives personal comfort and mobility to people, and has an impact on the development of all sectors such as agriculture, industry, health, transport, etc, and thus it has an impact on the national economy and the environment. However, energy resources in the occupied Palestinian territory (oPt) are either dwindling or non-existent. Moreover, there is a high unit price of energy. Renewable energy has not reached a satisfactory level of utilization. Thus, energy imports constitute the main means to satisfy energy needs. Furthermore, energy production and consumption place considerable pressures on the environment. These pressures include; the emission of the greenhouse gases and air pollutants, land use, waste generation, and oil spills. They contribute to climate change, damage natural ecosystems, and cause adverse effects to human health.

During the Israeli occupation, the infrastructures of the oPt were largely neglected, if not destroyed by the occupation. The lack of an adequate infrastructure in the oPt and the total dependence has impeded any real growth in the energy sector and created chronic energy problems.

2. Energy Independence for all

The availability of energy is a fundamental and indivisible human right. Until now none of the international human rights instruments make an explicit reference to energy sector. However, such a right could be deduced from other rights. The International Covenant on Economic, Social and Cultural Rights of 1966 (ICESCR) contain the most important human rights that targeted the energy sector. Article number 11 of the ICESCR recognizes the *right of everyone to an adequate standard of living*. This includes, but is not limited to, the right to adequate food, clothing, housing, and the continuous improvement of living conditions. The “*Right to adequate housing*” offers a clear reference for energy sector (Box 1). According to the United Nations (UN) Committee monitoring the ICESCR, this right includes inter alia “**sustainable access to ... energy for cooking, heating and lighting...**”. Article number 25 of the Universal Declaration of Human Rights also guarantees the right to housing as part of the right to adequate standards of living.

Box 1

An adequate house must contain certain facilities essential for health, security, comfort and nutrition. All beneficiaries of the right to adequate housing should have sustainable access to natural and common resources, safe drinking water, energy for cooking, heating and lighting, sanitation and washing facilities, means of food storage, refuse disposal, site drainage and emergency services (UN, 2011).

Energy is a daily life need for every person. Energy is needed for cooking, baking, heating and water heating in winter, and air conditioning in summer. About 80 percent of food is only edible if cooked; many forms of medical treatment and the storage of essential medicines depend on reliable energy provision; lighting in households facilitates evening learning and, therefore, may contribute to the realization of the right to education.

In addition, the ICESCR guarantees in article 15 (1b) *the right of every person to enjoy the benefits of scientific progress and its applications*. Similar language appears in Article number 27 of the Universal Declaration of Human Rights which says that *everyone has the right to share scientific advancement and its benefits*. In the 21st century, such benefits include not only access to electricity produced by conventional means but also renewable energies.

Providing sufficient and substantial energy supplies is one of the requirements for attaining the UN Millennium Development Goals (MDG) for 2015, in order to improve the standards of living for those people without adequate access to electricity. Although energy is not addressed in any of the eight MDGs, access to clean, and affordable energy is a prerequisite to achieving sustainable development. Providing the poor with electricity and modern fuels such as kerosene, liquid petroleum gas (LPG) and natural gas, can alleviate poverty and improve a variety of human development indicators (UNDP, 2011).

According to the Protocol on Economic Relations of 1994 (Annex IV of Gaza – Jericho Agreement) between Palestinian National Authority (PNA) and Israel (known as Paris Protocol), the PNA was given little freedom in all aspects of energy sources. The supply of conventional energy including electricity and petroleum products and energy prices is completely controlled by the Israelis, causing energy shortages and the potential for future energy crises. In fact the Gaza Strip is currently suffering from fuel crises resulted from the restrictions that Israel has imposed on the transfer of fuel into the region. These restrictions are a tool of the Israeli policy of collective punishment against the residents of Gaza Strip – a policy which is illegal under international law. This policy is crippling the already fragile civil institutions in Gaza, and violates the *rights of Gaza residents to freedom of movement, right of access to health care and education, and the right to lead normal lives*. The policy has no legitimate security rationale (Gisha, 2008).

3. Institutional Legal Framework

In accordance with the Law number (12) of the year 1995, the Palestinian Energy and Natural Resources Authority (PENRA) was established to provide the citizens of oPt with reliable electricity at affordable prices, laying the legal, institutional, economic, financial and technical basis for efficient system development, reforming the institutional framework, remedying system deficiencies and improving service delivery, supervising technically the construction, the operation, and the maintenance of electrical projects and networks, and conducting researches and studies and searching for all energy resources (PENRA, 2011).

In 1997 the PNA issued the “Letter of Sector Policy” (LSP) which sets out the policy for development of the sector on a medium-term strategy. The main components of the strategy are improvement and extension of electricity infrastructure and services, capacity building and institutional reform including the separation of policy and regulatory functions from commercial functions, and increasing the efficiency of the distribution utilities (PENRA, 2011).

The PNA established an updated energy policy in the context of the Palestinian energy sector assistance program 2008-2010, the Palestinian Reform and Development Plan (PRDP) 2008-2010 and the LSP. The policy includes objectives such as the improvement and extension of electricity infrastructure and services; capacity-building and institutional reform including the separation of policy and regulatory functions from commercial functions; and increased efficiency.

PENRA and the Palestinian Energy and Environment Research Center (PEC), have formulated a five years plan for developing renewable energy and increasing energy efficiency in the oPt. The national master plan comes in harmony with the energy policy that aims at finding more sources of renewable energy and increasing energy efficiency. The master plan aims to raise the rate of renewable energy contribution in the Palestinian energy balance and to improve energy usage especially in the industrial sector (PEC).

In the year 2009, the Cabinet of Ministers approved the General Electricity Law. This law required separation of the commercial from the regulatory functions in management of the electricity sector and established the Palestinian Electric Regulatory Commission (PERC) as the responsible body for regulating the electricity sector. The members of the Board of the PERC are appointed by the President of the PNA on the recommendation of the Council (Cabinet) of Ministers; the Board includes significant representation from the private sector. The multitude of single electricity companies serving municipalities has been merged into a few regional utilities to facilitate negotiation procedures with Israeli authorities. PENRA also will establish a new, professionally managed and commercially - oriented company, Palestine Energy Transmission Company Ltd. (PETL) to become the sole supplier of electricity to the distribution utilities (PENRA, 2011).

Recently, PENRA adopted a new national strategy “**Palestinian Energy and Natural Resources Strategy 2011 – 2013**” that aims at reducing the dependence on Israel and focus on assessing indigenous energy resources and forging out a cooperative energy policy with our neighbors. The strategic objectives of the Strategy are: (PNA, 2011)

1. To develop integrated and sustainable national infrastructure networks.
2. To secure Palestine’s supply of energy and natural resources.
3. To ensure the long-term quality, affordability and safety of infrastructure systems.

To achieve the strategic objectives, policies were defined. In addition, PENRA has established a set of targets and national indicators to facilitate the monitoring and evaluation of its policy agenda over the period from 2011 to 2013. The policy priorities for the next three years are: (PNA, 2011)

- Establish an integrated national electricity distribution network, connected to neighboring countries, which is operated on a commercial basis by regional electricity distribution companies.
- Encourage private sector investment in domestic electricity generation capacity and renewable energy production.
- Establish fuel storage facilities in the West Bank and the Gaza Strip.
- Complete the transfer of responsibility for electricity distribution from local government to regional electricity distribution companies operating under supervision by the Electricity Regulatory Council.

The PENRA is the sole agency responsible for managing the Palestinian energy sector, and is of course leading the reforms. In doing so, it divests itself of some of its current functions and reorganize itself into a professional agency as shown in [Figure 3.4.1](#), with offices in both West Bank and Gaza Strip. The PENRA is responsible for those components of the sector such as rural electrification, regional inter-connection, energy conservation and research which cannot be realistically or efficiently commercialized. Energy efficiency and conservation is coordinated with the existing PEC. Tariff setting and regulation is overseen by PERC ([PENRA, 2011](#)).

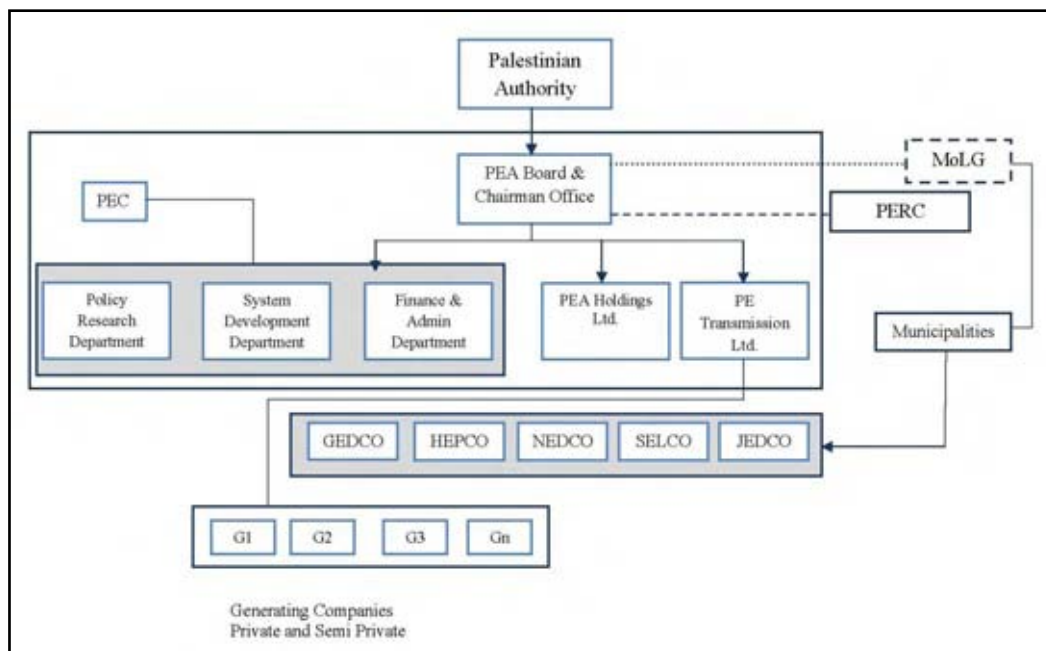


Figure 3.4.2: Diagram of PENRA Structure
Source: PENRA, 2011

3.1 Organigram of the Electricity Sector

As explained earlier, the power sector is ran by companies and monitored and regulated by PERC and PENRA sets out policy for the development of the sector. PENRA plays the role of the regulator. Five distribution utilities (see section 3.4) are responsible for the electricity distribution and collect the electricity bills from the consumers. [Figure 3.4.2](#) represents the organigram of the power sector.

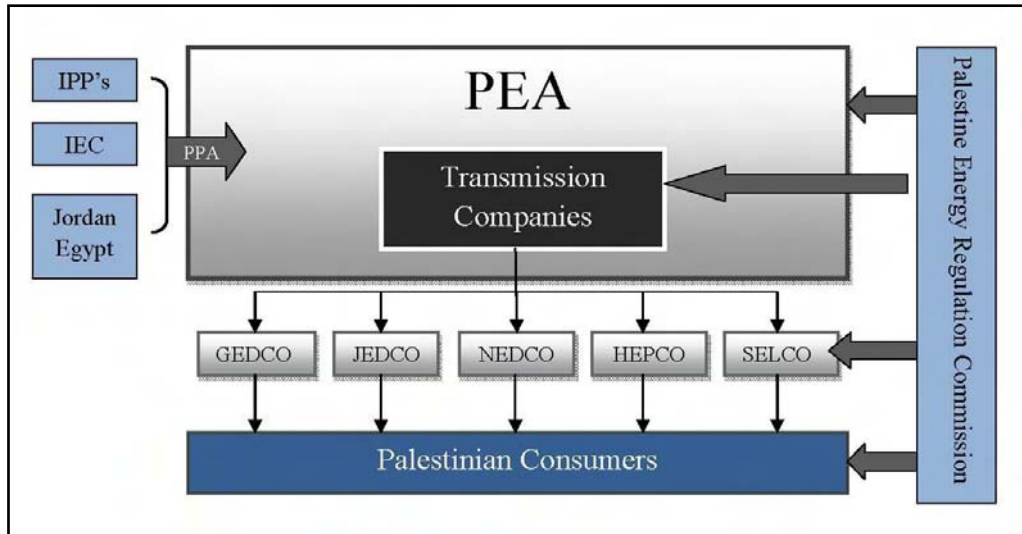


Figure 3.4.3: Diagram of Electricity Sector Structure

Source: PENRA, 2011

3.2 Generation

The Gaza Strip Power Plant (GPP) is the only significant generation capacity in the West Bank and Gaza with an installed capacity of 140 MW, and is the only major privately financed, developed and operated power facility from which power is provided to the Gaza Strip under a long term power purchase agreement with Gaza Electricity Distribution Company (GEDCO) (PENRA, 2011).

In order to increase system capacity and reduce supply dependency on Israel, PENRA's plan is to construct two power plants in the West Bank (one in the South and the other in the North). In doing so, the PENRA will encourage maximum participation of the private sector through independent power providers (IPPs). The PENRA will also diversify the sources of supply by encouraging the purchases from neighboring countries while at the same time promoting regional interconnection, system stabilization and scale economies (PENRA, 2011).

3.3 Transmission

The transmission network is not yet fully on Palestinian hands, as the electricity network was developed in such a way that Palestinian cities and villages are now integrated with the Israeli electricity network. However there is no integration within the West Bank or between the West Bank and Gaza Strip. In this regard, PENRA started to develop the transmission system in Gaza Strip, and constructed two High Voltage (HV) substations that both were partially or completely destroyed by Israel Defense Forces (IDF), and repaired the main substation which is the central substation. In addition, PENRA will start soon the development of four substations in the West Bank to be the core of the transmission system (PENRA, 2011).

PETL is planning to enter into power-purchase agreements with independent and semi-independent generating companies and from neighboring countries, and sell power to regional distribution utilities (PENRA, 2011).

3.4 Distribution

As indicated in the LSP, the PNA is consolidating power supply and distribution arrangements in the present situation of the energy sector in the West Bank into power utilities. The Palestinian electricity utilities are:

- Jerusalem District Electricity Company (JDECO)

JDECO is privately owned and services East Jerusalem and the central West Bank; distributing electricity over an area of 366 square kilometers and serves East Jerusalem, Ramallah, Bethlehem and Jericho. JDECO was established in 1914 and is the biggest electricity distribution company in the oPt, and is now owned approximately by the Palestinian municipalities and serves and the private sector (JDECO, 2011).

- Hebron Electric Power Company (HEPCO)

HEPCO was established and registered in 2000 with the Municipality of Hebron as the major shareholder, and with the council members of the Municipality comprising the Board of Directors. HEPCO covers the Hebron city and some localities around it in the southern part of the West Bank and serves approximately 230,000 persons (HEPCO, 2011).

- Southern Electric Company (SELCO)

SELCO was established as a shareholder-held company in 1998, but the start of commercial operations were delayed until 2004. SELCO covers the Southern area of the West Bank. SELCO was created by the amalgamation of the electricity departments of four municipalities namely: Dura, Yatta, Dahariah, and Beit Ummar. These municipalities and the municipality of Halhoul and the Ministry of Local Government (MoLG) as representative of other municipalities and village councils, were the initial shareholders of SELCO. Subsequently, five village councils have joined SELCO.

- Northern Electricity Distribution Company (NEDCO)

NEDCO was established in 2008 as a new autonomous and commercially-oriented regional distribution utility, by consolidating the existing electricity departments of a number of municipalities and village councils. NEDCO now consists of the electricity departments of five municipalities and five village councils and is still operating through the offices of municipalities. Another 38 councils have expressed their interest in joining the Company (Nablus Municipality, 2011).

- Gaza Electricity Distribution Company Ltd (GEDCO)

GEDCO was established in 1998, it is owned by the PNA, represented by the PENRA, the Ministry of Finance (MoF), Gaza Governorate municipalities and the local councils. GEDCO provides service to the whole area of Gaza Strip as GEDCO

has 5 branches in the Northern, Middle, Khan Younis and Rafah Governorates and Gaza city. In 2010 the total customers totaled 168,768 person (GEDCO, 2011).

3.5 Tariffs and Regulation

The duties of PERC, which was established in 2009, include: the review of tariffs, the recommendation to issue of licenses, the development of grid codes, the resolution of conflicts, and the protection of consumers. In 2011, PERC introduced a unified tariff system across the West Bank and Gaza Strip, which is based on social and development policies, and takes into consideration the social situation of the Palestinian citizens (PENRA, 2011).

3.6 General Petroleum Corporation (GPC)

The General Petroleum Corporation was established in 1994 to be the supervisory body of managing the Petroleum sector in the oPt. It regulates the petroleum products market, but it is also engaged in channeling and selling petroleum products to the West Bank and Gaza Strip with an exclusive contractual agreement with Israeli company. In the year 2003, the MoF took over the GPC.

4. Current Energy Status

4.1 Energy Balance

The oPt has a very low production of energy, using wood, charcoal, olive cake and solar energy. Energy production in oPt was equal to 8,432.33 TJ in the year 2009 (PCBS, 2011a). Since this amount of produced energy is humble, the oPt is highly reliant on other countries for importing its energy requirements, as the oPt imports most of its primary energy requirements from Israel. The imported energy was equal to 44,274.92 TJ in the year 2009 (PCBS, 2011a), this amount is including 3,982,940 MWh of electricity, 157.291 million liter of gasoline, 50.1072 million liter of diesel, 3.832 million liter of kerosene, 125,100 ton of LPG, 1,512 of oils and lubricants, 7,744 ton of bitumen, and 5,372 ton of charcoal (PCBS, 2011a). More than half of the total energy requirements in 2009 came from imported sources. The dependency on energy imports decreased from 95% of the total energy requirements in the 2007 to 84% by 2009. The decrease in this rate does not indicate that the oPt produces more energy but it is a possible explanation for its very low energy consumption compared with regional consumption rates.

Energy consumption is considered the second aspect of the “energy tragedy” in oPt, whereas the first one is the energy production and import. Total energy requirements (Primary energy supply) reached 53,863.16 TJ in 2007 (PCBS, 2009a) while in the year 2009 it decreased to 52,633.98 TJ (PCBS, 2011a).

There is a clear growth in the final consumption of energy, as it reached 35,900 TJ in the year 2007 (PCBS, 2009a), while in the year 2009 it increased to 41,098 TJ (PCBS, 2011a). This means that the final energy consumption increased by 15% from 2007 to 2009. Table 3.2.1 shows a summary of the energy balance in oPt in the years 2007 and 2009.

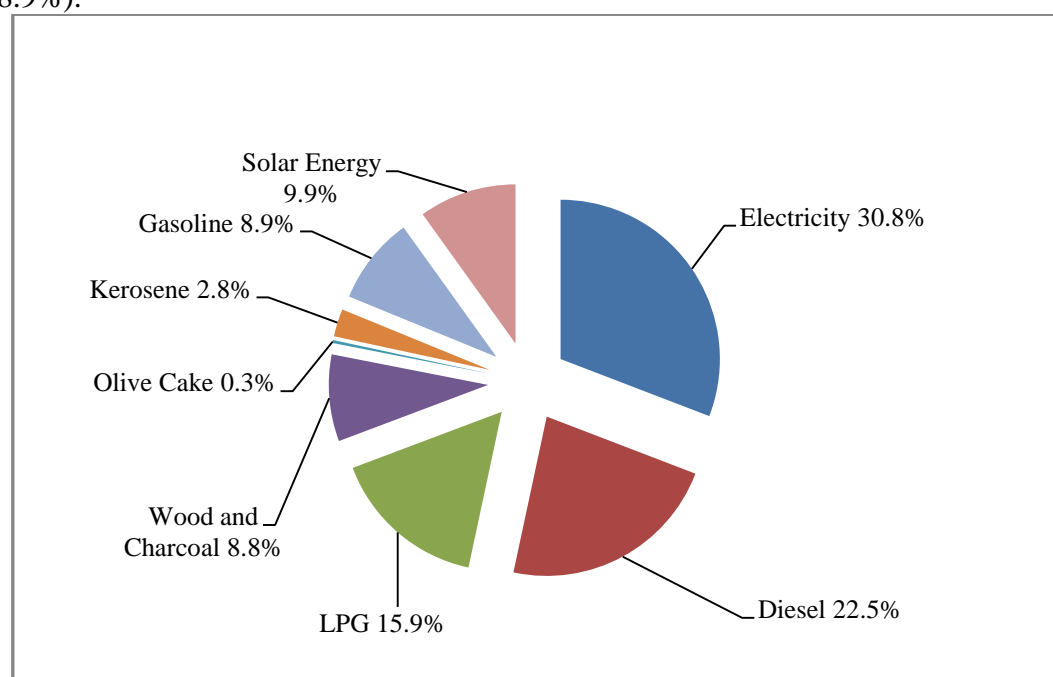
Table 3.2.2: Summary Energy Balance in the oPt in Tera Joules

Year	2007	2009
Total Energy Requirements¹	53,863.16	52,633.98
Primary Production	8,831.18	8,432.33
Imports	45,020.89	44,274.92
Energy Converted²	-2,360.66	-2,757.75
Final Energy Consumption³	35,900.34	41,098.46
Industry and Construction	1,912.56	2,500.21
Transport	9,019.40	11,480.89
Households and Other Sectors	24,968.38	27,117.36

Notes:
(1) Total Energy Requirements computed as = production + imports – exports – bunkers ± stock changes
(2) Energy Converted represents quantities of fuels transformed to obtain derived energy products.
(3) Final Consumption refers to the consumption of primary and derived energy by industry, construction, transports, households, agriculture and other sectors.

Source: PCBS, 2009a – 2011a

Figure 3.4.3 shows the breakdown of final consumption of energy in the year 2009. Electricity accounted for the largest proportion of energy consumption in 2009 (30.8%), followed by diesel (22.5%), LPG (15.9%), solar energy (9.9%) and gasoil (8.9%).

**Figure 3.4.4: Final Consumption of Energy in the Year 2009**

Source: PCBS, 2011a

In the year 2009, the household sector represented the highest consumer amongst all sectors with 22,992 TJ (representing 56% of the total consumption). The transportation sector is the second greatest consumer of energy with 28% of the total consumption, while the service sector comes in the third place with 7%, followed by

the industrial sector with 4%. This result approves the fact that oPt is not an industrial country. Table 3.4.2 shows the consumption of energy by sector in the year 2009 and 2007.

Table 3.4.3: Consumption of Energy in the oPt by Sector in the Year 2007, 2009

Sector	Consumption by sector (TJ)			
	2007		2009	
	TJ	Percentage %	TJ	Percentage %
Industry	1,717.59	5	1,763.10	4
Construction	194.97	1	737.11	2
Transport	9,019.40	25	11,480.89	28
Households	21,807.53	61	22,991.98	56
Internal trade	986.88	3	1,015.63	2
Services	1,980.58	6	2,897.58	7
Agriculture and fishing	193.39	1	212.17	1
Total	35,900.34	100%	41,098.46	100%

Source: PCBS, 2009a – 2011a

4.2 Petroleum Products Supply and Consumption

The oPt totally depends on Israel for importing petroleum products (gas, kerosene, gasoline, diesel, oil, and LPG) through agreements between the GPC and private Israeli companies. Fuel in oPt is imported from Israel at a high cost. In this way, the future development in the oPt is under the Israeli control as this important energy source is controlled by Israel. In the oPt, petroleum products are used as fuel for transportation, heating and cooking as well as for some industries (such as stone cutting and aggregate quarrying).

From 1994 until 2006, GPC contracted with Israeli company, Dor Alon, to supply petroleum products for the West Bank and Gaza Strip. With the beginning of the year 2007, GPC has contracted with the largest fuel marketing company in Israel, Paz Oil, to supply the West Bank.

The quantities of imported petroleum products in oPt reached 29,936.34 TJ by 2009, while it was 33,543.11 TJ in 2007 (PCBS, 2011a).

Table 3.4.3 shows the average price of the petroleum products in the oPt in the years 2008 and 2009.

Table 3.4. 4: Petroleum Products Average Prices for Consumer in the oPt

Year	Region	Type of Energy				
		Oils and Lubricants	LPG	Kerosene	Diesel	Gasoline
		NIS/Kg	NIS/Kg	NIS/Liter	NIS/Liter	NIS/Liter
2009	oPt	16.74	5.08	5.14	4.96	5.57
	West Bank*	14.28	4.17	4.62	4.62	5.49
	Jerusalem (J1)**	20.33	6.89	6.17	5.64	5.75
	Gaza Strip	15.62	4.16	4.62	4.62	5.49
2008	oPt	14.35	5.58	6.29	5.93	6.21
	West Bank*	13.5	4.85	5.46	5.48	6.07
	Jerusalem (J1)**	16.5	7.25	7.92	6.83	6.46
	Gaza Strip	13.05	4.66	5.49	5.48	6.11

Notes:
* Exclude those parts of Jerusalem which were annexed by Israel in 1967.
** Those parts of Jerusalem which were annexed by Israel in 1967.⁵⁵

Source: PCBC, 2009b-2010a

Israel is retaining effective military control over the Gaza Strip and its borders. In this context, the residents of Gaza Strip are allowed to receive fuel only through the Nahal Oz terminal (fuel terminal) which is owned by the Israeli company Dor Alon. The terminal consists of storage tanks for petrol and Gas which are connected directly with pipelines on the Israeli side. The fuel is pumped a distance of 700 meters via pipelines to the reception terminal on the Palestinian side. At the terminal, there is a dedicated line for the supplying fuel to GPP for power generation.

The supplied fuel for Gaza Strip was reduced starting from October 2007, when Israel imposed severe restrictions on the fuel amounts it allows to enter through the terminal. However, the reduction level per types of fuel is not specified, and varies from one type to another. The shortages got worse with a strike that began in 2008 which aims to protest the Israeli restrictions on fuel supply to Gaza and to pressure the international community and PNA to increase their pressure and demands that Israel to lift the restrictions. Figure 3.4.4 illustrates the quantities of imported fuel from Israel in the years 2006, 2008 and 2009.

⁵⁵ This part includes the following localities: (Beit Hanina, Shu'fat Refugees Camp, Shu'fat, Al' Isawiya, Jerusalem "Al - Quds"(Sheikh Jarrah, Wadi Al - Joz, Bab Al-Sahira, As Suwwana, At -Tur, , Ash - Shayyah, Ras Al-Amud), Silwan, Ath – Thuri, Jabal Al –Mukabbir, As – Sawahira Al – Gharbiya, Beit Safafa, Sharafat, Sur Bahir, and Um Tuba and Kufr A'qab).

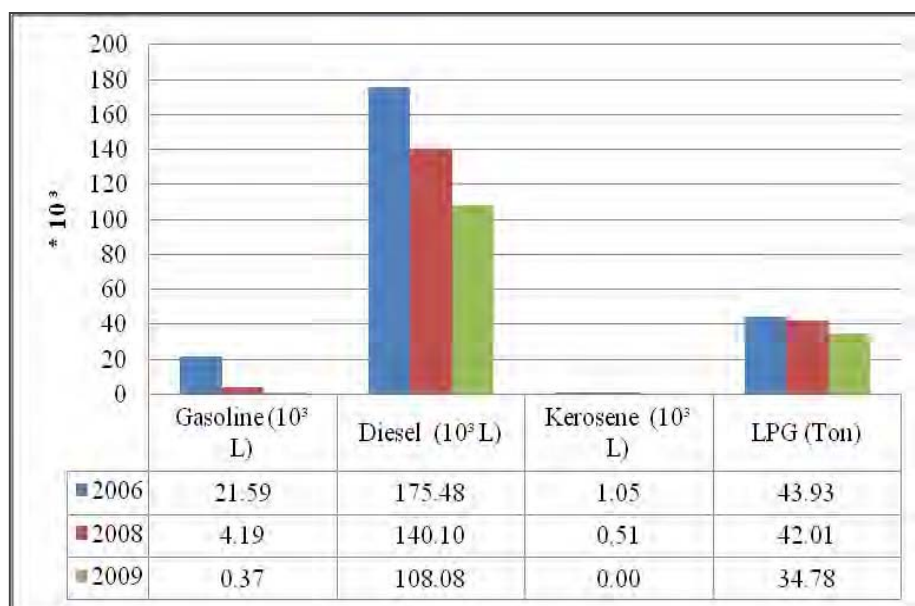


Figure 3.4.5: Imported Fuel from Israel in Gaza Strip

Source: PCBS, 2008a – 2009b – 2011b

In November 1999, British Gas (BG) and its partner, the Consolidated Contractors Company (CCC) signed a 25 years agreement with the PNA which grants the BG Group with oil and gas exploration rights. This agreement includes field development and the construction of pipelining. The rights to offshore gas field are respectively British Gas (60%); CCC (30%) and the investment fund of the PNA (10%). In 2000, the BG Group drilled two wells: Gaza marine-1 and Gaza marine-2 (Global Research, 2009). It has been discovered that there are extensive gas reserves off the Gaza coastline. Two natural gas fields were discovered, the first field (Gaza marine) is located in Gaza territorial waters under Palestinian control, and the second is 67% under Palestinian control and 33% under Israeli control. Assessment of the quantity of the natural gas in the Gaza Strip shows that it will be enough for the oPt for more than 30 years (Al-Hayat al-Jadida newspaper, 26/9/2000), as both contain about 85 million m³ of gas (PENRA, 2006).

“*De facto*”, Israel controlled those fields taking advantage of the events that followed the death of President Yasser Arafat and the election of the Hamas government. However, “Israeli defense authorities want to the Palestinians to be paid in goods and services and insist that no money go to Hamas government”. The main objective behind this policy is to revoke the contract signed in 1999 between the BG Group and the PNA (Global Research, 2009).

Israel has refused to purchase gas from Gaza, preferring to construct an 80-mile subsea pipeline from El Arish-Egypt to Ashkelon-Israel, in order to supply annually 1.7 billion m³ of Egyptian natural gas, as part of a US \$ 2.5 billion contract (Dittrick, 2005). However, the BBC news reported on May 2007 that BG Group has confirmed that it is in talks to agree on a contract to supply Palestinian gas to Israel. Under the proposals, BG would transport gas from the Gaza Marine field through an undersea pipeline to the Israeli port of Ashkelon. However, Israel excluded any possibility that financial returns be paid to the Palestinians, which led to the withdrawal of the BG

Group from the negotiations with Israel, and then they closed their office there in January 2008 (Global Research, 2009).

In June 2011, Israel’s Ministry of National Infrastructure authorized Noble Energy, a crude oil and gas exploration giant, to begin developing a natural gas field off the Gaza Strip coastline. The decision to grant the approval was made in light of a severe shortage of natural gas supplies in Israel next year, or in case Egypt re-suspends the flow of gas to Israel this year. Israel obtains Egyptian gas at price far below international market value. It is yet unclear when the actual drilling at the gas field will be launched.

Fuel for the West Bank is transferred via two terminals, namely: Nielin terminal for LPG and Deir Kadiz terminal for other types of fuel. The two terminals are run by the GPC. Figure 3.4.5 illustrates the quantities of imported fuel from Israel in the years 2006, 2008 and 2009.

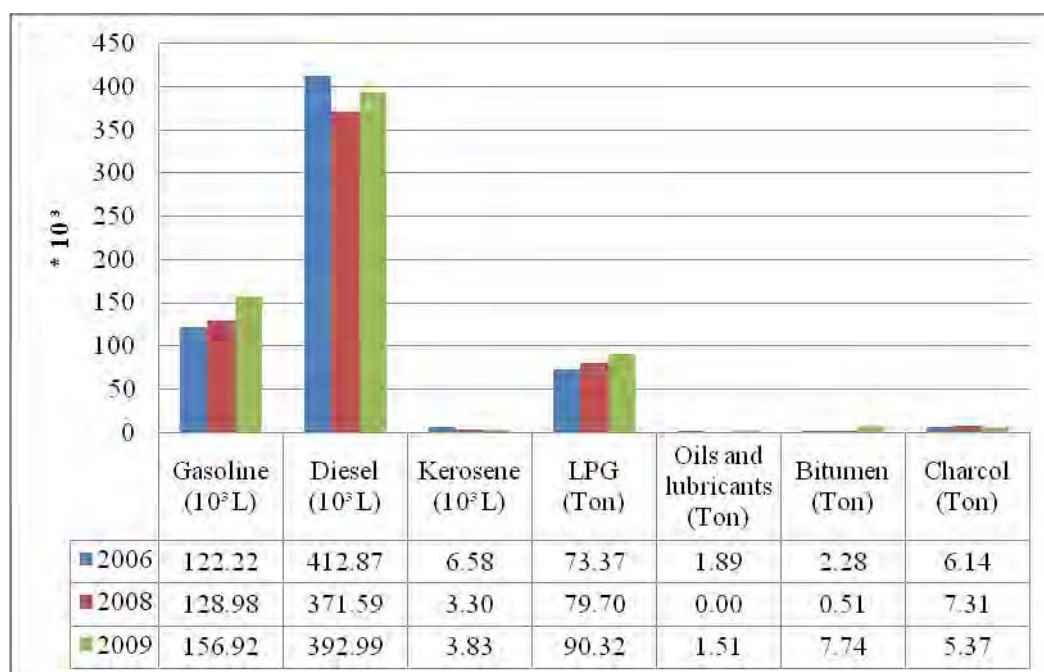


Figure 3.4.6: Imported Fuel from Israel in West Bank

Source: PCBS, 2008a – 2009b – 2011b

It is noted that the highest amount of imported fuel in the West Bank is diesel reaching 392.990 million liters in 2009. This is because that diesel is the most commonly used fuel for public transport, cheaper than gasoline. Road transport accounts for more than half of the overall energy consumed in the West Bank.

4.3 Electricity Supply and Demand

Electricity is considered the main source of energy, whereby the vast majority of the oPt’s electrical energy needs are imported. The only Palestinian electricity generation is from GPP, which started the operation of generating 140 MWh on 2002. It is noted however that this project received extensive damage as a result of Israeli air strikes in 2006. On the other hand, there are twenty power stations in Israel. GPP generates just

about 10% of the electric power consumed in oPt, while the rest is imported from Israel, Jordan and Egypt. In reality, oPt is completely dependent on the Israeli Electric Company (IEC) for their electricity needs.

The quantity of electricity purchased from the IEC in the year 2009 was equal to 3,783,000 MWh, which is 86% of the total purchased energy in the oPt. While 200,000 MWh of electricity was purchased from Jordan and Egypt. Table 4 shows the trends in some main indicators in the years 2007 and 2009.

Table 3.4.5: Production and Utilization of Electricity in the oPt in MWh

Production and Utilization	2007	2009
Imports¹	3,188,272	3,982,940
Electricity Generation	417,065	500,661
Final Consumption²	2,956,376	3,515,840
Industry and Construction	206,245	271,617
Transport	27,950	40,611
Households and Other Sectors	2,722,181	3,203,612
Notes:		
(1) Imports report the quantity of electricity obtained from other countries. Amounts are considered as imported when they have crossed the political boundary of the country, whether customs clearance has taken place or not.		
(2) Final Consumption refers to the consumption of primary and derived energy by industry, construction, transports, households, agriculture and other sectors.		

Source: PCBS, 2009a – 2011a

The cost of electricity is very high in the oPt and is the most expensive in all the countries in the Middle East. It is higher than in Israel, despite the fact that the standards of living in Israel are high, compared with that in the oPt. The cost of electricity for industry and commercial use is higher than domestic use; a situation opposite to most other countries. The approximate cost of electricity for domestic use is about 15 U.S cent/KWh, while it is about 19 U.S cent/KWh for industry and commercial use in the oPt (Jerusalem District Electricity Corporation, 2010).

Figure 3.4.6 shows the industrial electricity tariffs for selected countries in 2006, which can be useful to understand the problem of the electricity expensive cost in the oPt.

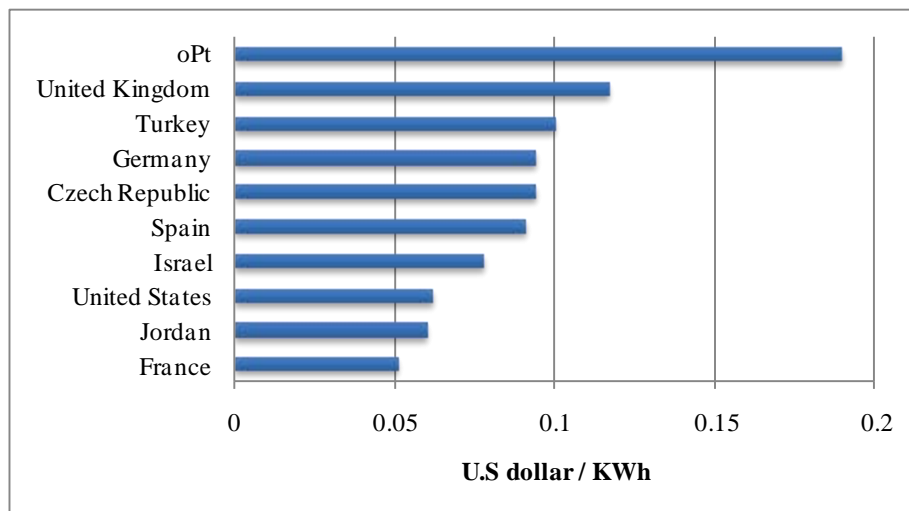


Figure 3.4.7: Industrial electricity tariffs for selected countries in 2006

Sources: U.S. Energy Information Administration, Jordan Electric Power Company

In June 2011, Council of Ministers approved a new electricity tariff system (Table 3.4.5) submitted by the PERC, which aims to organize and unify electricity prices for the consumer to ensure the reduction of the electricity tariff for the various segments of consumers and the productive sectors. Before, the tariff system was not unified in oPt and each electric utility had its own tariff system (PENRA, 2011).

Table 3.4.6: New Electricity tariff system

Sector	Price (NIS/MWh)	Decreased rate
Domestic 1 – 100 KWh / month	0.4085	15 – 37 %
Domestic 101 – 200 KWh / month	0.4546	
Domestic > 200 KWh / month	0.4795	
Commercial	0.5181	2 – 22 %
Industrial (low – voltage)	0.4279	22 – 36 %
Industrial (medium – voltage)	0.399	
Water pumping	0.4666	20 – 24 %
Agricultural	0.4084	27 – 37 %
Roads and squares lightening	0.407	

Source: MoLG, 2011

In general, electricity tariffs decreased for all sectors and segments at an average rate of 20%. For Jericho and the Jordan Valley, tariffs based on cost price of the Jordanian network have been adopted for the importance of development for this region, as the total reduction is about 40%. For the other categories of consumers, the tariffs have decreased for domestic consumption by 15-37%, 2-22% for commercial consumption, 22-36% for industrial consumption, 27-37% for agricultural consumption and 20-24% fro water pumping (PENRA, 2011).

The Gaza Strip receives electricity mainly from IEC and GPP. In October 2006, the Gaza Strip was connected to the Egyptian electricity network, from which it started to import electricity at a lesser rate than from Israel. The Egyptian Electric Company is

now supplying the southern part of the Gaza Strip (Rafah Governorate) with electricity.

GPP, which began operating in 2002, was designed to operate at maximum potential of 140 MW to meet electricity demand at peak hours, as well as to meet future needs for the anticipated development. In June 2006, the Israeli Air Force bombed the power plant and destroyed its four transformers. In 2007, the damage was repaired only partially and gradually, the plant reached a generation capacity of 78 MW. However, the plant needs 3,300 cubic meter of diesel per week in order to function well, but Israel allows for 2,200 cubic meters per week to be transferred to Gaza Strip, and with this amount of fuel, the plant generates 55 MW only (GEDCO, 2011).

Gaza Strip presently needs a total electricity supply of approximately 280 MW. One hundred twenty MW are transferred through lines from Israel, 17 MW are transferred from Egypt to Rafah Governorate and the rest of the needed electricity is planned to be supplied by the GPP. Because of the insufficient amounts of industrial diesel it receives, the supply deficit reaches 31%. The chart below (Figure 3.4.7) shows the sources of electricity in Gaza Strip (GEDCO, 2011).

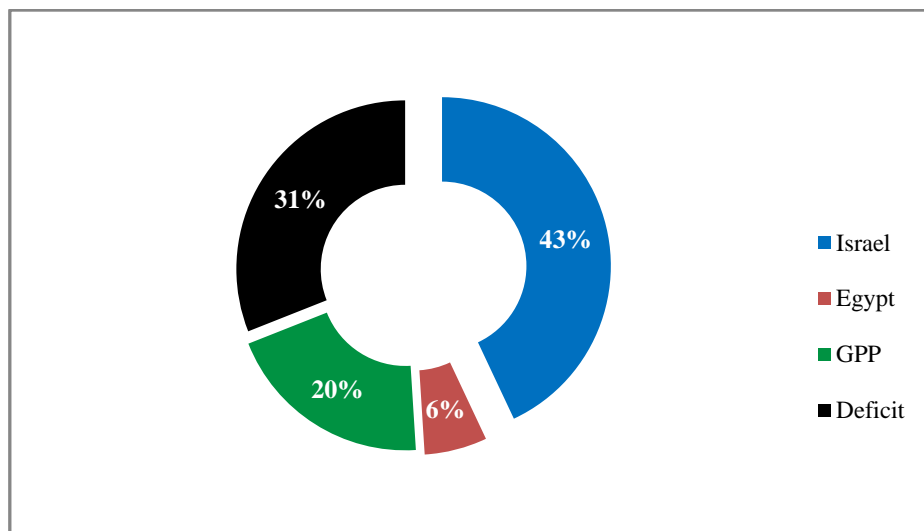


Figure 3.4.8: Electricity sources in Gaza Strip, 2010

Source: GEDCO, 2011

Presently, the whole Gaza Strip had no electricity for at least 8 hours per day, except in Rafah which is supplied by Egypt. The Chart below (Figure 3.4.8) shows the increase in the quantity of imported electricity from the year 2005 to 2009.

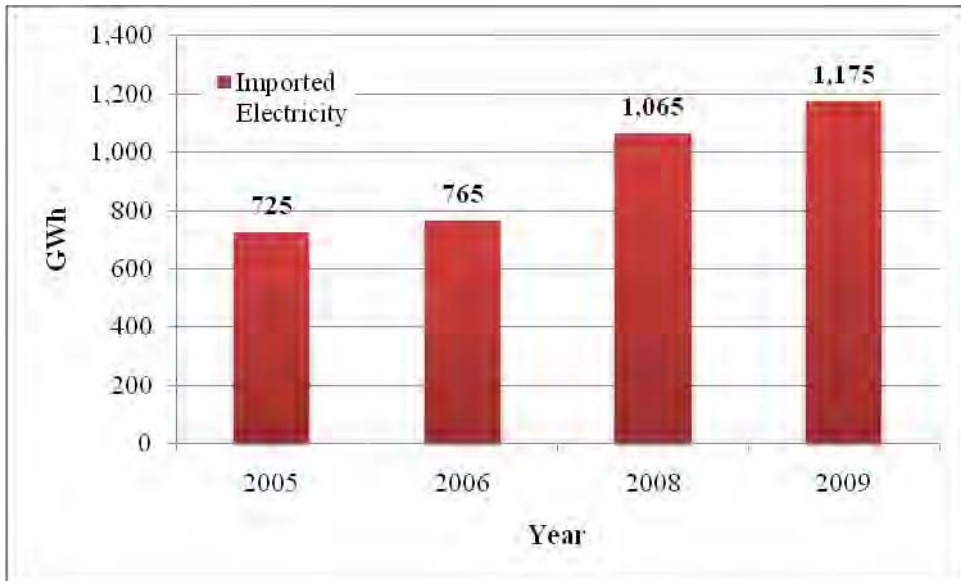


Figure 3.4.9: Imported Electricity in Gaza Strip from the Year 2005 to 2009.

Source: PCBS, 2007 – 2008b – 2009b – 2011b

There is no Palestinian power plant in the West Bank and it depends almost entirely on IEC for electricity supply; supplied by three substations. However, the Palestinian electric company (Jerusalem District Electricity Corporation) signed an agreement with the Jordanian Electric Company in August 2006 to supply electricity to Jericho Governorate in the Jordan Valley, which started in June 2007.

In 2009, the total quantity of imported electricity in the West Bank reached 2,807,601 MWh, 98% (2,751,186 MWh) of this amount was imported from Israel and 2% (56,415 MWh) was imported from Jordan (PCBS, 2011c). Figure 3.4.9 illustrates the increase in the quantity of imported electricity from 2005 to 2009.

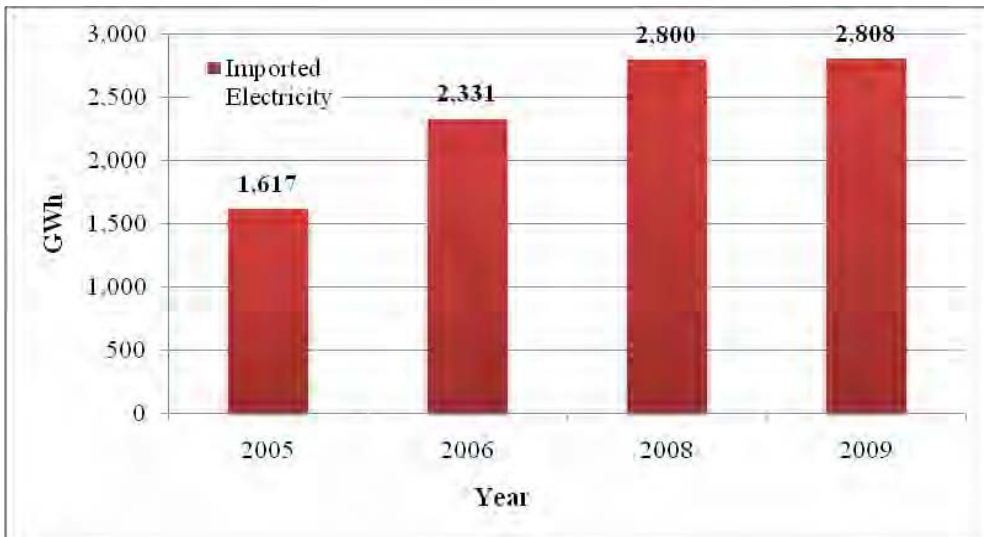


Figure 3.4.10: Imported Electricity in West Bank from the Year 2005 to 2009.

Source: PCBS, 2007 – 2008b – 2009b – 2011c

4.4 Renewable Energy

Renewable energy resources are limited to solar energy for photovoltaic and thermal applications (mainly for water heating), and biomass (wood and agricultural waste) for cooking and heating in rural areas. The potential of wind energy is relatively small but not yet utilized in the oPt.

The renewable energy production in the year 2009 contributed at 16% of the total energy requirements, while the rest was imported (PCBS, 2011a).

The utilization of renewable energy is one of the strongest alternatives in oPt, due to absence of fossil fuel resources and depleting energy supplies as a result of several years of occupation. But the applications of renewable energy in oPt are still very limited. The most recent photovoltaic electrification project is “*Solar power project to light up Wadi en Nar Road in the West Bank*”. Wadi en Nar is the sole link between the southern and northern cities of the West Bank (Box 2). The Qatari Riyal (QR) 1.5 million project is a Qatar Charity (QC) initiative aiming at promoting the endurance of Palestinians, against the Israeli-imposed isolation, and it is expected that one million Palestinian will benefit from the project (Qatar Tribune, 2011). The project aims at lighting Wadi en Nar with special lamps working with solar energy to make travelling easier and less dangerous, and to minimize the dangers resulting from the regular energy generation sources. Eighty illumination units have been installed capable of producing 100 KW/h and a total annual production with a capacity of 90 MW. This means saving more than 20 tons of carbon annually supposed to be in our skies, if electricity was to be produced the conventional method, in addition to saving more than one thousand dollar monthly in terms of bills (MOAPD, 2010).

Box 2

Right at the time when Israel initiated its plan to isolate Jerusalem in 1993 and to restrict the movement of Palestinians to the city by establishing checkpoints at the entrances to Jerusalem, a new road emerged for Palestinians travelling between the southern and northern parts of the West Bank — ‘Wadi Al-Nar’ road, which begins at the northeastern parts of Bethlehem and continues to the town of Abu Dis. Afterward, Palestinian travel along the Israeli controlled bypass road 1, running near Ma’ale Adumim settlement to which it takes travelers to Ramallah; Area and to the northern districts of the West Bank or they continue to Jericho district. Since then, Wadi Al-Nar constitutes the one and only means of access between the West Bank's southern districts (Hebron and Bethlehem) and the northern ones (Ramallah, Nablus, Jenin, Qalqilyia, Tulkarm, Salfit, Tubas, and Jericho), as it literally divides the West Bank into two separate geographical entities. At the time the Palestinian started to use the road it was just a narrow (3-4 meters wide) highly slopped dirt road, significantly dangerous. Later Israel allowed some renovation to be made to the road to be a bit wider with a thin cover of asphalt. Today the road itself is nothing as it was when it started to be used by Palestinians, with 14 meters wide road, 10 of which with asphalt and 2 meters pavement on each side of the road.

The chronology of Wadi Al-Nar road has much more to it than looks. The alternation that took place there has caused to make a dramatic and serious change to the traditional routes used by Palestinians to travel to Jerusalem and between the southern and northern parts of the West Bank. It has evasively turned the Palestinians away from their rightful access to Jerusalem in a political endeavor to isolate the city from its natural inhabitant of the West Bank area.

Another application on renewable energy, the first in type and size in the oPt is a project for generating electricity from wind energy. “*Integrated Wind Energy Production System for Al-Ahli Hospital*” is an EU funded pilot project, launched in 2009, that involves the design and implementation of a wind turbine system at Al-Ahli hospital that will provide over 40% of the hospital's energy needs. The project will include the installment of a wind turbine that can produce up to 700 KW of energy. A study will also explore the potential for developing wind energy in the West bank (AWEP, 2011).

Recently, JEDCO has signed agreement with American Company (Nanovo) to establish concentrated solar power (CSP) in Jericho which is the first of its kind in the Middle East. The project has two phases; the first phase will finish within 3-4 months with 3 MW capacity and with cost up to 17 million \$, the second phase will expand the station to produce 100 MW within a year with a total cost up to 300 million \$. Such projects are very important for energy sector development, as they are using free of charge energy without environmental impacts (PEC, 2011).

4.5 Household Energy

4.5.1 Energy Sources

By July 2010, 99.8% of households in oPt were connected to the public electricity network. 74% of households in oPt used a normal Electricity Meter; while 26% of households used a Prepaid (PCBS, 2010c). Moreover, 66.7% of households in oPt utilized solar energy heaters by July 2010 (Figure 3.4.10); while this percentage was 67.6% in July 2009 (PCBS, 2009c).

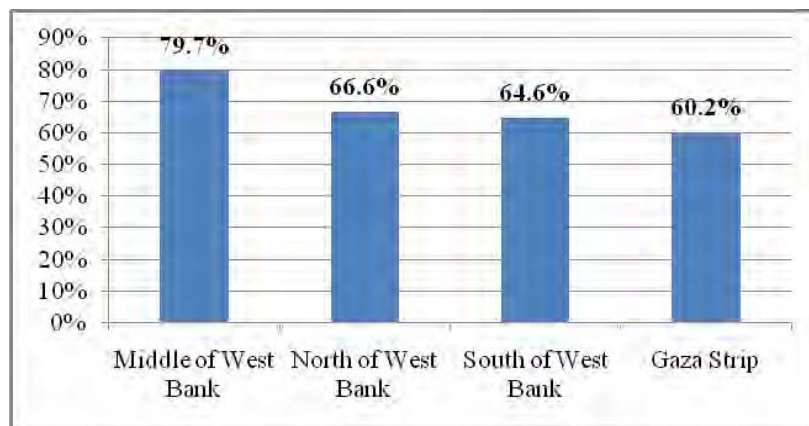
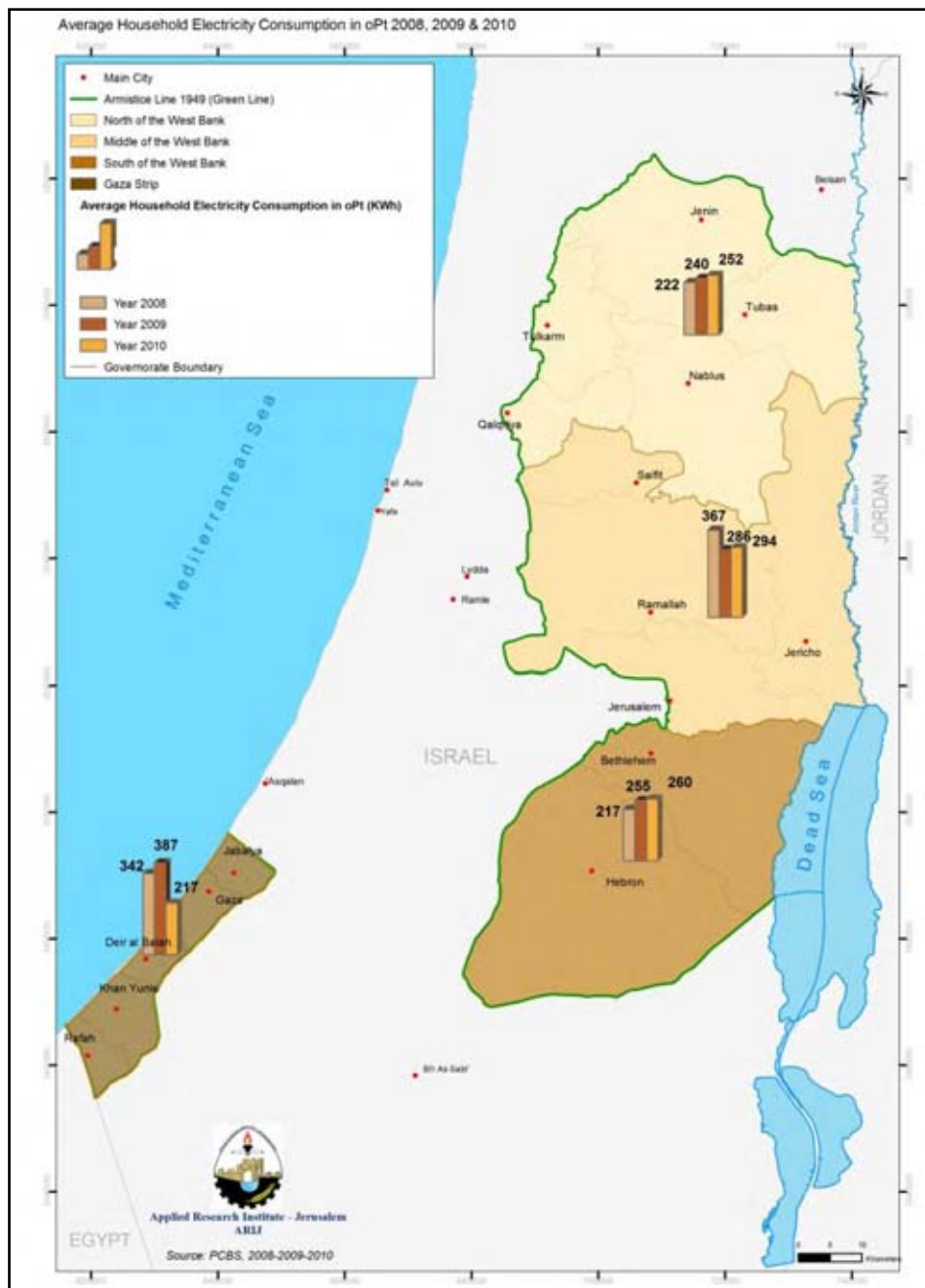


Figure 3.4.11: Percentage of Households in oPt using solar heater

Source: PCBS, 2010c

4.5.2 Consumption of Electricity

The average electricity consumption of a household (from the households that used electricity) in the oPt during July 2010, was 250 KWh, compared with 247 KWh in July 2009; while it reached 294 KWh in the Middle of the West Bank but did not exceed 217 KWh in Gaza Strip (Map 3.4.1) (PCBS, 2010c).



Map 3.4.2: Average Household Electricity Consumption in oPt
 Source: PCBS

4.5.3 Fuel Consumption

The highest average gasoline consumption is concentrated in the middle of West Bank. The average gasoline consumption of a household (from the households that used gasoline) in oPt during July 2010 was 45 liters. It was 92 liters in the middle of West Bank and did not exceed 17 liters in the Gaza Strip (PCBS, 2010c).

The average LPG consumption of household (from the households that used liquefied petroleum gas) in oPt during July 2010 was 16 kg which is the same average as was in July 2009 (PCBS, 2009c).

The average kerosene consumption of a household (from the households that used kerosene) in oPt during July 2010 was 7 liters. It reached 18 liters in the Middle of West Bank, 20 liters in the North of West Bank; while it was 6 liters in Gaza Strip (PCBS, 2010c).

The average wood consumption of a household (from the households that used wood) in oPt during July 2010 was 82 kg. It reached 69 kg in West Bank and 103 kg in Gaza Strip (PCBS, 2010c).

Figure 3.4.11 and 3.4.12 shows the trends in household consumption of fuel in West Bank and Gaza Strip respectively in the years 2008, 2009 and 2010.

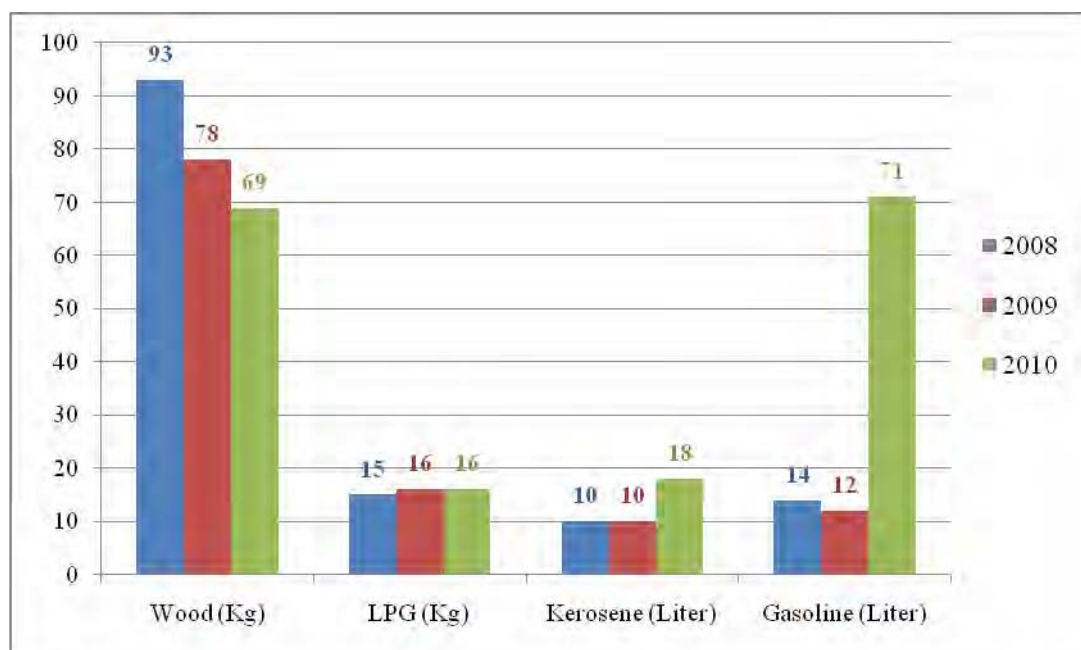


Figure 3.4.12: Household consumption of fuel in the West Bank

Source: PCBS, 2008b; 2009c;2010b

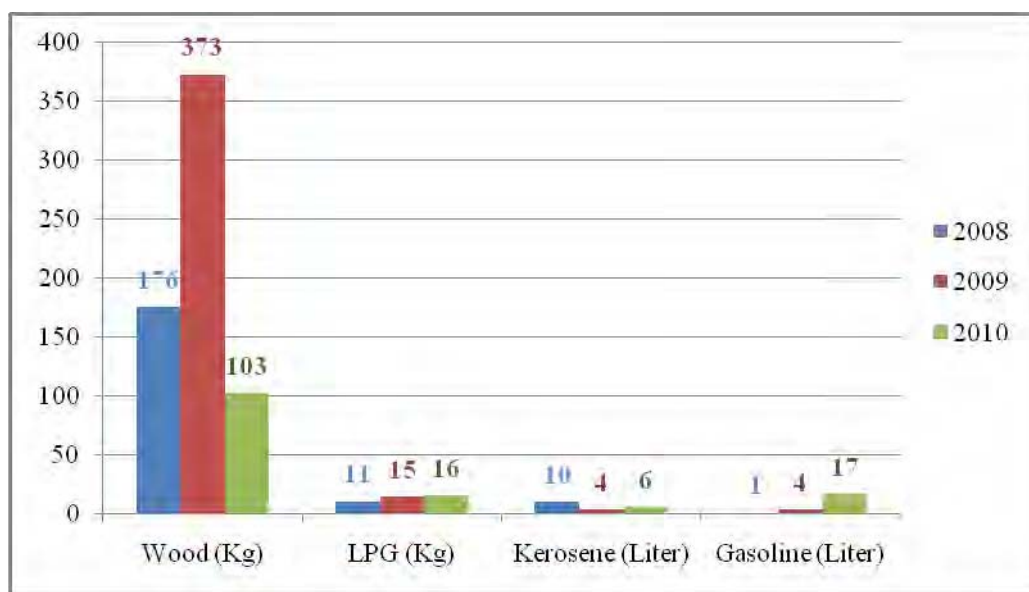


Figure 3.4.13: Household consumption of fuel in Gaza Strip

Source: PCBS, 2008b;2009c;2010b

4.5.4 Energy as a “Daily Life Need”

a. Water Heating Needs

Water heating needs are obtained mainly by three sources, namely: LPG, electricity and solar energy. In winter electricity is considered a complementary source, 43.1% of the Palestinian households used the electricity for water heating in January 2010 (PCBS, 2010b). On the other hand, in summer months, 64.6 % of the Palestinian households used solar energy for water heating in July 2010, as it is considered the cheapest (PCBS, 2010c).

b. Heating Needs

According to the household energy survey conducted by the PCBS, the percentage of households that use a space heating facility in January 2010 was approximately 68 %. From the households using a space heating facility, 41 % used a gas heater, 27.4 % a wood heater, 38.8 % used an electrical heater, 3.8 % a kerosene heater and 1.7 % used a central heater (January, 2010) (PCBS, 2010b).

c. Space Conditioning Needs

Electricity is the only energy source that can be used for space conditioning. In the summer of 2010, 84.3% of households used electricity as a space conditioning source. This behavior results from the need to use electrical devices like conditioning and fans (PCBS, 2010c).

d. Cooking and Baking Needs

The typical fuel used for cooking is LPG. In July 2010 the percentage of households using a gas burner for cooking was estimated at 99.3%. The use of other cooking appliances, such as electrical ovens, wood burners and kerosene burners, is less common (PCBS, 2010c).

In rural areas Palestinian families used to bake their own bread. Data for July 2010 indicate one main fuel sources for baking needs; electricity, with a utilization of 25.2 %. Another two sources which occupy a less important position are wood with utilization of 15.7 % and LPG with utilization of 14.3 % (PCBS, 2010c).

Table 3.4.6 shows some household energy indicators in the oPt in the years 2009 and 2010.

Table 3.4.7: Household Energy Indicators in the oPt

Daily Needs of Energy	Month	2009	2010
Percentage of households used the electricity for water heating	January	36	43.1
Percentage of households used solar energy for water heating	July	56	64.6
Percentage of households that used a space heating facility	January	67.8	84.3
Percentage of households that used a gas heater	January	42.5	41
Percentage of households that used a wood heater	January	32.5	27.4
Percentage of households that used a electrical heater	January	42.6	38.8
Percentage of households that used a kerosene heater	January	5.0	3.8
Percentage of households that used a central heater	January	2.0	1.7
Percentage of households used electricity as a space conditioning source	July	83.1	84.2
Percentage of households used a gas burner for cooking	July	99.3	99.3
Percentage of households used electricity for baking	July	28.3	25.2
Percentage of households used wood for baking	July	14.9	15.7
Percentage of households used LPG for baking	July	13.3	14.3

Source: PCBS, 2009 - 2010

5. Limitations and Challenges Facing the Energy Sector in oPt

The energy sector in the oPt is facing a critical situation concerning the achievement of sustainable development. Several problems have hindered development of energy sector including political, economic, social, and environmental conditions. The lack of sound Palestinian infrastructure over many years and the neglect of the energy sector, have impeded the sector's progress. Systems are old and inefficient, accurate data is needed for any program planning program or improvement, energy efficiency is insufficient, the level of renewable energy utilization is unsatisfactory, there is a low priority of energy end-use efficiency, and Israel has a monopoly on the supply of conventional energy (electricity and petroleum products). All these factors have created an unrealistic price control, energy shortage and projected future energy crisis, in addition to shortage of financing for energy projects and lack of standards governing quality of energy equipment.

5.1 Israeli Occupation Impact on the Energy Sector

One of the most critical challenges facing the Palestinian energy sector and its development is the continued Israeli occupation. The practices of Israeli occupation; border and land control, power over and natural resources etc obstruct the energy sector's development programs and plans. Many policies are followed by the Israelis to undermine the improvement of the energy sector, such as refusing or delaying licenses to establish connecting points with the IEC and refusing of construction electricity networks in Area C (Box 3). In addition, the level of electrical services provided by the IEC is inadequate for the Palestinian demand with high prices, thus hindering the development in the oPt and therefore causing high economic losses. It is important to mention, that the electrical power supplied by the Israelis is not subjected to any purchase agreement; it is controlled by bilateral contracts between the IEC and the distribution utilities.

Box 3

Throughout the years of occupation, the violation of Palestinians' human rights have persisted, and escalated. As an example for the Israeli violations against the Palestinians, the Israeli prevented ARIJ to implement the project titled ***“Utilization of Solar Energy in lightening Jub Altheib Village in the West Bank”***.

Residents of Jub Altheib village suffer from the absence of an electricity source to facilitate their life activities and their movement especially during night time. The only available electricity sources for all residents are three gasoline generators. The operation of these generators creates environmental pollution and harmful effects as they discharge annually 4,599 kg of carbon dioxide (CO₂), not to mention, each year the generators cost the village residents about 18,000 NIS. Also, these generators do not work properly and do not meet the needs of the residents of the village.

The reason why Jub Altheib residents can't have a major power line in their village is the presence of El David settlement and Herodion Mountain which prevents the arrival of electricity lines to the village.

Due to its location in Area C, the village falls under the full Israeli security and administrative control. Therefore, it is compulsory for village residents to obtain building permits from the Israeli Civil Administration. But, due to the burdensome discriminating requirements and rigid Israeli building license policies imposed on the Palestinians, residents of Jub Altheib are forced to build without getting building licenses to cope with the natural growth of the village's population. It must not be forgotten that the Israeli Civil Administration has a deliberate policy of neglecting the planning and development of Palestinian villages located in Area C in order to force residents to voluntarily leave their lands and villages residents to voluntarily leave their lands.

In order to ease the suffering of Jub Altheib village residents and help them stay in their land, the project of ***“Utilization of Solar Energy in lightening Jub Altheib Village in the West Bank”*** was conceived to light the village's main road, its community center and Mosque. In May 2009, ARIJ had installed the Solar panels in the Village. The village residents were denied a permit to implement the project as it was rejected by the Israeli Civil Administration, and ARIJ has been informed to remove the panels(ARIJ, 2010).



Due to the political closure of the Gaza Strip and following the airstrike, the GPP has damaged and some electrical lines have been cut, causing some areas to suffer from frequent and long power cuts. Moreover, Gaza residents are totally dependent on fuel delivered via Israel, as it is forbidden for Gaza residents to receive fuel from any other sources. Palestinians human needs are detained by Israelis as they suffer from not meeting their physiological needs and suffer from inequality in living standard. Their human rights are violated as well as they don't get adequate housing and food, and they are prevented from freedom of movement and right to education.

Having cut the gas supply from Egypt on several occasions, Israel seized the Palestinian natural gas from Gaza's coast to avoid any potential gas shortage in the next year. The Israeli Infrastructure Ministry ordered the "Noble Energy" company to develop fields of natural gas. Stealing gas from Gaza's gas reserves is clear evidence on the Israeli violations against the Palestinians, as from legal standpoint the gas reserves belong to Palestinian.

Box 4

Energy Restrictions and its impact on Water and Sanitation

Water must be safe, available, and accessible. However, the Israeli blockade on Gaza Strip is obstructing the access to safe water which is a fundamental human need and a basic human right.

On October 2007, Israel began limiting the supply of fuel in Gaza Strip, which is needed to allow the functioning of the water and wastewater facilities. Fuel shortage and reduction in the supply of electricity affects the operation of water wells pumping stations (CMWU, 2011) accordingly the water is unable to be pumped to buildings and the operation of existing desalination plants is limited. As a result, residents of Gaza Strip cannot access to adequate quantities of safe water for drinking and domestic. In addition, many well that are not connected to the electrical grid and depend on diesel ore generators have damaged because of fuel restrictions (EWASH, 2011).

Moreover, restrictions on electricity limit the operations of existing wastewater treatment plants, leading to wastewater pouring untreated into the environment and the Mediterranean Sea. Fifty to eighty million liters of untreated or partially treated sewage is released into the Mediterranean Sea every day (EWASH, 2011). This situation put the environment and the public health at risk. (See chapter 5.3)

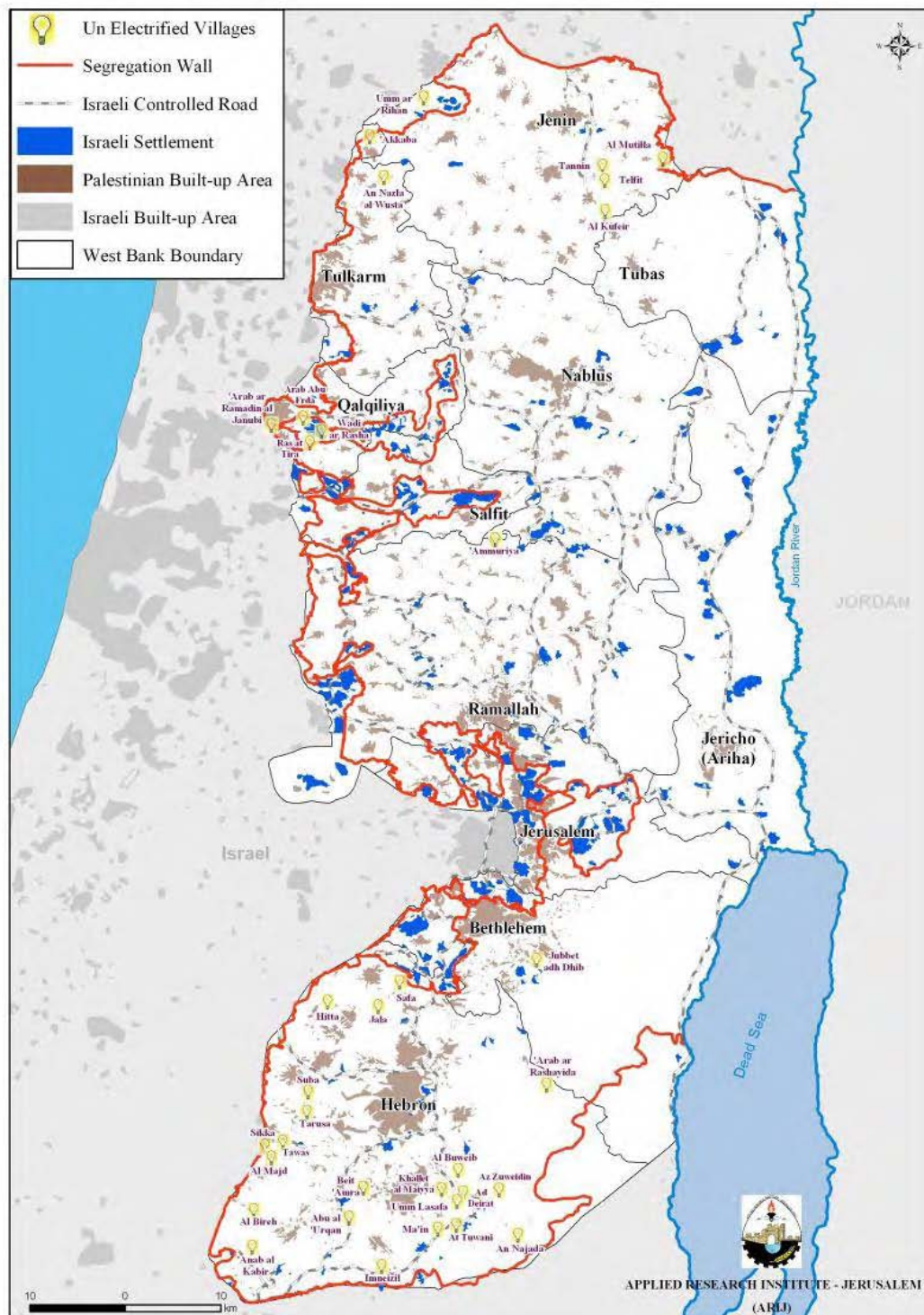
5.2 Challenges Facing the Electricity Sector

Access to Electricity and Electricity Tariffs

According to the LSP, the main objective of PENRA is to provide the Palestinian citizens with reliable electricity supplies and to do so at a price that is affordable.

Nevertheless, thirty five localities (7%) out of 510 in the West Bank do not have access to electricity network, which means that more than 20,000 citizens are still

suffering from the unavailability of electricity to light their houses and roads, or even meet their daily needs (Map 3.4.2). According to the PCBS, 100% of the households in Gaza Strip are connected to the electricity public network, while all of them suffer from power blackouts lasting up to sixteen hours a day (PCBS, 2010c).



Map 3.4.3: Localities without access to Electricity in West Bank

Since PENRA has been established, the electricity prices are very high compared with other countries, and with the average income for the household, moreover the tariff is

not unified. In 2011, PERC has issued a new tariff system (see section 4.3) which is based on social and development policies, since it takes into consideration the social situation as it is an ascending system, starting at low prices for low consumption rates for those with limited incomes, and get higher with the rise in consumption for those with good incomes (MoLG, 2011).

The new electricity tariffs system is unified for all the governorates in the oPt except Jericho and the Jordan Valley, which is supplied by a Jordanian company. Electricity tariffs in this Governorate has decreased the most at total reduction of 40% (MoLG, 2011), which is the highest reduction percentage among all sectors and governorates. However, the Council of Ministers justified this by stating that “The new system aims to support the citizens in Jericho and Jordan Valley and the productive sectors there by taking into account the participants in these sectors including industrial, agricultural, and tourism sectors, to enhance their characteristics competitiveness”.

One of the most challenges facing the electricity sector in the oPt is that PENRA depends on buying power from Israel to supply it to the Palestinians. Any rise in electricity price in Israel will affect the electricity price in the oPt. In August 2011 Israel decided to raise the electricity price by 9.2%, as a result the electricity price will rise by 7% in the oPt.

5.3 Challenges Facing the Petroleum Sector

GPC is the sole agency in the oPt responsible for importing, distributing, and setting prices for various petroleum products. This reality turned GPC into a monopolistic corporation that dictates and controls a very vital share of the energy market. As a monopolistic, GPC is not fully accountable or responsive to the needs and demands of Palestinians, because there are no other alternatives or service-providers.

There are several integrity challenges that face GPC as a monopolistic, these are described in Report #23 issued in April 2009 by AMAN. The first challenge is guaranteeing sound and responsible financial practices in every financial decision. As GPC is the sole contractor and supplier of petroleum products in the oPt, it has the authority to contract other suppliers or providers with or without fair and open bidding and tendering procedures. Moreover, as the sole distributor of petroleum in the oPt, GPC may misuse and mismanage its distribution role. Another challenge is GPC's financial practices and budgeting process. There is a need for GPC to document and report clearly and comprehensively how it spends its allocated share of public money, what are its revenues, and how it plans its future sustainability.

The second challenge is the vagueness and lack of transparency that surrounds the price-setting mechanism at GPC. The processes and courses of action that led to choosing a certain supplier or a certain price is masked with secrecy and confidentiality. No clear formulas or considerations are known that GPC uses to set prices. It is important to keep in mind that any monopolistic agency eliminates fair competition which in turn eliminates effectiveness, efficiency and better prices for the average consumer. Better prices for petroleum are crucial need as it is a very crucial resource for daily life and progress.

Another challenge of GPC is its licensing power. GPC is the governmental body responsible for licensing petrol stations. The legal framework governing licenses and requirements for petrol stations has more room for improvement, and better structure. The current framework creates opportunities for malpractices, conflict of interests, wasta, or nepotism.

This challenge leads to another ethical challenge of GPC which is internal control issues. GPC is an agency under the MoF, yet internal control issues are not clearly set or defined as GPC is also considered an independent governmental body in its establishing mandate. Thus, confusion arises as to how exactly should GPC answer to the MoF.

The last challenge of GPC is its legal framework. The overall legal framework of GPC is lacking a solid structure that offers strict guidelines to govern all of GPC functions and operations. Lack of a fully-developed legal framework creates an environment of passiveness and carelessness in GPC. There is no rule of law or consequences that manage unethical behaviors.

It is one of most important for GPC to have a publicly-accessible and transparent governing legal framework to remove as many opportunities as possible for malpractices. Just as importantly is to open the petroleum market for fair competition among many suppliers that will allow the market to develop effectively and efficiently offering better prices for consumers.

6. Conclusion and Recommendation

It is concluded that:

- The energy sector in the oPt is remarkable. There are no natural resources and the Palestinians have to rely on Israel for their energy needs.
- As a result of the Israeli occupation, the infrastructure of the oPt was largely neglected if not completely destroyed.
- The political situation is an important factor for the low level of energy sector services.
- The Israeli forces ignore the Palestinians right to an adequate standard of living and housing.
- Renewable energy has not reached a satisfactory level of utilization, but the solar water heaters in the oPt are being used in a high rate.
- A clear comprehensive and general energy policy at a national level is still absent.

Therefore, and based on this study, the followings are recommended:

- Increase awareness of energy issues and energy conservation amongst relevant professionals, the general public and legislators.
- Develop the legal and legislative instruments related to energy.
- Follow up with the energy national strategy in the oPt.
- Conduct an awareness campaign regarding the energy crisis to support the idea of using alternatives energy resources.
- Support and improve the utilization of solar power.
- Focus on institutional development and strengthen the national capacity building in energy field.
- Introduce technical trainings for energy conservation practices to schools and universities.

CHAPTER FOUR

Legal Context of Biodiversity Protection and Utilization in the oPt

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Chapter Four: Legal Context of Biodiversity Protection and Utilization in the oPt

1. Background

The concept of environment as a basic human right encompasses a respect for the right of other species to survive on the planet. There are anywhere between 5 and 50 million species of plants, animals, and microorganisms sharing the earth, and each has a value of its own, a role to play in a vast, complex web of interdependent connections (Kothari & Patel, 2006). This range of species, the habitats they live in, and the internal genetic diversity they display, is called biological diversity or biodiversity. Such diversity is part of the humans' daily lives and livelihoods, constituting resources upon which families, communities, nations and future generations depend. Biodiversity has numerous uses in agriculture, medicine, food and industry. It helps to maintain ecological balance and evolutionary processes, and has spiritual, cultural, aesthetic and recreational values. Its loss is, therefore, a part of the erosion of environmental human rights. However, people and their lifestyles continue to deplete the earth's biodiversity overspending the natural capital and thereby depriving future generations and their rights to survive. No signs that actions to date have slowed the rate of depletion as a results to continuous growing levels of consumption that provide increasingly unequal benefits to different groups of people worldwide. Accordingly this chapter is going to investigate the international and national legal instruments that set out the strategies and rights to better sustain and utilize the biological resources as a basic human right at Palestinian level.

2. International Biodiversity Legislative Framework

The globalization of environmental issues and the International environmental law has developed rapidly over the past 30 years; a number of conventions have been completed, both multilateral and bilateral instruments, to address global and regional issues. This approach has been accelerated by the processes of economic and political globalization, which is gradually beginning to affect environmental regimes. In the past two decades, international environmental law has become increasingly driven by the concept of sustainable development, which now underpins to a great extent the global environmental debate. This has also brought a rapid growth in the number and scope of international legal instruments and institutions relating to the conservation of biodiversity. Given the development and population pressures on both terrestrial and marine environments, there is an urgent need for improved legal frameworks for biodiversity conservation planning at the international, regional and national levels. The following Multilateral Environmental Agreements (MEAs)/conventions⁵⁶ are of prime importance to biodiversity conservation:

⁵⁶ A Convention is an international agreement between a number of countries, dealing with a specific subject of common concern. Conventions are legally binding, and having signed, each country follows a process of ratification, whereby the means for implementing the provisions of the agreement nationally must be ascertained. A country which ratifies becomes a 'Contracting Party' to the Convention, and the agreement enters into force at a set period after a specified number of ratifications.

- ***Convention on Wetlands of International Importance (Ramsar) 1971;***

The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world" (<http://www.ramsar.org>). The Convention uses a broad definition of the types of wetlands covered in its mission, including lakes and rivers, swamps and marshes, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

- ***Convention on International Trade in Endangered Species (CITES) 1973;***

CITES is an international agreement between governments, drafted as a result of a resolution adopted in 1963 at a meeting of members of the World Conservation Union (IUCN). Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival and it accords varying degrees of protection to more than 33,000 species of animals and plants. It entered into force after the 10th ratification by a signatory State in 1975. CITES is an international agreement to which States (countries) adhere voluntarily. Although CITES is legally binding on the Parties – in other words they have to implement the Convention – it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES, is implemented at the national level. For many years CITES has been among the conservation agreements with the largest membership, with now 175 Parties. The national governments who currently have signed CITES are obliged to monitor and control international trade in the plants and animals listed in its two main Appendices⁵⁷ (<http://www.cites.org>).

- ***Convention on the Conservation of Migratory Species of Wild Animals (CMS) 1979;***

The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or the Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale. Since the Convention's entry into force, its membership has grown steadily to include over 100 Parties from Africa, Central and South America, Asia, Europe and Oceania. The Convention was signed in 1979 in Bonn and entered into force in 1983 (<http://jncc.defra.gov.uk> and <http://www.wcmc.org.uk/cms>). CMS Parties strive towards

⁵⁷ The CITES Appendices I, II, and III contain lists of species afforded different levels or types of protection through trade regulations.

strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the Range States of many of these species⁵⁸. For this reason, the Convention encourages the Range States to conclude global or regional Agreements. In this respect, CMS acts as a framework Convention.

▪ ***Convention on the Conservation of Biological Diversity (CBD) 1992;***

The Convention on Biological Diversity (CBD) is an international treaty that was opened for signature at the Earth Summit in Rio de Janeiro on 1992 and entered into force on 1993. The CBD provides an internationally recognized framework within which countries can work together to conserve biological diversity. By virtue of its near universal ratification, it codifies approaches and principles that guide current biodiversity conservation programs around the world. The convention recognized for the first time in international law that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably. It sets principles for the fair and equitable sharing of the benefits arising from the use of genetic resources, notably those destined for commercial use. It also covers the rapidly expanding field of biotechnology through its Cartagena Protocol on Bio-safety, addressing technology development and transfer, benefit-sharing and bio-safety issues (<http://www.cbd.int>). Importantly, the Convention is legally binding; countries that join it ('Parties') are obliged to implement its provisions. It is often seen as the key document regarding sustainable development.

In April 2002, the CBD, in decision VI/26 the Conference of the Parties, adopted the Global Strategy for Plant Conservation, including 14 outcome-oriented global targets for 2010, which provides a policy environment that is particularly well suited to addressing the conservation challenges for Plant Genetic Resources (PGRs) in a coherent way. The ultimate and long term objective of the strategy is to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth. Policy relevant to the conservation challenges that arise from the increasing global demand for wild harvest and cultivation of medicinal plants has been scattered among many different areas: forestry, health, agriculture, indigenous knowledge, access and benefit sharing, and sustainable livelihoods. The Global Strategy for Plant Conservation provides a policy environment that is particularly well suited to addressing these challenges in a coherent way for plant species.

Each of the above mentioned conventions is administered by a secretariat, with a Conference of the Parties conducted on a regular basis to promote implementation, draft protocols and exchange information. In addition to the conventions, "soft law" instruments such as the World Charter for Nature, the Rio Declaration on

⁵⁸ Migratory species threatened with extinction are listed on Appendix I of the Convention ; as of January 2011 there are 176 species in Appendix I. Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention.

Environment and Development, and Agenda 21 continue to have a significant bearing on the development of mechanisms for the conservation of biodiversity as basic human right. The Statement of Forest Principles of 1992, which may in time blossom into a legally binding convention in some form, is also significant for biodiversity protection.

The case in biodiversity conservation; principles and concepts related to sustainable development permeate the provisions of the more recent instruments and are, to some extent, being adopted at a national level. Implementation of the conventions related to biodiversity has been considerably assisted by various international organizations, including the United Nations Environment Program (UNEP) and the United Nations Development Program (UNDP), and by technical assistance from IUCN as well as financial institutions such as the World Bank and the Asian Development Bank (ADB). Other important bodies that work on biodiversity at global level are GEF (global Environment Facility, UNCTAD (United Nations Conference on Trade and Development), UNESCO and others. These institutions do important work in promoting the biodiversity agenda at a global level.

The Commission on Environmental Law and the Environmental Law Centre of IUCN drafted the World Charter for Nature in the early 1980s, and were involved in the development of the other biodiversity-related conventions. The Environmental Law Program of UNEP has also been closely involved in various aspects of biodiversity law at an international level, and carried forward the work of IUCN in preparing the final drafts of the Convention on Biological Diversity (CBD). The Liaison Group of the Biodiversity-related Conventions (BLG) is another body that is considered a coordinating mechanism among Conventions (relevant to Biodiversity) for joint activities and shared tools in the conservation and sustainable use of biodiversity, maximizing outcomes from limited resources in accordance with UN goals (<http://whc.unesco.org>).

Other major international environmental legal instruments (Box 1), all of which are related to aspects of biodiversity conservation include:

Box 1

Recent Global Networks in Biodiversity Related Information

Via *ECOLEX*; Gateway to Environmental Law, is a web-based information service for effective international and domestic laws and policies cornerstone to biodiversity conservation, the sustainable use, of its components and the fair and equitable sharing of benefits arising from the use of genetic resources. The CBD Secretariat has partnered ECOLEX (operated by FAO, UNEP, IUCN) to provide readily accessible information on biodiversity-related laws and policies (<http://www.ecolex.org>).

The World Commission on Protected Areas (*WCPA*) is another world's premier network of protected area expertise. It is administered by IUCN's Program on Protected Areas and has over 1,400 members, spanning 140 countries.

The 1997 *IUCN Red List* of Threatened Plants as part of IUCN/SSC's red list program is a searchable database developed by WCMC, in collaboration with the Royal Botanic Garden Edinburgh. This database makes available 35,319 records from the WCMC Threatened Plants Database of plants that are recorded as globally threatened (<http://www.iucn.org>).

The *Indigenous and Tribal Peoples in Independent Countries Convention*, which convened at Geneva by the Governing Body of the International Labor Office in the General Conference of the International Labor Organization in its seventy-sixth session on 1989. The convention is set to adopt new international standards with a view to removing the assimilations orientation of the earlier standards⁵⁹ and recognize the aspirations of these peoples to exercise control over their own institutions, ways of life and economic development within the framework of the States in which they live. Parties are to specially safeguard the rights of the peoples concerned to the natural resources pertaining to their lands, including the right to use, manage, and conserve these resources (article 15.1). In cases in which the State retains the ownership of mineral or sub-surface resources or rights to other resources pertaining to lands, States are to establish or maintain consultation procedures to ascertain the extent of the prejudice caused by exploration or exploration of these resources and whenever possible, ensure that the peoples concerned participate in the benefits of such activities and receive fair compensation for any damages (Article 15.2). It also calls attention to the distinctive contributions of indigenous and tribal peoples to the cultural diversity and social and ecological harmony of humankind and to international co-operation and understanding (<http://www.ecolex.org>).

The *World Charter for Nature*, which entered into force in 1982, and aims to sets out principles to prevent the earth's genetic resources from being compromised. Through management and maintenance of ecosystems, sustainable productivity and the proper functioning of ecosystems are achieved (<http://www.netspace.net.au>).

The *United Nations Convention on the Law of the Sea*, which entered into force in 1994, establishes national sovereignty over marine resources lying within coastal waters. By establishing property rights that apply to the species and habitats found within coastal waters, the treaty provides countries with some incentive to better manage these resources. The convention is notable for its comprehensive coverage of marine resource issues, although many of the provisions regarding the management of these resources are not binding. Another actions also been drafted to protect global fisheries resources is **UNEP Global Programme of Action for the *Protection of the Marine Environment from Land-based Activities (GPA-Marine)* which get into force in the year 1995**, and provides an action plan for controlling pollution, habitat destruction, and other land-based activities affecting coastal and marine ecosystems. Although it is not binding, this agreement would provide a framework for addressing some of the most significant stresses on marine species and ecosystems (<http://untreaty.un.org>).

The *Cartagena Protocol on Biosafety*, 2002, which is not yet in force. In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organism resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health,

⁵⁹ Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, the International Covenant on Civil and Political Rights

and specifically focusing on trans-boundary movements (<http://www.biodiv.org/biosafety/>).

The *United Nations forum on Forests*, 2001. It focuses on promoting the management, conservation and sustainable development of all type of forests (http://www.un.org/esa/sustdev/unff_2001.htm).

The *International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)* which get into force in the year 2004. The ITPGRFA is a comprehensive international agreement in harmony with the CBD, which aims at guaranteeing food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture (PGRFA), as well as the fair and equitable benefit sharing arising from its use. It also recognizes Farmers' Rights: to freely access genetic resources, unrestricted by intellectual property rights; to be involved in relevant policy discussions and decision making; and to use, save, sell and exchange seeds, subject to national laws. The treaty has implemented a Multilateral System (MLS) of access and benefit sharing, among those countries that ratify the treaty, for a list of 64 of some of the most important food and forage crops essential for food security and interdependence. The treaty was negotiated by the Food and Agriculture Organization of the United Nations (FAO) Commission on Genetic Resources for Food and Agriculture (CGRFA) and since 2006 has its own Governing Body under the aegis of the FAO (<http://www.fao.org/ag/cgrfa/news.htm>)

Of the most recent agreements is the *Nagoya Protocol on Access & Benefit Sharing (ABS)* which is a supplementary agreement to the CBD convention, adopted on 29 October 2010 in Nagoya, Japan and enter into force 90 days after the fiftieth instrument of ratification. Its objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity. The Nagoya Protocol also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization. It provides a transparent legal framework for the effective implementation of one of the three objectives of the

Box 2

CBD - Biodiversity in Legal Framework

- A preamble paragraph notes: “Aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures”;
- Develop national strategies, plans or programs for the conservation and sustainable use of biological diversity and integrate, as far as possible and appropriate, the conservation and sustainable use of biological diversity into sectoral or cross-sectoral plans, programs and policies (Article 6);
- Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations for in situ conservation (Article 7);
- Regulate and manage collection of biological resources from natural habitats for ex situ conservation so as not to threaten ecosystems and in situ populations of species (Article 8);
- Introduce appropriate procedures for environmental impact assessment of proposed projects that are likely to have significant adverse effects on biological diversity (Article 14);
- Take legislative, administrative or policy measures with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from commercial and other utilization of genetic resources (Article 15 (7));
- Take legislative, administrative or policy measures in relation to providing access to and transfer of technology, on fair and most favorable terms in relation to developing countries, while recognizing the existence and influence of patents and other intellectual property rights in relation to technology concerning genetic resources (Article 16) (<http://www.cbd.int>).

CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources. The Nagoya Protocol will create greater legal certainty and transparency for both providers and users of genetic resources by establishing more predictable conditions for access to genetic resources and helping to ensure benefit-sharing when genetic resources leave the contracting party providing the genetic resources by helping to ensure benefit-sharing, the Nagoya Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being (<http://www.cbd.int>). The Nagoya Protocol sets out core obligations for its contracting Parties to take measures in relation to access to genetic resources, benefit-sharing and compliance. During the Nagoya meeting a new strategic plan for the coming decades developed including a 2050 vision and 2020 mission for biodiversity as well as means for implementation and mechanism to monitor and evaluate the world progress towards shared global objectives.

UNEP's determination to continue to address biodiversity issues through the international legal framework received a significant boost with the Governing Council's acceptance of Montevideo Program III, which is intended to set the mandate for the UNEP Environmental Law Program for the next decade. Chapter 1 of the program document strongly emphasizes the implementation, compliance and enforcement of environmental law at an international and national level through multilateral environmental agreements, and the development of strategies, mechanisms and national laws. Chapter 14 focuses on biological diversity; its provisions are consistent with the obligations found in the CBD15 and form a solid basis for the development of legal and policy mechanisms to achieve effective biodiversity planning.

The CBD has also emphasized on addressing biodiversity issues through the international legal framework, where main provisions in the convention in terms of the development of legislation and planning mechanisms, and achieving equitable biological utilization as an essential human right summarized in Box 2. Those wide range provisions are set promoting national policies and subsequent legislation and ensuring the attainment of rights including Intellectual Property Rights (IPRs), Access to and the Fair and Equitable Sharing of Benefits, Preservation of and Respect for the Knowledge, Innovations, and Practices of Indigenous and Local Communities, Transfer of Technology and Conservation and Sustainable Use of Biological diversity.

The CBD seeks to establish incentives to conserve biodiversity through the provision of access to and to equitably share the benefits arising from the utilization of genetic resources. The approach is based on the fundamental premise that nation states have sovereign rights over the biological diversity within their territory (Preamble and Article 15(1)). The CBD also recognizes that national governments have the authority to determine access to these resources in accordance with national legislation (Article 15(1)). It provides that access to genetic resources must be obtained with the "prior informed consent" of the CBD party, and on mutually agreed terms (Article 15(4) and (5)) (WWF International & CIEL, 2001). The CBD envisages the use of legal measures that could feasibly include IPRs (Article 15(7)), by calling on Parties to take legislative, administrative or policy measures to ensure the benefits arising from

research, development and commercial use of genetic resources are shared in an equitable way with the provider of the genetic resources.

Closely related to the CBD's provisions on access and benefit sharing are those regarding the preservation of and respect for the knowledge, innovation and practices of indigenous and local communities. This "traditional knowledge" has often been conserved by indigenous and local communities through informal, collective processes extending across generations. This knowledge – regarding, for example, the long-term selective breeding of food crops, and knowledge of medicinal plants – provides an important source of information for the sustainable management of biological diversity, and for the development of new, socially beneficial products. The CBD calls on Parties to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity" in Article 8(j). This article also encourages the wider application of these practices, and echoes other provisions on the importance of equitable access and benefit sharing.

Among its many obligations relating to conservation and sustainable use, the CBD requires Parties to integrate considerations relating to conservation and sustainable use into national decision-making (Article 10). It requires its Parties to adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity (Article 10(b)). Further, Parties are encouraged to integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies (Article 6(b)). Parties are responsible for identifying processes and categories of activities that have or are likely to have significant adverse impacts on biological diversity and monitoring their effects (Article 7(c)). The granting of IPRs could, arguably, be such a category of activity.

Over the past few decades, legislators and policy-makers around the world have begun to understand that the law has a vital role to play in the implementation of any environmental protection initiative. Much of this law relates to pollution control, environmental impact assessment and the planning and development of cities and urban infrastructure. Only recently has emphasis been placed on the development of legal frameworks for nature conservation; these have been primarily expressed through national parks and wildlife legislation.

In spite of the importance of the range of existing biodiversity-related treaties and agreements, the underlying causes of biodiversity loss are often under the influence of other, "non-biodiversity-related" agreements (such as those on trade, financing and/or transport). It is therefore essential that biodiversity and sustainable development concerns are integrated into economic sectors, development plans, policies, laws and budgets at local, national and international levels alike.

It is clear that biodiversity management regimes can be successful only if they are based on careful and systematic planning. Good planning is in turn dependent on a comprehensive framework of laws that define procedures, responsibilities and obligations. In the development of mechanisms for the protection of biological

diversity, legislative frameworks need to take into account the cultural, political and economic circumstances of individual jurisdictions.

3. Biodiversity Governance

Several aspects are considered while describing the governance of the biodiversity sector; of the main interest is the benefit sharing and the intellectual property rights (IPR). The Intellectual Property Rights are private rights used as an incentive for innovation, since they grant their holder the ability to exclude others from certain activities, such as using a product or process, for a defined period of time. The control afforded by IP protection thus enables right holders to limit who can use the resource, and so claim the benefits of commercialization with little competition. Thus, the scope of the exclusive rights created by IPRs defines who can use the information contained in genetic resources, and so influences the distribution of the benefits flowing from this use. Thus, IPRs affect who shares in the benefits arising from genetic resources, and the type of technology developed from genetic resources, with implications for the conservation and use of biological diversity. As a result of the value associated with IPRs, there is increasing pressure by commercial interests to gain intellectual property rights over genetic resources. This pressure, and the resulting IPR systems, is raising challenges for policy-makers who seek to give effect to the objectives of the CBD.

The relationship between the CBD and IPRs has been considered by the CBD Conference of the Parties (COP) in a number of decisions. The COP called for cooperation with the World Trade organization (WTO) on IPR-related issues (decision III/15); noted the need for further work to develop a common appreciation of the relationship between intellectual property rights and the relevant provisions of the TRIPS Agreement (Trade-Related Aspects of Intellectual Property Rights) and CBD (decision III/17, decision IV/15). It has also invited the WTO to take into account relevant provisions of the CBD, their interrelationship with the provisions of the TRIPS Agreement, and to further explore this interrelationship (decision V/26) (<http://www.cbd.int>).

Patent laws, on the other hand, are being amended in most developing countries to align with the WTO-TRIPS Agreement. As a basic rule, TRIPS requires all countries to extend their patent systems to all technologies and all inventions. This includes the patenting of microorganisms and microbiological processes, while countries have an option to exclude plants and animals. The patent system contemplated by the TRIPS Agreement, for example, allows the holder of a product patent to prevent third parties from making, using, offering for sale, selling or importing the product.

Other emerging laws are the Biodiversity Rights Legislation (BRL) that directly affects people's control over agricultural biodiversity in developing countries. It compiles those legislative texts that define rights in relation to genetic resources or to the knowledge associated with those materials. They may be rights of ownership, intellectual property, stewardship, access, or sovereignty. The bottom line is that these rights spell out who can control biodiversity at the local level.

While plants can be excluded from patent systems under TRIPS, another form of intellectual property system is available especially for farmers under *sui generis* system. Most developing countries are choosing the *sui generis* option, modeled on the UPOV (Union for the Protection of Plant Varieties) Convention which aims to protect new varieties of plants by an intellectual property right and to ensure that the member States of the Union acknowledge the achievements of breeders of new plant varieties, by making available to them an exclusive property right, on the basis of a set of uniform and clearly defined principles (UPOV, 2001).

Protection is afforded to new varieties of plants both as an incentive to the development of agriculture, horticulture and forestry and to safeguard the interests of plant breeders. The opportunity to obtain certain exclusive rights in respect of their new variety provides the successful plant breeder with a better chance of recovering their costs and accumulating the funds necessary for further investment. In the absence of plant breeders' rights, those aims are more difficult to achieve since there is nothing to prevent others from multiplying the breeder's seed or other propagating material and selling the variety on a commercial scale, without recognizing in any way the work of the breeder.

On the other hand, intellectual property rights (IPR) applied to seeds give breeders, or whoever claims to have discovered or developed a new plant variety, an exclusive monopoly right in relation to the seed. Under patent law, that monopoly right is very strong. It will generally prevent anyone from using, selling or producing the seed without the patent holder's permission. Under a typical *sui generis* plant variety protection law- an IPR system designed specifically for plant varieties – there are usually a few exceptions to this powerful right built in. one of those exceptions is that farmers may be allowed to save, exchange, sell or reuse part of their harvest as a new batch of seed.

Increasingly, governments are also trying to protect rights over traditional knowledge that is associated with genetic resources because of its economic value. Traditional knowledge poses a challenge, however, because it is held by local communities as a collective heritage and most of it is uncodified. Major efforts in this area are going towards either trying to adapt current IPR systems to the special characteristics of TK, or creating new *sui generis* systems for TK altogether. Unfortunately, in both cases, governments are pulling TK into the IPR approach of exclusive monopoly rights and commercial imperatives. So far, most (but not all) of the legal provisions that supposedly contribute to the protection of TK under national law draw from efforts to regulate access and benefit sharing.

In addition to affecting access and benefit sharing, and the protection of traditional knowledge, IPRs may influence the nature of technologies developed from genetic resources, and how those technologies are transferred and used. The CBD requires Parties to transfer technology to developing countries on “fair and most favorable terms”, including on concessional and preferential terms where mutually agreed (Article 16(2)). It recognizes that the development and transfer of technology will be affected by IPRs. Where technology is IPR protected, it requires access to be provided on terms that are “consistent with the adequate and effective protection” of those rights (Article 16(2)) (WWF International & CIEL, 2001). It also requires that, where

a developing country has provided access to genetic resources, that country should be provided with access to technology that makes use of those resources (Article 16(3)). The relationship between IPRs and technology transfer under the CBD is multifaceted. IPRs (and the market incentives that accompany them) should be evaluated for their effect on the nature of technology developed from genetic resources, and on the transfer of these technologies.

The changing global economic and political structure is exerting pressures on many countries, especially developing ones, to devise adaptive measures that will help them cope with changing conditions. However, despite the implicit assumption that globalization will foster growth and development for all countries equally, the divide between Northern and Southern Countries is still evident, taking a new form and thrust.

4. National and Regional Biodiversity Legislative Framework

The Palestinian status under international law is a specific one, given that there is no recognized Palestinian state so far⁶⁰. Palestine has been given observer status and some additional rights at the United Nations, but is neither a full member of the UN nor a party to multilateral environmental agreements so far. Hence, Palestine has not been asked to officially ratify these international conventions drafted on global environmental issues. All the same, Palestine has been "deemed associated with a State that has ratified international conventions". This recognition has enabled the Palestinians to actively participate in almost all of the activities of international agencies and bodies like any other State. Within this context, the PNA in partnership with the Palestinian national civil society organization is preparing the ground for building a State that would implement the international standards and principles related to the environment.

As funding is frequently linked to party status under environmental agreements, this also makes it difficult for the oPt (occupied Palestinian territory) to receive funding for certain environmental projects. At the same time, the oPt is negatively affected by several environmental problems such as water scarcity, a lack of sanitation, wastewater treatment facilities, and proper solid waste collections systems in many places, deforestation, soil erosion, and others. Moreover, global environmental phenomena such as climate change, drought and the loss of biodiversity are environmental issues of relevance for Palestinians.

Looking thoroughly into the MEAs mentioned in this chapter; all conventions address environmental problems of concern to the Palestinians. While the oPt may not currently be able to join any of these agreements as a party, Palestinians could still start addressing the underlying environmental problems.

⁶⁰ More than 100 states have recognized Palestine as a state since the proclamation of independence in November 1988 when the Intifada against the continued Israeli occupation was at its climax. As stated by MoA, 2005.

Although the oPt is not a party of the international conventions however many of the wild and agro- plant species inhabiting the oPt were mentioned in the international programs and lists; where almost 52 species inhabiting the oPt were mentioned in the Red List of threatened species, and 15 species in the CITES, and 14 in the International Undertaking on Plant Genetic Resources (Annex 1).

Of the main documents that should be tackled by the Palestinians to insure legal biodiversity protection at the national level in coherence with global and regional levels are: the convention on Biological Diversity (1992) and its forward coming meetings mainly CBD COP10 – adoption of new global strategic plan 2011-2020, Post 2010 Biodiversity strategy; 2050 vision, and 2020 heading target, 2010 global target adopted in 2002. Other documents of support are: Natura 2000 network, Economic of Ecosystems and Biodiversity (TEEB) adopted in 2007. Some upcoming documents including: Eu biodiversity Strategy 2011-2020 (adopted in 2011), Green Infrastructure Strategy (adopted in 2011), Invasive Species Strategy (adopted in 2012), Green economy, Rio + 20 Summit (adopted in 2012), EU Biodiversity mid-term assessment (adopted in 2014), EU ecosystem assessment/ MDG summit (adopted in 2015).

4.1 Relevant Regional Treaties and Agreements

Many of the biodiversity conservation challenges in the oPt (for example, climatic change, drought, desertification, urbanization, deforestation, etc.) are regional in extent, giving special importance to the potential role of MEAs. Although the Palestinian Authority is unable to adhere directly to such treaties, there are clear environmental benefits from participation, not only for the oPt, but for the region as a whole, as well as for the global community.

Regional networks are important platforms for scientific exchange, information sharing, technology transfer, research collaboration and for sharing responsibility for activities such as collecting, conserving, distributing and evaluating biodiversity resources. Regional cooperation in the Arab world holds considerable potential for conservation within Palestine, particularly given the limited national capacity for biodiversity conservation in the country.

However, there are a number of constraints to regional cooperation for biodiversity conservation. Pressures on natural resources generated by rising populations and decreasing amounts of available land and water resources, plague all the countries of the region, and hinder the progress of biodiversity conservation efforts. The building of conservation networks requires not only technical expertise, but also substantial communication and organization skills. Organizing, coordinating and facilitating on a supra-national level are logistically problematic. Substantial resources are required for planning, communication, meetings, network publications and the servicing and strengthening of the network. Such resources may not be readily available for the PNA or for other potential regional collaborators.

The absence of peace, on the other hand, plays another role in hindering the progress of regional cooperation in different fields such as biodiversity conservation. Political conflicts are forming the greatest obstacle for plant genetic conservation in the region. International, regional and national interests are focused on political resolutions,

which are taking a priority over biodiversity conservation in the region, in addition to other challenges resulted from the political conflict as mentioned in section 6 – Biodiversity Challenges towards Sustainability.

Of the main regional agreements, treaties and networks of direct or indirect relation to biodiversity and agro-biodiversity and where Palestine is part of is the ***Euro-Mediterranean Partnership***, which was launched at the 1995 Barcelona Conference, between the European Union and Mediterranean Partners, of which oPt is one (<http://eeas.europa.eu/euromed>). A Euro-Mediterranean Interim Association Agreement on trade and cooperation between the European Community and the PLO was signed in 1997. It was agreed that a free trade area should be established between the EC and Palestine gradually over a transitional period. Of particular relevance to biodiversity and agro-biodiversity legislation formulation are the sections⁶¹, which deal with agriculture and fisheries.

The ***MEDUSA*** regional network for the Identification, Conservation and Use of Wild Plants in the Mediterranean Region aims to propose methods for the economic and social development of rural areas of the Mediterranean region, using ecologically based management systems. These plant genetic resources are of actual or potential importance to agriculture, various industries and human health, and consequently improve the quality of life. The network includes representatives of international organizations, such as CIHEAM-MAICh, IUCN, ICMAP, FAO, IPGRI-WANA and LEAD which form the Steering Committee, and representatives from the countries of the Mediterranean basin of which the oPt is one (ARIJ, 2007).

The Arab Forum for Environment and Development (AFED) is another regional program aims at encouraging Arab societies to protect the environment and use natural resources in a sensible manner resulting in sustainable development (<http://www.afedonline.org>). The ***Jordanian Palestinian Economic Protocol*** is another bi-lateral agricultural economic agreement; signed by the Palestinian National Authority and Jordan in 1995. The agreement specified the volume of trade in goods and commodities that could be imported from Jordan and vice versa. Consideration of those goods and commodities, which are covered by this treaty, reveals that the agreement is likely to have significant implications for biodiversity and agro-biodiversity conservation. Article 10 reserves the right of the two countries to protect the public security, moral values, human life, animal, plant, public health and natural resource. Article 13 concerns the protection of intellectual propriety rights, trade and industrial propriety rights (<http://www.ecolex.org>).

4.2 Relevant National Policies and Laws

The Oslo I and Oslo II accords provide framework for the creation of institutional structures by the PNA, such as the Palestinian Legislative Council (PLC) as well as civil departments and ministries for many sectors, including the environment portfolio. As a result of the Oslo I and the Oslo II accords, moreover, the Environmental Quality and several other ministries have been formed (the year 1996)

⁶¹ Free Movement of Goods (Title I) Articles 1-14 and Economic cooperation and Social Development (Title III) Articles 44

(<http://www.mena.gov.ps>). Some of these ministries and authorities have environment-related tasks. Accordingly, ministries were requested to prepare subjects and elements of relevant policies, strategies and laws falling within their authorities.

Environmental legislation, policies and planning are the responsibility of the Palestinian Environmental Quality Authority (EQA) in cooperation with other relevant ministerial bodies such as the Ministry of Planning and Ministry of Agriculture (Box 3). Accordingly, the Authority of Environmental quality issued the Environmental Law in 1999, and finalized in 2003, the Palestinian Environmental Strategy in 1999, and the National Biodiversity Strategy and Action Plan, 1999. The Ministry of Agriculture also finalized Agricultural law, 2003, including forestry and rangeland sectors and the Palestinian Agro-biodiversity strategy, 2005. The Palestinian National Biodiversity and Agro-biodiversity strategies and action plans are considered the basic legislations for the Biodiversity in the oPt.

The first Palestinian attempts to strategic planning in the environmental sector was done in 1999 when the national environmental strategy was prepared, which came at that time as a basis for environmental action for a period of ten years. This strategy has identified environmental issues of concern and the strategic objectives and priorities at the national level. Since then the environmental planning process remained, like other developmental and services sectors, ranging between the update of the Action Plan on one hand and on the other hand try to recruit some funds to implement certain urgent and emergency projects since the second intifada started. This practice continued until recent Palestinian governments adopted a new systematic approach in planning which began with delineated launch of the so-called “plan of development and reform” and then followed by the start of the overall-comprehensive planning process, which appeared in the focus and objectives of the PNA. The overall comprehensive planning process have been translated in the Council of Ministers decision in the PNA in August of the year 2008 to prepare the

Box 3

Palestinian Institutional Arrangement and Responsibilities

The Environmental Quality Authority (EQA) is the Palestinian environmental official body responsible for Nature protection and biodiversity conservation, combating desertification, integrated coastal zone management, bilateral coordination committee on environment, multilateral working group on environment, industrial zones management and national strategies, action plans, regulations and other legal aspects. It also works as a focal point to GEF (Global Environmental Facility), IUCN, Euro-Mediterranean Partnership, and other regional and international conventions (<http://www.mena.gov.ps>)

The Ministry of Agriculture (MOA), another partner with responsibility for the protection of biodiversity, undertakes the following:

- Formulating policy and plans related to natural resources and land use management;
- The Rangelands and Forests Directorate (RFD) at the MOA is responsible for the management, control, utilization and conservation activities of national forests and to improve and manage protected areas;
- The National Agricultural Research Centre (NARC) is working in developing seed gene bank;
- The Extension and Applied Research directorate has also planned to establish a new field gene bank where fruit trees are grown for the preservation and rehabilitation of existing types. (<http://www.moa.gov.ps>)

Registered environmental related local Civil Society Organizations address a variety of issues in this area. Many of them are initiating public awareness programs to raise an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner and income generation activities based on biodiversity. *The Applied Research Institute-Jerusalem (ARIJ)* Supports the development of national plans and strategies concerning Palestinian biodiversity conservation, establishes a Herbarium unit, conducts Flora & Fauna databases, preserves PGR's Seeds, invents Palestinian forest trees, and researches biodiversity indicators, pressures and necessary responses (www.arj.org).

overall national plan for the years 2011-2013 during which the government using this national plan will be working on goals and priorities to ensure elimination of obstacles and the effects of Israeli occupation and establish an independent Palestinian state.

4.2.1 The National Biodiversity Strategy and Action Plan for Palestine

The BSAPP (National Biodiversity Strategy and Action Plan of Palestine) provides strategic basis for the conservation and sustainable use of biodiversity in the oPt. It was developed with international support and funded by the Global Environmental Facility (GEF) through the UNDP/PAPP, in anticipation of becoming a party to the convention on Biological Diversity (CBD). The BSAPP was executed by EQA in 1999 emphasizing in its guiding principles the conservation and sustainable use of Palestinian flora and fauna.

The goal of the BSAPP is to contribute to the conservation and sustainable development of Palestine's biodiversity and to chart a course for strengthening human capacity for this task. In order to contribute to this goal, five objectives were arrived at through a wide range of consultative processes, as follows:

1. The conservation of Palestine's biodiversity;
2. The sustainable use of Palestine's biodiversity;
3. The enhancement of local and traditional knowledge and skills and the improvement of people's attitudes and participation for the conservation of biodiversity and the sustainable use of biodiversity;
4. The equitable sharing of biodiversity benefits within Palestine; and
5. The development of Palestinian human resource capacity in the field of biodiversity.

The strategy also calls for:

- a. the integrity of Palestinian Land and Marine resources
- b. a participatory approach in the formulation of policies and actions relevant to the management of biotic natural resources
- c. to care for the biodiversity heritage and to use it sustainably and equitably
- d. the conservation of landscapes, ecosystems, habitats, populations, species and genes
- e. monitoring and re-assessment of the strategy recommended actions

The Biodiversity strategy provides for wide-ranging measures regarding environmental conservation in a comprehensive and well-planned manner (Box 4), in

Box 4: BSAPP recommendations in relation to plant genetic resources in the oPt

- Degraded ecosystems should be restored and re-cultivate with their natural original species specially those threatened or endangered
- Reintroduction of endangered plant species with the emphasis on the holy trees and shrubs.
- Sites with large diversity of target species should be declared as protected areas
- Protecting sites that are inhabited by wild medicinal and economic plants and prohibiting their intensive collection.
- Develop programs to combat deforestation.
- Regulating and monitor grazing intensity and its frequency.
- Constructing seed banks for storing seeds of wild species.
- Specialists should take responsibility of management and to regenerate seeds continuously so as to be available for future use.
- A herbarium should be developed where scientists collect, conserve, classify, dry, and screen endemic or wild varieties of different kinds of flora.
- Computerized databases should be established such as flora, fauna, livestock, and agricultural databases.
- Establish laws, legislation and regulatory programs for the protection of biological resources.
- Acquire the skills needed for effective environmental management.
- Set up training programs for target groups such as school teachers, government professional and managerial staff, industrial facility owners, journalists and environmental specialists, public campaigns, the media and the local communities.
- Environmental impact assessments should be carried out for proposed developing projects that may affect or reduce biodiversity, including industrial projects, and urbanization.

addition to establishing basic principles for environmental conservation, and clarifying the responsibilities of each of the governmental agencies. The Biodiversity strategy defined the role for citizen groups in the formulation of policies and actions. An Agenda for Action has been developed for each of the five BSAPP objectives. These agendas list and prioritize recommended actions as immediate, medium-term or long-term priority. Each agenda is intended to represent a list and schedule of activities that can realistically be achieved.

4.2.2 The National Policy and Legislation for Promoting the Conservation of Agro-biodiversity in the Palestinian Authority

The National Policy and Legislation for promoting the Conservation of Agro-biodiversity in the Palestinian Authority was developed in April, 2005. It has developed several concepts and mechanisms to handle the Plant Genetic Resources (PGR) in the oPt and for better conservation and utilization of Agro-PGRs including benefit sharing of PGR. Formulating an agro-biodiversity policy and legislation for Palestine is a collective responsibility that involved all stakeholders while the ownership of this policy and legislation belong to the Palestinian Ministry of Agriculture (MOA). Developing the agro-biodiversity policy and legislation is complimentary to MOA's medium term agricultural policy. This strategy serves as a

frame and guiding principles for the PNA and other stakeholders in developing their plans, budgets and programs for agro-biodiversity conservation (Box 5).

Several issues were investigated and discussed in the strategy as chapters. The decision-making environment, the national and regional options for agro-biodiversity management, the national and regional mechanisms for implementing options, the strategy, project portfolio, finance and regional context were all analyzed.

The conservation goal of the strategy is to maintain a broad diversity of crop species for food and agriculture - in both *in situ* and *ex situ* collections - at the same time as developing and fully utilizing plant genetic resources to meet the needs of communities through research into species' genetics and crop breeding. The Palestinian strategy, on the other hand, focused on maintaining the diversity of targeted species and to conserve targeted local baladi and wild related species in the rainfed sector. Furthermore, to develop a preliminary form of *ex situ* conservation in Palestine and to improve farmers' returns from rainfed production, so as to increase the sustainability of the sector.

Box 5

Recommendations to regulate the utilization of PGR in Palestine

Crop genetic resources, wild relatives and harvested wild food plants conservation mainly through: protect land on which agro-biodiversity crops are being cultivated, taking into account the agro-ecological zones in which that land lies; increase the sustainability of the arable farming sector; facilitate the marketing and trade of a diversity of agricultural crops; develop income generating non-agricultural activities that concurrently maintain agro-biodiversity; strengthen seed supply systems.

Forest genetic resources conservation mainly through: preserve forest species and increase the forested area; promote and strengthen the institutional structure and human capacity for forest resource management; inventory, monitoring and research in forest resources; develop an adequate legislative framework for sustainable forest management; develop and increase regional and international co-operation in forest conservation.

Farm animal genetic resources conservation mainly through: conserve farm animal resources; increase the sustainability of the livestock sector; promote the use of locally adapted breeds and races; research and extension.

Aquatic Genetic Resources conservation mainly through: assess fishery resources; determine thresholds; sustainable utilization of fishery resources; regional cooperation.

Management of Ecological and Ecosystem Functions for rangelands mainly through: develop rangeland management infrastructure and expertise in rangeland management; map rangeland resources; conduct research and carry out surveys to study the different characteristics of rangeland; restore and rehabilitate degraded rangelands; develop a system of laws and regulations for grazing in rangeland. For others mainly through: research and human capacity development; minimize degradation of ecosystem functions through pollution; conserve soil; breed and conserve key pollinator species (MoA, 2005)

4.2.3 The Gaza Coastal and Marine Environment Protection and Management Action Plan

The Palestinian Environment Quality Authority has prepared the “Gaza Coastal and Marine environment Protection and management Action Plan”. The stated overall objective was to “reverse and prevent further depletion and deterioration of the Gaza Coastal and Marine Environment”. For the Action Plan to be effective many

stakeholders such as relevant ministries and projects have to implement projects for the protection of the said environment. Such projects include effective wastewater treatment, solid waste management, sand dune management, water resource and the management of fisheries among others. This action plan needs to be revised and updated to reflect events on the ground and changes that have occurred since it was published.

The action plan should be updated to protect biodiversity in Gaza. It should designate coastal areas as nature reserves; protect wetland such as Wadi Gaza with its associated biodiversity. In addition the plan should take into consideration the regional projects that could affect biodiversity and coastal management for Gaza. Example of these is the building of a coastal sea wall by Israel and its implication of sea currents, marine biodiversity, and sand deposition as well as coastal erosion. In addition Egyptian activities for water harvesting from the Nile River and the Nile Delta have to be taken into consideration. As it is well known the Aswan High Dam had negative impact on the Gaza and the east Mediterranean coasts and marine environment. A National Oil Spill response plan either separate or incorporated into the plan is urgently needed as an oil spill reaching Gaza with limited cleanup facilities can mean a real ecological and human disaster. In this context regional agreements need to be made to deal with such an event (PNA, 2005).

4.2.4 Other Related Sectoral Policies and Laws Developed by the Palestinian Authority

Under the *Oslo Agreements*, based on the Protocol on Civil Issues, the Palestinian Authority has the ability to pass laws related to civil matters within areas designated A⁶² and B⁶³. The Israeli-Palestinian Interim Agreement (Oslo II) includes several issues related to biodiversity. Specifically, Annex 3 "Protocol on Civil Issues" Appendix I, Environmental Protection states.

Article 12: Paragraph 14: *"Israel and the Palestinian side shall co-operate in implementing principles and standards, which shall conform with internationally accepted principles and standards, concerning the protection or endangered species of wild fauna and flora, including restriction of trade, conservation of migratory species of wildlife and preservation of existing forests and nature reserves."*

Article 14: Paragraph 1 & 4:

"formation, management, monitoring, protection and preservation of all forests (cultivated and non cultivated."

Paragraph 3: Commits the PA to *"protect and preserve all forest in the West Bank and the Gaza Strip (... and to take...) all necessary action to ensure their protection and preservation from any harm..."*

"right of planting new forest (...) for the protection of soil erosion and desertification and for the improvement of landscapes..."

⁶² Geopolitical area where the Israeli army has pulled out fully and Palestinians hold all responsibilities for internal security and Public order.

⁶³ Geopolitical area where the Palestinians have full control over the civil administration and Israel continues to have overriding responsibility for security.

Article 25 : paragraph 5 & 6:

"The two sides shall each take appropriate measures in order to protect Nature Reserves, Protected Natural Assets and species of animals, plants and flowers of special breeds..."

"Each side shall enforce, within the area under its responsibility, the regulations pertaining to hunting, and in particular the prohibition on hunting of protected and endangered species."

What is interesting about the wording of the Oslo (2) Agreement is the repeated reference to internationally recognized standards. The PA is bound to implement the Agreement and thus the international standards should act as framework or base (*Lex generalis*) for environmental law in Palestine (<http://www.mena.gov.ps>).

Latter the ***Environmental Strategy Plan (ESP)*** was developed in the year 1999 by EQA (Ministry of Environmental Affairs (MEnA) at that time) in cooperation with the Netherlands Development Agency (NEDA). Based on the ESP, a National Environmental Action Plan (NEAP) was formulated, translating the ESP into projects organized according to their priority for the period 2000-2020.

Article 33 of the Amended Basic Law the constitutional basis for legislation on the protection of the environment in Palestine and all based upon legislative policies, where is the law No. (7) of the 1999 general legal framework which regulates the rights and duties in environmental protection. Environmental assessment policy is the only operational system which was issued based on environmental law.

The environmental law has covered several issues related to biodiversity such as the following:

- Land Use and degradation: material 6-10
- Fertilizers and Pesticides: material 12-16
- Desertification and soil erosion: material 17-18
- Water quality: material 28-30
- Quality of sea water: material 31-39
- Nature protection: material 40-44

Concerning hunting laws there are no clear texts concerning this issue and all related materials are vague and without implementation mechanisms and as suggested by MOA, this law need at least 35 detailed bylaws concerning the responsibilities, obligations, and participations to coordinate its implementation.

However, the PNA has passed a Hunting Law, which:

- Specifies hunting quotas as well as restrictions on the time and place of hunting.
- Delineates the legal measures to be taken against person's accused of trade in illegally hunted animals or birds, or of hunting during forbidden periods.
- Forbids hunting and trade without license.
- Specifies the conditions and rules under which a license for trade is granted.
- Addresses the regulations and penalties for violations of the previous regulations.

The Ministry of Agriculture (MOA) has finalized its agricultural policy, developed a Strategy and formulated a Medium Term Plan that identifies a range of technical, infrastructural, economic, institutional and regulatory constraints to sustainable

management of natural resources in Palestine. The basic tenet of the strategy is that in the face of the myriad of complex political, economic, social and security issues facing the emerging Palestinian state during the transition phase, the agriculture sector should be considered the mainstay of the economy because of the affinity of the Palestinians to their land and the fact that agriculture provides food security, is the employer of last resort and contributes to economic growth.

The Palestinian Legislative Council, has declared *agricultural law No (2)* for the year 2003 contains 85 materials distributed over five books dealing with agricultural resources, including all plant and animal species related to environmental and agricultural production. The agricultural law is functioning not only to identify a legal framework for the agricultural policies and strategies; but also to manage and protect natural resources and wild and marine life; in addition to; the conservation of agro-biodiversity (Box 6).

In summary the following has been covered by the law concerning issues related to biodiversity.

- Nature protection, agricultural lands, and soil conservation: materials 8-12
- Woodlands and forests: materials 13-17
- Rangelands: materials 18-22
- Genetic materials, seed production: materials 27-38
- Nurseries management: materials 39-43

Box 6

The main laws within the Agriculture Law related to PGRs in Palestine:

Book1 chapter 2 N^o (9): *MOA and other specialized parties are preparing a program for management and conservation of protected areas including all plants, animals and microorganisms.*

Book1 Chapter 3 N^o (13): *It is forbidden to practice any activity on governmental woodlands either for cultivation or digging well, or caves, construction of buildings unless specified in the law.*

Book1 Chapter 3 N^o (14): *considering the rules of law No(16), it is forbidden to conduct the following without having a license:*

1. *Cut any tree, shrub or woodland cultivated plant.*
2. *Graze in woodland.*
3. *Own any woodland material not licensed or transferring it from its place.*
4. *Put on fire or actions that might cause fire in woodlands.*

Book1 Chapter 4 N^o (21): *It is forbidden to misuse the rangelands in any of the following:*

1. *Opening it or cultivating it or constructing building or other types of construction.*
2. *Removing, cutting, uprooting of rangeland plants or putting on fire.*

Book1 Chapter 4 N^o (22): *MOA is preparing a program concerning the protection and development of rangeland which includes the following:*

1. *Identify forbidden areas for grazing and other accessed*
2. *Identify type and number of livestock allowed to enter to rangelands, etc...*

Book2 Chapter 1 N^o (31): *It is forbidden to deal, sell, and export any material of plant, animal and microorganism origin, where it is of a genetic origin without having a license from MOA*

The Forest Policy, Strategic Options, and Scenarios, has been formulated on the basis of the analysis of the situation and constraints with respect to the nature of

forests in Palestine and in the view of the inherited forestry laws (mainly from British Mandate)⁶⁴ and the existing agricultural and other relevant policies, mainly the National Biodiversity Strategy and Action Plan, and National Policies for Physical Development.

The administration of forests in Palestine is under the supervision of MOA in both the West Bank and Gaza Strip. The strategic options to obtain the long-term policy objectives are as follows:

1. Preservation of nature and forest lands, increase of their areas, conservation of wild plants and animals and organization of their exploitation;
2. Promotion and strengthening of the institutional structure and human capacity for forest and nature;
3. Development of an adequate legislative framework for nature conservation, sustainable forest management and protection of plant and animal species, consistent with regional and international legislations, agreements and acts and integrated in different laws;
4. Undertaking inventory, monitoring and research in forest and nature in order to get the basis for their planning and management;
5. Increase of public awareness and enhancement of local knowledge and skills in the field of conservation and sustainable use of nature and forest;
6. Development and increase of regional and international cooperation in forest and nature conservation.

The Sectoral Environmental Strategy set out in the year 2010 is another relevant strategy that need to be addressed, where the Environmental Quality Authority (EQA), like other Palestinian ministries and institutions, responded positively to the call of the Council of Ministers and the Ministry of Planning and Administrative Development and started the work on a sectoral environmental strategy by forming: an internal working group aims to continue to work on this subject within EQA, and a national working group consisting of the main founding partners in this sector. It should be noted that by forming the national working group there has been keen interest at EQA to involve all relevant agencies in the sectoral environmental strategy preparation work including the private sector, civil society organizations, and related international bodies. EQA prepared six priorities and strategic goals under which eighteen sectoral strategies and five cross-sectoral strategies were set as a crucial factor for the preparation of the overall national plan for the years 2011-2013.

The identified priorities and strategic goals for the Palestinian environmental sector strategy and for the specified period (2011 - 2013) extend as well as for the long term, as follows:

1. To achieve a Palestinian Environmental clean and free from contamination
2. The natural environment and cultural heritage in Palestine to be protected and conserved
3. Palestinian natural resources to be managed in a sustainable manner

⁶⁴ The inherited forestry laws included general principles related to the protection of existing forests, the establishment of new protected forests and their management. They also include the rules for rangers and the appropriate regulations and methods for obtaining a license to benefit from the forest products or grazing resources.

4. All necessary measures are taken to adapt to climate change, to combat desertification, and to confront environmental disasters
5. The environmental institutional framework and legal framework is strong and active and working in an integrated and coordinated manner
6. State of Palestine is committed to international conventions and treaties on the environment

Of the main interest to biodiversity sector is the following second and sixth sectoral strategy for the year 2011-2013 as following:

“Policies that lead to the sustainable management of the Palestinian natural environment and cultural heritage

- *Rehabilitation and management of natural reserves and the coast including:
Protection of biodiversity and the preservation of living and endangered species
Organization and management of natural reserves, national parks, and the coast*
- *Protection of the aesthetic scene and conservation of cultural heritage including:
Protect and improve landscape and aesthetic scenes.
Protection of natural and cultural heritage and to promote eco-tourism”*

“Policies aimed to enhance the role and commitment of the state of Palestine as a full member of the international conventions and treaties on the environment

- *strengthen the role of Palestine in the international conventions and treaties in the field of environment*
- *Encourage initiatives and environmental cooperation with Arab and regional countries and international organizations” (PNA-EQA, 2010).*

However, it is worth mentioning that the national policies relevant to biodiversity conservation and environmental protection lack the adequate coverage of certain policies that cover integrated aspects of mainstreaming biodiversity conservation. Such integration could be regulations related to species –specific and habitat-specific protection, and whether they meet with the international standards. In addition, specific regulatory tools and incentives to promote and reward conservation of the above-mentioned aspects are not well formulated within the national policies.

In addition to the national policies, one should bear in mind that species and ecosystems are seldom neatly confined within national boundaries. Many species roam across countless national borders and are owned by none. Thus, biodiversity conservation is an international concern that requires international and regional solution. The role of international organizations in partnership with regional and national stakeholders is a vital one, particularly in terms of brokering international agreements between governments concerned with protecting their national interests. Any concern about conservation needs to question whether the innumerable strategies and policies in place area actually being delivered. International conventions and national laws must translate into concrete action in local situations for anything to be truly accomplished.

5. Diversity of Natural Biota in the oPt

Palestine is known for its great wealth of biodiversity resources in terms of the number of species, ecosystems, and landscapes. Although considered small in terms of landmass, Palestine displays a wide variation in elevation, geology, climate leading to a broad range of habitats, which is reflected in a high diversity of plants and animals. It lies at a bio-geographic crossroads between the European, Asian and African continents, the Mediterranean and Red Seas and a number of botanical zones. This bio-geographic convergence is reflected in the region's high biodiversity value. As well as a center of wild plant biodiversity, the region is also an historic center of crop diversity and cultivation, highlighting the importance of its agro-biodiversity. Palestine also share with Jordan and the Syrian Arab Republic one of the earth's major geological and bio-geographical features: the Rift Valley, which stretches to eastern Africa and which is currently the subject of international discussion on its potential nomination as a serial World heritage Site covering areas in several countries.

This location is also nurturing the Palestinian biological diversity through the abruptness with which climatic zones, desert, steppe, Mediterranean woodland, and even oasis-join one another in this compact geographical area. The oPt is comprised of five main agro-ecological zones: the Jordan Valley, the Eastern Slopes, the Central Highlands and the Semi-coastal Plain (West Bank), and the Coastal Plain (Gaza Strip) (Annex 2 - Map 4.1). The topographic variation directly reflects on climate as well as the distribution and diversification of the different ecosystems while going from the Jordan Valley, the lowest area in the world, to the mountains. Furthermore, most of the West Bank rangelands are found on the arid Eastern Slopes, while Gaza by the sea is less temperatures but borders the desert. This is in addition to edaphic conditions, which are of great diversity. Among the obvious edaphic factors bearing on plant life, highest significance must be ascribed to soil properties. The country's soil is extremely variegated, ranging from deep, fine-grained, and very fertile, to dry stony desert. And so, flora and fauna vary accordingly, although there is a good deal of overlap in species distributions between the different agro-eco-zones. The vegetation cover in the oPt consists of a variety of plant formations, ranging from dense forests to thin patches of desert herbs, passing through different forms of woodland, such as maquis, garrigue and batha. The areas of greatest plant diversity are the Central Highlands and the Coastal Plain (Annex 2 - Map 4.1). The presence of such a variable plant formation of trees, shrubs, and herbs, which survive in different environmental conditions, indicates the diverse genetic background that they possess.

Palestine's landscape of flowers and plants changes abruptly with its different geographical regions. The richness of the flora as a whole is partly explained by the uniqueness of the Palestinian climate which appears to favor great regional variations in certain groups of plants- many members of the Pea and Daisy families for instance, and *Campanula*, *Verbascum* and *Ophrys*. Natural woodlands of oaks, pistachios, pines, and carobs cover the hilly regions and their plant associations such as cistus, asparagus, honeysuckle, and others. In spring, rockrose and thorny broom turn the hillsides pink, white and yellow. There are hyacinth, crocus and narcissus in the mountains as early as December, followed by anemones, tulips, cyclamen, iris and

daisies. Honeysuckle creeps over the bushes, and large plane trees such as tamarisks, and willows provide shade along the streams of Jordan valley (ARIJ-BFS, 2007a).

Today, forests of planted trees and bush plants such as pine, cypress, acacia, tamarisk, carob and eucalyptus are distributed throughout the country where wildflowers and medicinal plants grow in profusion. Fruit trees bloom in spring such as almonds, wild plums, peaches, pears, figs, medlars, mulberries, dates, and those bloom in summer such as blackberries, loquats, pomegranates and others. In the south, acacia trees and the prickly cactus suck moisture from the desert. Atlantic pistachios strike a dramatic note among the dry riverbeds, and date palms grow wherever there is sufficient underground water (ARIJ-BFS, 2007a).

Another marked feature of the region as a whole is the great variety of bulbous and tuberous-rooted plants such as crocuses, cyclamen, fritillaries, orchids and tulips. Bulbous plants flower either in the late winter and spring or in the autumn; at these times the weather is cooler and there is plenty of moisture around to promote growth. It is also important to mention those plant species growing under tropical conditions in the Jordan valley such as acacia, salix, abutilon, calotropis, caper, and others. The special plants that are growing in the sand dune habitats of the coast such as acacia, tamarisk, southern bird's-foot trefoil, **and marram grass** (ARIJ-BFS, 2007a) (**Annex 2- Map 4.4**).



Photos 4.1, 4.2, 4.3: Plant species growing in the oPt (bindweed, common Reed, and stemless hollyhock)

Source: ARIJ Courtesy

As described, there are about 51,000 living species in Palestine. About 47,000 (92%) species are known, or thought to be known and another 4,000 (8%) are species which it is assumed will be found or identified in the future (Danin, 2004). Heywood and Watson (1995) list some 1,750,000 living described species, based on several sources, as the total global biodiversity. By this account, Palestine's biodiversity (including viruses) comprises about 3% of the global biodiversity. Such rich biota is composed of an estimated 2,750 species of plants in 138 families (Danin, 2004) including 60 species of natural trees and 90 species of bushes distributed all over Palestine, which encountered 149 endemic plants that do not exist in other place in the world (Ishtayia et al., 1995). In particular, the vascular plants in Palestine are classified under 833 genera and 138 families as indicated in table 5.1.

Table 4.1: Number and Groups of Vascular Plants in Palestine

<i>Groups of vascular plants</i>	<i>No. of Families</i>	<i>No. of Genera</i>	<i>No. of Species</i>
Pteridophyta	14	16	22
Gymnospermae	3	4	11
Monocotyledonae	2	171	684
Dicotyledonae	119	642	2033
Total	138	833	2750

Source: Danin, A., 2004. Distribution Atlas of Plants in the Flora Palaestina Area. The Israel Academy of Sciences and Humanities. Jerusalem.

The oPt alone inhabit 2076 species, where 1959 species in 115 families are growing in the West Bank and 1290 species in 105 families are growing in Gaza strip, of which 117 species are growing only in Gaza Strip. The most dominant families in the West Bank area are the Papilionaceae with 202 species, Compositae with 201 species, Graminae with 198 species, Cruciferae with 103 species. In addition, the most dominant families in the Gaza Strip area are Papilionaceae with 176 species, Graminae with 138, Compositae with 137 species, (Figure 5.1) (ARIJ-BFS, 2007a).

The families’ composition and distribution differ from one geographical area to another since the ecosystems are different, however the highest number of species growing the West Bank and Gaza are those classified under Papilionaceae, Compositae and Graminae families. In addition, there are 16 families that grow in the West Bank but not in the Gaza strip such as Pinaceae, Lauraceae, Cynomoriaceae, Plantanaceae, Moringaceae, Menispermaceae, etc. There are also 5 families that grow in the Gaza Strip but not in the West Bank as following: Hydrocharitaceae, Ohphioglossaceae, Nymphaeaceae, Lentibulariaceae, and Callitrichaceae (ARIJ-BFS, 2007a).

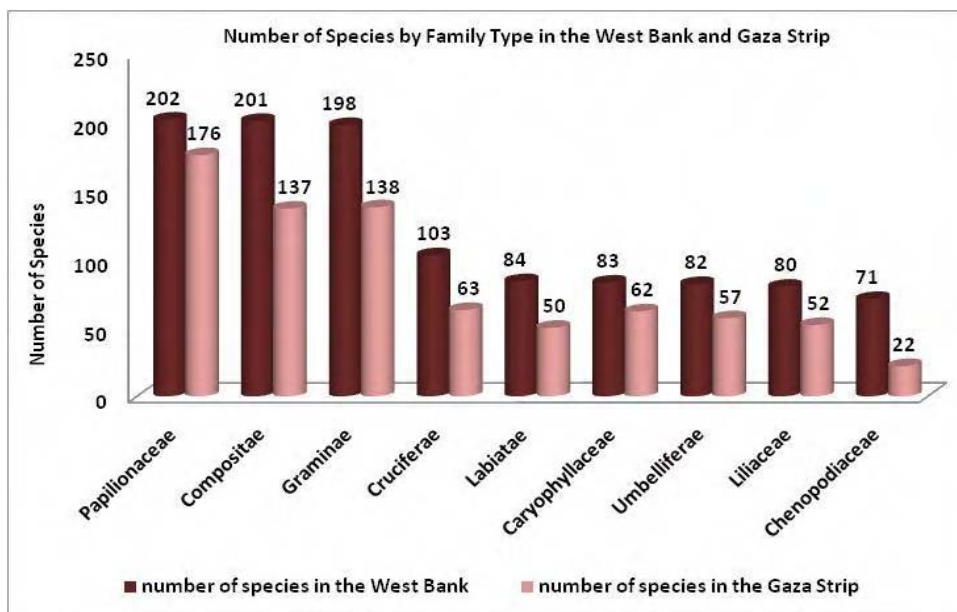


Figure 4.1: Dominant plant families and species inhabiting the West Bank and Gaza Strip

Source: ARIJ-BFS, 2007a.

Up to 102 endemic species of 28 families inhabit the oPt, forming 5% of total species in the oPt. Up to 92 endemic species of 26 families are growing in the West Bank (forming 4.7% of total species growing in the West Bank) and 30 endemic species of 18 families are growing in the Gaza Strip (forming 2.3% of total species growing in the Gaza Strip). Most of the endemic species growing in the West Bank belong to Compositae family. Most of the endemic species growing in the Gaza strip belong to Papilionaceae family. Examples of the endemic species growing in the West Bank are



Capparis spinosa (Capparaceae), *Suaeda palaestina* (Chenopodiaceae), *Origanum dayi* (Labiatae), and others. Examples of endemic species growing in Gaza Strip are *Erodium subintegrifolium* (Geraniaceae), *Iris atropurpurea* (Iridaceae), *Paronychia palaestina* (Caryophyllaceae), and others (ARIJ-BFS, 2007a).

Photo 4.4: *Iris atropurpurea* (Iridaceae family)

Source: ARIJ courtesy

Fauna, on the other hand, in the oPt is of ecological, social and economical importance. The oPt has a vast variety of wildlife, since it is home for six main different groups of Fauna (Table 5.2); comprised of birds, mammals, reptiles, amphibians, fish, and invertebrates. The main zoogeographic origins of Palestinian mammals are: Palaearctic, Palaetropic and Cosmopolitan.

Table 4.2: Total numbers of Animal Diversity in the Palestinian Territory

Birds	427
Mammals	92
Amphibians	7
Reptiles	81
Fish	297
Invertebrates	30,000
Total	30,904

Source: ARIJ-BFS, 2007b.

The 427 species of birds that have been stated to occur within the oPt, belong to 193 genera, classified within 68 families and 24 orders. The orders containing the largest number of species in the oPt are: Passeriformes with 177 species, Charadriiformes with 83 species and Accipitriformes with 31 species. The largest family in the oPt is Sylviidae with 59 species and subspecies. Birds are further classified into five groups

based on their seasonal behavior. These groups are Residents (88 species) ex: House Sparrow (*Passer domesticus biblicus*), Winter Visitors (207 species) ex: Meadow Pipit (*Anthus pratensis pratensis*), Summer Visitors (73 species) ex: Olivaceous Warbler (*Hippolais pallida elaeica*), Migrants (274 species) ex: Honey Buzzard (*Pernis apivorus*), and Vagrants (73 species) ex: Rustic Bunting (*Emberiza rustica*) (Hadoram, 1996).

Mammals in the oPt represent the second largest class after birds. Up to 92 terrestrial species have been recorded in the oPt, belonging to 7 orders: Insectivora (example is Hedgehogs family), Chiroptera (examples is Pteropodidae family), Carnivora (example is Canidae family), Hyracoidea (example is Procaviidae family), Artiodactyla (example is Bovidae family), Lagomorpha (example is Leporidae family), and Rodentia (example is Sciuridae family) (Mendelsohn and Yom-Tov, 1999).

Amphibian and reptiles make up an important component of the Palestinian ecosystem. The amphibians are represented by 2 species in the oPt belonging to the order Urodela, and 5 species belonging to the order Anura. Recently, amphibian population is decreasing as a result of habitat loss, particularly swamps drainage. Reptiles are represented in the oPt by 81 species classified into three orders, Testudines (Turtles), Sauria (Lizards), and Ophidia (Snakes). The order Crocodila was extinct in Palestine in the beginning of the 20th century (ARIJ-BFS, 2007b).

Around 30,000 species of invertebrates have been estimated to occur in the oPt. Invertebrates vary from simple organisms such as sponges and flatworms to complex animals such as arthropods and mollusks. These diverse fauna of worms, butterflies, beetles, bees, ants, spiders and snails are considered of great direct or indirect importance to the ecosystem. Some are part of the food chain to other living organisms or an agent in different biotic processes.

Up to 297 species of fish are recorded in the oPt. Of these, 12 Freshwater species have been stated to occur in River Jordan and Inland water-bodies. 16 fish species from the Red Sea have become established in the Mediterranean Sea after migrating through Suez Canal, and around 186 species of Mediterranean Origin (PCBS, 2005). These fishes belong to around 22 Orders of the Classes Actinopterygii (Ray-finned fish) and Elasmobranchii (Skates, rays and sharks). The largest Order is the Perciformes which comprise fishes of both marine and freshwater.



Photos 4.5, 4.6, 4.7: Animal Species inhabiting the oPt (Egyptian vulture, chameleon, hedgehog)

Source: ARIJ Courtesy

The forest and nature reserves are of the most diverse ecosystem in the oPt, where both floral and faunal species are coexisting. The vegetal forest cover deduces a variety of plant formations ranging from dense forests to thin patches of desert herbs passing through different forms of woodland such as *maquis*, *garrigue* and *batha*. Of these derived types, forests and maquis are the most dominant types. Maquis in the oPt is often in areas where the true forest has been previously destroyed, sometimes where just the larger trees have been removed. It can recover from burning, provided the area is not cleared by man or heavily grazed thereafter. Several typical maquis plants such as *Arbutus unedo* (Strawberry Tree), and *Erica arborea* (Tree Heath) have remarkable powers of rejuvenation; if the top is destroyed by fire, new growth will sprout from the base of the plant. On the higher slopes deciduous shrubs may begin to dominate in what has been termed *Pseudomaquis*. In such places deciduous oaks may predominate instead of evergreen species. Cutting of woodland with evergreen species such as the Kermes Oak and Box will often result in low communities dominated by deciduous bushes. Of the common maquis species are *Quercus calliprinos* (Oak), *Pistacia lentiscus* (Mastic tree, or Lentisc), *Ceratonia siliqua* (Carob), *Arbutus andrachne* (Eastern Strawberry Tree), *Pistacia palaestina* (Palestinian Pistachio), *Styrax officinalis* (Storax), *Crataegus azarolus* (Mediterranean Medlar) and *Prunus ursina* (Bear Plum) (Abu A'yash et-al, 2007).

Garrigue is also widespread in the oPt and is characterized by many aromatic small shrubs, colourful in flower. It is more open than maquis, allowing a great variety of smaller herbs to associate with the shrubs, and is richer in annuals, orchids and bulbs. Grazing by livestock especially sheep and goats, cutting of the large trees and bushes for fuel and charcoal, clearance for cultivation (especially for orchards and olive groves) and fires (both natural and man-induced to produce grazing land), all help to prevent large evergreen trees re-establishing and to promote the dwarf shrub communities. In a few areas where these elements have been eliminated the natural evergreen forest (sometimes called the primary maquis) can re-establish itself quite successfully.

These plant communities and associations that inhabit the oPt can be grouped and briefed into the following vegetal landscapes: Coniferous Forests Deciduous, Broad-leaved Oak Forests, Evergreen Park-Maquis (*Ceratonia* trees), Deciduous Steppe-Maquis and Steppe-Forests (*Pistachia atlantica*, *Crataegus azarolus*, and *Amygdalus communis*), Deciduous Thermophilous Scrub (Predominantly *Ziziphus lotus*), Halophytic Forests (*Tamarix* spp. and *Suaeda* spp.), Riparian Woods (*Salix* spp., *Populus* spp.), Savannah Forest (tropical trees: *Ziziphus spina-christi*, *Moringa aptera* and *Salvadora persica*), Mediterranean Batha and Garrigue (*Cistus*, *Phlomis*, *Salvia*, and *Thymus*), Dwarf Shrub Steppes (*Artemisia herba-alba*, *Noea mucronata*, and *Helianthemum* spp.), Leaf and Stem Succulent Dwarf Shrub Formation (*Salsola* spp. and *Atriplex* spp) and Rush and Reed Vegetation (Abu A'yash et-al, 2007).



Photos 4.8, 4.7, 4.8: Natural and planted forests in the oPt

Source: ARIJ Courtesy

The afforestation programs in the oPt is of major impact of what remained of forest vegetal cover. The first afforestation program was implemented during the British Mandate, and then the Jordanian Administration. In 1927, the first law for the protection and development of forests in Palestine was legislated by the British. The main species used for afforestation program in the West Bank were *Pinus spp.* (*Pinus pinea*, *Pinus halepensis*, *Pinus brutia*, *Pinus canariensis*), *Eucalyptus camaldulensis*, *Cupressus spp.*, and *Acacia spp.* The total planted forest area of West Bank until 1971 was 3,535 hectares (MoA, 1999). In Gaza Strip, the Egyptian administration started to plant forest to stabilize the shifting sand dunes and the total planted forest area amounted to 42 km² in 1971. Main species being planted were *Eucalyptus spp.*, *Acacia spp.*, *Tamarix spp.* and *Atriplex spp.* Other abundant natural perennial plants were *Retama raetam* and *Artemisia monosperma* (MoA, 1999).

As of 1971, Israel prohibited all forestry activities and closed forest nurseries in most districts of the West Bank. The only nursery left functioning was Wadi Al-Quof Nursery in the Hebron district, but its potential was reduced to only 10,000 tree seedlings per year.

Since the establishment of PNA several nurseries have been rehabilitated such as Gaza Coast beach nursery in Gaza, and Wadi El Quf nursery in Hebron. Several other nurseries were established in the different governorates in the West Bank and Gaza Strip. The total number of established nurseries has reach to five nurseries namely: As Sad Al Akhdar nursery and Deir Al Balah nursery in Gaza Strip, Al A'roub nursery (another section) in Hebron, Kafer Malek (E'in Samiya) nursery in Ramallah, Khadoury nursery in Tulkarm for the production of several woodland tree species, shade and fence trees and shrub species, in addition to the production of shrubs, and rangeland trees. Afforestation programs were also implemented, where more than 2.6 km² were recently cultivated by MoA in different forest locations all over the country (MoA, 1999).

Accordingly, the covered forested areas in the West Bank and the Gaza Strip, compromise 78.3km²-⁶⁵ (ARIJ-GIS, 2011) and 1.76 km² respectively (ARIJ-GIS,

⁶⁵ According to ARIJ-GIS Land Use/Land Cover analysis for West Bank 2010 (1.38% of total West Bank area). According to ARIJ-GIS Land Use/Land Cover analysis, 2008, the covered forested area formed 78.9 km² in the West Bank and thus the analysis shows a reduction of almost 1 km² in the forested areas in the West Bank between the year 2007 and 2010.

2006)⁶⁶. Forests cover approximately 1.38% of the total area of the West Bank and 0.48% of the Gaza Strip (Annex 2 - Map 4.2)⁶⁷. Most of these forests are located on fertile soil types (*Terra Rossas*, Brown Rendzinas, and Pale Rendzinas) and in areas enjoying favorable climatic conditions for agriculture (ARIJ-GIS, 2011).

Natural, planted, and bare forests are the types of forests distinguished in Palestine. Natural forests form 79.1% of the total forested area in the West Bank, where most of them (85.3%) are located in the North-Eastern part of Tubas governorate. On the other hand, the planted forests cover 12.1% of total country forested area, being mostly concentrated in Hebron governorate (28.9% of total planted forests in the West Bank). Gaza includes only planted forests, which represent 0.9% of the total forests in the oPt (ARIJ-GIS, 2008).

Despite the recent afforestation efforts, forests in the oPt are limited in areas and are not expected to be of significant commercial uses, at least not in the short or medium term. Annual wood production of natural forest ranges from 1.0 to 3.3 m³ per hectare for Oak forests and around 4.3 m³ per hectare for moderately dense Pine forests. The annual growth rate of wood in natural forest amounts to 0.2 m³ per hectare, which is much less than the threshold for commercial forests (1m³ per hectare). Artificial planted pine forests grow on average 3 m³ per hectare annually (Abu A'yash, Adel, et al, 2007).

A major reason behind the reluctance and slow rate of forestation is the relatively high investment (at least US\$ 2,500-3,000 per hectare) and risks in terms of uprooting or overgrazing, which adds costs to the maintenance of such plants. In open areas, expansion in forestation is significant and sustainable only when implemented in marginal areas, which need reclamation. Forestation is economically unattractive and cannot withstand competition with other agricultural crops, even to those of low economic return in the short run. Reclamation of marginal areas and its forestation requires relatively high infrastructure rehabilitation, upgrading works and labor force training.

Nature reserves on the other hand, are mainly distributed in the Eastern Slopes region. Commitment to nature conservation in Palestine is by no means a recent development. During the British Mandate, several areas, in particular in the eastern slopes of the West Bank, were declared natural reserves or parks. These represented a fraction of the Public or Government Land (Annex 2 – Map 4.2). The British Mandate declared natural reserves and national parks to the Nature Reserves Authority and the National Parks Authority; respectively, and declared several other natural reserves and national parks. However, several authors argue that the selection of the natural reserves was not based on scientific reasons but on political reasons (see section 6- Biodiversity Challenges towards Sustainability). The total area of nature reserves in West Bank is 703 km² (12.4% of total area in the West Bank). Management of Nature Reserves and

⁶⁶According to ARIJ-GIS Land Use/Land Cover analysis for Gaza 2005 (0.48% of total Gaza Strip area)

⁶⁷ The designated forested area in the West Bank and the Gaza Strip forms a larger area than covered forested areas, in which the designated forests covered 229.6 km², and 2 km² respectively according to ARIJ-GIS Land Use/Land Cover analysis 2007.

Natural Parks located in “Area B” was transferred to the Palestinian Authority, Ministry of Agriculture (ARIJ-GIS, 2008).

In Wye River Agreement (October, 1998), the PNA was allocated two geographically discontinuous but adjacent areas amounting to 3% from the 12% that should be transferred by the Israelis from area C to area B. These two areas are named thereafter “Bethlehem Natural Reserve” and “Hebron Natural Reserve”. This area was designated as Green Areas and/or Nature Reserves. The Israelis will retain in these Green Areas / Nature Reserves the overriding security responsibility for the purpose of protecting Israelis, as indicated in the text of the memorandum. On the other hand, The Palestinians will utilize this area in the appropriate way so as to optimize the protection of the existing biological diversity in the area. Inventorying a design of a protected area according to the scientific standards and a management plan will be drafted as an immediate priority. It was not until September 1999 that the “Bethlehem Natural reserve” borders were delineated at Sharm Esh Sheikh Memorandum and until January 2000 that the “Hebron Natural reserve” borders were delineated at Sharm Esh Sheikh Memorandum phase II. The area of the Bethlehem and Hebron Natural Reserve is approximately 165 km². The total area of the natural reserves and national parks in the West Bank has thus increased to 860 km²; representing 15% of the land area of the West Bank (ARIJ-GIS, 2008). Nature reserves in the Gaza Strip on the other hand, were recently declared forming only 27.6 km² of the Gaza Strip total area (ARIJ-GIS, 2006).

6. Biodiversity Challenges towards Sustainability

The loss of biodiversity is an issue of profound concern for humanity. Biodiversity underpins the functioning of ecosystems, which provide a wide range of services to human societies. Its continued loss, therefore, has major implications for current and future human well-being. Action to implement the CBD has not been taken on a sufficient scale to address the pressures on biodiversity in most places. There has been insufficient integration of biodiversity issues into broader policies, strategies and programs, and the underlying drivers of biodiversity loss have not been addressed significantly. Actions to promote the conservation and sustainable use of biodiversity receive a tiny fraction of funding compared to activities aimed at promoting infrastructure and industrial developments. Actions to address the underlying drivers of biodiversity loss, including demographic, economic, technological, socio-political and cultural pressures, in meaningful ways, have also been limited. There is a high risk of dramatic biodiversity loss and accompanying degradation of a broad range of ecosystem services if ecosystems are pushed beyond certain thresholds or tipping points. The poor would face the earliest and most severe impacts of such changes, but ultimately all societies and communities would suffer.

Sovereignty over natural resources is one of the key elements for any nation to achieve sustainable development and sound environmental management. The case of Palestine is different than other nations as it passes from occupation to liberation over periods and phases. The Palestinians have no ability to regulate land use over a contiguous piece of land and accordingly Palestinian natural ecosystems cannot be maintained, the status of the environment cannot be properly monitored, and

environmental protection cannot be implemented. Due to the prolonged occupation and political conflict- lack of control over planning and implementation, the existence of accessible areas and inaccessible areas for Palestinians and the fact that the occupation power has neglected the development of the oPt have led to the deterioration of biodiversity made the management, conservation and restoration of natural resources a very difficult job.

The plans of the Israeli authority, the occupying power in the area, have systematically hindered the development of the Palestinians and damaged the environment in the process. The Israeli artifacts and practices have created a geographical discontinuity at the lands under the Palestinian control, resulted in alterations in habitats, ecosystem, and vegetation cover and deterioration in biological resources, which are a major physical impediment towards accomplishing biodiversity sustainable development in Palestine.

Biodiversity is under threat from a variety of pressures, which are further worsened by the ongoing conflict including: unplanned urban expansion, unorganized establishment of industrial factories, overgrazing, over-exploitation, overfishing, over-fragmentation, deforestation and unplanned forestry activities, desertification and drought, invasive alien species, pollution and contaminants, excessive use of pesticides and chemicals, accidental mortality, hunting, climatic and environmental changes, in addition to political status including the division of Palestinian accessible areas, land confiscation, and expansion of the Israeli segregation wall. Such factors are causing direct changes in plant and animal species composition, distribution and density and thus the loss of such valuable heritage.

In addition, the lack of legislations and lack of law enforcement is another legal constraint in the biodiversity conservation and management actions. There are a number of other factors, which Palestine shares with other developing countries that limit biodiversity conservation at a national level including:

- Palestine is a small state with a limited natural resource base.
- Lack of understanding of the concept of biodiversity conservation, at both governmental and civil society levels.
- Undeveloped mechanisms for fully evaluating biological resources and ecological functions.
- Limited number of qualified personnel.
- Limited experience in cross-sectoral work and multi-stakeholder planning
- Limited facilities for key tasks (e.g. inventory, data management, collections, research).
- Extremely limited internal public financial resources and little tradition of private sector or individual contributions to conservation and development.
- Information is scattered, or held beyond borders.
- There is a lack of sufficient data and information in certain areas, for instance genetic biodiversity.

As a result, common floral and faunal species are under a serious threat of becoming rare and very rare species disappearing altogether. According, to a survey study done by ARIJ – Biodiversity and Food Security (BFS) department in the year 2007 on

assessing the status of floral species in the oPt over the last 40 years, up to 636 species were found endangered of which 90 species are very rare from the 2076 recorded plant species growing in the oPt (ARIJ-BFS, 2007a).

It was also found that 391 species are rare and 68 species are very rare forming 20% and 3.5% of total plant species growing in the West Bank, respectively. The rare species are mainly among the Compositae, Papilionaceae families forming 11.3% of total rare species, and both Graminae and Umbelliferae families form 5.6%. The very rare species are mainly among Papilionaceae family forming 22.1% of total very rare species, and Labiatae, Umbelliferae, and Compositae are forming 10.3%, 8.8%, 7.4% respectively (Annex 3). The rare species in the West Bank are mainly found in the Jordan valley forming 88% of total rare species and 18.4% of total plant species growing in the West Bank, followed by Central Highlands, where rare species are forming 58.7% of total rare species and 13.2% of total plants in the West Bank (ARIJ-BFS, 2007a).

It was also found that 155 species growing in the Gaza strip are considered rare and 22 species are found very rare forming 12% and 1.8% of total plants in the Gaza Strip. The largest number of rare species is found among the Papilionaceae and Graminae families forming 13.5% respectively, in addition to, 7.7% are found in Compositae, Umbelliferae and Caryophyllaceae families respectively (ARIJ-BFS, 2007a).

Additionally, it was found that 370 species have changed their status to become rare or very rare, where 307 have changed their status from being abundant to become rare (forming 14.7% of the total plant species growing in the oPt). On the other hand, a total of 67 plant species have changed their status to become very rare forming 3.23% of the total plant species growing in the oPt (ARIJ-BFS, 2007a).

A number of vertebrate and invertebrate species are also considered to be undergoing declining and maybe extinction due to over hunting, habitat loss and habitat fragmentation. Around 22 terrestrial animal species are under the threat of extinction. They include 5 species of mammals, 5 species of the Palestinian Herpetofauna, and 12 species of birds (PCBS, 2005). Also, around 56 Mediterranean fish species (26% of the total fish fauna of Gaza Strip) is considered to be threatened (Ali, 2002). Among the endangered and threatened species are the True Toad (*Bufo viridis*), Banded newt (*Triturus vittatus vittatus*), Marsh frog (*Rana ridibunda*), Freshwater Turtle (*Clemmys caspia*), Sturgeon Fish (*Acipenser sturio*), the Butterfly *Apharitis cilissa*, Palestinian Viper (*Vipera palaestinae*), the Butterfly *Melitaea arduinna evanescens*, Egyptian mongoose (*Herpestes ichneumon*), Wild Cat (*Felis silvestris*) and the Wolf (*Canis lupus*). represents some bird species of key concern in the Palestinian Territory which was published by Birdlife International and World Conservation Union Red List (IUCN, 2010); one bird species is critically endangered and facing high risk of extinction in the wild, and three other birds are considered vulnerable as they are undergoing a rapid declining rate and are susceptible to extinction in the wild if the involving causes persist (Annex 4).

Such results indicate that the plant and animal species inhabiting the oPt are subjected to pressures of different types causing their reduction in number dramatically threatening their existence. Thus, if the root causes for such changes are going to

continue, the existence of those species and others is under threat indicating their unsustainability and viability for the long run.

The problem is especially acute in Palestine, whose limited size, momentum of development, population growth, political conflict, and economic status; causing limitations in conservation of biological resources. The oPt has not yet set up its own national parks, nature reserves and landscape reserves makes the protection of precious natural resources and open space landscapes especially difficult.

The political conflict is one of the main causes behind biodiversity loss in the oPt. The fragile Palestinian environment has been the first casualty of the political conflict. Since the Israeli occupation, Israel has restricted Palestinians from using their land and the natural resources, hence limiting development in any aspect of the Palestinian society; or to function like regular one. The Israeli occupation has contributed to changing the environmental features of the oPt through the strict control over the Palestinian land; land confiscation for implementing the Israeli colonization policy and unilateral segregation plan; as well as the control over water resources; and the exploitation of natural resources. All these practices have created geographical discontinuity at the lands under the Palestinian control and resulted in a major physical impediment towards achieving sound environmental management in the oPt.

The fragmentation of the Palestinian landscape has had a significant environmental impact. Overall, 61% of total land area in the West Bank is controlled by the Government of Israel for settlements, military use, checkpoints or road closures, western segregation zone and the West Bank Segregation Wall ⁶⁸ (ARIJ-UM, 2011). The intrusive route of the West Bank Segregation Wall through 8 of the 11 West Bank governorates isolates and fragments the farms, forests, grazing lands and water resources. Almost 15% of the West Bank agricultural land will be lost once the construction of the segregation wall is completed (OCHA, 2009a). According to the Israeli plan, the West Bank segregation wall will run across 774 Km and stands to isolate upon completion 13.6% of the West Bank total area (ARIJ-UM, 2011). Currently 61% of the Segregation Wall is completed, a further 7% is under construction and 32% is planned (ARIJ-UM, 2011). Habitat fragmentation as a result of the Segregation Wall acts as a physical barrier that may prevent many species of mammals to travel to their sources of food and mating which may endanger the survival of specific populations or creation of new sub-populations. Such an action will increase the probability of Palestinian natural heritage lose by impacting the existence of large number of plant and animal species growing and inhabiting this area which is already affected by other destructive practices causing the loss of valuable and irreversible resources.

Both types of natural and human-made forests were exposed to intensive destruction by the Israelis since the year 1971. Large areas of these forests have been confiscated by Israel and declared as closed military areas and military bases, and/or uprooted for the construction of settlements and the West Bank Segregation Wall. The area of land

⁶⁸ 61% of total West Bank area is comprised of: 1. Area “C” forms 1346 km² (23.7% of West Bank area) - falls under Israeli Control between western West Bank segregation wall and eastern Segregation Zone. 2. Areas of western Segregation Zone and eastern Segregation Zone forms 2110 km² (37.3% of West Bank area).

confiscated was almost 93% of the total forest and rangelands of the oPt (ARIJ-UM, 2009 and ARIJ-GIS, 2008). In addition, more than 3,850 hectares of forestland were damaged in the Gaza Strip between 1970 and 1995, despite the fact that it was a well-known habitat for several endangered plant species. As a result, the natural forest area has diminished by 59% of the 1970 one (Abu A'yash et-al, 2007). The total number of uprooted trees as a result of the Israeli practices over the period of 2007 and June 2011 is 64,023 trees, not forgetting that uprooting of trees was intensive during the period of 2001-2007, where 603,009 trees were uprooted (ARIJ-UMD, 2011).

Concerns are also expressed over the potential impacts of the ongoing development of the Segregation Zone⁶⁹ along the western and eastern parts of the West Bank. In view of the size of land confiscated from the West Bank, and the commensurately greater development pressures, the Segregation Zone is causing major challenges in conserving representative ecosystems, landscapes and habitat linkages especially between protect areas, and forests. The Segregation Zone poses a great threat to the biodiversity in the oPt due to the negative impacts on the movement of terrestrial fauna by adding further to the fragmentation of ecosystems and habitats in both Israel and the West Bank and by cutting the natural ecological corridors.

Furthermore, the Segregation Zones resulted in the fragmentation of the agro-ecosystems through isolating significant parts of these zones and annexing them to Israel including their valuable water resources, fauna and flora resources and the fertile lands

The Segregation Zone also causes strip clearing of land including forest and other vegetation covers. Almost 49 forested areas are included in the Segregation Zones (Annex 2-Map 4.3). Up to 42 km² of forested area are included in the Western Segregation Zone and 1.5 km² in the Eastern Segregation Zone, forming 55.5% of the total covered forested area of the West Bank (ARIJ-GIS, 2011). This can exacerbate the long-term trend of degradation of planted (manmade) and natural forests in the area.

More than 40 protected areas are also included in the proposed Israeli Segregation Zones, forming 531 km² (75.5% of West Bank nature reserves total area), where Palestinians cannot have access to, and not even for management purposes (Box 7) (Annex 2-Map 4.3) (ARIJ-GIS, 2008). This action will mostly have a detrimental impact on the functions of natural reserves, in particular the conservation of animal, plant and mineral forms, threat the existence of a unique natural vegetation covers through isolating such sites from their surrounding environments and their habitats in addition to the risk of threatening the plant species that grow naturally in the same area.

⁶⁹ As sourced from ARIJ- GIS Land Use/Land Cover analysis 2008;The eastern segregation zone is an area of 1664 km square (only 5% of which under Palestinian control) located along the eastern terrain of the West Bank that stretch for 200 km from south to north, most of which declared as closed military area, and is of limit for Palestinians. Western Segregation wall is an area of 774 km located along western terrain of the West Bank.

Furthermore, the anticipated Eastern Segregation Zone contains more than 80% of the Palestinian rangelands areas where the herders are usually taking their sheep and goats to graze. This will result in reducing the size of accessible grazing area and exposing the remained rangeland to overgrazing phenomena, accelerating land degradation, reducing the green cover biomass and grazing capacity and enhancing the desertification of that area. It is worth mentioning, the area where Segregation Zones take place, supports the growth of many important rangeland plants and wild relative species of herbaceous plants and trees such as *Melilotus spp.*, *Medicago spp.*, *Vicia spp.*, *Hordeum spp.* and *Aegilops spp.*, in addition to the wild species of fruit trees such as pear, pistachio (ARIJ-BFS, 2007a). This action will threaten the existence of a unique natural vegetation covers through isolating such sites from their surrounding environments and their habitats in addition to the risk of threatening the plant species that grow naturally in the same area.

Box 7

Reasons behind Nature Reserves Declaration

The selection and declaration of the natural reserves by Israel within the oPt, was not based on scientific reasons but on political reasons. This argument is based on the following observations as analyzed by ARIJ-Biodiversity department:

1. Only short strips of the banks of the Jordan River are declared natural reserves although the Jordan River Banks adorn the bare and desolate surroundings with an evergreen meandering strip and are populated with very rich biological diversity.
2. The biological diversity and the landscape structure in the declared natural reserves of the Jordan River have not been conserved as the lands are planted with land mines and the ecosystem is deprived of the minimum water requirements necessary to maintain key ecological processes.
3. Only 24 km² out of 69 km² of forested areas are located within natural reserves and natural parks though Palestinian forests – rich in biodiversity- are undergoing land degradation and fragmentation processes.
4. A large percentage of the Natural Reserves overlap the Israeli declared closed military areas. The later are used as military training ground. The movement of military vehicles in these grounds is a serious threat for the fragile ecosystem of the eastern slopes of the West Bank.
5. The nature reserves are distributed mostly over the Eastern Slopes and the Jordan Valley of the West Bank and are not thus representative of the phyto-geographic regions and agro-ecological zones observed in the West Bank (ARIJ-BFS, 2007a).

The Western part of the Segregation Zone limits the contiguity of the evergreen maquis and forests in addition to Mediterranean batha and garrigue vegetation. the expected threatened dominant plant species in the western part of the segregation zone that are growing in the Central highlands region are *Quercus calliprinos*, *Ceratonia siliqua*, *Pistacia palaestina*, and in Semi-coastal region are *Pistacia Lentiscus*, *Inula viscose*, *Phragmites australis*, *Moricandia nitens*, *convulvolus oleifolium*, *Sporobolus arenarius*, *Euphorbia perelis*, *Senecio vernalis*, *Thymelae hirsutum*, and *Lupinus palaestinus* (ARIJ-BFS, 2007a).

In the long run, such an act would also add to the risk of threatening the plant species that grow naturally in the Segregation Zones. The Western and Eastern Segregation Zones support large number of rare plant species, which ranges between 1 to 23 species and 1-7 species per 5 km², in both Segregation Zones consequently. Some of the threatened endemic plant species in the Eastern Segregation Zone that are growing in the Jordan valley and Eastern Slopes region are *Prosopis farcta*, *Ziziphus spina-christi*, *Atriplex halimus* and *Ononis natrix*. Whereas some of the threatened endemic plant species in the Western Segregation Zone that are growing in the Central highlands and Semi-coastal regions are *Pistacia lentiscus*, *Quercus calliprinos*, *Ceratonia siliqua*, *Pistacia palaestina* and *Lupinus palaestinus* (Isaac & Hirmat, 2005).

Land use and urbanization is another main cause behind biodiversity loss in the oPt. The given small area for the Palestinians to live and manage their lives on and the increased Palestinian population and the need for economic development mean, cause a significant pressure on the natural and semi-natural landscapes. The increase of population is directly responsible for the loss of plant biodiversity where each new person requires food, wood, land, water, fuel, and other resources thus reducing the resources in the natural environment. In many developing countries, including the oPt, the resources need exceeds the availability; the result is increasing human malnutrition and poverty, leading into a spiral environmental degradation.

The oPt includes the West Bank and the Gaza Strip, with a population of 2.38 million and 1.42 million people respectively (PCBS, 2008). Over the last decade, there has been a significant increase of nearly 30% of the total number of Palestinian population. The annual growth rate is considered high reaching up to 3.2% in the year 2007 (PCBS, 2008). Based on the population growth rate registered in the 2007 PCBS Population and Housing Census, the Palestinian population is projected to double in approximately 20 years. This is anticipated to magnify land degradation prevalence and depth and possibly become a national concern especially as the growth rate has been faster than economic growth, contributing to the impoverishment of the population (FAO/WFP, 2009). Already, urban densities are reaching critical levels in many areas, particularly Gaza, where the average population density is approximately 414 capita/km² in the West Bank, while the population density in the Gaza Strip is 3,905 capita/km² (PCBS, 2008 and WFP, ARIJ, 2010), exacerbating social, economical and environmental degradation and subsequent humanitarian concerns regarding the scarcity and provision of basic services.

The rapid increase of both population and urbanization in the country has great impacts on natural resources and their development. The population growth places pressure on the natural ecosystems and therefore, on the biodiversity of the land. The growing population will use the scarce resources causing a major threat to the small natural areas in the oPt. Gaza strip, for example, has aggravated problem since the dense population in a small geographical area putting a strain on all natural resources.

Solid waste is building up; raw wastewater is leaching into the sea, the building on the shore with its environmental impact, over fishing and the potential for offshore extraction of gas. In addition, high population growth experience faster conversion of land to urban and agricultural uses, putting additional pressures on land and natural habitat. This is also obvious concerning the remaining wild life including some of the mammals such as wolves, coyotes, foxes and hyenas which their populations, and distribution is greatly altered.

The rate of expansion of Palestinian built up areas reach up to 736.4 Km² per annum in the West Bank and accordingly 5% of the West Bank area will be used for expansion of Palestinian built up area until the year 2020. The rate of expansion of Palestinian built up area is 677.5 Km² per annum in the Gaza Strip and accordingly 19.7% of the Gaza Strip will be used for expansion of Palestinian urban areas until the year 2020 (ARIJ-GIS-BFS, 2008). The expansion will be on the expense of open areas with vegetation such as shrubs and herbaceous plants or forested and natural areas, or

pastures. It is worth noting that the open spaces with little or no vegetation form only up to 29.9% of total West Bank area. On the other hand, the shrubs and/or herbaceous vegetation associations forms 3.8%, forests (covered) forms 1.4%, pastures forms 13.3% of the total West Bank area, in addition to the heterogeneous agricultural areas, permanent crops which forms 24.6% (ARIJ-GIS, 2008) (Annex 2 –Map 4.2). Accordingly, the size of effect of urbanization and urban areas on Palestinian wilderness, wild plants and natural resources is significant, since the remaining lands for population expansion became very limited, leaving no option but the expansion over the agricultural and natural areas, where necessary crops and wild plants for food security and better economic and health conditions, are growing. By time and with such population growth rates and limited areas, the green habitats and thus their species composition are under threat of destruction.

Land Degradation is another reason behind biodiversity loss in the oPt. Climate change and its consequences on land desertification could have great affect on all forms of biological diversity. Its impact could be both short term, resulting from more frequent and more intense extreme weather events, and long term, caused by changing temperatures and precipitation patterns (FAO, 2008). Climate change is expected to make water resources scarcer in the oPt, which already has high degree of aridity and pronounced rainfall variability across its territory and is therefore highly vulnerable to drought (TWIP, 2008).

In the last few years, there has been a marked increase in the number of droughts in the oPt, particularly in the southern and eastern slopes of the West Bank. Knowing that 87% of the cultivated land is dedicated to rain fed agriculture and the total area of hyper arid, arid climates comprises about 35% (ARIJ-GIS, 2008) and 13.2% is used as pastureland for grazing of the total West Bank area (ARIJ-GIS, 2011), drought is expected to have detrimental effect on vegetation cover and its diversity, especially that drought is expected to become more frequent, more intense and less predictable as a consequence of climate change. Such effect on vegetation cover is predicting the expansion of desertification especially in the eastern side of the oPt, which is more vulnerable to water scarcity, low rainfall amounts and high temperatures.

The most significant environmental effects of climate change for people of the oPt, over the course of this century, are projected to be a decrease in precipitation (with significant seasonal variation) and significant warming. Climate change forecasts for the eastern Mediterranean from high-resolution regional climate models give clear scientific backing to the Intergovernmental Panel on Climate Change (IPCC) projections for the region. In its Fourth Assessment Report, the IPCC predicts that, for the southern and eastern Mediterranean, warming over the 21st century will be larger than global annual mean warming – between 2.2-5.1°C according to a realistic emissions scenario. Annual precipitation rates are deemed likely to fall in the eastern Mediterranean – decreasing 10% by 2020 and 20% by 2050 – with an increased risk of summer drought (WFP/ARIJ, 2010).

The drought condition in the oPt occur as a result of the low amount and poor distribution of rainfall, which have drastically affected the growing of natural plants especially herbaceous and grazing plants during the last few years but mainly the last

two years. The amounts of rainfall in the West Bank for the last two rain seasons 2008/2009 and 2009/2010 was less than the historical average amounts by 7%-21%. The same climatic conditions are affecting the Gaza Strip governorates, where the amount of rainfall in the last two seasons is less than the historical average rainfall by 12-36%. Drought has particularly affected South Hebron and East Bethlehem governorates where precipitation was less than 20% of normal precipitation. To be noted, the amount of rainfall in the West Bank in the last four seasons was less than the historical average rainfall amount (based on an average of 25 years) (FAO, 2008-PNA-MoA, 2010).

Drought is equally affecting the herders who cannot rely anymore on pastures (which are dry and with very limited grazing capacity as a result to drought) for grazing. Pastoralists are unable to pay for extra water (to compensate water deficit) for their animals to drink during the summer. The combined effect of rising fodder and water prices are leading to a situation wherein sheep are becoming a liability, rather than an asset, as herders are trapped in a cycle of debt with water truckers and fodder traders. There are in addition grave risks of overgrazing and degradation of the oPt ecosystem, as the number of livestock exceeds the land carrying capacity, as well as due to the restricted movement and access to grazing areas and pastures. The Jordan Valley and the Eastern slopes show the highest severity of land degradation. The main reason for the degradation is steep slopes, saline soils, overgrazing, over pumping, poor farming techniques.

Intensive grazing has resulted in a decrease in the biomass of green cover and the loss of biodiversity. With time, area of bare soils and rocks increases while soil fertility decreases, resulting in more wind and runoff erosions. The incidence of severe erosion encourages the appearance of drought climate and the desertification of lands (Annex 2 – Map 4.5). Intensive grazing is highest in spring (during the flowering and fruiting stages) when it is the main feed source until crop residues become available after harvest in early summer. This lead to the reduction of seed regeneration of the most valuable species, therefore plant populations, species numbers, also the biomass of vegetation cover is severely reduced. This reduction in plant cover leads, in turn, to decreased infiltration and retention of rain water into the ground and therefore increased soil erosion and re-colonization by even dwarf shrub communities. As a result, the carrying capacity of the land is permanently downgraded. Many grasses and forages have been depleted and nearly lost, especially in the case of species belonging to the Papilionaceae family (*Vicia spp.*, *Vicia Palastinaea*, and *Trifolium spp.*) and Gramineae family (*Hordeum spp.*) (ARIJ-BFS, 2007a).

Many plants are restricted to such areas, especially where grazing is not too severe. Some plants, like the asphodels, are grazed resistant and often form extensive colonies in severely overgrazed places. Steppe-like grasslands are a feature of some parts of Palestine. Drought resistant and graze resistant plants are typical adaptations. Plants like spruges, asphodels and cistuses are generally unpalatable to grazing animals from obnoxious chemicals usually develops.

Other factor causing desertification is the depletion of water resources, which poses a great threat to the contamination of groundwater basins, and the shortage in water available for agricultural purposes have contributed to the increase of desertification.

Also, the improper use of pesticides that may contaminate groundwater and soil, and consequently influence the growth of wild plants and animals. Another factor is the random distribution of solid waste dumping sites and open burning of waste in these sites has damaged many wild plants.

On the other hand, the Palestinian food demands have encouraged the use of “modern” agricultural practices employing increased use of pesticides and fertilizers. Locally adapted varieties of landraces with higher yielding improved varieties are encouraged especially those that sell at higher prices such as fruit trees and vegetables of intensive cultivation. With time, the genetic stock of crops eroded and agricultural production becomes based upon fewer and fewer genotypes. The evolving of monoculture techniques has also a direct effect on wild species. Many useful genes have already been transferred from the crop wild gene pool to the cultivated species, especially those related to biotic and abiotic stress tolerance.

Lack of Legislations is also a cause behind biodiversity loss in the oPt. The oPt is still recognized as a tribal society, and the tribal system is recognized both traditionally and within the official legal system. At the same time, the Palestinian legislation allows for formal recognition of local communities. The conventions and traditions of the local communities as they are, considered the basics and sources of the most regulations of the agricultural and environmental laws.

The PNA after receiving control over parts of the oPt established the required legislative, juridical and executive bodies and worked with the support of donor countries towards rehabilitating the Palestinian environment. The Ministry of Environmental Affairs currently known as the EQA was established to take over the responsibility of environmental legislation and environmental strategies’ development and planning in the oPt including the Biodiversity sector.

However, the sets of relevant laws that were either inherited or developed by the PNA need to be reset in a better detailed manner especially concerning the biodiversity and agro-biodiversity sector. Laws of the biodiversity sector need to better highlight concerns towards the protection of habitats and their endangered species or heavily exploited and the utilization of threatened species in Palestine. It is worth highlighting that the declared Palestinian laws did not take into consideration the status of plant species growing in the wild or cultivated in farmers’ fields, and their interrelations with local community and the impacts of the way they recognize, value, and deal with those species, and the root causes behind habitat alteration and its impact at species level. Stakeholders’ and marketing opportunities and challenges of plants were never pointed out in those legal treaties or even interlinked with international legal treaties. Also, there is no Palestinian law indicating which species should be protected within the oPt taking into consideration the CITES and IUCN flora and fauna species lists and even to expand the cooperation with international bodies to conserve the local species.

Also, policies and laws that were developed by the PNA need to be better enforced and implemented to get efficient results concerning the management and conservation

of biodiversity in Palestine. Laws without enforcement are of no value. Biodiversity is being threatened by lack of enforcement of laws and policies concerning its better management and conservation on the Palestinian side and insensitivity of Israel through its expansionist settlement activities, wall, and by pass roads. Noting that as the construction of the Segregation Wall will isolate large green areas from their Palestinian cities and villages and a large part of the West Bank falls in area C where Palestinians have no legal jurisdiction; the destruction of biodiversity is intensive, immeasurable and uncontrolled.

Law enforcement needs a set of implementing regulations, instructions and technical requirements that should be taken into consideration while setting out a law. In addition, it is not dealt so far with environmental issues by judicial authority neither as a priority or treated like the other cases. EQA finds that the environmental issue in Palestine and within the judicial authority is facing many of marginalization and lack of interest and non-specialist treatment. Such a legal condition is leaving a gap in the development of biodiversity sector, which could have an important input to improving living conditions of large number of local communities and to reduce the threats on biological resources all over the oPt.

Lack of Research and Capacities is another cause behind biodiversity loss in the oPt. The oPt has few institutions whose mission is to record and study its biodiversity. In most countries, national museums of natural history and herbaria assume this role. Few data has been collected in the field of plant resources, interrelations and their value. The oPt has no formal biological survey, as many other countries do. Some studies have been done by Israeli scientists' long time ago and are not accurate anymore. MoA- Forestry Department, and few Palestinian NGOs have been working on preliminary studies on plants in general and woody plants in particular. However, no comprehensive studies and/or systematic research of Plant and animal species have been conducted especially for the oPt.

It is important to first indicate that the gap in information is relates to primary, scientific data on biodiversity in the oPt. All reports were composed from secondary sources, with some informal field verification. It is believed that this method effectively captures the broad trends, but for monitoring purposes a more hard core scientific approach is needed. Primary information on the exact number of species, species populations, and habitats is needed for all kingdoms (Prokaryota, Protoctista, Fungi, Plantae and Animalia). There is an urgent need for identification and notification for plants growing in the oPt especially that majority of current research programs on plants conservation are being shifted from ecosystem to the species level. Although there are protected and forested areas across the West bank but there is few documentation or research done on their resources, carrying capacity, conservation programs, responses to threats, and others. Various species indices are needed and should be established such as a Red List of Palestinian threatened species, and the establishment of Marine Species Index. Therefore, there is an urgent need for identification and notification of areas for conservation of plants, population surveys and distribution of biota in the oPt on a priority basis.

The second gap is the lack of trained natural scientist. There are very few taxonomist, zoologists, biologists (specifically marine biologists and wildlife biologists),

oceanographers, conservation managers, etc. It is recognised that this gap will take time to fill, but interim steps are needed. For example, training courses for university professors, graduate students and government officials in species recognition, the latest techniques in scientific wildlife data collection etc.

It is important to highlight that biodiversity in the Gaza Strip, in particular, is not well understood. Specific Gaza literature on marine flora and fauna is very scarce. A comprehensive study is needed to cover terrestrial and marine environments. Data derived from Israeli sources is not adequate and not comprehensive. Existing Palestinian data is also not comprehensive and does not give a full picture of the Gaza environment.

On many occasions, collection of plant material, especially of rare and endangered plant species, from natural habitats for various experimental purposes by researchers, also poses a threat on their natural population in the wild. The researchers must be aware on the germination potential, and seedlings and rhizomes survival strategies of the desired species collected from the wild for scientific experiments. Researchers must plant at least a similar number of individuals back in nature after completion of research work on collected species. Since there are many gaps in plant research, institutions involved in such research should identify these gaps and build-up capacity in achieving the desired aims of biodiversity sector through intra- and inter-institutional networking.

As a conclusion, those problems and others such as pollution, overexploitation, lack of coastal management, etc. are causing drastic changes and have left deep traces on the landscape, the natural resources, and the natural vegetation of the area. At the moment there is hardly any natural undisturbed vegetation in the area. In addition, such pressure on the integrity of ecosystems, and stability of natural resources increases the risk of losing the livelihood, the historical, the cultural, environmental, and economical value of Palestinian biodiversity, despite the fact that these costs are difficult to quantify, or may indeed be immeasurable and irreplaceable.

7. Suggested Biodiversity Planning Law and Policy Elements

The systematic accountability leads to improved efficiency and effectiveness of the state and its various institutions. In this context, it is necessary to emphasize the obligation and commitment of relevant Palestinian Authorities to monitor and evaluate the elements, activities and sectoral strategic interventions of all strategies as a whole including those of the biodiversity and to ensure good follow-up and implementation, comprehensiveness of implementation, or the achievement of strategic objectives with time. It is also essential that mechanisms be developed to inform citizens of the details of adopted accountability mechanisms in order to improve their dedication, contribution, and support to Palestinian plans, projects, and positions (PNA-EQA, 2010).

Strategy process need to continue into defining priorities, setting targets, and further into programming in a participatory approach involving civil society, academic and the private sector. Additional challenges for biodiversity policy development include the strong need for cross-sector national policy coordination. There could otherwise

be a risk that priorities expressed for the biodiversity sector differ from other government priorities. Accordingly, better coordination should be ensured among the different stakeholders that assess and set up the policies and laws concerning biodiversity sector, since networking and coordination would support the enforcement of conservation and management laws in a comprehensive manner that ensure a responsible act from all stakeholders.

Accordingly, there is a need for a comprehensive review and development of Palestinian policy and legislation pertaining to PGRs utilization and conservation, incorporating standards of accreditation, intellectual property rights, indigenous knowledge, training and research. Laws concerning controlled collection system, controlled processing system, controlled trade system, and licensing system, including patents, protection of indigenous knowledge and benefit share are crucial.

The Legal Framework for Nature Conservation should be amended to include specific laws governing nature protection and the empowerment of agencies to implement the legislative aspects of the Law. The Palestinian Authority should continue issuing and updating laws, regulations, and standards. Also, the BSAPP should be updated and harmonized with international and regional conventions, activities and plans and accordingly the biodiversity law should be issued specifically to enforce conservation and management on the ground and in cooperation with other Palestinian law enforcement especially the environment and agriculture laws. Implementation follow-up of interventions listed for the sectoral environmental strategy (2011-2013) is necessary to be done in a systematic mechanism in order to learn and to draw out more precise directions for use in the preparation of subsequent strategies for the years beyond 2013 (PNA-EQA, 2010).

The various Palestinian environmental and biodiversity laws fall under the jurisdiction of some ministries like the Local Government, Water Authority, Agriculture, Planning and Environmental Quality among others. Local Councils also have legal power on part or all the areas under their jurisdiction. Although these layers of bureaucracy are inevitable the laws need to be harmonized to prevent further loss of biodiversity and associated ecological areas where such biodiversity is found.

These laws provide the legal structure for the protection of natural habitats, natural assets, wildlife and sites of scientific and educational interest, thus, it is crucial, especially for the Palestinian case, the enforcement of these laws and policies such as

- Enforce the prohibition on hunting
- Stop uncontrolled clearance of farmland.
- Stop deforestation
- Stop pollution
- Stop overgrazing
- Stop overexploitation

Before setting out or upgrading the policies and laws in relevance to the Palestinian case several identification and monitoring components of biodiversity (species, habitats, ecological communities, genes, ecosystems and ecological processes) are necessary including:

- Identifying and monitoring components of Palestinian biodiversity that are important for its conservation and ecologically sustainable use;
- Identifying components of Palestinian biodiversity that are inadequately understood;
- Collecting and analyzing information about the conservation status of components of Palestinian biodiversity;
- Collecting and analyzing information about processes or activities that are likely to have a significant impact on the conservation and ecologically sustainable use of Palestinian biodiversity;
- Assessing strategies and techniques for the conservation and ecologically sustainable use of Palestinian biodiversity; and
- Systematically determining biodiversity conservation needs and priorities in the oPt.

Once the above items are identified, some basic elements of law and policy could be set to assist in developing more adequate systems of Palestinian biodiversity planning and conservation including:

- Signature and ratification of international conventions relevant to biodiversity conservation (Once Palestine is declared a state);
- Research into the abundance and scope of biological diversity and the making of inventories as a basis for eco-regional planning;
- The making of national biological diversity conservation plans and eco-regional plans, with realistic targets and time frames, with built-in review and updating processes;
- Incorporation of ethno-biological knowledge in biological diversity conservation plans;
- Enactment of national and in regional legislation to ensure implementation and enforcement of international obligations under the relevant biodiversity conventions (Box 8);
- Taking a “whole of Authority” legislative approach, i.e. each relevant ministry and department taking a similar approach to the conservation of biological diversity, to ensure that decision-making relating to exploitation is consistent with decision-making about conservation of biodiversity;
- Strengthening the capacity of Authority officials to ensure that plans for biodiversity are developed in conjunction with other aspects of national and local planning, implementation and enforcement;
- Establishment and adequate support of governmental and non-governmental institutions concerned with environment protection, national parks and wildlife services and research into conservation matters;
- Provision of sufficient financial resources for the implementation, compliance and legal enforcement of plans and associated programs for protected areas, and strict protection of threatened species.

Palestinian national legislation is also needed to protect the traditional resource knowledge rights of local villagers and farmers as well as the rights of sovereignty over their cultural and genetic property. Thus, PGRs’ collectors, cultivators and protectors, who works in this sector after their fathers and grand fathers and are going to teach their skills to their children (especially those living under poverty line,

without employment), and utilize the wild PGRs from generation to generation should have the priority to be protected and their knowledge since they are the closest to nature. The indigenous knowledge forms the main reference on which Palestinians mainly rural communities rely while implementing conservation and production activities. It is notable however that traditional and local knowledge remains an under-utilized and inadequately valued resource with considerable potential. There has been little in depth participatory research into plant and animal indigenous knowledge in the West Bank and Gaza strip, for instance those of the Palestinian Bedouins.

On the research front, it will be necessary to strengthen taxonomic and systematic research, ecology, habitats and wildlife population studies, indigenous genetic resources, and popular knowledge assessments. Implementing field measurement and assessment surveys to get a grip on existing biodiversity and the identification of those under threat or are presumed lost or extinct is a first step that should be taken. As a result a Species List and a Red List of threatened species of fauna and flora can be formulated and a computerized information center can be established. The results should be freely accessible by the different sectors of the Palestinian society especially those who are dealing intensively with those species and those who deals inappropriately with them. The results of the Palestinian research should also be used as an incentive to aware the public towards the secure measures while utilizing PGRs and emphasizing the importance of such resources and their methods of conservation.

It is worth mentioning that research should be done on a wide spectrum including PGRs inventory, opportunities and challenges of the sector, developmental options and mechanisms. There is an urgent need to carry out detailed investigations on the habitat utilization patterns, feeding ecology, geographical distribution patterns and impact of herbivores and domestic animals on plant population.

There is a necessity to enhance the level of cooperation and coordination among academic and research institutions whether they are Governmental or Non-governmental that work in the field of biodiversity and to set out participatory investment in relevant projects, plans, and actions at international and national levels to raise quality of Palestinian biological resources at its different components.

The harmonization of national action with international and regional conventions, activities and plans is very important for a better management of biodiversity at national level.

1. Increasing the exchange of data and information relevant to biodiversity conservation at national, regional and international;
2. Promoting technical and scientific co-operation, transfer of technology and development of research and management facilities;

3. Exchanging consultation of personnel, and information sharing within regional neighboring countries among respective focal points, lead institutions and joint action projects, in addition to multilateral and bilateral cooperation and non-governmental cooperation

Box 8

A Legislative Checklist for Biodiversity Planning and Conservation in the oPt

1. The Palestinian legislation should implement as far as possible the conventions relevant to biodiversity as a step to start addressing the conventions at a national level.
2. The definitions of major terms within the relevant Palestinian legislations should reflect those found in the relevant conventions.
3. The Palestinian legislation should include a reference to sustainable development and its associated principles.
4. The traditional knowledge concerning the biological diversity possessed by local Palestinian communities should be recognized in the national legislation.
5. Develop and implement access and benefit sharing regimes with minimum and binding standards in national Palestinian legislation.
6. Define core intellectual property concepts carefully in national Palestinian legislation.
7. The Palestinian legislation should cover both terrestrial and marine environments.
8. The Palestinian legislation should be broad enough to provide for the use of economic instruments and biodiversity credit schemes.
9. The protection of threatened and endemic species should be explicitly addressed in the legislation.
10. The Palestinian biodiversity planning law should be fully integrated with normal spatial planning and environmental impact assessment for all development and conservation management activities, both within and outside urban, rural and natural areas.
11. Provision should be made for Palestinian protected areas according to the categories established by IUCN.
12. The local Palestinian community should have the legal right to contribute to planning processes for biodiversity conservation and the preservation and protection of traditional knowledge.
13. Assist in the articulation of human rights principles as they relate to intellectual property rights
14. The enforcement actions should include injunctions to stop illegal activities and other court orders to restore or rehabilitate areas damaged by illegal activity.

It is worth noting that achievement of the CBD's objectives is necessary within national policy and law and accordingly Palestinian makers will need to adopt integrated approach towards policy making across that relate to IPRS (Intellectual Property Rights), the CBD, and the TRIPs agreements. Some points should be considered while developing the national policies and legislations by policy makers concerning the implementation of international agreements and promoting the achievement of CBD objectives in particular; as following (WWF International & CIEL, 2001).

Developing and implementing Access and Benefit Sharing Schemes. These should include minimum binding standards in national legislation.

Developing procedures for prior informed consent. These procedures should be developed in cooperation with local and indigenous communities.

Defining core intellectual property concepts carefully in national legislation. For example, what is “novel” or an “invention” must be carefully defined to ensure that genetic resources are not removed from the public domain. To protect traditional knowledge from misappropriation, patent offices (if available) should examine sources such as oral testimony, visual evidence, and material held in gene bank deposits (if available), when applying the “novelty” requirement. Careful definition of core concepts will avoid strengthening IPRs further than required by the TRIPS Agreement, and reduce its potential to undermine the CBD.

Using the exclusions to life patenting under Article 27.3(b). Policy-makers should consider excluding life patenting in order to implement their CBD obligations, including the development of national measures to protect traditional knowledge, and to ensure fair and equitable access and benefit sharing.

Ensuring sui generis systems are consistent with CBD obligations. Governments should utilise the flexibility inherent in the TRIPS Agreement’s requirement for “effective” *sui generis* protection of plant varieties. Effective *sui generis* systems should be consistent with the provisions of the CBD and the IU, protect farmers’ rights, including the right to save and share seeds, and respect national priorities regarding protection of traditional knowledge, and access and benefit sharing.

Recording experiences of TRIPS/CBD tensions or how they have been resolved.

Policy-makers should record any examples of how their obligations under the TRIPS Agreement have affected their ability to fully achieve CBD objectives. These experiences could be shared with other governments and intergovernmental organisations, and could be provided to the CBD in response to their request for comments on the relationship between IPRs and access and benefit sharing.

Ensuring indigenous and traditional local community representatives have full participation in the development of strategies on the preservation and protection of traditional knowledge. Governments should consider taking steps to ensure that indigenous and traditional local community leaders have full participation in the development of strategy on IPRs and the preservation and protection of traditional knowledge. National delegations to any international forums discussing traditional knowledge should seek to include representatives of indigenous and traditional local communities.

Considering the development of registries of traditional knowledge. The development of registries of traditional knowledge at the national level or international levels, and the sharing of this information with patent offices throughout the world, may contribute to preventing the misappropriation of traditional knowledge. The inclusion of traditional knowledge in such registries is appropriate only with the prior informed consent of the community in question.

Ensuring that national intellectual property offices are adequately resourced. To undertake their tasks in a manner that promotes the goals of the CBD, patent offices (if available) must be well resourced. They must have sufficient resources to complete a thorough search of “prior art” and to avoid granting overly broad and otherwise inappropriate patents.

Assisting in the articulation Human Rights principles as they relate to IPRs.

Policy-makers should consider the relationship between economic, social and cultural rights, and IPRs specifically with the provision of case studies illustrating national experiences. Policy-makers should also support the completion of the Draft Declaration on the Rights of Indigenous Peoples, with strong provisions for the control by indigenous people of their cultural and biological resources. Policymakers should also ensure that IPR systems – including any required by WTO agreements – promote and do not undermine fundamental human rights to self determination, food, health and development.

The above points should be well revised and when possible integrated in the process of Palestinian biodiversity planning and policies making and their updating to fulfill the Palestinian international obligations towards international agreements and conventions, but mainly the CBD.

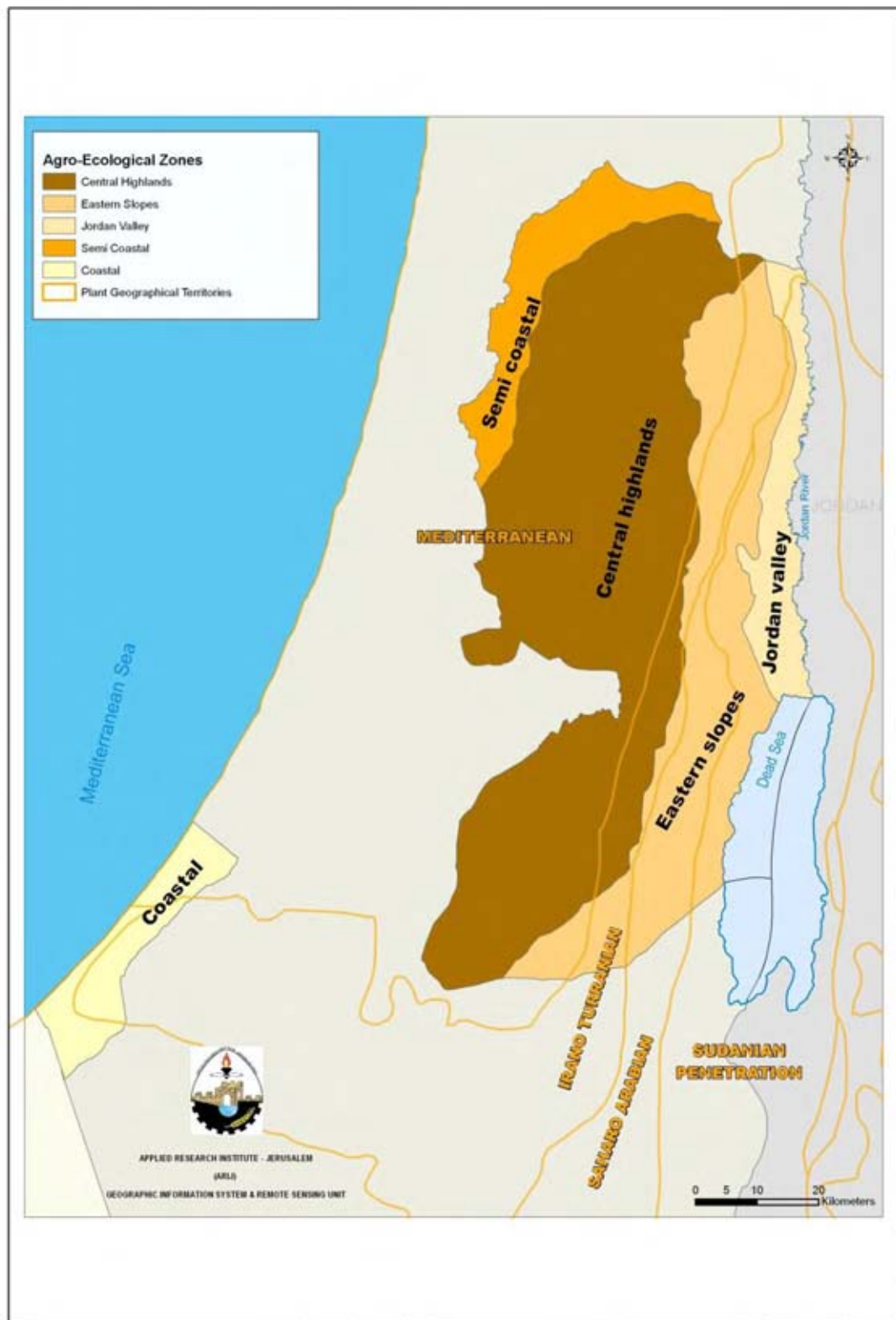
Annex 1: List of Palestinian plant and animal species inhabiting the oPt and mentioned in the major international and regional conventions and treaties

Relevant Major International and Regional Conventions and Treaties	List of included Palestinian Species
CITES * (THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES)	<p>Amaryllidaceae (<i>Galanthus fosteri</i>, <i>Sternbergia clusiana</i>, <i>Sternbergia colchiciflora</i>, <i>Sternbergia lutea</i>);</p> <p>Orchidaceae (<i>Ophrys umbilicata</i>, <i>Ophrys umbilicata</i>, <i>Ophrys umbilicata</i>);</p> <p>Primulaceae (<i>Cyclamen coum</i>, <i>Cyclamen persicum</i>, <i>Cyclamen persicum</i> var. <i>Autumnale</i>, <i>Cyclamen persicum</i> var. <i>persicum albidum</i>)</p>
IUCN (Red List of Threatened Plants)	<p>Fauna: <i>Ablepharus rueppellii</i>, <i>Acanthodactylus beershebensis</i>, <i>Ammomanes deserti</i>, <i>Ammoperdix heyi</i>, <i>Aquila pomarina</i>, <i>Aythya nyroca</i>, <i>Botaurus stellaris</i>, <i>Bufo viridis</i>, <i>Calopteryx syriaca</i>, <i>Cercomela melanura</i>, <i>Chalcides guentheri</i>, <i>Chlamydotis undulata</i>, <i>Circus macrourus</i>, <i>Corvus ruficollis</i>, <i>Crex crex</i>, <i>Daboia palaestinae</i>, <i>Eirenis lineomaculatus</i>, <i>Emberiza cineracea</i>, <i>Falco biarmicus</i>, <i>Falco naumanni</i>, <i>Francolinus francolinus</i>, <i>Gallinago media</i>, <i>Grus grus</i>, <i>Gypaetus barbatus</i>, <i>Gyps fulvus</i>, <i>Hirundo obsoleta</i>, <i>Hyla arborea</i>, <i>Lacerta laevis</i>, <i>Larus audouinii</i>, <i>Lutra lutra</i>, <i>Macropododon cucullatus</i>, <i>Micrelaps muelleri</i>, <i>Neophron percnopterus</i>, <i>Numenius tenuirostris</i>, <i>Oenanthe leucopyga</i>, <i>Onychognathus tristramii</i>, <i>Ophiomorus latastii</i>, <i>Passer moabiticus</i>, <i>Platyceps collaris</i>, <i>Puffinus griseus</i>, <i>Rana bedriagae</i>, <i>Rhinotyphlops simonii</i>, <i>Sphenops sepsoides</i>, <i>Strix butleri</i>, <i>Telescopus hoogstraali</i>, <i>Tetrax tetrax</i>, <i>Torgos tracheliotos</i>, <i>Trachylepis vittata</i>, <i>Trapelus savignii</i>, <i>Triturus vittatus</i>, <i>Turdoides squamiceps</i>;</p> <p>Flora: <i>Juniperus oxycedrus</i>, <i>Ballota saxatilis</i> ssp. <i>Brachyodonta</i>, <i>Daucus carota</i> ssp. <i>Gadecaei</i>, <i>Hypericum thymifolium</i>, <i>Origanum syriacum</i> var. <i>bevanii</i>, <i>Retama raetam</i> ssp. <i>Gussonei</i>, <i>Thymbra spicata</i> var. <i>intricata</i></p>
FAO IUPGR (International Undertaking on Plant Genetic Resources)	<i>Atriplex halimus</i> , <i>Lolium temulentum</i> , <i>Medicago sativa</i> , <i>Melilotus albus</i>
Euro-Mediterranean Partnership	Agricultural and fishery products of interest to both Parties
Jordanian Palestinian Economic Protocol	Goods and commodities that could be imported from Jordan and vice versa

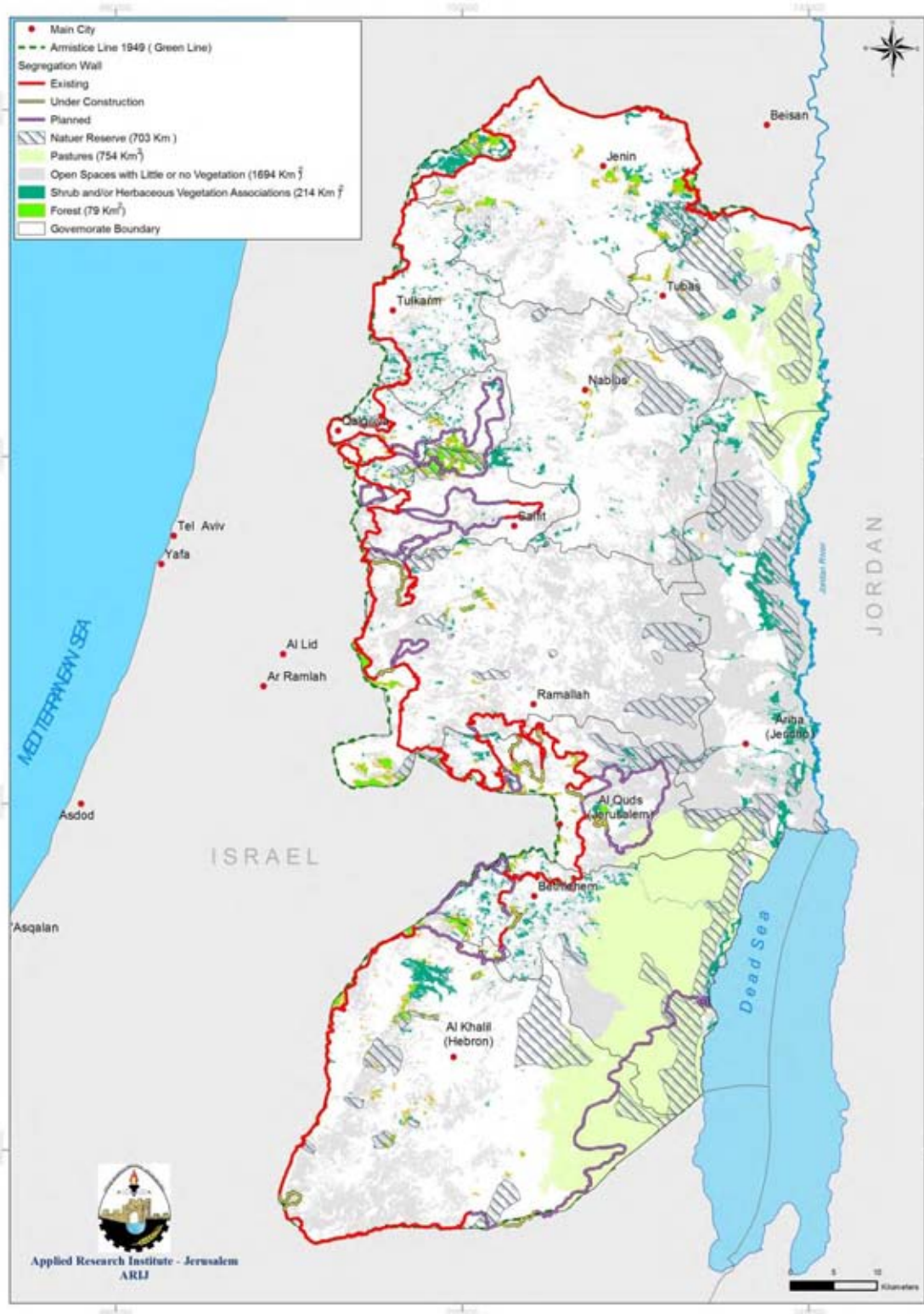
***Species can be added, removed, or shifted between Appendices through proposals passed at biennial meetings of the signatories, or Conferences of the CITES Parties.**

Source: <http://www.iucnredlist.org/>, <http://www.fao.org/Legal/TREATIES/033t-e.htm>

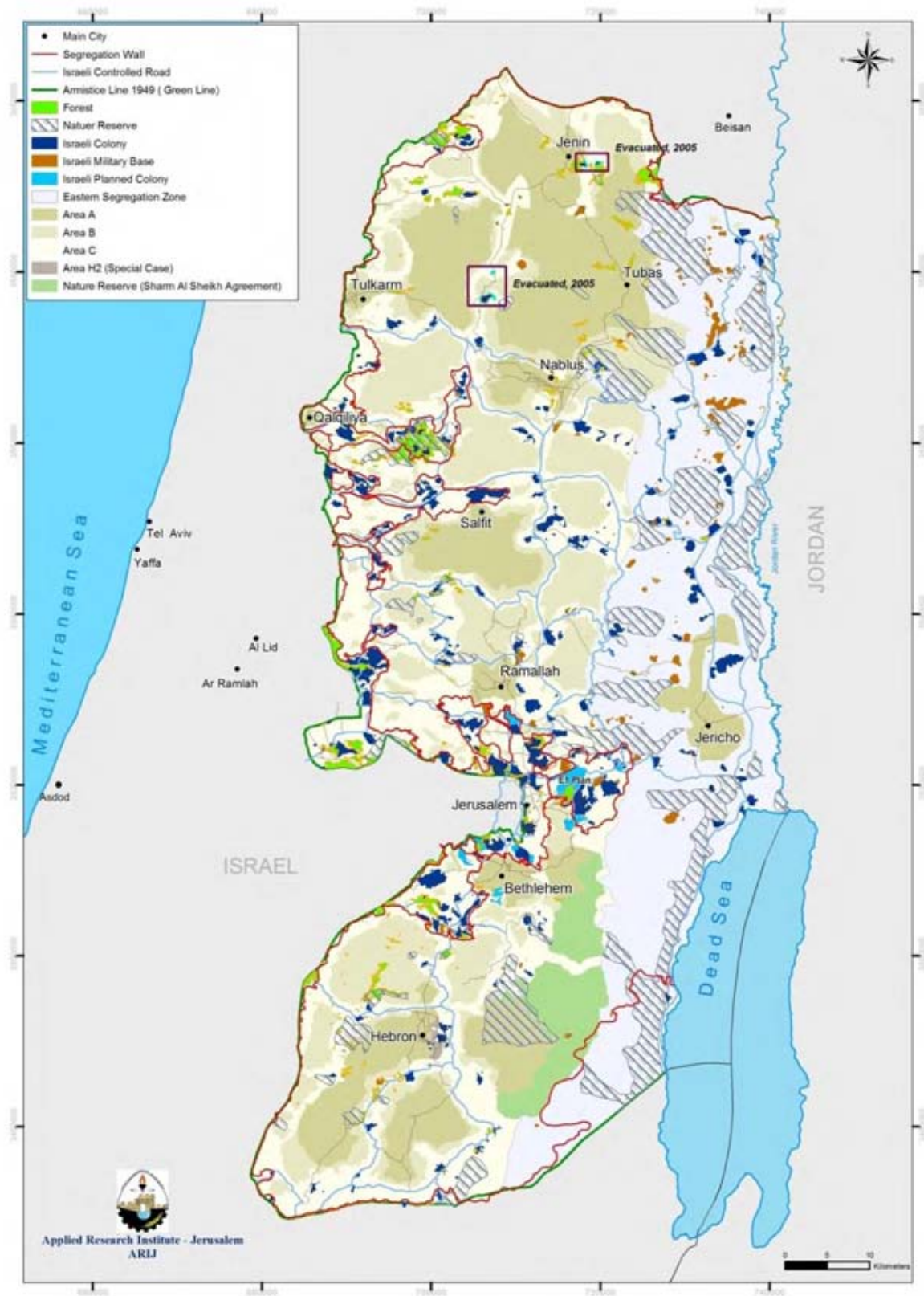
Annex 2 – Map4.1: Agro-Ecological Zones and Plant Geographical Territories in the oPt



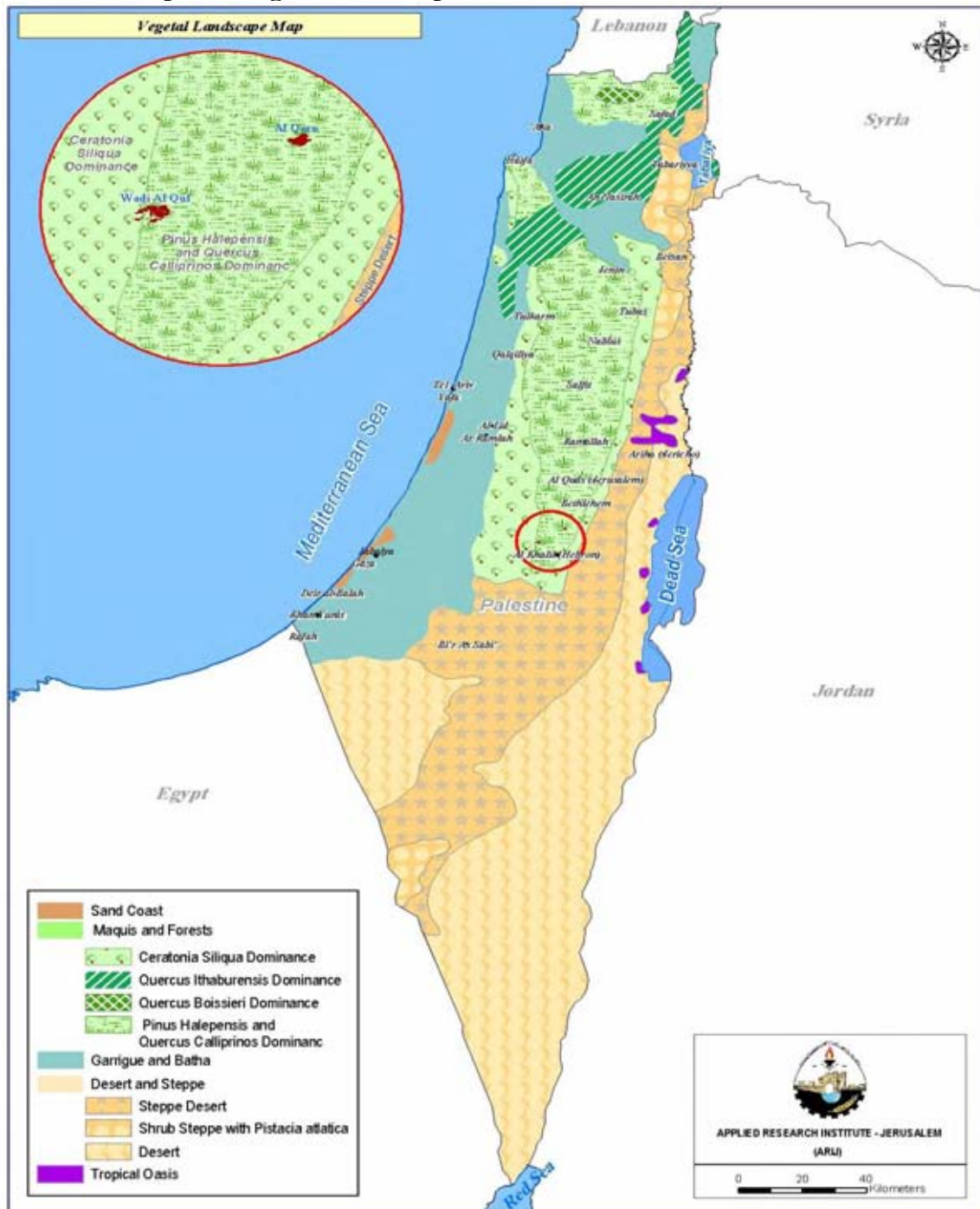
Annex 2- Map 4.2: Forests, nature reserves, shrubs and/or herbaceous vegetation in the oPt



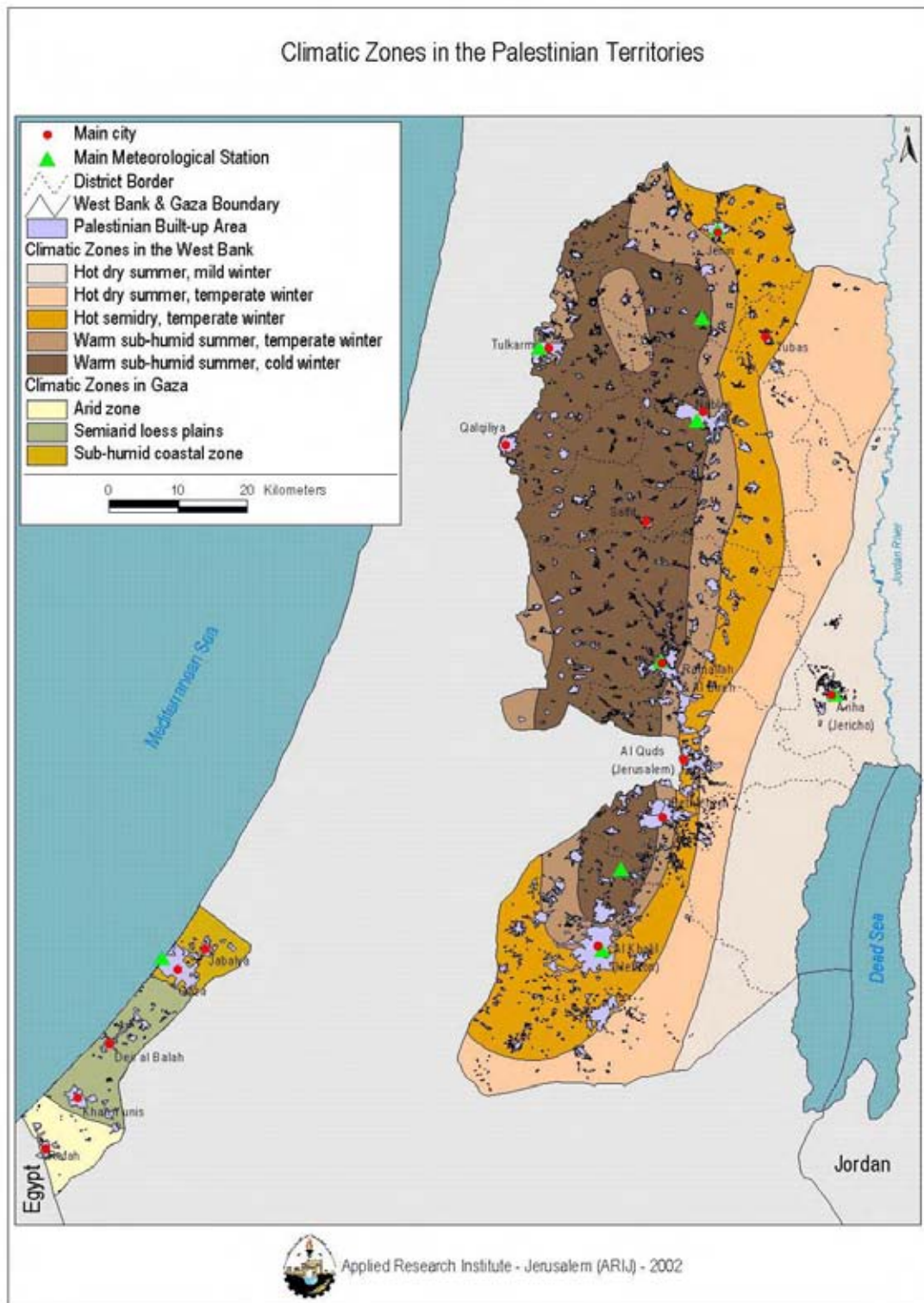
Annex 2- Map 4.3: Geopolitical Map of the West Bank



Annex 2 – Map 4.4: Vegetal Landscape of Palestine



Annex 2 – Map 4.5: Climatic Zones in the West Bank Region



Annex 3: Some of Rare, Very Rare, endemic Species in the oPt

Some of Rare and Very Rare Species in the oPt		
Scientific Name	Family	Status
<i>Trianthema portulacastrum</i>	Aizoaceae	R
<i>Alkanna orientalis</i>	Boraginaceae	R
<i>Silene conoidea</i>	Caryophyllaceae	R
<i>Blumea bovei</i>	Compositae	R
<i>Diplotaxis tenuifolia</i>	Cruciferae	R
<i>Euphorbia granulata</i>	Euphorbiaceae	R
<i>Erodium oxyrhynchum</i>	Geraniaceae	R
<i>Lolium rigidum</i>	Graminae	R
<i>Ballota nigra</i>	Labiatae	R
<i>Hyacinthella nervosa</i>	Liliaceae	R
<i>Abutilon fruticosum</i>	Malvaceae	R
<i>Limodorum abortivum</i>	Orchidaceae	R
<i>Astragalus seiberi</i>	Papilionaceae	R
<i>Aphanes arvensis</i>	Rosaceae	R
<i>Tamarix arvensis</i>	Tamaricaceae	R
<i>Anethum graveolens</i>	Umbelliferae	R
<i>Zygollum coccineum</i>	Zygophyllaceae	R
<i>Digera muricata</i>	Amaranthaceae	VR
<i>Glossonema boveanum</i>	Asclepiadaceae	VR
<i>Salsola oppositifolia</i>	Chenopodiaceae	VR
<i>Tragopogon buphthaloides</i>	Compositae	VR
<i>Ajuga orientalis</i>	Labiatae	VR
<i>Iris vartanii</i>	Iridaceae	VR
<i>Acacia laeta</i>	Papilionaceae	VR
<i>Trachysperum ammi</i>	Umbelliferae	VR
<i>Fagonia tenuifolia</i>	Zygophyllaceae	VR

Note: R: Rare, VR: Very Rare.

Some endemic rare and endemic very rare species in the oPt		
Endemic Species	Family	Status
<i>Alcea rufescens</i>	Malvaceae	R
<i>Anthemis edumea</i>	Compositae	R
<i>Filago inexpectata</i>	Compositae	R
<i>Centaurea ascalonica</i>	Compositae	R
<i>Iphiona maris-mortui</i>	Compositae	R
<i>Cephalaria tenella</i>	Dipsacaceae	R
<i>Iris haynei</i>	Iridaceae	R
<i>Bellevalia zoharyi</i>	Liliaceae	R
<i>Galium heirochuntinum</i>	Rubiaceae	R
<i>Kickxia judaica</i>	Scrophulariaceae	R
<i>Reseda urnigera</i>	Resedaceae	R
<i>Reseda maris-mortui</i>	Resedaceae	R
<i>Salvia eigii</i>	Labiatae	VR
<i>Stachys zoharyana</i>	Labiatae	VR
<i>Orchis israelitica</i>	Orchidaceae	VR
<i>Amygdalus ramonensis</i>	Rosaceae	VR
<i>Ferula samariae</i>	Umbelliferae	VR

Source: Danin, Avinoam, 2004. Distribution Atlas of Plants in the Flora Palaestina Area. The Israel Academy of Sciences and Humanities. Jerusalem 2004.

Zohary, M., 1966, 1972, 1978, 1986. Flora Palaestina. Volumes (I, II, III and IV). The Israel Academy of Sciences and Humanities. Jerusalem.

Annex 4: Some Rare Bird Species in the oPt

Bird Species in the oPt as Evaluated by the Birdlife International and IUCN	
Species	Status
<i>Ammoperdix heyi</i>	Least Concern
<i>Francolinus francolinus</i>	Least Concern
<i>Aythya nyroca</i>	Near Threatened
<i>Puffinus griseus</i>	Near Threatened
<i>Botaurus stellaris</i>	Least Concern
<i>Falco naumanni</i>	Vulnerable
<i>Falco biarmicus</i>	Least Concern
<i>Gypaetus barbatus</i>	Least Concern
<i>Neophron percnopterus</i>	Least Concern
<i>Gyps fulvus</i>	Least Concern
<i>Torgos tracheliotos</i>	Vulnerable
<i>Circus macrourus</i>	Near Threatened
<i>Aquila pomarina</i>	Least Concern
<i>Chlamydotis undulata</i>	Vulnerable
<i>Crex crex</i>	Near Threatened
<i>Grus grus</i>	Least Concern
<i>Strix butleri</i>	Least Concern
<i>Corvus ruficollis</i>	Least Concern
<i>Hirundo obsoleta</i>	Least Concern
<i>Ammomanes deserti</i>	Least Concern
<i>Turdoides squamiceps</i>	Least Concern
<i>Onychognathus tristramii</i>	Least Concern
<i>Oenanthe leucopyga</i>	Least Concern
<i>Cercomela melanura</i>	Least Concern
<i>Passer moabiticus</i>	Least Concern
<i>Emberiza cineracea</i>	Near Threatened
<i>Tetrax tetrax</i>	Near Threatened
<i>Gallinago media</i>	Near Threatened
<i>Numenius tenuirostris</i>	Critically Endangered
<i>Larus audouinii</i>	Near Threatened

Source: IUCN, Red List, 2010

CHAPTER FIVE

Access to Water and Wastewater Management in the oPt

Section One: Right to Access Water in the oPt

Prepared By: Abeer Khair

Section Two: Sanitation and Wastewater Management in the oPt

Prepared By: Elias Abu Mohor

Chapter Five: Access to Water and Wastewater Management in the oPt

5.1 Right to Access Water in the oPt

1. Introduction:

The occupied Palestinian territory (oPt) has one of the scarcest water availability (per capita supply) in the world. The country's water scarcity is due to both natural and man-made constraints; mainly resulting from the Israeli occupation. Over time water shortage in the oPt will increase and become a greater problem as a result of population growth, higher standards of living, expected climate change, and above all, Israeli practices and restrictions imposed on both the water resources and its sector's development.

The right to access water is a fundamental human right that has been addressed in several international and regional treaties and conventions, and in the national policies and laws of some States. In 2002, the United Nations' (UN) Committee on Economic, Social and Cultural Rights (CESCR), with the adoption of General Comment No. 15, recognized the right to water, and provided States with the corresponding obligations and guidelines to this Right. Later, in July 2010, the UN General Assembly adopted a resolution recognizing the right to water and sanitation; two months later the Human Rights Council specified this right as a part of the right to an adequate standard of living (FAN, 2010; GTZ, 2009; Golay, 2009).

For more than 44 years the Palestinians have been denied from their water rights and the Palestinian's right to equitable and reasonable utilization of shared water resources has been violated by the Israeli occupation. As a result, Palestinian people often suffer from lack of adequate water. Moreover, Israel has played a major role in depleting Palestinian water resources.

The water sector in the oPt suffers from fragmented institutional and legal framework, which hinders developing the sector and managing and maintaining water resources and infrastructures. The Palestinian National Authority (PNA) and the Palestinian Water Authority (PWA) have realized these weaknesses, and in recent years they have issued Reform Plans and Sector Strategies in order to improve the institutional and legislative framework of the Palestinian water sector.

2. International context of the Right to Water

The right to water was recognized implicitly in Article 25 of the Universal Declaration of Human Rights of 1948 "*Everyone has the right to a standard of living*" (UN General Assembly, 1948), and later as an implicit component of Article 11 "*the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions*" Article 12 "*the right of everyone to the enjoyment of the highest attainable standard of physical and mental health*" of the International Covenant on Economic, Social and Cultural Rights (ICESCR) of 1966 (UN General Assembly, 1966).

The first international explicit action to deal with the right to access water was in 1977 at the **UN Water Conference** (Mar del Plata Conference) (Zolo, 2005). The final declaration of the conference stated in Resolution II (Community Water Supply) that "*all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs*". Under the same Resolution the conference recognized, "*that the availability to man of that resource is essential both for life and his full development, both as an individual and as an integral part of society*" and called international cooperation, "*so that water is attainable and is justly and equitably distributed among the people within the respective countries*" (UN, 1977).

The right to access water was later recognized in the **Convention on the Elimination of All Forms of Discrimination Against Women** (CEDAW), in 1979, which called in Article 14 to ensure that women living in rural areas had the right "*to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications*" (UN General Assembly, 1979). Furthermore, in 1989 at the **Convention on the Rights of the Child** (CROC) Article 24 called for the combating of disease and malnutrition through, "*the provision of adequate nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution*" (Golay, 2009; UN General Assembly, 1989).

In 1990, the **World Summit for Children** stressed the problem of child mortality due to a lack of safe clean water and inadequate sanitation. In the adopted declaration, states agreed upon, and committed themselves to "*promote the provision of clean water in all communities for all their children, as well as universal access to sanitation*" (UNICEF, 1990).

In 1992 the **International Conference on Water and the Environment** took place in Dublin, Ireland. In this Conference the UN adopted the Dublin Statement on Water and Sustainable Development, also known as the Dublin Principles (four principles). The fourth principle recognized the importance the basic right of all human beings to have an affordable access to clean water and sanitation "*it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price*" (UN, 1992). Also, the conference recommended the improvement of access to a portable water supply and to sanitation services in rural areas.

In 1995, the declaration of the **UN Fourth World Conference on Women** that took place in Beijing, China, declared that governments should “*ensure that clean water is available and accessible to all by the year 2000*” (UN, 1996). Later in 1997 the First World Water Forum, held in Morocco, recommended actions for the recognition of “*the basic human needs to have access to clean water and sanitation*” (International Environmental Law Research Centre website).

In 2000, at the **Millennium Summit** in New York, USA, world leaders ratified the UN Millennium Declaration resolving “*to halve by the year 2015...the proportion of people who are unable to reach or to afford safe drinking water*”. The declaration had also led to the adoption of the **Millennium Development Goals** (MDGs). Target “C” of the seventh MDG commits the international community to “*halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation*” (UN General Assembly, 2000).

In 2002, UN CESCR adopted **General Comment No.15**, which recognizes the right to water as a fundamental human right and provides states with the corresponding obligations and guidelines on the “Right to Water” as a component of Articles 11 and 12 of the ICESCR (de Albuquerque, 2010; Golay, 2009). The CESCR describes the human right to water as a crucial issue for human dignity and for the realization of other human rights and defines it as a sustainable human right that “*entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, reduce the risk of water-related disease and provide for consumption, cooking, personal and domestic hygienic requirements*” (UN Economic and Social Council, 2002). Moreover, the Committee indicated that water should be treated as a social and cultural good rather than an economic good.

Article 28 of the **Convention on the Rights of Persons with Disabilities** (CRPD), that was adopted by the UN General Assembly on December 2006 at the United Nations Headquarters in New York, and recognizes and obliges member states to ensure and promote the right of persons with disabilities to adequate standard of living and social protection and the promotion of this right through several steps including ensuring “*equal access by persons with disabilities to clean water services*” (UN General Assembly, 2007). One year later, the UN Human Rights Council appointed the first Independent Expert on human rights obligations to access to safe drinking water and sanitation.

In July 2010, the UN General Assembly adopted **resolution No. 64/292**, which “*Recognizes the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights*” (UN General Assembly, 2010b). Later, in September 2010, the UN Human Rights Council adopted by consensus **resolution No.15/L.14**; “*Human Rights and access to safe drinking water and sanitation*”. This resolution affirms that this right is derived from Articles 11 and 12 of the ICESCR; the right to an adequate standard of living, and the right to health, which has been ratified by 160 countries; thus making the right to water and sanitation binding to those countries. Also, the resolution affirms that this right is derived from the International Covenant on Civil and Political Rights (ICCPR), which enshrines the inherent right to life. The Human Rights Council “*Recalls General*

Assembly resolution 64/292 of 28 July 2010, in which the Assembly recognized the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights; Affirms that the human right to safe drinking water and sanitation is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity" (UN General Assembly, 2010a)

Box 1

Elements of the Right to Access Water

Sufficient water: An adequate water supply must be available for personal and domestic usage.

Safe water: Water must be free from hazardous substances that could endanger human health.

Acceptable water: Water must possess an odor, color and taste, which are acceptable to users.

Physically accessible water: Both water services and facilities must be within safe physical reach.

Affordable water: Water services and installations must be affordable for all peoples.

On the subject of transboundary watercourses, the "**Helsinki Rules on the Uses of the Waters of International Rivers**" was adopted by the International Law Association (ILA) in 1966. It provides a nonbinding guideline for the utilization of transboundary rivers and the connected groundwater. In addition it asserts the rights of all riparian states of a reasonable and equitable share in the beneficial uses of the waters. It also mandates the protection of the resource from pollution. The Helsinki Rules paved the way for a binding convention to be taken up by the UN. In 1986, the ILA adopted "**Seoul Rules**"; 'Complementary Rules Applicable to International Water Resources'. The Seoul Rules stated that the same principles of Helsinki Rules apply to transboundary groundwater aquifers. The Seoul Rules also urged the riparian's to consider the integrated management of their groundwater.

In 1997 the UN General Assembly adopted the "**Convention on the Law of Non-navigational Uses of International Watercourses**," which sets out the rights and obligations of riparian states. The Convention represents binding customary international law related to water on the UN member states. . The Convention governs the utilization, management, protection, and preservation of international watercourses. In the Convention, the principles of equitable and reasonable utilization and participation between riparian states are embodied. The "**Berlin Rules on Water Resources**" was adopted by the ILA in 2004. The Rules summarized the customary international law related to water applicable to freshwater resources in modern water management. They include within their scope both national and international waters.

3. Water rights in the oPt as enshrined in the International Regulations and Conventions

The International Humanitarian Law (IHL) of war established by Hague Regulations of 1907 and the Fourth Geneva Convention of 1949 acknowledge the rights of Palestinians, as a civilian population under occupation. Under IHL, Israel, as the occupying power of the oPt, has specific obligations and must comply with the IHL provisions, some of which are relevant to Palestinians' access to water.

The **Hague Regulations** impose limitations on an occupying power's sovereignty over the natural resources of the occupied territory; including water resources. The Regulations don't allow an occupying power from utilizing the resources of the occupied territory for the benefit of its civilian population; utilization is strictly limited to military need and must be within normal quantities. Article 43 of the Hague Regulations prevents Israel, as an occupier, from changing the character and nature of property in the oPt, the occupied territory; changes are only permitted for security needs and for the benefit of the local population. *"The authority of the legitimate power having in fact passed into the hands of the occupant, the latter shall take all the measures in his power to restore, and ensure, as far as possible, public order and safety, while respecting, unless absolutely prevented, the laws in force in the country"*. Altering the legal framework prior to occupation is also prohibited within these Regulations (Amnesty International, 2009; CoHRE, 2008; Zolo, 2005).

The rules of the **Four Geneva Conventions** are legally binding to Israel since it is a party of this convention. According to the Fourth Geneva Convention relative to the Protection of Civilian Persons in Time of War, obligations are imposed on Israel in relation to the Palestinian civilians who are entitled to special protection and humane treatment. Moreover, Israel is responsible for the welfare of the population under its control and must ensure that civilians are provided with, or allowed to secure the basic necessities for survival including water. Protocol I additional to the Geneva Conventions states that fresh water and sanitation facilities are protected civilian objects under the laws of war: *"It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs ... drinking water installations and supplies and irrigation works"*. In addition, protected persons are entitled to have access to drinking water, and water for personal hygiene and sanitation (Amnesty International, 2009; Abu-Eid, 2007).

The Convention also prohibits an occupying power from practicing discrimination between the protected persons of occupied territory. Moreover, under Article 56 of this convention, an occupying power is obliged to ensure that public health and hygiene services are maintained in the occupied territory, which necessitates the provision of clean drinking water and basic sanitation, *"To the fullest extent of the means available to it, the Occupying Power has the duty of ensuring and maintaining, with the cooperation of national and local authorities, the medical and hospital establishments and services, public health and hygiene in the occupied territory"*. (de Albuquerque, 2010; CoHRE, 2008).

Israel has signed and ratified the ICESCR of 1966, CEDAW of 1979, and CROC of 1989; the human right to water access is enshrined within these conventions, and

therefore, Israel is obliged to implement this right in the oPt since it is under the Israeli jurisdiction. Despite the fact that Israel has abstained from voting on the resolution on the human right to access clean water and sanitation, the UN Human Rights Council adopted a resolution that affirms that this Right is derived from Articles 11 and 12 of the ICESCR, which Israel has ratified. This fact makes the implementation of this right legally binding to Israel and it has to ensure access to water in the oPt. In addition, the UN Observer for Palestine welcomed the adoption of this right and affirmed the rights to water and sanitation as "*universal human rights that should be enjoyed by all people, including those living under occupation*" (UN News Centre, 2010).

In 2004, the PNA ratified the **Arab Charter on Human Rights**, in Article 39 of the Charter the state parties agreed on recognizing the right to "*the enjoyment of the highest attainable standard of physical and mental health and the right of the citizen to free basic health-care services*". To ensure the implementation of this right, the Charter states that states parties shall take some measures, including the provision of safe drinking water for all (League of Arab States, 2005).

4. Water Sector Institutional and Legal Framework in the oPt

Water Sector Institutional Framework:

The Palestinian water sector is fragmented, and includes the involvement of many actors and stakeholders. The water sector's central public authority, the **PWA**, was established under the Presidential Resolution No. 90 of 1995. Its responsibility is to act as the main regulatory body for water resources management, development and infrastructure planning in the oPt, as well as executing water policy. Law No. 2 (1996) concerning the establishment of the PWA indicated that it shall be established and subsequently enjoy independent legal status and independent budget, and be placed under the direct supervision of the President of the PNA; who shall designate the head of the PWA.

Later in 2002, the **Palestinian Water Law No. 3** was developed, which stated in its sixth article that, "A public institution called "the Water Authority" shall be created by virtue of this law, and it shall have a juridical personality, and its budget shall be included within the general budget of the Palestinian National Authority". Article 6 also indicated that the head of the PWA shall be appointed by the head of the PNA, and falls under their supervision. The tasks and responsibilities were assigned in Article 7 of the Law, which included; execution of the national water policy, ensuring the optimal planning and management of the available water resources, water allocation, assuring quality control of water works, licensing the exploitation of water resources, and consolidation of co-operation amongst water stakeholders.

The PWA works both at the policy and project levels. Its project arm is called the Project Management Unit (PMU), which is a separate body that is responsible for the design, procurement and implementation of donor-funded projects (ARIJ, 2006). In the past decade, the PWA's institutional structure has been through a difficult process of accommodating a variety of shifting roles, and suffers from significant overlap in

responsibilities as well as lacking in solidly developed investment and an adequate regulatory framework (Klawitter, 2007).

The **National Water Council** (NWC) was established in 2002 with the passing of the Palestinian Water Law No. 3, and is responsible for determining the national water policy. It is chaired by the President of the PNA and consists of representatives of relevant government ministries and representatives of the most important water sector stakeholders; private sector, universities, and local bodies. Its responsibility is the sanctioning of general water policy, ratification of water use plans and programs (including tariff policy), confirmation of the allocation of funds for water sector investments and approval of the work and activities of the PNA and its annual budget (ARIJ, 2006). The Palestinian Water Law requires the meeting of the NWC at least once every six months, but since its establishment the Council held one single meeting in 2005. In practice The PWA does much of the drafting of national water policy, as the NWC is still transitioning into agency.

The **West Bank Water Department** (WBWD) in the West Bank and the **Costal Municipalities Water Utility** (CMWU) in Gaza Strip are in charge of the operation and maintenance of regional bulk water distribution systems. The **WBWD** was created during the Jordanian administration of the West Bank by Jordanian law No. 37 (1966), and came under Israeli control after 1967. In 1996, the control over WBWD was transferred from the Israeli Civil Administration (ICA) to the Palestinian National Authority (PNA), according to Article 40 of Oslo II Agreement. The WBWD is responsible for operating and maintaining bulk water facilities owned by the PNA, and is the link between the ICA and the Palestinians. The WBWD consists of three departments: Administration, Planning and Works Supervision, and Operation and Maintenance. It is planned that WBWD will be restructured into the National Bulk Water Utility. It is noted that, the WBWD wells are still mostly controlled by the Israeli Water Company, Mekorot.

Under Article 40 in Annex 3 of Oslo II Agreement, the **Joint Water Committee** (JWC) was also established to coordinate the management and development of the water and sewage systems in the West Bank. However, the bi-lateral mechanism of the JWC inhibits the progress of sector development, because it essentially vets power to Israel concerning any project or development proposed in the West Bank (ARIJ, 2006). The development of water systems in the Israeli controlled areas in the West Bank (Area C) and areas under joint control (Area B) must be approved by the JWC before it can go ahead. All water and sanitation projects within these areas of the oPt must be approved by the JWC. These include the rehabilitation of wells, drilling of new wells, and increasing abstraction from any source (for further information about the sanitation and wastewater projects see section 5.2). Absolute authority over water resources is retained by the Water Officer of the ICA, who has the power to veto JWC decisions.

Regarding service provision in the West Bank, water production and extraction is carried out by the WBWD and PWA wells, in addition to municipal wells and springs, privately-owned wells, in addition to water purchased from the Israel water company, Mekorot. Regional, municipal and local water utilities continue to operate and maintain the internal water infrastructure of Palestinian communities; and to set

and collect payments for water services. These vary in the scale of their operations, depending on the size of the served community; from village councils and municipalities, to joint water councils and water undertakings serving several towns and villages. There are two regional utilities in the West Bank, the Jerusalem Water Undertaking (JWU) in Ramallah area, and the Water Supply and Sewerage Authority (WSSA) in Bethlehem area.

In the Gaza Strip, domestic water production and supply is carried out mainly by municipal wells, in addition to water purchased from Mekorot, and the United Nations Relief and Works Agency (UNRWA) wells for supplying the refugee camps. The CMWU was formed in 2005 to unify a fragmented system of municipal and local water utilities in the Gaza Strip. The provision of water for the 25 municipalities is the responsibility of the regional CMWU. The CMWU is working so that the municipalities will receive technical assistance by the CMWU and gradually transfer their staff and assets to it. According to the [World Bank \(2009\)](#), the model of the CMWU led to some gains that bring benefits to consumers. This is because the utility has more resources and is better staffed than the 25 fragmented utilities.

In addition to the aforementioned institutions, the Palestinian water sector is also influenced by numerous non-state actors comprised of international governmental donor organizations, and international and local Non Governmental Organizations (NGOs). Coordination between donors, NGOs and the PWA is a prerequisite to successful outcome of the development of the water sector. The donors themselves initiated reform to improve aid-effectiveness in 2005.

Palestinian Water Laws and Policies

The NWC is still in transition and not functioning properly, which not only stymies overall water sector development and reform, but also inhibits the progress of developing water pricing and tariff regulations, which are preconditions for most funding agencies to support infrastructure investments in the oPt ([Klawitter, 2007](#)). Therefore, much of the work for developing national water policy has been carried out by the PWA. The PWA adopted, in 1995, the **Palestinian National Water Policy (NWP)** which addressed the important issues of water management and planning such as the structure, legislation, and the tasks of water sector institutions, in addition to the political complexity of the water sector in the oPt.

Later in 1998, the **Water Resources Management Strategy** was developed, based on the principles of the NWP. This Strategy highlights the necessary aspects of water resources and sector development and outlines a focus on securing an environmentally sound and sustainable development of water resources, through efficient and equitable water management.

In 1999, the Ministry of Environmental Affairs (MEnA), currently replaced by the Environmental Quality Authority (EQA), formulated the **Palestinian Environmental Law No. 7** which was approved by the Palestinian Legislative Council. Chapter three of the Law is titled 'Water Environment'. The Chapter contains three articles regarding standards for quality of fresh, collected and treated water ([MEnA, 1999](#)).

Box 2**Palestinian Environmental Law
Chapter Three: Water Environment****Article (28)**

The Ministry in cooperation with the specialized agencies shall specify the standards for the quality and characteristics of fresh water.

Article (29)

The Ministry, in coordination with the specialized agencies, shall set standards and norms for collecting, treating, reusing, or disposing waste and storm water in a sound manner, along with the preservation of the environment and public health.

Article (30)

No person shall be allowed to discharge any solid or liquid or other substance unless such a process conforms to the conditions and standards that the specialized agencies determine.

The PWA prepared the **National Water Plan of 2000**, which sets directions until 2020 and proposes specific actions to be taken to achieve its goals. Moreover, it provides a program of projects and activities needed for the water sector development in the oPt. The plan describes the role of service providers and shifts many functions and responsibilities from the PWA to regional water utilities, including; design, construction, operations, maintenance, and repairs of many services such as bulk water supply wastewater collection and treatment, and storm water collection.

The **Palestinian Water Law No. 3** (2002), aims to develop and manage the water resources; i.e. increasing their capacity, improving the quality and protecting water resources from pollution and depletion. The Law assigned the PWA the management of water and wastewater sectors. Moreover, the Law stated that all water and wastewater projects must initially obtain a permit from the PWA, and should be managed by it. Article 3 of this Law considers water resources as public property and recognizes water as a human right. Therefore, the PNA is obliged under this law to improve its services and ensure that each person in the oPt has access to clean water that satisfies his daily needs.

"Every person shall have the right to obtain his needs of water of a suitable quality for his use, and every official or private institution that provides water services must take the necessary steps to insure this right and to make the necessary plans for developing these services" (PWA, 2002).

In 2003, PWA developed a national **Integrated Water Resources Management Plan (IWRMP)** for the West Bank which defines how water resources in the oPt will be managed in an integrated approach. The IWRMP outlines the policies, goals, and objectives of the PWA and provides specific actions for achieving the stated

objectives. This Plan was followed by a Master Plan in 2004 and an emergency plan in 2005. These plans were not approved by the NWC since it is not functioning.

Recently, the PWA obtained the Cabinet of Ministers' approval for **National Sector Strategy: Water and Wastewater 2011-2013**. The vision of the strategy is to ensure, "*A regulated water and wastewater sector which contributes to Palestinian statehood as well as the sustainability of water resources built on strong health, environmental, social and economic foundations to meet essential and developmental requirements of the Palestinian Society*".

Four strategic objectives were derived for the Strategy:

- Promote good governance and provide a legal and institutional environment, that guarantees equitable services, and sound management of the sector ensuring its sustainability.
- Integrated water management ensuring equitable and continuous services as well as resource sustainability.
- Integrated wastewater management which ensures equitable and continuous services, contributes to preserving public health and safeguards the environment.
- Efficient and effective water and wastewater institutions engaging all segments of society (PWA, 2010b).

To achieve each of the above mentioned objectives, the Strategy defined a number of policies, and for each policy it developed a framework for the required interventions, their costs, and the responsible party. It further defined the monitoring indicators and the targeted objective(s) of each intervention.

Water Sector Reform

The institutional and legal reforms in the water sector are vital to achieving effective water governance. Aside from the Israeli component hindering effective water governance, the PWA has put forward efforts to reform the institutions forming the Palestinian water sector. Attempts to restructuring of the water sector have put into motion by a number of reforms. The creation of a Bulk Water Utility is envisaged to evolve out of the reorganization of the existing WBWD and would take over the management of trans-regional bulk water supply systems, including services in Gaza. Legislation that recognizes the right to regain control by the Palestinians over the WBWD and remove it from Israeli control is lacking and therefore inhibiting this reform (ARIJ, 2006). The planned institutional reform of bulk supply utilities has also been encumbered by an unstable political environment as well as large accumulated debts from high levels of non-payments by both individuals and municipalities.

The **Palestinian Reform and Development Plan of 2008-2010** was the first attempt through which the PNA sought to direct and regulate investments into a way that takes into consideration the priorities of the water sector. Despite this significant step, it remained restricted to the government's vision without the participation of other major stakeholders. The PWA sent for approval of a comprehensive reform plan

covering the entire water sector's institutional structure with the aim of providing suitable water services to Palestinians and securing their water rights. The Plan was adopted by the Cabinet of Ministers in December 2009 and a Reform Steering Committee was formed to monitor its implementation. The implementation period decided upon by the Cabinet of Ministers was for 2011-2013. The reform itself was a response by independent third party evaluations and recommendations (PWA, 2011a). The reform is composed of two review programs that work together to initiate the objectives of the reform plan. They include the creation of the Institutional Water Sector Review (IWSR), which shall derive from consensus, a preferred institutional arrangement for the water sector, and the Legislative Review (LR) which will revise the water law in a way that integrates the proposals from the IWSR. The LR will also examine relevant bylaws, regulations and loopholes in existing water laws (PWA, 2011a).

The outcomes of the reforms have an overarching drawback since general coordination mechanisms with governmental institutions and organizations are not defined or in some cases, even established. Law enforcement, accountability and administration of justice are lacking and therefore reforms depending on institutional implementation and enforcement are destined to encounter obstacles.

The Israeli – Palestinian Political Context in the Water Sector:

After the Israeli control of the oPt following the 1967 war, the Israeli occupation issued several Military Orders that give Israel the complete control over water resources in the oPt, declare them as State Property, and state that these resources can be accessible only after issuing a special request by the military governor:

- **Military Order No. 2 of 1967:** declared all water resources in the oPt to be "Israeli State Property".
- **Military Order No. 92 of 1967:** granted full authority over all water related issues in the oPt to an officer to be appointed by the Israeli military commander. Also it considered water a strategic resource belonging to Israel
- **Military Order No. 158 of 1967:** stated that it is forbidden to the Palestinian inhabitants to construct, possess, or operate any water installation without obtaining a permit from the Israeli military
- **Military Order No. 291 of 1968:** placed all the water resources in the oPt under the Israeli authorities in accordance with the Israeli Water Law of 1959. In addition to declaring all prior and existing settlements of water disputes to be invalid
- **Military Order No. 498 (1974):** covered water conservation procedures, supervision of water quality, licensing, distribution, supply, and setting tariffs and fines in Gaza Strip.

Many other orders were issued that aimed at making basic changes to the previous water laws and regulations in addition to granting complete control over Palestinian water resources, including; order Nos. 158 of 1967, No. 291 of 1968, No. 457, 484 of 1972, No. 494 of 1972, 715 of 1977 and 1376 of 1991.

In addition to the Military orders, the Israeli water company Mekorot had a significant role in controlling the West Bank water resources. Mekorot controls 42 wells in the West Bank, mainly located in the Jordan Valley, in addition to 9 wells managed by the WBWD. Mekorot wells essentially serve the Israeli settlements, and sell the Palestinians their own water via the networks that were built in the early 1980s, through the WBWD.

The **Declaration of Principles (Oslo I)** signed between the PNA and Israel in 1993, stated that water issues are to be discussed by the permanent Committee for Economic Cooperation. Both parties agreed on preparing plans for water rights and equal use of mutual water resources. Water rights for both sides were not identified in this agreement. Later in 1994, both sides signed the **Gaza - Jericho Agreement** which applies to water and wastewater resources and systems in Gaza Strip and Jericho area. The agreement focuses on the “no harm principle” to water resources; the drilling of new wells was conditional to causing no harm to the existing Israeli utilization. The Agreement ceded sovereignty over the water resources and infrastructure, inside the Palestinian controlled areas (Areas A and B) with the exception of the Israeli settlements, to the PNA to operate, manage and develop. But it didn't include any articles regarding water rights, equity in distribution, or usage of the two sides.

The signing of the **Oslo II Agreement** in 1995 conferred some authority over development and utilization of water resources in the West Bank to the newly formed, PNA. Article 40 "Water and Sewage" in Annex 3 "Protocol Concerning Civil Affairs" stated that Israel; “*recognizes the Palestinian water rights in the West Bank*” but the nature of these rights was not specified and “*will be negotiated and settled in the Permanent Status Agreement relating to the various water resources*”. To date, however, no negotiations have been held. The Agreement has placed significant constraints on the development of the Palestinian water sector as it deals with water allocation only to fulfill the immediate needs of the Palestinians, and does not take in consideration population growth, economic developments or to the principles of equitable and reasonable utilization of water resources.

Although the agreement succeeded in recognizing the Palestinian water rights, these rights have never been fully recognized. The agreement did not deal with the Palestinian water share in the Jordan River, and the shared Western and Northeastern aquifers of the West Bank Aquifer System. Moreover, it ignored the issue of equitable and reasonable allocation of the available water resources.

5. Availability and Accessibility to Water in the oPt

Water Resources in the oPt

As for other countries located in the Middle East North Africa (MENA) region, water resources in the oPt are scarce. Conventional water resources in the oPt consist of both surface and groundwater resources. The only permanent surface water resource that can be used as a source of freshwater is the Jordan River.

Transboundary water resources shared between the oPt and Israel consist of groundwater resources; the West Bank's Aquifer System and the Coastal Aquifer, in addition to the Jordan River System. Israel controls almost all Palestinian water resources and is exploiting around 89% of the available water; leaving only 11% to the Palestinians (PWA, 2011c). Moreover, since 1967 Palestinians' have been denied their right to access and utilize their water share as a riparian of the Jordan River System. Israel practices are violating the principle of the permanent and full sovereignty, over natural resources, of peoples under foreign occupation. As a result, Palestinian water resources are limited to a small quantity of groundwater that is not sufficient to meet the water demand in the oPt.

Jordan River System

The Jordan River is the only permanent river and the most important surface water resource in the oPt, in addition to seasonal runoff that accumulates in intermittent wadis. It originates from three main springs: Baniyas in the occupied Golan Heights, Dan in Israel, and Hasbani in Lebanon (Map 5.1.1). The water of the river flows southward through the Jordan Rift Valley into the Dead Sea, at approximately 420 m below sea level. The entire length of the Jordan River is 360 km, with a surface catchment area of 18,300 km².

The Jordan River and its tributaries constitute a significant source of surface water in the region, which has resulted in it being a source of conflicts between regional riparian states. The legal riparian's of the Jordan River System are; Lebanon, Syria, Israel, Jordan, and the oPt. However, due to Israeli control over the River, its waters have never been exploited based on the principles of the customary international law, relating to water. Prior to the 1950s the annual flow of the Jordan River was more than 1,300 MCM/yr. Today due to the Israeli diversion of huge quantities of the River's water through the National Water Carrier to the Negev and other diversion projects, the annual flow of the Jordan River is less than 50 MCM of high salinity and deteriorated quality water.



Map 5.1.1: Jordan River System

Many plans were developed before the 1950s in the Jordan River region. The closest Plan to a regional agreement on water utilization between the riparian states is the Johnston Plan of September 1955 (“The Jordan Valley Plan”). The Plan's water allocation was based on the estimated agricultural water demand of the irrigable lands within each of the River's basin states. Once the quotas of the Arab riparians are provided, the residual flow is allocated to Israel (Philips et al., 2007). The total water available for the allocation in the Plan was 1,503 MCM (Table 5.1.1). When the Johnston Plan was drawn up, the West Bank was under the Jordanian Administration and hence, the water rights of the Palestinians in the West Bank were never explicitly defined (it was included within the Jordanian quota). Although the Plan was approved

at a technical level, it was not formally adopted or ratified by either the Arab Council or the Israeli Knesset.

Table 5.1.8: Water Allocation according to Johnston Plan of 30 September 1955 in MCM for water use by riparians

Country	Total Water	Jordan River	
		Diversion	Stream Depletion
Lebanon	35	35	23
Syria	132	132	93
Jordan	720*	477	477
Israel****	616**	466***	463
Total	1,503	1,110	1,056
Saline Water		28	28

* Includes 243 MCM of local water

** Includes 150 MCM of local water

*** May be larger as long as stream depletion values govern

**** These Values include salvaged water from Hula Swamp which were not a part of the natural river resources

Source: Philips et al., 2007

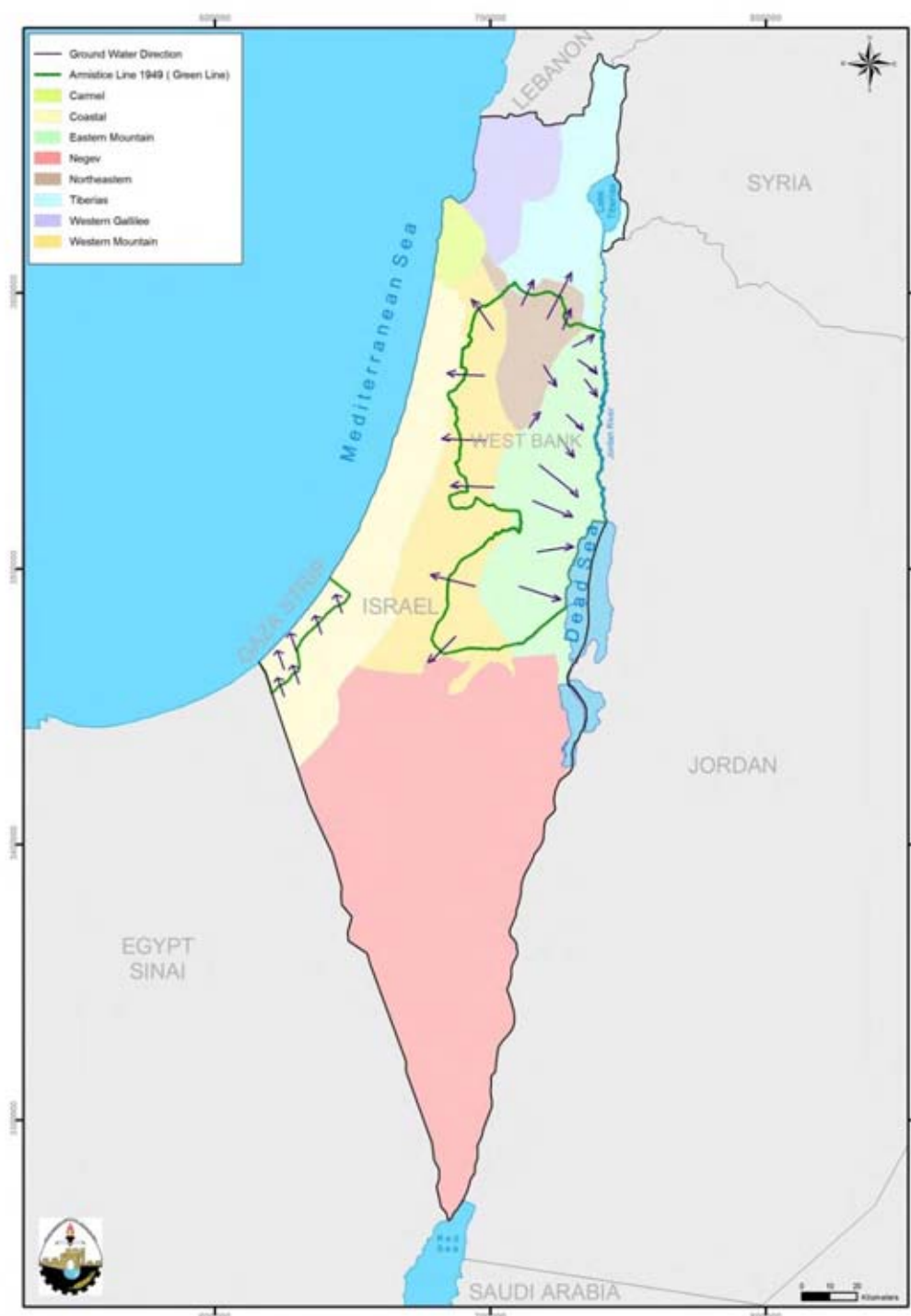
However, a canal was planned on the western side of the River (the West Ghor Canal) as part of the greater Yarmouk Project; which was to supply 240 MCM of water to irrigate lands in the Jordan Valley (Murakami, 1995; Naff and Matson, 1984). This Canal was never built, and following the 1967-war and the Israeli occupation of the West Bank, the western land along the Jordan River was declared as a "closed military zone," to which Palestinians have no access. Following the 1967-war, more than 162 agricultural water projects along the eastern part of Road 90, which were developed during the Jordanian rule of the West Bank, have been by destroyed or confiscated by Israeli forces.

The Israeli National Water Carrier conveys approximately 650 MCM of water per year from Lake Tiberias in the north all the way to the Negev Desert in the south. Today, approximately 98% of the River's flow is diverted by Israel, Syria, and Jordan (FoEME, 2010), with Israel diverting and leaving a very small quantity of deteriorated water to flow into the Lower Jordan River. The Palestinians, as legal riparians of the Jordan River, are being deprived of their legal right to utilize this resource of freshwater. The quantity of water left to the Palestinians does not meet the reasonable and equitable share of the riparians according to the customary international law, related to transboundary fresh water that was adopted by the ILA.

Moreover, the quality of water in the Lower Jordan River is much poorer than in the Upper Jordan River, due to input from saline springs and contamination from irrigation return flows and raw sewage. The reduced input from the Jordan River and the increased use of other sources has resulted in a decline in the level of the Dead Sea. The Dead Sea surface area has shrunk by more than the third of its total area, in addition the water level of the Sea is dropping at an annual rate of around 1 meter. The elevation of the Dead Sea is lower than 423 m below sea level.

West Bank's Aquifer System

The West Bank's Aquifer System underlies the West Bank, and is mainly recharged from rainfall falling over it; the main recharge areas falling along the upper mountain slopes and ridges. Water flows in three main directions and the Aquifer System is classified into three main groundwater Aquifers; Western Aquifer, Northeastern Aquifer, and Eastern Aquifer (Map 5.1.2). The officially recognized annual recharge of these three basins is 679 MCM, as recognized in Article 40 of Oslo II Agreement. However, as the precipitation rate fluctuates from one year to another, the recharge of this System varies correspondingly. In addition, there is some disparity between estimates of annual recharge from different sources (Guttman, 2000), emphasizing a need for further research into and better understanding of the West Bank Aquifer System (UNEP, 2003).



Map 5.1.2: Groundwater flow direction in the oPt

The Western Aquifer is the largest of these aquifers, covering an area of 6,000 km². It includes the western part of the West Bank Mountains and extends to the coastal areas, and from the Carmel Mountain in the north to Bir as Sabi' in the south. Groundwater flow is towards the coastal plain in the west; making it a shared aquifer between Israel and the West Bank. The West Bank Mountains are the main recharge source to this aquifer, where about 80% of the recharge area is located within West Bank boundaries, but 80% of the storage area is located within the Israeli borders. The

average annual safe yield of this Aquifer is around 362 MCM of mostly good quality water. Most of the water is being abstracted through the Israeli wells located to the west of the Green Line, in addition to the deep Mekorot wells located within the West Bank boundaries. Palestinians' have marginal shares of water from this aquifer; they abstract around 7.5% of the aquifer's safe yield through 138 groundwater wells (120 of which are agricultural and 18 are domestic wells) (PWA database, 2011).

The Northeastern Aquifer is the smallest aquifer within the West Bank Aquifer System, and hence has the lowest annual safe yield of 145 MCM; 70 MCM of which is brackish water. The majority of the recharge originates within West Bank boundaries, while the flow direction is north and northeastern towards Bisan natural springs (within Israeli boundaries). According to Oslo II Agreement Palestinians have the share of 29% of the Aquifer's safe yield, but actually they are utilizing about 18% of the safe yield through 81 groundwater wells; 68 used for agricultural purposes and 13 are domestic wells, in addition to some springs (PWA database, 2011). . The Israelis consume the water from this Aquifer through the springs and groundwater wells located within Israeli boundaries, in addition to the Mekorot wells located within the West Bank boundaries.

The Eastern Aquifer is a completely Palestinian Aquifer, since the recharge area is located entirely within the West Bank boundaries. It covers the eastern half of the West Bank, and groundwater flow is directed towards the east of the Jordan Valley and the Dead Sea. The Aquifer has an annual safe yield of 175 MCM; of which 70 - 75 MCM is brackish. Prior to 1967, the water of this basin was used exclusively by Palestinians. After the Israeli occupation to the West Bank in 1967, Israel has expanded its control over this aquifer; and is pumping water mainly to supply the illegal Israeli settlements. There are 106 Palestinian groundwater wells in this aquifer (82 for irrigation and 24 for domestic use), these extract about 15% of the aquifer's safe yield (PWA database, 2011). The most important springs in the West Bank are located within this aquifer comprising around 90% of the total annual springs' discharge in the West Bank. These springs are mainly used for agricultural purposes.

Under Article 40 of the Oslo II Agreement, the Palestinian and Israeli shares from the West Bank Aquifer System were identified (Table 5.1.2). In the meantime, it was agreed upon that existing quantities of utilization were to be maintained, although, an additional 28.6 MCM/yr was to be made available to the Palestinians during the interim period. The agreement estimated the future Palestinian water needs, in the West Bank, to be between 70–80 MCM/yr, in addition to the utilization at the time. Restrictions made by the JWC have hindered the development of new water resources and only few numbers of wells were allowed to be drilled; with a total extraction amount that does not exceed 30 MCM.

Table 5.1.9: Extraction and utilization of water of the West Bank's Aquifer System in MCM according to Annex III, Appendix I, Article 40 of the Israeli-Palestinian Interim Agreement, 1995

Aquifers	Israeli Share from			Palestinian Share from			Total Palestinian -Israeli shares	To be developed
	Wells	Springs	Total	Wells	Springs	Total		
Eastern	40	0	40	24	30	54	94	78
North-eastern	103		103	25	17	42	145	0
Western	340	0	340	20	2	22	362	0
Total	483		483	69	49	118	601	78

Source: Israeli Ministry of Foreign Affairs, 1995

Over the last decade, the overall Palestinian abstraction for the West Bank Aquifer System has been declining. The total abstraction dropped from 138 MCM in 1999 (World Bank, 2009) to 93 MCM in 2009. From 2007–2009, the extracted amount from this Aquifer System had always been below the Palestinian share from this aquifer. According to the PWA annual reports, the amount extracted from this aquifer by the Palestinians' wells and springs was 112.08 MCM in 2007, whilst in 2008 this amount has dropped to reach only 93.86 MCM. In 2009 this amount had also decreased; reaching 92.82 MCM (PCBS, 2010). See Figure 5.1.1

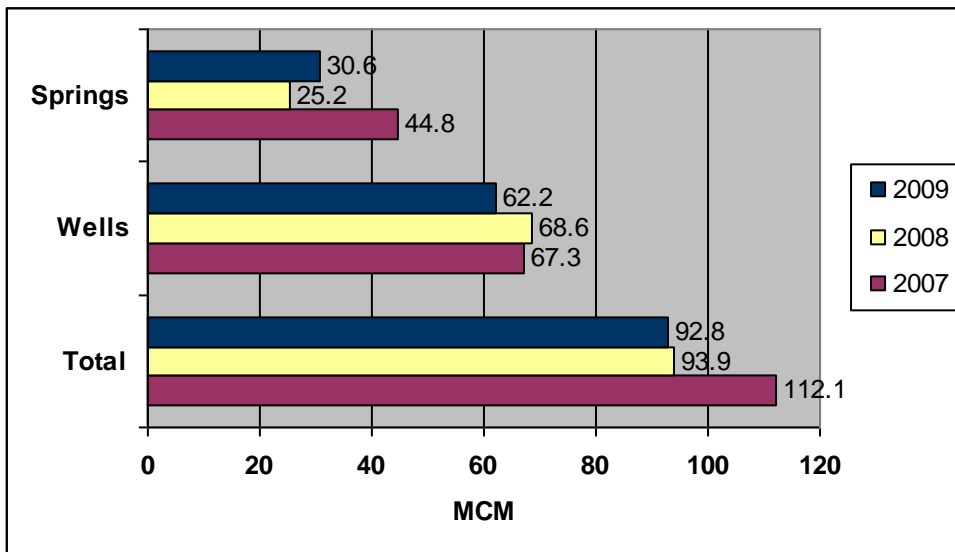


Figure 5.1.1: Annual Palestinian Abstraction from Wells and Springs in the West Bank

Source: PWA 2008, 2009b and PCBS 2010

Gaza Coastal Aquifer

The Gaza Coastal Aquifer is the main groundwater aquifer in the Gaza Strip. It is a continuation of the shallow sandy/sandstone Coastal Aquifer in Israel. The Coastal Aquifer System (which includes the Gaza Aquifer) extends along 120 km of the Mediterranean coastline from Gaza in the south, to Mount Carmel in the north. Its width varies from 3 -10 km in the north, to approximately 20 km in the south (ARIJ, 2007). Approximately 40% of the total annual rainfall recharges the Aquifer System (PWA, 2005). Other sources of groundwater replenishment include groundwater flow from the eastern side, surface water runoff, pipe leakage, return flow irrigation and

percolation of wastewater from anthropogenic sources. In 1994, the Gaza-Jericho Agreement ceded sovereignty over the water resources and infrastructure of Gaza to the PNA, to, “operate, manage and develop”. The natural annual sustainable yield of the Coastal Aquifer underlying the Gaza Strip is limited to around 55 MCM; around 15% of the total yield of the shared aquifer which is estimated at 360-420 MCM depending on precipitation.

The Coastal Aquifer Management Plan of 2001 concluded that the Gaza Coastal Aquifer isn't sufficient to meet Gaza's water demand, and that non conventional and alternative water resources should be developed, such as; bulk importation, sea water desalination, and wastewater reuse. A pipeline from Israel to supply the 5 MCM annually as well as a large desalination plant have been agreed upon in Article 40 of Oslo II Agreement, but to date neither of these two projects have been implemented.

In recent years the aquifer had been over pumped at the rate of more than 155 MCM annually, at a rate of around 300% of the safe yield, resulting in lowering the groundwater table below sea level and hence saline water intrusion in many areas. In The Comparative Study of Options for an Additional Supply of Water for the Gaza Strip Report, the pumping rates from the Aquifer in 2010 were estimated at 170 MCM (PWA, 2011b). Water over- pumping, sewage and agricultural fertilizers infiltration have resulted in deteriorating the water quality of the aquifer and polluting 90 to 95% of the aquifer's water. This results in this water quantity falling below the World Health Organization's (WHO) standards of drinking water; leaving only 5-10% of the water that lies under Gaza, drinkable (World Bank, 2009).

Water Network Coverage

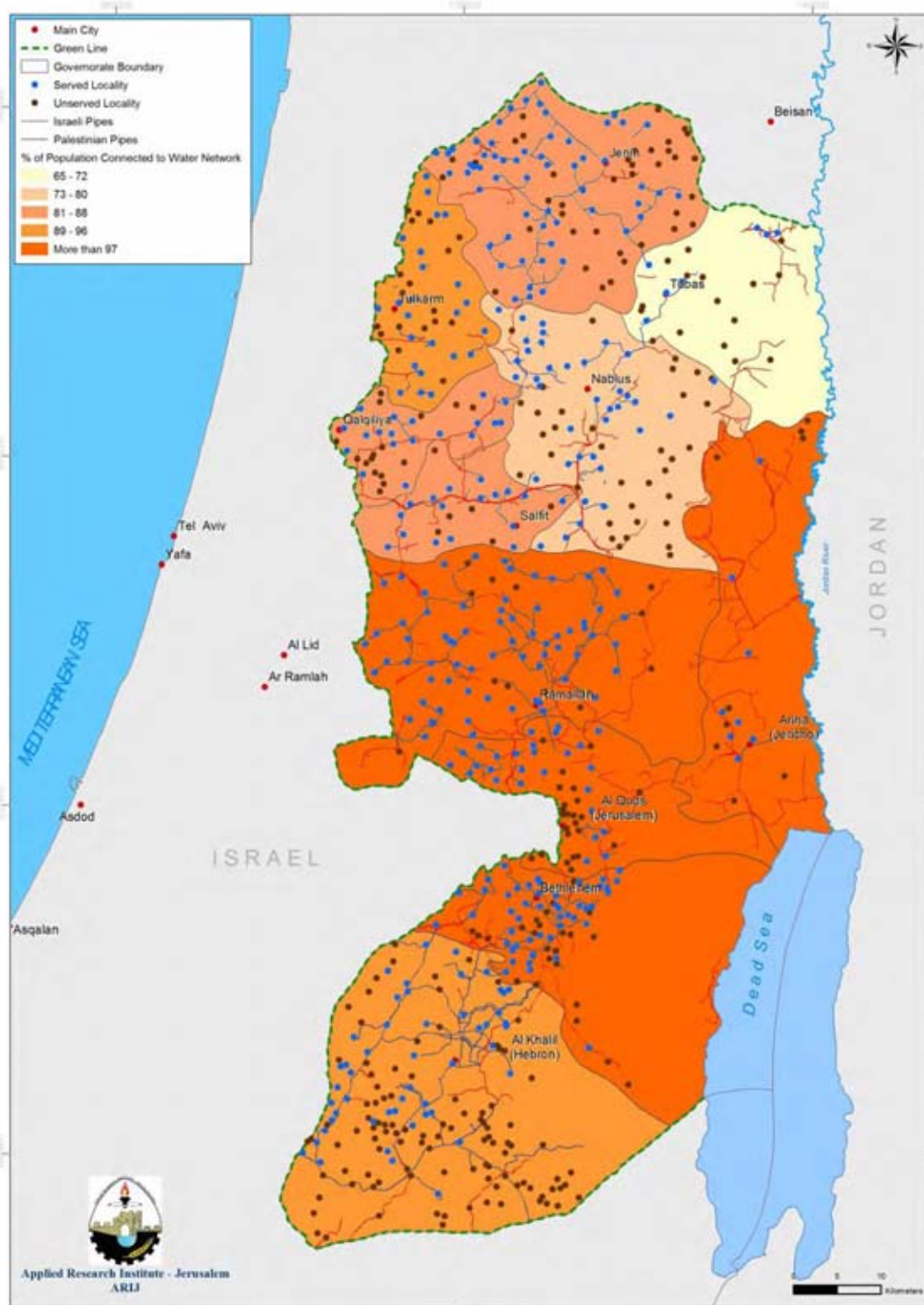
In its 2009 report on ongoing and proposed projects, the PWA listed over 240 active water and wastewater projects that are at different stages of funding and development. However, since Palestinians must obtain JWC approval for any project involving water extraction in Area C (60% of the West Bank), a high proportion of Palestinian projects have been rejected or long delayed (Amnesty International, 2009). Approximately 106 water projects and 12 large scale wastewater projects are awaiting approval by the JWC; some since 1999. These projects were projected to have benefited 1.1 million beneficiaries, and the pending sanitation projects nearly 800,000 beneficiaries (World Bank, 2009). The current active projects listed in the PWA's report focus on improving and increasing the average rate of drinking and domestic water supply, rehabilitating agricultural wells in order to reduce costs on the agricultural sector, improving the status of the wastewater sector, and reducing the percentage of water leakage (PWA, 2009a).

During the past two years (2008-2010) the PWA, in cooperation with international organizations, donors, and the Ministry of Finance, has been working on alleviating the water crisis and improving infrastructure in Palestinian communities. This is supposed to lead to minimizing the number of the unserved communities to around 38 communities by the end of 2012. In addition, the PWA has increased the percentage of connected households to the network to 88.4%, which has been done through

conducting many projects including the extension of main water pipelines and 500 km of internal water networks, and the construction of water reservoirs.

In the West Bank more than 77% of the communities are connected to the water network, with the population of these communities representing more than 92% of the West Bank's total population (PWA database, 2011) (Map 5.1.3). The remaining communities are unconnected to any form of water networks. These communities are completely dependent upon water tankers, which are filled from various networked sources, and on rainwater collection system; in addition to agricultural wells. It should be noted that the coverage in the connected communities may only be partial coverage. It was estimated that 15% of the total population living in these communities are not served by the water network. Moreover, the connection to the network doesn't mean regular and constant water supply, with many communities suffering from the very limited quantities of water, in addition to water losses through leaking pipes and illegal connections. The water losses are high; in 2008 the overall loss and unaccounted for water rate was estimated to vary between 20% in Jericho and Al-Aghwar Governorate and 39% in Bethlehem and Tulkarm governorates (PWA, 2009b).

Furthermore, approximately 94% of connected communities experience some degree of main valve closure. The majority of communities experiencing valve closure are located in areas served by Mekorot, often located close to the Israeli settlements; where the supply of Palestinian communities is dependent on the needs and requirements of the settlers. In fact, valve closure, coupled with the poor state of infrastructure, unaccounted for water and low pressure of water supplied to the Palestinian communities, is causing many Palestinian communities to receive only 30 l/p/d, or even less.



Map 5.1.3: Communities connected to the water network, 2011

The network coverage in the Gaza Strip is better than in the West Bank, where all the communities are connected to the water network (98% of the Strip's population is connected to the network) (CMWU, 2011). The majority of the wells in the Gaza Strip (80%), are only working partially and the rest, not at all. In 2006, almost half of Gazan households were buying in their water.

Water Supply and Consumption:

As mentioned earlier, water is supplied to the Palestinians through local resources in addition to the water purchased from Mekorot. Most of the West Bank governorates suffer from severe shortage in supplied water quantities. In 2009, a total of 86.47 MCM water was supplied to the Palestinian communities in West Bank. Of this quantity, 56% of the water (48.77 MCM) was purchased from the Mekorot, while the rest was supplied from local resources. During 2007 – 2009, the dependency on water from Mekorot has increased, as it was formerly 42% in 2007. At the governorate level, Salfit is the Governorate most dependant on water from Mekorot; whereby more than 90% of the domestic water supply is purchased from here.

In 2008, the domestic water supplied to the West Bank from all resources, was 88.6 MCM, covering just 73% of the 121.1 MCM demand. In the same year the deficit in domestic water supply was more than 34.6 MCM, while the real deficit in water supply reached 62.4 MCM (PWA, 2009b). This deficit is expected to worsen as the population grows.

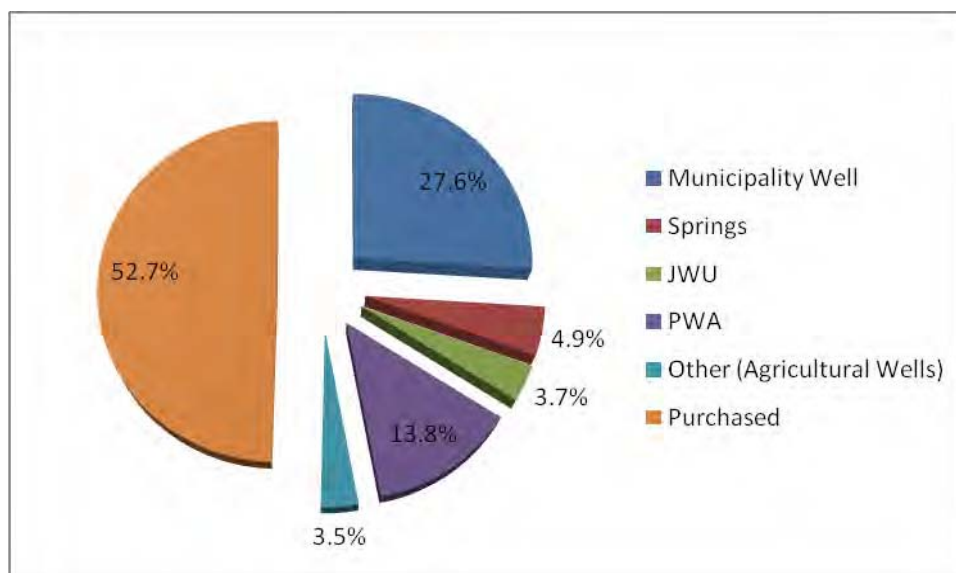
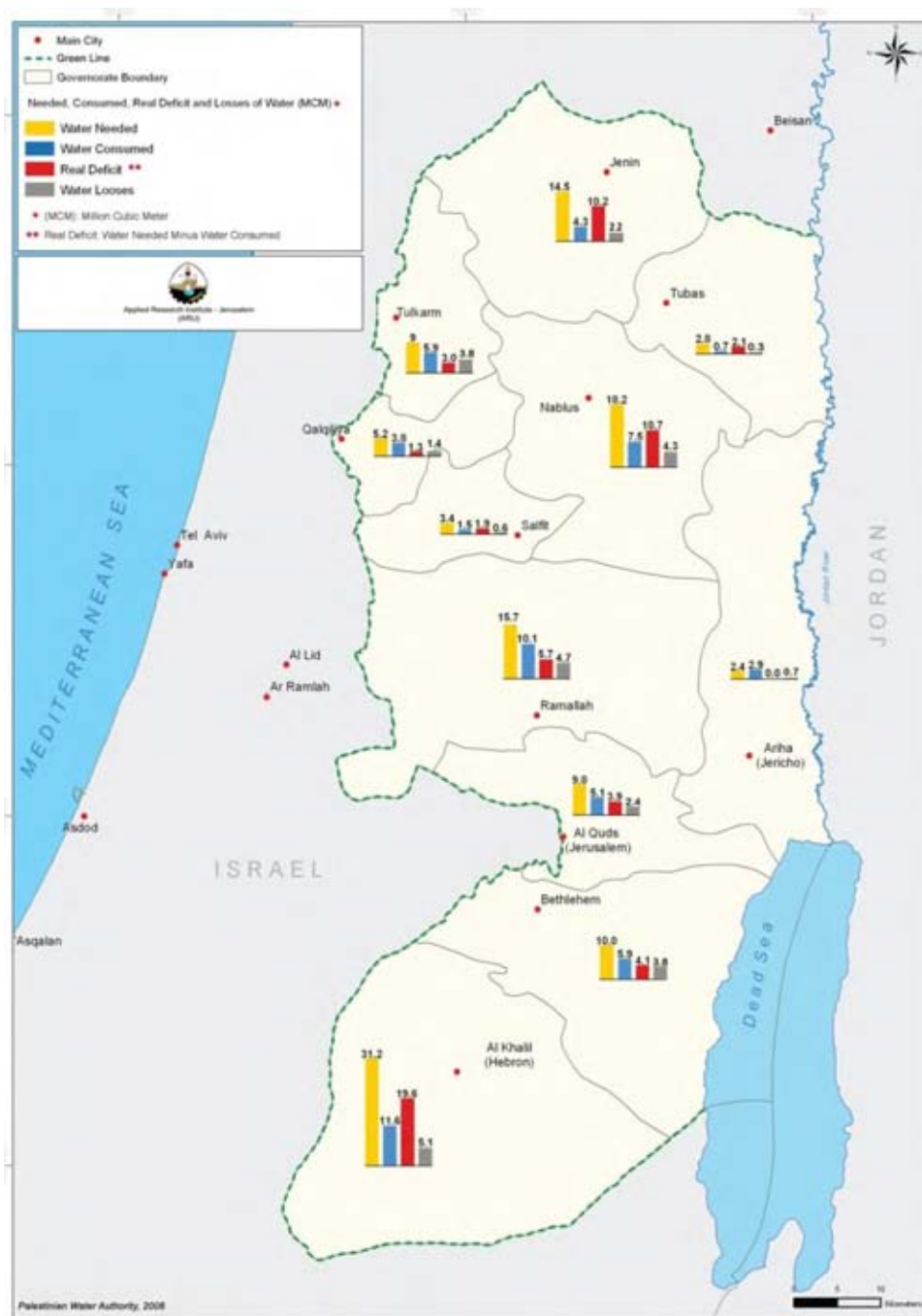


Figure 5.1.2: Percentage of the amount of water supplied for domestic use by source in the West Bank, 2008

Source: PWA, 2009b

The water losses rate (overall loss and uncounted for water) was 33% of the supplied water in 2008, where it was lower, at 34.2% in 2007 (PWA, 2008 & 2009b). Map 5.1.4 below shows the water needs and demands, in addition to the losses and deficits over the West Bank governorates. It is worth mentioning that only Jericho and Al-Aghwar Governorate do not suffer from any deficit; in this Governorate the consumed water exceeds the water demand. Although the water needed in Tubas Governorate is only 2.76 per year, and is registered as having the highest percentage of deficit (75.6 %).



Map 5.1.4: Water Needed, Consumed, Real Deficit and Losses in MCM by governorate in the West Bank, 2008

On a per-capita basis, the average water supply by Palestinians in the West Bank, in 2007 and 2008, was 109 l/c/d and 110 l/c/d, respectively, whilst in 2009 it was 107 l/c/d. It is noted that the supply varies from one governorate to another. Tubas Governorate has the lowest per capita supply rate in all of the West Bank governorates of 47 l/c/d (PCBS, 2010).

Table 5.1.3: Supplied domestic water by source and average per capita supply rate in the West Bank, 2009

Governorate	Supplied Domestic Water Source in MCM			Average daily per Capita Supply Rate (l/c/d)
	Purchased	Wells	Springs	
Jenin	2.07	3.2	0.1	55
Tubas	0	0.9	0	47
Tulkarm	0.35	5.8	0	103
Nablus	3.78	6	2.2	99
Qalqiliya	0.54	4.6	0	147
Salfit	2.10	0	0.2	102
Ramallah & Al-Bireh and Jerusalem J2	18.51	2.8	0.1	135
Jericho & Al-aghwar	1.89	0	2.9	298
Bethlehem and Hebron	19.53	8.9	0	102
Total	48.77	32.2	5.5	107

Source: PCBS, 2010

Although the average supply rate from 2007-2009 was higher than 100 l/c/d, the actual consumption rate is much lower due to the high water losses rate. In both 2007 and 2008 the average actual consumption rate in the West Bank was 73 l/c/d (Table 5.1.4).

Table 5.1.3: Supplied, consumed and lost water, and supply and consumption rate by governorate in the West Bank, 2008

Governorate	Population	Water Supplied (MCM)	Supply Rate (l/c/d)	Water Consumed (MCM)	Water Losses (MCM)	Consumption Rate (l/c/d)
Jenin	264,667	6.432	67	4.271	2.161	44
Tubas	50,380	0.924	50	0.673	0.251	37
Tulkarm	163,434	9.745	163	5.905	3.84	99
Nablus	332,102	11.761	97	7.456	4.305	62
Qalqiliya	94,051	5.207	152	3.832	1.375	112
Salfit	61,426	2.122	95	1.5	0.622	67
Ramallah & Al-Bireh	287,193	14.79	141	10.072	4.718	96
Jericho & Al-aghwar	43,101	3.609	229	2.873	0.736	183
Jerusalem	164,247	7.552	126	5.135	2.417	86
Bethlehem	182,340	9.744	146	5.915	3.829	89
Hebron	569,317	16.698	80	11.622	5.076	56
West Bank	2,212,262	88.579	110	59.255	29.32	73

Source: PWA, 2009b

In the Gaza Strip, in 2009, a total of 96.44 MCM water was supplied to the Palestinian communities. Of this quantity, 95% (91.58 MCM) was supplied from local resources, whilst only 5% was purchased from Mekorot (Figure 5.1.3). It should be mentioned that small volumes of water are produced from several scattered desalination facilities in the Strip (about 0.4 MCM) (PWA, 2011b).

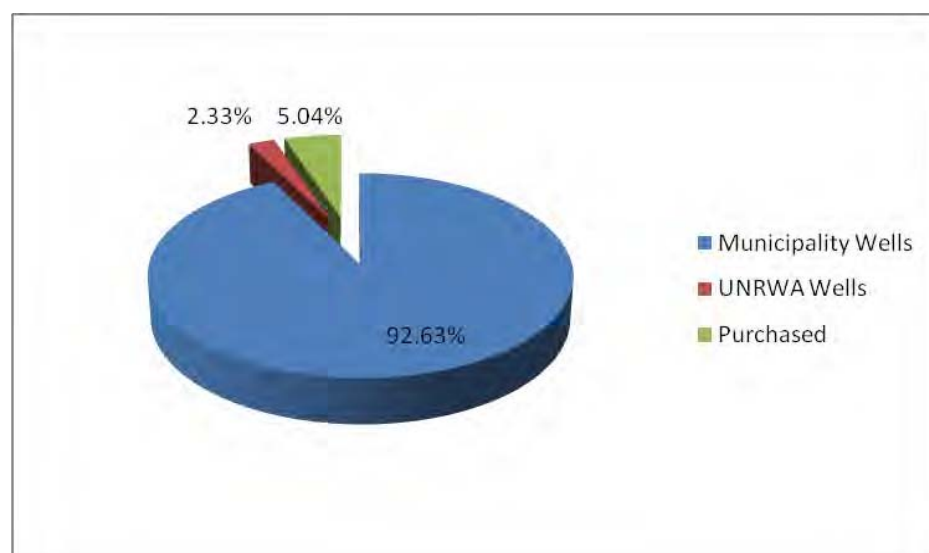


Figure 5.1.3: Percentage of the amount of water supplied for domestic use by source in Gaza Strip, 2009

Source: PWA, 2010a

The water losses rate (overall loss and uncounted for water) is higher than that in the West Bank, and was 44% of the supplied water in 2009 (PWA, 2010a). North Gaza Governorate has the highest water losses rate at 51% (Table 5.1.4).

Both the average per capita supply and consumption rates in Gaza Strip are higher than those of the West Bank. In 2009, the average supply rate was 175 l/c/d while the average consumption rate was 98 l/c/d. North Gaza Governorate has the highest per capita supply rate of 221 l/c/d but also the highest water losses' rate of 51%. While Gaza Governorate has the lowest water losses rate of 34% and the highest per capita consumption rate of 116 l/c/d. Rafah Governorate has the lowest per capita supply and consumption rates of 119 l/c/d and 68 l/c/d, respectively (PWA, 2010a).

Table 5.1.4: Supplied, consumed and lost water, and supply and consumption rate by governorate in the Gaza Strip, 2009

Governorate	Population	Supplied Water (MCM)	Average Supply Rate (l/c/d)	Water Consumed (MCM)	Water Losses (MCM)	Consumption Rate (l/c/d)
North Gaza	291,758	23.51	221	11.52	11.99	108
Gaza	526,793	33.8	176	22.31	11.49	116
Deir El-Balah	219,336	14.43	180	7.79	6.64	97
Khan Younis	287,511	16.61	158	9.14	7.47	87
Rafah	185,570	8.09	119	4.61	3.48	68

Total	1,510,968	96.44	175	54.01	42.43	98
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Source: PWA, 2010a

In both the West Bank and Gaza Strip the consumption rate is lower than what is recommended by the World Health Organization (WHO), of 100 l/c/d as a minimum standard of water consumption.

Safety of Domestic Water Supply:

In the West Bank the quality of domestic water is generally considered acceptable. Map 5.1.5 below shows the percentage of the communities of the West Bank governorates that has reported having good water quality taking into consideration the chemical, biological, and physical characteristics of the water. The quality of water is of a major concern for the unserved communities in Jordan Valley and Hebron areas, along-with the eastern slopes of Bethlehem. The saline aquifer, discharge of untreated wastewater from Palestinian communities and the Israeli settlements increase the risk of contaminating the water streams, springs, and wells in nearby sites (WASH, 2011a).

There are no serious indications of pollution in the deep aquifers. However, there are some chemical contaminations of water in the shallow aquifer in Jericho area, which is more vulnerable to pollution due to the unconsolidated nature of its geomorphology, and the permeability of the gravels and marls that comprise it. The chemical composition of the rocks in the Jericho area also leads to a high mineral content in the water; which is noticed from the high proportion of wells and springs which produce water with a high Calcium, Potassium and Magnesium content. It is also evident that the shallow aquifer is more saline than any of the other aquifers, due to the high Chlorine and Sodium content of the water in the area. This is partially due to the chemical reactions taking place between the rocks and the water; and possibly also due to overexploitation of various well fields.

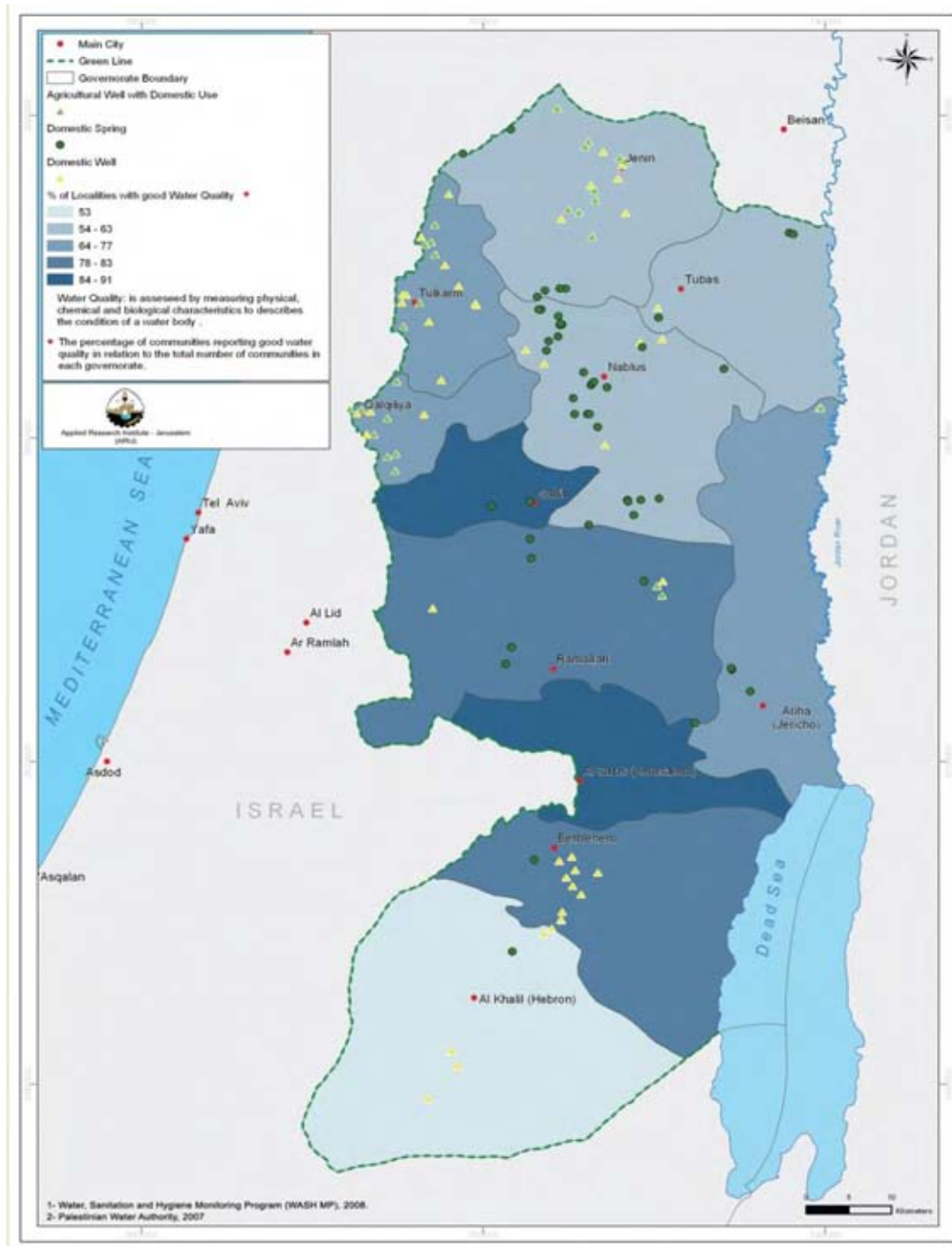
Biological contamination is a major problem in degrading the quality of water of the unprotected springs and wells and water collection structures. The biological contamination places a public health hazard to the Palestinian communities in the West Bank. According to the Ministry of Health (2010), the percentage of the West Bank inhabitants that were infected with waterborne diseases in 2007/2008 was 3.6%. Tulkarm and Nablus governorates registered the highest percentages of 7.3% and 6.7% respectively.

Table 5.1.5: Percentage of People Infected with Waterborne Diseases 2007/2008 in the West Bank by governorate.

Governorate	Percentage of infected people
Jenin	4.5
Tubas	6.0
Tulkarm	7.3
Nablus	6.7
Qalqiliya	3.6
Salfit	4.5
Ramallah & Al-Bireh	1.6
Jericho & Al aghwar	1.5

Jerusalem	0.0
Bethlehem	0.5
Hebron	3.5

Source: MoH Database, 2010



Map 5.1.5: Quality of Domestic Water Resources in the West Bank

The problem of water quality in Gaza Strip is one of the most serious challenges facing the Palestinian water sector. Between 90-95% of Gaza's groundwater is polluted and falls short of the accepted international guidelines for potable water

(PWA, 2011b), i.e. is unfit for human consumption. The poor quality has resulted due to years of over-exploitation in addition to sewage infiltration into the aquifer, which caused high proportion of nitrates and chlorides in the aquifer's water.

Groundwater quality in the Strip varies over different locations. Due to the water deficit, the regional water levels have lowered and deep hydrological depressions have formed in the urban areas of the Gaza Strip, including; Gaza City in the north and Khan Younis and Rafah in the south. Inflow of saline water is both a result of seawater intrusion and of lateral inflow from Israel. The concentration of chloride varies from 250 mg/L to more than 10,000 mg/L in areas where sea water intrusion occurred (CMWU, 2011) (Map 5.1.6). The WHO approved guideline of chloride is 250 mg/L.



Map 5.1.6: Chloride Concentration in Gaza Coastal Aquifer, 2010

The intensive use of agricultural pesticides, in addition to the inflow of sewage into the aquifer resulted in high concentrations of nitrate ion into groundwater. The WHO

guideline recommends less than 50 mg/L of nitrate concentration; tests indicated that the nitrate concentration reached ten times beyond the WHO guidelines in many wells (WASH, 2011a) (Map 5.1.7).



Map 5.1.7: Nitrate Concentration in Gaza Coastal Aquifer, 2010

According to UNRWA water diarrhea, acute bloody diarrhea, and viral hepatitis remain the major causes of morbidity among reportable infectious diseases in the refugee population of the Gaza Strip (WASH, 2011a).

6. Challenges Facing the Palestinian Water Sector

Constraints stemming from the Israeli Occupation:

The Palestinian water sector is facing many limitations and challenges that prohibit its sustainable development. The main challenge is the political situation which prohibits Palestinians from obtaining full sovereignty and control over their water resources in the oPt with more than 60% of the West Bank (Area C), where many water infrastructures are located, falling under the Israeli military law and the ICA, meaning the PNA has no say over Israeli acts within this area. Moreover, many Israeli activities are hindering the development of the water sector and these include; closures, physical restrictions on access to water resources, demolitions, and the construction of the Segregation Wall.

In addition to depriving the Palestinians of their water rights and exploiting more than 89% of Palestinian water resources, Israeli occupation has played a major role in depleting and deteriorating the Palestinian water resources in terms of both quantity and quality, destroying water infrastructures, and preventing Palestinians' from developing these infrastructures.

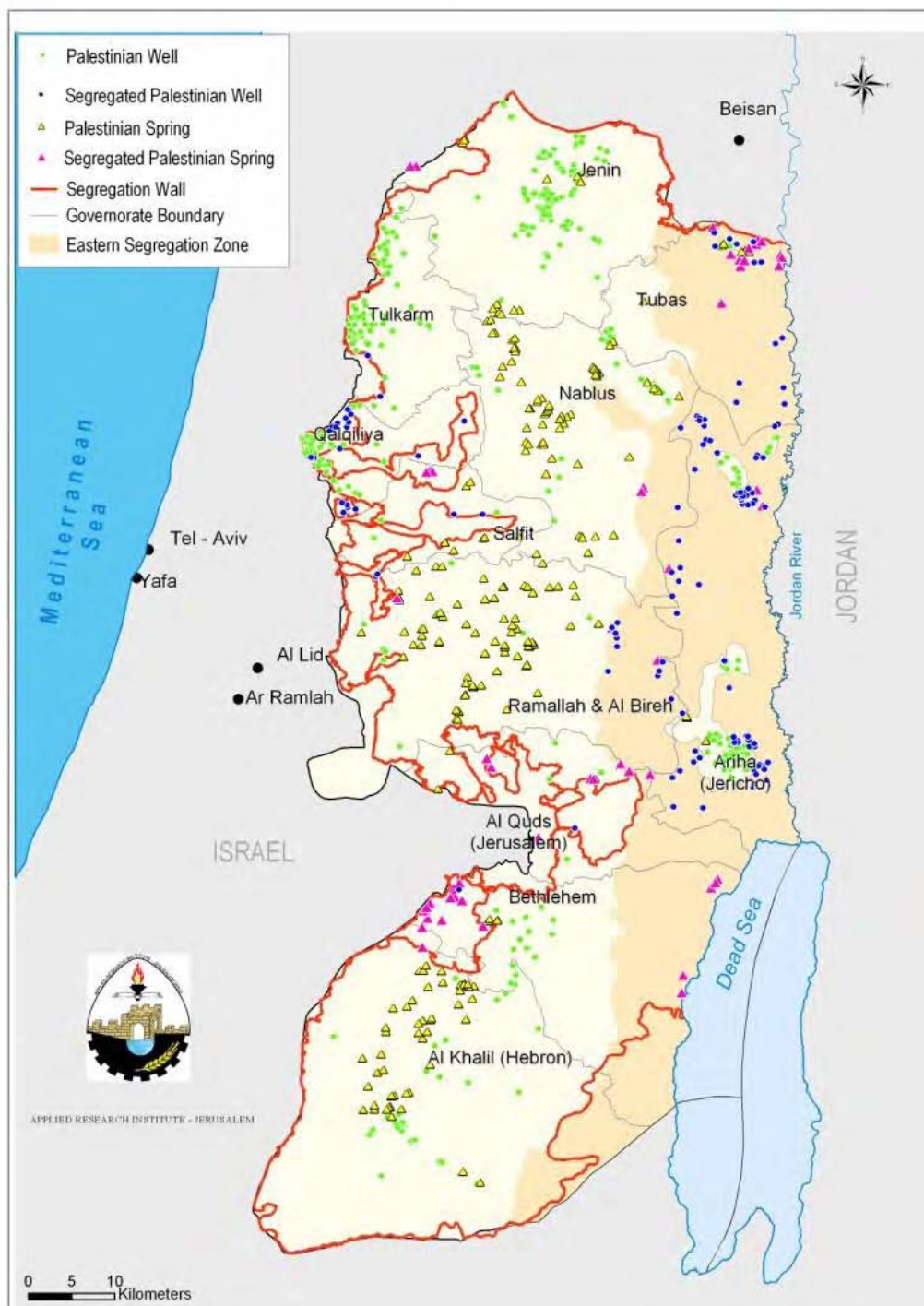
Article 40 of Oslo II Agreement, through the JWC, gives the Israeli occupation full control over the Palestinian water resources in the West Bank. Despite the fact that Israel, as an occupying power, is liable for ensuring the enjoyment of Palestinians in the oPt to the right to water, the JWC is preventing the implementation of many development projects, by rejecting, canceling or suspending them, which inhibits the progress of sector development in the West Bank. According to World Bank, of 417 Palestinian projects submitted to the JWC during 1996-2008, only 236 projects (representing 57%) were approved, whilst 22 projects were rejected and 143 projects are still waiting JWC approval. Regarding wells' drilling projects, only 65 projects out of 202 projects submitted to the JWC were approved. It is worth mentioning that among the denied wells' drillings, 82 projects were submitted as part of the agreed quantity under Article 40 of Oslo II Agreement (World Bank, 2009).

Physical Restrictions on Access to Water

Since the beginning of the occupation, Israeli authorities have imposed several physical restrictions on Palestinian movement and access to their water resources including; the construction of the Segregation Wall, checkpoints, roadblocks and closed military areas. In addition to restrictions imposed by these Israeli measures on the Palestinian access to water resources and structures, they have introduced real obstacles and challenges on the Palestinian management and development of their water resources and structures.

The construction of the illegal Segregation Wall has further decreased the Palestinian access to their water resources in the West Bank. It is believed that Israel has planned the route of the Wall in a way that it will confiscate Palestinian water resources and declare the Israeli control over hydrological sensitive areas (CoHRE, 2008). In addition, the Wall prevents Palestinian's access to areas with good water resources, for example areas with good possibilities to develop and abstract water from the Western Aquifer. The Wall has prevented thousands of Palestinians from accessing

their water resources, by confiscating a large number of Palestinian wells. Many water resources are threatened by the Segregation Wall, by the completion of the Wall 29 Palestinian wells and 32 Palestinian springs will be isolated in the Western Segregation Zone, in addition to 165 Palestinian Wells and 53 Palestinian springs in the Eastern Segregation Zone (ARIJ GIS database, 2011). The Segregation Wall has already come to areas containing artesian wells and main water resources providing the West Bank with. The Palestinians have lost their potential for developing these water resources (Map 5.1.8).



Map 5.1.8: Segregated Palestinian Wells and Springs

Demolitions in the West Bank:

The Israeli military and settlers have, and still are destroying the Palestinian's water structures including; storage and rainwater harvesting cisterns, wells, springs, water tanks, agricultural pools, amongst others. Recently there has been a significant increase on these demolitions. The destruction of these structures is a violation to the state's obligation to respect the right to water. Moreover, these demolitions are in violation of the Israeli-Palestinian Joint Water Committee' declaration (Joint Declaration for Keeping the Water Infrastructure out of the Cycle of Violence), signed in 2001.

According to Water Sanitation and Hygiene (WASH) Cluster database, and monthly situation reports, the number of water infrastructure demolitions that were registered in 2010 was 42, while from the beginning of 2011 until the end of September 2011 it has reached to 35 demolitions, in addition to the confiscation of 27 water structures. This brings the total number of water structures' demolitions recorded by WASH Cluster in the West Bank since June 2009 to 102 demolitions (Table 5.1.6). Some of these structures were demolished under the pretext that they were constructed without obtaining the relevant Israeli permit; but most were in fact demolished without any reason. The Fourth Geneva Convention prevents the destruction of such facilities which are considered as protected civilian objects under the laws of war.

Table 5.1.6: Number of demolished water facilities by the Israelis in the West Bank

Year	No. of Demolished Water Facilities
2009	25
2010	42
September, 2011	35

Source: WASH Cluster database, and WASH, 2011b



Photo 5.1.1: A well that was demolished twice, in July and September 2011 by the Israeli Army in An-Nassariyya village, east of Nablus Governorate

Source: ARIJ photo courtesy, 2011

Usually the demolitions are accompanied with other measures that aim at restricting access to areas served with water facilities and hence, eliminating the presence of Palestinians from particular areas with special interest to the Israelis.

Moreover, the Israeli settlers in the West Bank are also causing damages to the Palestinian water structures, by initiating attacks, which are usually carried out in the presence or knowledge of the Israeli soldiers, who have also sometimes participated in such destructions. These included the contamination of rainwater harvesting cisterns, which notably happened in Tuwani village in Hebron. In December 2007, a group of Israeli settlers travelled to the village and threw a substance into the rainwater harvesting cistern that contaminated the water, in addition to cutting the water mains and pipelines, and taking control of Palestinian springs ([Amnesty International, 2009](#)). The Israeli military, by failing to take measures to protect the Palestinian water facilities, are further violating the Palestinian people's right to water of the

Box 3

Israeli Demolitions of Water infrastructures in Palestinian Vulnerable Communities

Susiya is a village located in the South Hebron Hills. The village is facing an increased pressure from both the Israeli military and the settlers near them. The purpose of this pressure is to expel the villagers from their homes and land. Various means are practiced by the Israelis to accomplish their purpose, one of which is demolishing of the water facilities. In 1999 and 2001, most of the rain harvesting cisterns in the village that were used during the dry season had been demolished by the Israeli military. The Israeli authorities claimed that the reason for these demolitions was that these were built without obtaining permission.

The real purpose was to expand of the nearby Israeli settlement of Sussia, where the expansion of the settlement in the 1990s came with an increased harassment by Israeli settlers and army's attempts to expel the Palestinians living in caves and the villagers of South Hebron Hills. These practices and restrictions on access to water forced more than half of the villagers to leave the area ([Amnesty International, 2009](#)).

The Israeli military is blocking many roads meaning that the villagers have to take longer routes to reach water tankers; in addition the military sometimes blocks all access roads.

In September 2008 a military order had been issued to declare 150 dunums near the village as a "closed military area", thereby denying the villagers' access to 13 rainwater harvesting cisterns located in that area ([Amnesty International, 2009](#)). Later, in September 2009 Israeli forces set up roadblocks and stopped a group of peace activists on their way to deliver water to the villages in the Southern Hebron Hills.

Recently, in February 2011 Israeli forces demolished two vital water cisterns for the survival of unserved villagers in the vulnerable community of Susiya. In May the two cisterns were re-demolished after being repaired.

Gaza Siege and Cast Lead Operation:

Since June 2007, The Israeli Siege on the Gaza Strip has played a major role in depleting the water resources and restricting development of the water sector, and hence, violating the right to water in the Strip. Despite the recent easing of restrictions and the Cabinet's decision to allow the entry of materials for the projects that are approved by the PNA and are internationally supervised, Israel has prohibited the entry of required equipment for improving drinking water quality and for developing and/or rehabilitating water network and infrastructure in the Strip. Israel considers many of the materials as dual-use items, which can be used for military purposes and hence prohibits the entry of such items. The lack of constriction equipments and replacement parts led to an increase in the water losses from the water network. The losses were around 30% before the siege and increased in 2009, to reach 47% (B'tselem, 2010). The Israeli bombing of Gaza Strip's power station and the shortage of fuel needed to operate the power station led to reduced frequency of water supply to the houses.

During its' "Cast Lead" Operation (27 December 2008 – 18 January 2009) the Israeli military, by widely destructing water infrastructure in the Strip, has violated the IHL which states that fresh water facilities are protected civilian objects under the laws of war. The Operation caused damages to eleven water wells (the facilities of three wells were totally damaged), four water tanks among which one was totally damaged, and to the water distribution network (CMWU, 2009). Table 5.1.7 below lists the damages caused by the Israeli attack to the Gaza's water supply infrastructure during this operation.

Table 5.1.7: Damages to the Water Infrastructure during the Cast Lead Operation

Damages By Type	Governorate	Locality	Estimated Cost (US\$)
Water wells	North Gaza	Beit Hanoun	126,000
		Beit Lahia	5,000
		Jabalia	202,000
	Gaza	Gaza	48,500
Water Network	North Gaza		264,963
	Gaza		130,897
	Middle Gaza		16,080
	Khan Younis		21,890
	Rafah		186,485
Valves and filtering damages	All over Gaza Strip		1,172,175
Water Tanks	North Gaza	Jabalia	600,000
	Gaza	Gaza	10,000
	Middle Gaza	Mograga	10,000
		Wadi Salqa	5,000
Expected Unseen damages, especially in Rafah where the vibration of bombs	All Over The Gaza Strip		450,000

damage nearby networks		
Services (Water and Wastewater) provided to re-allocated people	All Over The Gaza Strip	750,000
Civil Works, Equipment and Materials Damages	All Over The Gaza Strip	570,000
Contingency	All Over The Gaza Strip	250,000
Total US \$		4,818,990

Source: CMWU, 2009

The shortage of fuel in Gaza Strip further has negative impact on the consistency of water supply in the Strip. As a result 20% of the Strip's population living in Gaza, Rafah, and Jabalia governorates receives water for 6 - 8 hours only once every 4 days, while 40% of the population receives water for 6 - 8 hours once every 3 days, 30% receives water for 6-8 hours once every two days, and 10% receives water supply (for 6-8 hours) once every day (WASH, 2011b).

Fragmentation in the Institutional Structure and Legal Framework in the Water Sector:

The fragmentation of institutional framework of the Palestinian water sector in the West Bank causes complications in developing the sector and in managing and maintaining the infrastructure. The administration in the water sector can be described as non-coordinated in their efforts and approach (AMAN, 2009). The NWC failed to fulfil its legal requirements and function as intended; the absence of holding regular meetings violates the Palestinian Water Law which demands the meeting of the Council at least once every six months. This has resulted in the absence of clear regulations to follow, and hence, the inability of the PWA to carry out its functions and role. In addition, the lack of monitoring over PWA's activities led to lower levels of transparency in the PWA's procedures. The PWA doesn't function only as a regulatory body; it also goes beyond its role and is involved in planning and implementing water projects.

There is no clear legislative policy which is able to establish separation of authorities between the PWA, the ministries and other institutions. This has led to overlapping in mandates and powers, mainly in terms of issuing water licenses. This has resulted from the lack of clarity in identifying the roles of different parties in this matter. According to AMAN -Coalition for Integrity and Accountability- report of 2008 on the PWA, the development of the water law was not mirrored in the development of the bylaws which caused a huge legal discrepancy between the water laws and bylaws, in addition to the incoherence between these legislations and the operating system of the PWA.

Poor Management:

The fragmented management of water in the West Bank, the presence of NGOs working in the field of infrastructure development, and the absence of formal coordination to avoid duplication or improvement of funds' usage caused complications in developing the water supply sector and in managing and maintaining the infrastructure. Generally the work between the PWA and NGO's remains competitive more than cooperative (Klawitter and Barghouti, 2006). The performance of the water utilities is weak, especially where the water losses are amongst the highest in the region.

However, there is a decision to establish the "Bulk Water Utility" which would be responsible for wholesale service delivery in the oPt. The Utility will be divided geographically into four regional water utilities, three in the West Bank; Northern, Central, Southern and one in the Gaza Strip; Coastal which has been established. The Utilities should be responsible for delivering water supply and sewerage services and are planned to take over the responsibility for water and sanitation operations.

Drought:

The oPt is a semi arid region that is vulnerable to global climate change. The restricted access to water resources and the Israeli control of water resources and development projects, in addition to the high population growth, make the water vulnerability to climate change in the oPt high.

Changes in the distribution of monthly precipitation, decreased amounts of annual or seasonal precipitation, and increased temperatures in critical periods are all factors that decrease groundwater recharge rates, and hence, water availability. Recently, the region has been affected by series of droughts.

In the oPt, years of below average rainfall i.e. drought, are more frequent than years of above average rainfall. The rainy season 2010-2011 has registered just 73% of the average annual rainfall in the West Bank and only 66% of the average rainfall in Gaza Strip (MoA, 2011) (See Chapter 8).

A decreased amount of rainfall means a decreased amount of groundwater recharge, and hence, an increased water scarcity. The increase in water scarcity will result in an increase in the water demand's competition between all the different sectors; domestic, agricultural, and industrial. Not only water availability will be affected, the quality of water will also be affected and deteriorated.

7. Failures and Violations to the Right to Access Water

Discrimination in water availability and consumption:

It is estimated the total amount of water available to Palestinian inhabitants of the West Bank (approximately 2.4 million), for their domestic, industrial and agricultural needs to be 105.9 MCM. The total amount of water available to approximately 7.1 million Israelis is 1408.6 MCM, in addition to further 277 MCM of brackish water and storm water and 450 MCM from non-conventional water from wastewater treatment and desalination (World Bank, 2009). The per-capita consumption in Israel is 4 to 5 times more than that of the Palestinians.

The difference of the quantity of water supplied to the illegal Israeli settlements in the West Bank is massive to that supplied to the Palestinians. The discrimination in providing the water supply is observable when comparing the daily water consumption between the Palestinians and the illegal Israeli settlers in the West Bank. This is a violation of Article 27 of the Fourth Geneva Convention of 1949 that prohibits an occupying power from discriminating between protected residents of an occupied territory. The variation in the consumption rates between the Palestinians and the Israelis settlers is enormous. The 628,000 Israeli settlers consume on average more than 350 l/c/d, while Palestinians in the rural communities of the West Bank survive on less than the average of 73 l/c/d; in some cases the per capita water use may not exceed 20 liters per day.

Box 5
Discrimination in the right access to water

Discrimination in access to water in the West Bank can be clearly seen when comparing Palestinians and the illegal Israeli settlers' access to water and daily consumption. The Jordan Valley provides an obvious example of the Israeli discriminatory practices and policies regarding access to water. According to B'tselem, (2011), in 2008, 144.4 MCM were accessible to the Palestinians living in the West Bank, while 44.8 MCM were available to less than 10,000 settlers in the Jordan Valley and northern Dead Sea area. Seventy percent of the water allocated to settlements came from Mekorot drillings, the rest from Tirza Reservoir, the Jordan River, and treated wastewater. Among the water consumed by the settlements in the Jordan Valley and northern Dead Sea area 43.7 MCM were allocated for agricultural use.

For domestic use, 487 l/c/d were allocated in 2008 to settlements in the Jordan Valley and 727 l/c/d to settlements in the northern Dead Sea area. In an Nu'ima village, the daily water consumption was 24 l/c, while in the Bedouin villages of al-Hadidiya, al-Farsiya, and Ras al-Akhmar, only 20 l/c were available.

The disparity in water consumption is huge. Comparing the daily per capita consumption between the Israeli settlements and the nearby Palestinian villages illustrates the discriminatory Israeli policies (Table 5.1.8).

Table 5.1.8: Per capita daily consumption in some of the Jordan Valley's settlements and the nearby Palestinian villages

Israeli Settlement	l/c/d	Nearby Palestinian village	l/c/d
Ro'i	431	Al-Hadidiya	20
Beka'ot	406	Al-Hadidiya	20
Arganan	411	A-Zubeidat	82
Niran	433	Al-A'uja	82

Source: B'tselem, 2011

From the Palestinian side, the PNA is obliged to provide the Palestinian citizens with sufficient quantities of safe and clean water for their daily use at affordable costs. The difference in the daily water supply and consumption within the West Bank's localities is significant. These quantities are supposed to be equal for all citizens, but water quantities distributed to the citizens vary between one governorate to another and even between localities within the same governorate. The difference in the amount of supplied water is big. For instance in 2009 the water was supplied to the citizens of Jericho & Al-Aghwar Governorate at a rate of 298 l/c/d, and to Qalqiliya Governorate at a rate of 147 l/c/d, while the supply rate for Tubas Governorate citizens was only 47 l/c/d.

Water Affordability:

The PWA was not able to fulfill its responsibility in adopting a unified tariff system for all the communities in the oPt until late November 2011. Before that the tariff used to vary from one governorate to another and even between localities within the same governorate. The difference used to appear in the water bills where differences in the fixed tariffs for maintenance of the water meters were noticed. In addition, some bills were paid in the Jordanian Dinars while others were paid in the New Israeli Shekels.

Generally, the water prices from the water supply network are provided at affordable prices. But due to the economic crises and the low income of the Palestinian people, expenditure on water often exceeds 5% of the household income. According to the [World Bank \(2009\)](#), and based on the PCBS 2003 survey, the average household expenditure in the West Bank on water from all sources was about 8% of its income, for low income households this percentage is much higher. The willingness to pay for water in the oPt is low, and bill collection rates average only about 50% in the West Bank and drops to reach 20% in Gaza Strip ([World Bank, 2009](#)). This is due to the economic situation in addition to the poor utilities performance in most of the cases. Communities suffering from water shortages, and others that suffer from supply cutting off for long periods, especially during summer, have to purchase water from water tankers at unaffordable high prices. At these prices people only buy quantities that satisfies their basic needs, this doesn't allow them to live in good conditions which affects their rights to water, health, and attainable standards of living.

The situation is worse for the unconnected communities with the water network; to satisfy their basic needs people in these communities have to travel long distances to get water or to purchase water at high rates. The reduced access to affordable water resources, resulted from the Israeli practices including; deteriorating and destruction of water sources or structures from which Palestinians used to get water from and restrictions on movement, has forced the population in some communities to travel long distances, sometimes for more than 4 hours, to get water legally or illegal from private connections. Traveling these long distances means consuming high amount of fuel, and hence higher prices of water delivered from tankers or high transportation costs when they get water by themselves. These practices resulted in reducing the affordability of water, where in some cases about 25% of the monthly income is paid for water, and this percentage reaches 40% in other cases like in Al-Malih community in Tubas Governorate ([Amnesty International, 2009](#); [CoHRE, 2008](#)).

Poor Governance in the Palestinian Water Sector:

The presence of the Israeli occupation hinders the development of good water governance in the oPt. But this is not the only factor that affects the efficiency of water governance. The absence of the role of the NWC has led to lack of transparency in the PWA operations, in addition there is a lack of accountability in managing the water sector in the oPt especially the technical problems. Another factor effecting good governance is the fact that many bodies (municipalities) manage this sector;

these bodies are not capable of conducting good governance and lack institutional expertise on the technical, financial, investment, and management levels.

Moreover, the PWA is not capable of monitoring and controlling the water abuses in the West Bank. This is due to the lack of Palestinian control over in Areas C and B where many abuses occur. The PWA monitoring over the abuses of the main water pipelines and water resources and water thefts in Area A is also weak. Corruption, political and tribal nepotism and favoritism in providing water services are also key factors that hinders the good governance in the Water sector

Box 5

Poor Water Governance in Jericho Governorate

Recently there have been several arguments about water ownership, management, and quality in Jericho Governorate. The importance of water and its abundance in Jericho and the Jordan Valley led to creating dominant powers that compete over controlling the available water resources which has made water resources a target for misuse, mismanagement, and abuse by the involved parties.

Regretfully, while different powers are currently involved in a dispute over the water resources in Jericho, the citizens are paying the price; poor farmers have to suffer from increasing irrigation costs and ordinary households have witnessed interruptions in their water supply since the summer of 2009.

When it comes to information about water resources in Jericho, there is a scarcity of available accurate information. The reality and facts of the situation are vague, which is a big reason for mishandling the available resources. One of the results of this ambiguity is that water calculation criteria are not clear; citizens may be charged additional costs on their water bills due to unfair water-share calculations. Integrity and governance challenges in water resources management appears to be closely interlinked with a range of other unethical practices, corruption, and unfair distribution, as well as with governance failures.

Currently, the main water supply source in the Jericho area is Ein es-Sultan Spring. This spring is public property, and there is a long-standing arrangement that 42% of its water to be used as drinking water resource and 58% be used for irrigation purposes. This distribution is carried out through share subscriptions by either farmers or households. In addition to this Spring, there are three springs in the north-west of Jericho City: Dyuk, Nuimeh, and upper Wadi Qelt; where most of the water is used for irrigation.

Irrigation water shares in Ein es-Sultan are well-known and established among the farmers and can be sold or leased to each other. However, the laws and/or official documents that govern such activities are not clear or easily accessible; the shares historically belong to certain farmers or families and their shares are preserved only through the public's memory. As for share-owners who are absent for any reason, it is unclear how their shares are handled; are they redirected towards domestic use or redistributed to other farmers?

Agricultural cooperatives were fighting for full control over the spring, and thus the transfer of management to the cooperatives. Although transferring of management might be beneficial to farmers, it should be noted that whoever controls the spring comes to a position of power and influence in Jericho. Ein es-Sultan also generates wealth and profit to its controller, thus all parties demand full control of Ein es-Sultan. However, cooperative members are all farmers who had no adequate training, education, or empowerment thus turning cooperatives into weak and unstable structures governed by the whims of the powerful few not the needs of marginalized farmers.

As for groundwater wells, various Palestinian administrations have different data regarding the number of wells in Jericho; according to the PCBS there are 70 wells; according to the PWA there are 95 wells, and according to the Ministry of Awqaf and Religious Affairs there are 155 wells. Apparently there is a large number of illegal wells in the Jordan Valley.

In general, wells in Jericho are divided among a very limited number of families due to historical and wealth reasons. According to the Palestinian Water Law, water is a public property that is not to be privately traded. However, well-owners sell their water to farmers under conditions that are sometimes unfair and unjust. Not only do they sell water, but they also discharge high levels of water to make more profit without regard to the critical consequences of over-pumping. It seems that there is no adequate monitoring of water quantities discharged from private wells.

Conclusion and Recommendations:

The Palestinian water sector is facing many limitations and challenges that prohibit its sustainable development. The majority of these are stemming from the Israeli occupation's policies and practices. The discriminatory and unfair division and utilization of the shared water resources between Israel and the oPt had led to creating chronic water shortage in the oPt. This violates the Palestinian right to water and the associated rights such as the right to health and the right to adequate standards of living.

Currently, all of the water resources in the oPt are exploited up to the safe yield and some resources are overexploited which resulted in the deterioration of water resources in terms of quantity and quality, this has already happened in the Coastal Aquifer where overpumping has resulted in lowering the groundwater table below sea level, and hence, sea water intrusion to the Aquifer. Any solution to the water conflict will have to consider equitable allocation and joint management between all the riparian of all transboundary water resources.

Since the signing of Oslo II Agreement, where Israel had recognized the unidentified Palestinian water rights, and in the absence of the Permanent Status Negotiation, the issue of the Palestinian water rights hasn't been solved. As a result, there is high and urgent necessity of Israeli-Palestinian negotiations over the water rights of the Palestinian people who suffer from severe water shortages as a result of

discrimination and unfair allocation of transboundary water resources between Israel and the oPt.

The gap between water supply and demand is expected to increase in the coming years. This fact and the limited access to water resources in the oPt, in addition to over pumping of some resources, which are mainly attributed to the Israeli occupation's practices, stress the urgent need for Israeli-Palestinian negotiations over the Palestinian water rights and the reallocation of the shared water among the two sides.

There is a need continue the development of new wells, reservoirs, pipelines, and new water infrastructure as well as rehabilitation of the ancient wells, in addition to implementing surface run-off capture and rainwater harvesting schemes. In Gaza Strip it is of great importance to build more desalination facilities.

To solve the water shortages in the oPt it is not enough to obtain the Palestinian water rights; adopting an integrated water resources management approach in addition to the creation of non-conventional water resources are two major factors in solving this problem and are necessary to ease the suffering of the Palestinian people who suffer from sever water shortage..

Regarding the water sector legal and institutional aspects, it is imperative that all the Palestinian water related laws, by-laws, and regulations should be reviewed and revised in order to separate the authorities, functions, and responsibilities of the different bodies involved in the water sector. It is also important to activate the NWC to function as was intended in the Water Law No.3 of 2003, and to activate the role of the PWA and its functions. To achieve sustainability in the water sector, the above mentioned should be joined with integrity, transparency, accountability, and equity in managing the sector.

5.2 Sanitation and Wastewater Management in the oPt

1. Wastewater Legal Instruments at Global Level Towards Sustainable Development

One fifth of the world's population, or 1.2 billion people, live in areas of water scarcity, and this is projected to increase to 3 billion by 2025, as water stress and populations increase (UNEP & UN Habitat, 2010). There is no option but to consider wastewater as part of the solution. To be successful and sustainable, wastewater management must be an integral part of rural and urban development planning, across all sectors. There are few, areas where investments in integrated planning can sustainably provide greater returns across multiple sectors than the development of water infrastructure and the promotion of improved wastewater management (UNEP & UN Habitat, 2010).

The world is facing a global water quality crisis. Continuing population growth and urbanization, rapid industrialization, expanding and intensifying food production are all putting pressure on water resources and increasing the unregulated or illegal discharge of contaminated water within and beyond national borders. This presents a global threat to human health and wellbeing, with both immediate and long term consequences for efforts to reduce poverty whilst sustaining the integrity of some of our most productive ecosystems (UNEP & UN Habitat, 2010).

In addition to continued lack of access to improved drinking-water sources, 2.6 billion people lack access to basic sanitation. Approximately 1.5 million children under five die every year as a result of diseases linked to the lack of access to water and sanitation (WHO, 2010).

Sanitation from a human rights' perspective (Box 1).

Box 1

What is sanitation in human rights terms?

Sanitation is access to, and use of, excreta and wastewater facilities and services that ensure privacy and dignity, ensuring a clean and healthy living environment for all.

Facilities and services, should include the collection, transport, treatment and disposal of human excreta, domestic wastewater, solid waste, and associated hygiene promotion.

To meet human rights requirements, sanitation must be:

Safe: Sanitation must effectively prevent human, animal and insect contact with excreta, Toilets

Including latrines must provide privacy and safe dignified environment for all.

Physically accessible: Toilets access and facilities for all should be guaranteed, at all times. along with associated services such as removal of wastewater and sewerage or latrine exhaustion.

Affordable: Access to sanitation, including maintenance, must be affordable, without reducing the individuals or household's capacity to acquire other essential goods and services, such as food, education and health.

Culturally sensitive: The construction and design of latrines should be culturally appropriate. Male and female public facilities, in particular in schools, need to be separate so as to ensure privacy, dignity and safety.

Source: CoHRE, SDC and UN-HABITAT, 2009

Nearly two thirds of the world's populations are without improved sanitation and nearly half practice open defecation, resulting in repeated episodes of diarrheal diseases in children (UN, 2010).

The right to water and sanitation has been recognized by 178 countries out of 192 United Nations members. This recognition was stated in at least one international resolution or declaration; including the United Nations General Assembly (UN) in 2010, the First Africa-South America Summit in 2006, the First Asia-Pacific Water Summit in 2007, the Third South Asian Conference on Sanitation in 2008 and the session of the Human Rights Council in September 2010 (Amnesty International, 2010). Only Canada, Israel and Tonga have not recognized both the rights to water and sanitation. In September 2010, at the Council session, the USA accepted that the right to safe drinking water and sanitation is derived from the International Covenant on Economic, Social and Cultural Rights (ICESCR). All Countries must take steps to ensure that the rights to water and sanitation are fully reflected in their laws, policies and practice. They should ensure that remedies are available for violations of these rights at the national and international level. All countries should become parties to international complaint mechanisms for violations of these rights, including the Optional Protocol to the ICESCR (Amnesty International, 2010).

Through the UN resolution, 61/192 of 20 December 2006, 2008 was proclaimed to be the International Year of Sanitation and for this reason the resolution was entitled: "International Year of Sanitation, 2008" (UN General Assembly, 2006).

The United Nations International Children's Emergency Fund (UNICEF) also calls access to sanitation a "basic human right" to assure health and human dignity (UN, 2010).

In September 2000, the UN member countries adopted the UN Millennium Declaration which was then translated into a roadmap setting out goals to be reached by 2015 (WHO, 2009). The UN 2000 Millennium Declaration affirmed through Goal 7: "to halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation". A UN Human Rights Council 2008 resolution, among others, included the same declaration (UN Human Rights, 2010 a).

With half the population of developing regions without sanitation, the 2015 target appears to be out of reach (WHO, 2009).

Another Human Rights Council resolution A/HRC/15/L.14, affirms that "the human right to safe drinking water and sanitation is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity" (UN Human Rights, 2010 b).

On July 2010 the UN General Assembly declared safe and clean drinking water and sanitation a human right essential to the full enjoyment of life and all other human rights (UN General Assembly, 2010). However, that resolution did not specify that the right entailed legally binding obligations.

The UN resolution (A/RES/64/292 Distr.: General resolution) of August 2010 adopted by the UN General Assembly, refers to the human right of access to water and sanitation. It acknowledges the 'importance of equitable access to safe and clean

drinking water and sanitation as an integral component of the realization of all human rights”, and reaffirms ‘ the responsibility of States for the promotion and protection of all human rights, which are universal, indivisible, interdependent and interrelated, and must be treated globally, in a fair and equal manner, on the same footing and with the same emphasis.’” In addition, it recognizes the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights (UN General Assembly, 2010).

Governments can opt to have the private sector provide water and sanitation. Likewise, they can choose public service provision. In both cases, they must comply with their human rights obligations, de Albuquerque says. The providers, in turn, have to accept their human rights responsibilities (OHCHR, 2010).

Convention (IV) relative to the Protection of Civilian Persons in Time of War; Geneva, 12 August 1949 recalls several articles relative to the right to sanitation, among them Art No. 36, 56, 85,124. An example of such articles is the Fourth Geneva's Article No.56 “An Occupying Power has the duty of ensuring and maintaining, with the cooperation of national and local authorities, the medical and hospital establishments and services, public health and hygiene in the occupied territory, with particular reference to the adoption and application of the prophylactic and preventive measures necessary to combat the spread of contagious diseases and epidemics” (ICRC, 1949).

2. National Palestinian Wastewater Legal Instruments

Institutional legal framework

During the initial stages of the 1967 Israeli occupation of the West Bank, the Israeli civil administration has been the only authority in the area. As a consequence, there was no central national authority responsible for the planning, development, operation and maintenance of national environmental elements. Wastewater collection treatment and reuse, suffered from great neglect during the Israeli occupation era. The Israeli civil administration was responsible for providing the Palestinian communities with those basic infrastructure services. In that period the policy of the Israeli occupation authorities aimed at serving their interests in the West Bank and Gaza Strip with no concern to the environment and the quality of infrastructure services provided to Palestinians. In each locality, littering, burning garbage in and around containers, random dumping and disposal of wastewater into open areas has been carried out without any control or environmental protection. The infrastructure services which are the foundation for physical development that is considered a prerequisite for the socioeconomic development of any nation were left underdeveloped during the occupation period. This has contributed to having fragile socio-economic conditions as well as to the occurrence of several environmental problems with detrimental impacts on human health and socioeconomic well-being (ARIJ, 2005). Ultimate responsibility for the provision of urban services to the residents such as solid waste collection and disposal, wastewater disposal, water supply, infrastructure and property administration was placed upon the municipalities, village councils, and the United Nations Relief and Works Agency (UNRWA) in the refugee camps.

With the establishment of the Palestinian Water Authority (PWA), after the Oslo II Accords in 1995, the PWA has become the main institution and regulatory body that leads and manages the wastewater sector in the oPt. The PWA acts as regulatory authority, responsible for the legislation, monitoring and human resources development in the sector; also has the responsibility for wastewater planning, effluent standards, sludge handling, industrial wastewater control and monitoring besides storm water drainage planning. In addition, the PWA grants licenses and permits for water and wastewater related projects and also supervises and monitors individual water projects and prepares the National Water Plan. In addition of being in charge of water resources and wastewater management, the PWA has the mandate to carry out regular inspections and to keep a register of all water and wastewater related data and information. Moreover, the authority shares responsibility for irrigation with the Ministry of Agriculture (MoA) and for environmental protection with the Environment Quality Authority (EQA) (Diabes, 2003).

Strategies, policies, agreements, projects and achievements toward sustainable development

a. Strategies

Since its establishment, The Palestinian National Authority (PNA) has committed itself to the building of credible governmental and public institutions in preparation for statehood. Progress in governance has been noted. Despite the continuing occupation of the West Bank and Gaza Strip by Israeli forces, and the constraints this reality places on the freedom of movement and the ability of the authorities to connect with their constituents, there have been significant steps forward.

The overall development objective of the **Water Management Strategy of May 1998** was to translate the messages from the National Water Policy (NWP) into strategic imperatives. This strategy emphasized the necessary aspects of water development as the establishment of a comprehensive framework for the sustainable management of Palestine's water resources, in addition to the development of an appropriate institutional set-up for reforming and strengthening the water and wastewater sector in coordination with relevant stakeholders.

In 2010, the PNA has developed a three-year (2011 – 2013) plan, entitled, “**National Sector Strategy for Water and Wastewater in Palestine**”. It describes the current situation of the water and wastewater sector and reflects their complexity. It also identifies the challenges facing these sectors. This strategy aims at setting the development for the Palestinian water and wastewater management sector for the upcoming three years. *Four* priorities and strategic objectives were set out in the national sector strategy as follow:

- 1) Promote good governance and provide a legal and institutional environment, that guarantees equitable services, and sound management of the sector ensuring its sustainability.
- 2) Integrated water management ensuring equitable and continuous services as well as resource sustainability.

- 3) Integrated wastewater management which ensures equitable and continuous services, contributes to preserving public health and safeguards the environment.
- 4) Efficient and effective water and wastewater institutions engaging all segments of society.

The strategy aims at developing the legislative, organizational, technical and economical bases to achieve an effective management for the water and wastewater sector. It also aims to contribute to achieve healthy and environmentally level of living for the Palestinian citizen (PWA, 2010).

Treated wastewater is considered a vital resource that can replace fresh water used for irrigating agricultural lands. Thus, if wastewater could be treated to an adequate standard, it could be reused for irrigation purposes; relieving pressure on precious fresh water resources in the oPt and, thus, contributing to solving the water crisis in the region. The oPt needs to follow a new approach to water resource management and apply various principles of Integrated Water Resources Management (IWRM), which are also the guiding principle of the EU Water Framework Directive. One main feature of the reforms was a clear separation between service provision, policy and regulation.

b. Policies

The current sector legislation was established after the 1995 Oslo Accords, with a by-law establishing the PWA in 1996, a 1998 Water Resources Management Strategy and the 2002 water law.

The PWA was established by a presidential decree. One year later, its functions, objectives and responsibilities were defined through a by-law, giving the PWA the mandate to manage water resources and execute any water policies. It was additionally made responsible for establishing cooperation and coordination between several stakeholders (Stephan, 2007).

After the signing of the Israeli-Palestinian Interim Agreement of 1995, the need for a comprehensive survey of water resources and their development strategies became a top priority as far as the PNA was concerned. The adoption of the elements of the NWP in September 1995 represented the first step in addressing the important issues of water resources management and planning. The NWP establishes the foundation for decisions regarding the structure and tasks of water sector institutions as well as water sector legislation. It also underpins the necessity of the sustainable development of all water resources and establishes the principle that water resources are a public property of the State. Clearly, the development of the water resources of the oPt must be coordinated on a national level and carried out on the appropriate local level.

The integration of Environmental protection and sustainable environment concerns into national policies is a recent phenomena in the oPt and has long been

overshadowed by the conflict. Israeli occupation has affected every aspect of Palestinian environment. In 1999, the Palestinian Environmental Law No 97 was signed by the PNA President and the 2005 draft Palestinian Constitution reiterates that the environment is a basic human right (Palestinian National MDG Steering Committee, 2005).

The Palestinian Environmental authority was established to take over environmental responsibilities. In 1998, a Ministry of Environmental Affairs (MEnA) was established to take over the responsibility of environmental legislation, environmental strategies' development and environmental planning in order to promote sustainable environmental department for the Palestinian society. MenA, which has been currently replaced by the Environmental Quality authority (EQA), formulated the Palestinian Environmental Law no (7). The Law was evaluated and approved by the Palestinian Legislative Council in 1999. It aims at protecting the Palestinian Environment from pollution; protecting public health and social welfare; introducing environmental protection fundamentals into the social and economic department plans; promoting sustainable development; preserving the biological diversity; protecting the environmentally sensitive areas; rehabilitating the environmentally deteriorated areas; and raising the level of environmental awareness among local communities. It defines a number of principles and guidelines that form the basis for decision and structures of the environmental legislations. The principles are illustrated through several articles (MEnA, 1999). The following are part of such articles:

Article (3): "Every Palestinian individual has the right to pursue the enforcement of the right to clean and healthy environment against any party; he/she may also obtain any official information about the environmental impacts of any planning activity".

Article (4): "The protection of the environment through collective and individual initiatives for voluntary work shall be encouraged through environmental education in schools, universities, institutions and clubs".

Article (5): "Every Palestinian individual has the right to a sound and clean environment and to the best possible health care and social welfare where the protection of the country's natural resources and the preservation of its historical heritage are maintained".

And more specified Articles related to wastewater as Article (29): "The ministry in cooperation with the specialized agencies has to develop standards and regulations for the collection, treatment, disposal and reuse of wastewater and storm water in a proper manner that ensures environmental and public health protection". The environmental Law no. (7) Outlined the rules and regulations related to a wide scope of environmental issues.

The formulation of the environmental law was followed by the development of the Palestinian Environmental Strategy (PES) in cooperation with the Netherlands Development Agency. The PES identifies the main environmental themes that need to be addressed, defines environmental objectives and introduces a series of prioritized measures that will lead to reaching these objectives. The PES contains eleven strategies that have been prioritized through the use of a certain evaluation criteria. In the PES, wastewater and solid waste management are recognized as two of the most urgent environmental priority elements that need to be addressed in order to resolve the pressing environmental problems (MEnA, 2000a). Based on the PES,

MEnA formulated a National Environmental Action Plan (NEAP) that sets out concrete actions and projects relevant to each of the strategy elements up to the year 2003 (MEnA, 2000b). The NEAP identifies the projects necessary to solve or alleviate the environmental problems caused by the current management of wastewater and solid waste. However, the implementation of the proposed strategic options and actions for waste management was faced with several impediments associated with practices of the Israeli Occupation Authorities that have been intensified after the outbreak of the second Intifada in September 2000 (ARIJ, 2005).

The Water Law No. 3 for 2002 has as objective, as stated in Article 2, is to “develop and manage the water resources, increasing their capacity, improving their quality and preserving and protecting them from pollution and depletion”. The Water Law No. 3 also refers to service provision in which officially established national water utilities, whose function is to provide water and wastewater services under the supervision of the PWA and in cooperation and coordination with the relevant parties (PWA, 2002).

The oPt’s technical and financial capacity to develop non-conventional resources is not yet adequate, especially that wastewater collection coverage was limited and wastewater treatment for reuse was not practiced.

However, the NWP, the Water Resources Management Strategy (WRMS), and the Water Law that have been adopted by the PNA encourage water conservation and call for the development of nonconventional resources.

c. Agreements

The existing agreements between Israelis and Palestinians were not accomplished with final stage agreements, and some were limited to a transitory period accords (Interim Agreements) previous to the final stage negotiations. Some of those agreements, with time, have become obsolete and need to be updated with new ones, resulting from final stage negotiations between the two parties. The existing agreements are merely a temporary solution for solving only the immediate domestic needs of the Palestinians for the transitional five years of the interim period (which expired in September 1998 according to agreement dates). The Israeli government and the Palestinian Liberation Organization (PLO), in September 1993, signed a “Declaration of Principles” (DOP). The DOP was the first initiative by both parties to put an end to decades of confrontation (NAD, 1993).

Both Parties showed a desire to put into effect the DOP and reaffirmed their recognition of mutual legitimate and political rights. The significance of the DOP lies in its reference to the necessity for cooperation and coordination on water issues within and beyond the interim period.

- **First Gaza Jericho Agreement, 4th of May 1994**

This Agreement dealt with the water issue in the context of environmental protection and prevention of environmental risks, hazards and nuisances. The Agreement applies only to the water and wastewater resources and systems in the Gaza Strip and Jericho Area. It clearly confirms the need for Israel and the Palestinians to adopt apply and ensure compliance with internationally recognized standards concerning acceptable

levels of land, air, water, and sea pollution, and acceptable levels of treatment and disposal of solid and liquid wastes.

The two parties agreed to establish a subcommittee to deal with all issues of mutual interest including the exchange of all data relevant to the management and operation of the water resources and systems, and the mutual prevention of harm to water resources. The Agreement focuses on the “no harm principle” and the continuation of the Israeli current water entitlement more than any other international water law substantive or procedural rules. The institutional mechanism established is an “Environmental Expert Committee” for coordination of environmental issues, to be convened as the need arises (NAD, 1994).

- **The Interim Agreement on the West Bank and Gaza Strip (September 28th 1995)**

Within the Interim Agreement on the West Bank and Gaza Strip both parties (Palestine and Israel) recognized the need to protect the environment and utilize natural resources on a sustainable basis. The sphere of cooperation includes wastewater, solid waste and water.

In reference to Article 12 of the Oslo II agreement, both parties agreed to cooperate and share the responsibility of preventing damage to the environment and taking measures to ensure that activities in areas controlled or managed by one party do not cause environmental damage to areas controlled or managed by the other party. It was also agreed that each party should: (Israeli Ministry of Foreign Affairs, 1995 & NAD, 2005)

- Promote proper treatment of domestic and industrial wastewater, as well as solid hazardous wastes;
- Prevent uncontrolled discharge of wastewater to water resources;
- Adopt, apply and comply with internationally recognized environmental standards concerning the levels of pollutants discharge through emissions and effluents; the acceptable levels of wastewater and solid waste treatment; the ways and means for disposal of such wastes; and the use, handling, transportation and storage of hazardous substances and wastes.
- Ensure that a comprehensive environmental impact assessment (EIA) is conducted for all major development programs;
- Take precautions to prevent water and soil pollution as well as other environmental safety hazards;
- Take measures to prevent noise, dust and other nuisances from quarries;
- Cooperate in the implementation of internationally accepted principles and standards of global environmental concern, such as the protection of the ozone layer, endangered species of fauna and flora, conservation of migratory species, and preservation of existing forest and natural resources; and

- Cooperate to promote public awareness of environmental issues to combat desertification, to carry out environmental studies and to control transfer of pesticides.

A Joint Environmental Experts Committee from both sides was established to ensure effective collaboration on the aforementioned issues. In spite of the apparent mutual understanding and shared responsibility to protect the environment, the Israeli experts in this committee were given a veto over the Palestinian decisions. The Palestinian experts could not interfere with the Israeli decision with regards to their activities and practices in the oPt. This has resulted in both environmental and social costs. Furthermore, the Israeli authorities didn't comply with the aforementioned actions and measures that were recognized by both sides to protect the environment. The Agreement explicitly states that Israel recognizes Palestinian water rights, which will be negotiated in the permanent status negotiations. The nature of these rights was not identified nor was the overarching principle governing the rights and obligations of both parties set out in the text. The two parties agreed to establish a Joint Water Committee (JWC) as an institutional mechanism for the interim period. The main aim of the JWC is to undertake the implementation of Article 40. It was further agreed that decisions of the JWC should be reached by consensus, including the agenda, the procedures and other matters .

The Israeli-Palestinian JWC was established with unanimity required for all decisions. The JWC was expected to implement the regulations of article 40 of the agreement which concern water and sanitation. Yet no dispute resolution mechanism exists, so Israel can unilaterally approve or reject all water and wastewater sectors' requests, and it does. As a result, new facilities haven't been built despite an urgent need for them (Lendman, 2009).

The existing agreement emphasizes Israeli recognition of Palestinian water rights, but gives no definition of these rights. Furthermore, there is no agreement on the overarching legal principles that will govern the rights and obligations of both parties. The negotiations on these rights were postponed for the permanent status agreement negotiations. If one compares the agreements with what has actually been achieved, there is a strong indication of the complexity of the situation and the inequality in the power structures that has favored the Israelis. Decision-making within the JWC was unilateral, always dependent on the impact of the proposed Palestinian projects to the *status quo* of the current Israeli utilization. The "no harm principle" was the dominant factor applied in the Israeli evaluation and resulted in the rejection of the Palestinian projects and plans (Daibes, 2004).

It is not possible to achieve high quality water supply without proper handling of wastewater. It will require prodigious effort by the Palestinians and international mediators to engage the Israelis in negotiations over water with the above-proposed approach.

Israel has continuously practiced a unilateral control over the water and wastewater sector in the West Bank and Gaza Strip, not fulfilling its obligations as a belligerent occupier under the international law.

In conclusion, existing peace agreements between Israel and the PLO on the West Bank and Gaza Strip water resources do not go beyond temporary solutions for emerging crises nor do they create a sustainable and permanent solution. Further, these agreements were concluded in an unjust and inequitable manner.

d. Projects and achievements towards sustainable development

Ensuring a sustainable development for the wastewater sector is one of the main challenges that currently face the PWA. In order to accomplish such mission, the PWA shall be able to build a sustainable wastewater sector in which both the governmental and non-governmental sector act jointly behind this goal. Coordination among all involved stakeholders is still needed to guarantee the implementation of projects in a satisfactory manner to achieve a sustainable development. The International Community is still promoting and financing number of projects in the oPt (Table 5.2.1). In many cases the project assigned budgets are limited providing only partial solutions. Other projects have been cancelled or postponed due to Israeli impediments, clear examples are the projects related to building wastewater treatment infrastructures, especially if the infrastructures are proposed to be built in area C and which requires Israeli permits. Conditioning aids to political conditions is another factor that does not contribute in achieving a sustainable development in the wastewater collection and treatment sector.

All water and sanitation projects in the oPt must be approved by the JWC, and as a result, have been lengthened and became more complicated. This additional layer of bureaucracy can add many more months to the project planning and permitting processes, and has been used to force the Palestinians to add the illegal Israeli settlements to the planned sewage networks as an attempt to legalize their presence in the oPt (e.g., *Pesagot Israeli settlement near Al Bireh*). In addition, projects are often stalled due to Israeli military actions (e.g., *Beit Lahia Treatment Plant Rehabilitation, 2006*).

The nature of wastewater collection and treatment projects is quite different than other projects. The topography (slope) is which marks the path of such projects, where the best path can be within Areas A, B, or C. This fact limits the success and sustainability of wastewater collection and treatment projects.

Table 5.2.1: Some recent projects that have as objective to contribute in the development of the wastewater sector in the oPt.

Title	Funding agencies	Counter parts
Regional Sewerage Tulkarm	Kreditanstalt für Wiederaufbau	Ministry of Planning and Administrative Development / Municipality of Tulkarm
Design and implementation of an integral system of wastewater treatment and reuse in the Wadi Al-Aroub area (Hebron)	Spanish Cooperation - Spanish Agency for International Cooperation	Applied Research Institute - Jarusalem (ARIJ) /
Sewerage Project Nablus West	German agency / Kreditanstalt für Wiederaufbau	Municipality of Nablus

Title	Funding agencies	Counter parts
Sewerage Project Salfeet	German agency / Kreditanstalt für Wiederaufbau	Ministry of Planning and International Corporation / Municipality of Salfit
Water Sanitation Program Palestinian Territory	Germany / Kreditanstalt für Wiederaufbau	Ministry of Planning and Administrative Development / Palestinian Water Authority
Nothorn Gaza Emergency Sewage Treatment Plant (NGEST)	World Bank agency / World Bank	Palestinian Water Authority
	Swedish International Development Cooperation Agency	
	France agency / Agence Française de Développement	
Sewerage Project Gaza Central-Accompanying measure	Kreditanstalt für Wiederaufbau	
Coastal Municipality Water Utility (CMWU) - Sanitation in Gaza	Agence Française de Développement	Palestinian Water Authority
Sewerage Project Gaza Central	German agency / Kreditanstalt für Wiederaufbau	
Additional Complementary Components to the Storm Water and Sewerage project, the Fast Track Program in Northern Gaza	Sweden agency / Swedish International Development Cooperation Agency	Palestinian Water Authority
Technical Assistance on Use of Non-Conventional Water Sources-Reuse of Treated Wastewater, Management of Storm Water Harvesting in the Gaza Strip	Austrian Development Agency	Ministry of Planning and Administrative Development / Palestinian Water Authority / Ministry of Finance

Source: Palestinian Ministry of Planning (MoP), 2011

North Gaza Emergency Sewage Treatment (NGEST) Project is a clear example of efforts on its way of transformation to reality (Photo 5.2.1).



Photo 5.2.1: Implementing Phase, North Gaza Emergency Sewage Treatment (NGEST) Project

Source: Photo Courtesy of STULZ-PLANAQUA, 2011

3. Analysis of the Current Status of the Wastewater Sector in the oPt.

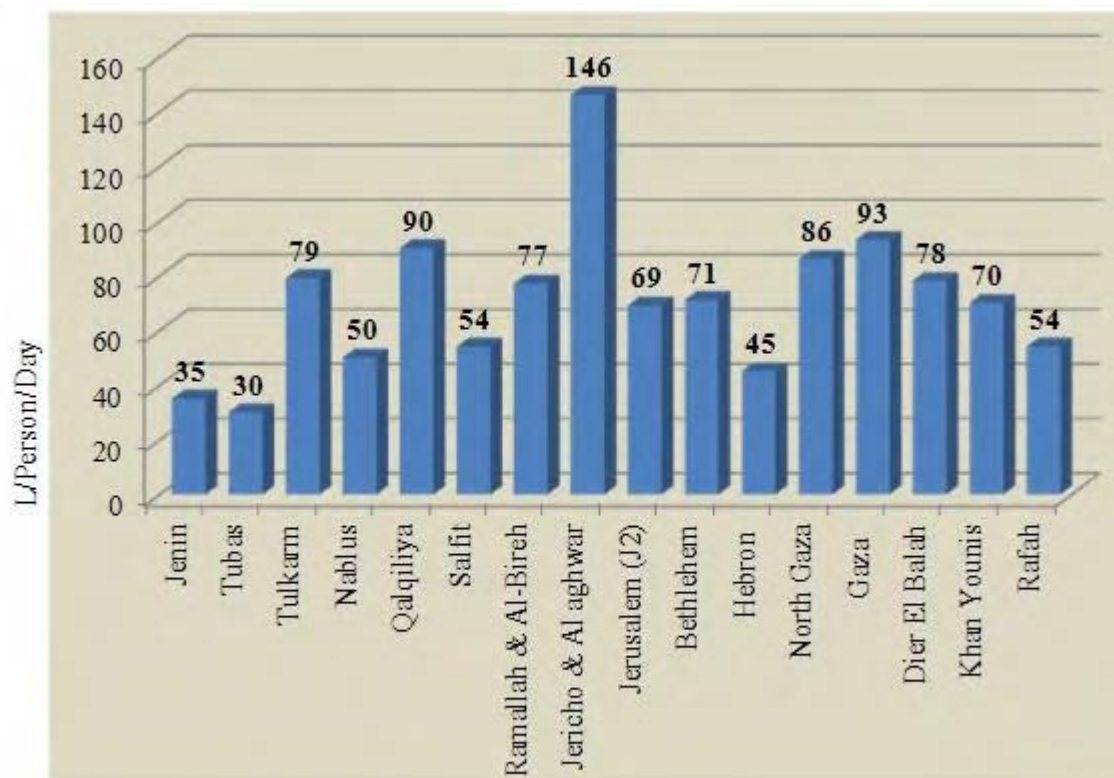
Status of the Wastewater Infrastructure

The current management practices for the wastewater sector in the oPt are mostly limited to the collection of wastewater by sewage networks and cesspits. Furthermore, wastewater treatment facilities are restricted to a few localities in the oPt. The lack of enough and appropriate infrastructure for the wastewater collection and treatment has been the limiting factor in the development of the wastewater sector.

Raw Wastewater Generation and Connection to Sewage Systems

Raw Wastewater Generation

The wastewater generation volumes in the oPt depended mostly on the daily per capita water consumption and availability of the water resources. [Figure 5.2.1](#) illustrates the average daily per capita wastewater generation in the West Bank and Gaza Strip.

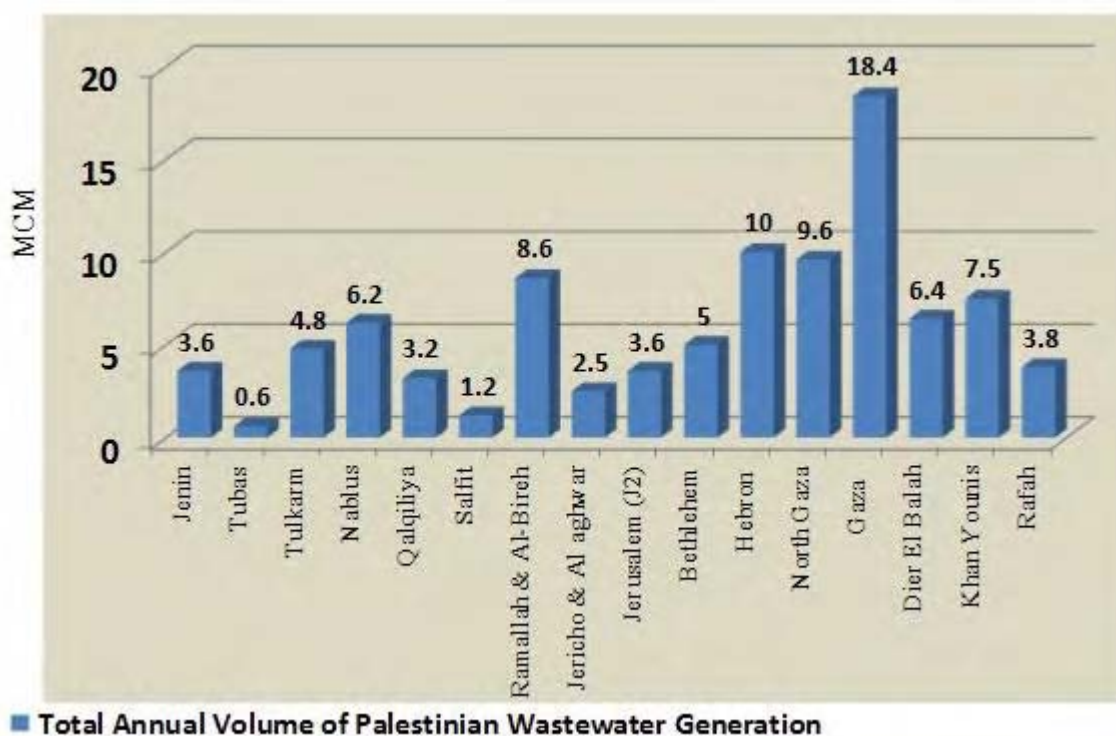


■ Daily Palestinian Wastewater Generation

Figure 5.2.1: wastewater generated in the Occupied Palestinian Territory in Liters per person per day for the year 2008.

Source: PWA, 2008

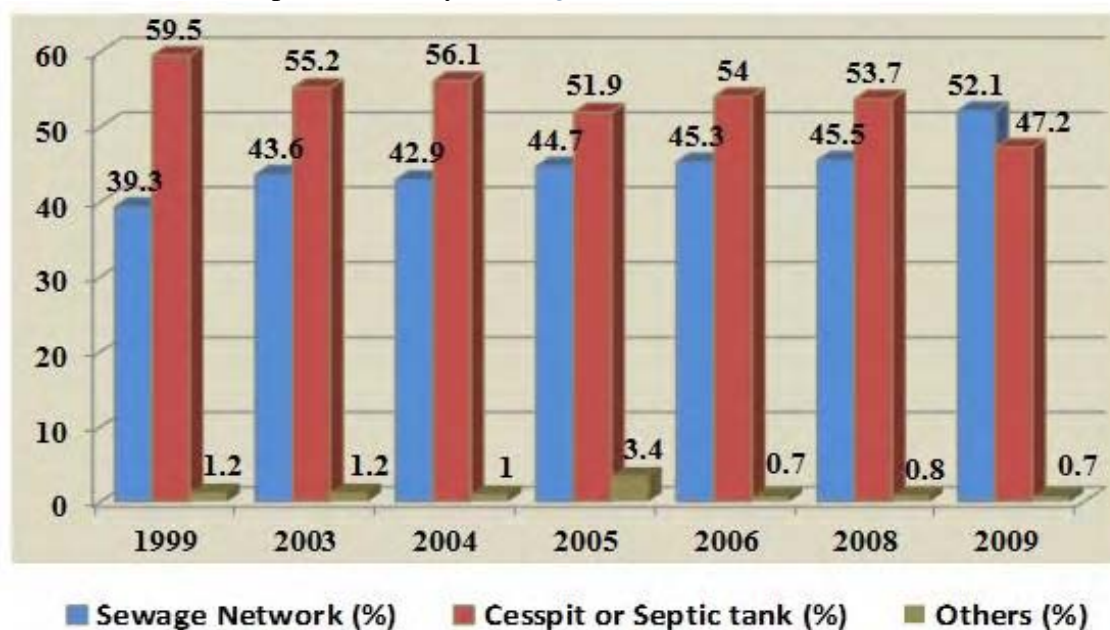
Based on the above daily wastewater generation, the total volume of wastewater generated in the oPt in the year 2010 was estimated at 95 Million Cubic Meters (MCM). It should be noted the amount of generated wastewater can be higher than the figures reported herein as they were calculated based on the total volume of supplied municipal freshwater minus the total volume of unaccounted for water, the result was multiplied by 85% for both urban areas and refugee camps and by 70% for rural areas. [Figure 5.2.2](#) provides the volumes of wastewater generated in each of the Palestinian governorates in oPt for the year 2010, values are indicated in MCM .



■ Total Annual Volume of Palestinian Wastewater Generation
Figure 5.2.2: Estimated volumes of wastewater generated in the oPt for the year 2010.
 Source: PWA 2008, ARIJ 2011

Connection to Sewage Systems

When comparing the status of sewage collection network in the oPt in the year 2009 with corresponding data of the year 1999, there was reported an increase in the connection coverage of households from 39.3% in the year 1999, to 52.1% in the year 2009, that means that was achieved an increase in household connection coverage in the oPt of 12.8% in a period of ten years (Figure 5.2.3).



■ Sewage Network (%) ■ Cesspit or Septic tank (%) ■ Others (%)
Figure 5.2.3: Adopted Wastewater Disposal Methods at Household Level in the oPt for the Period of (1999-2009)

Source: PCBS, 2009.

Most of the West Bank households rely on cesspits as wastewater disposal method, when in the Gaza Strip sewage collection networks are the dominant wastewater disposal method adopted at household level (Figure 5.2.4).

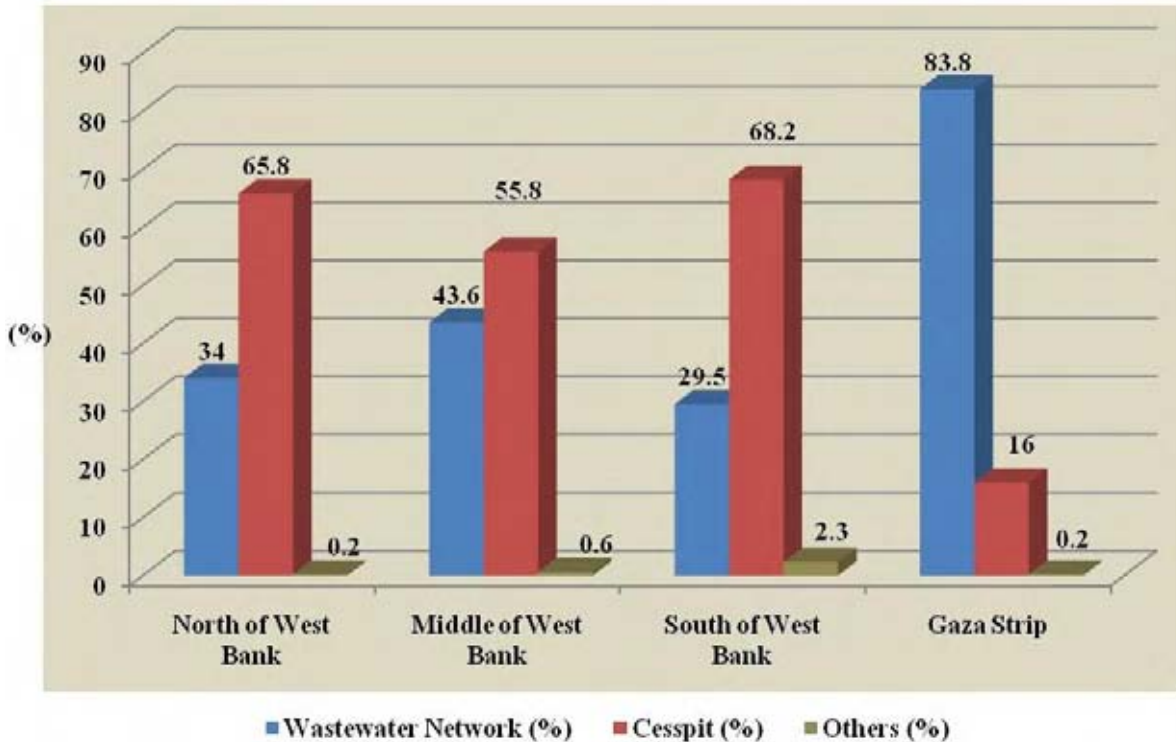


Figure 5.2.4: Households Percentages in the oPt in accordance to adopted wastewater disposal method.

Note: (1) North of West Bank refers to: Jenin, Tubas, Tulkarm, Qalqilya, and Nablus Governorate.

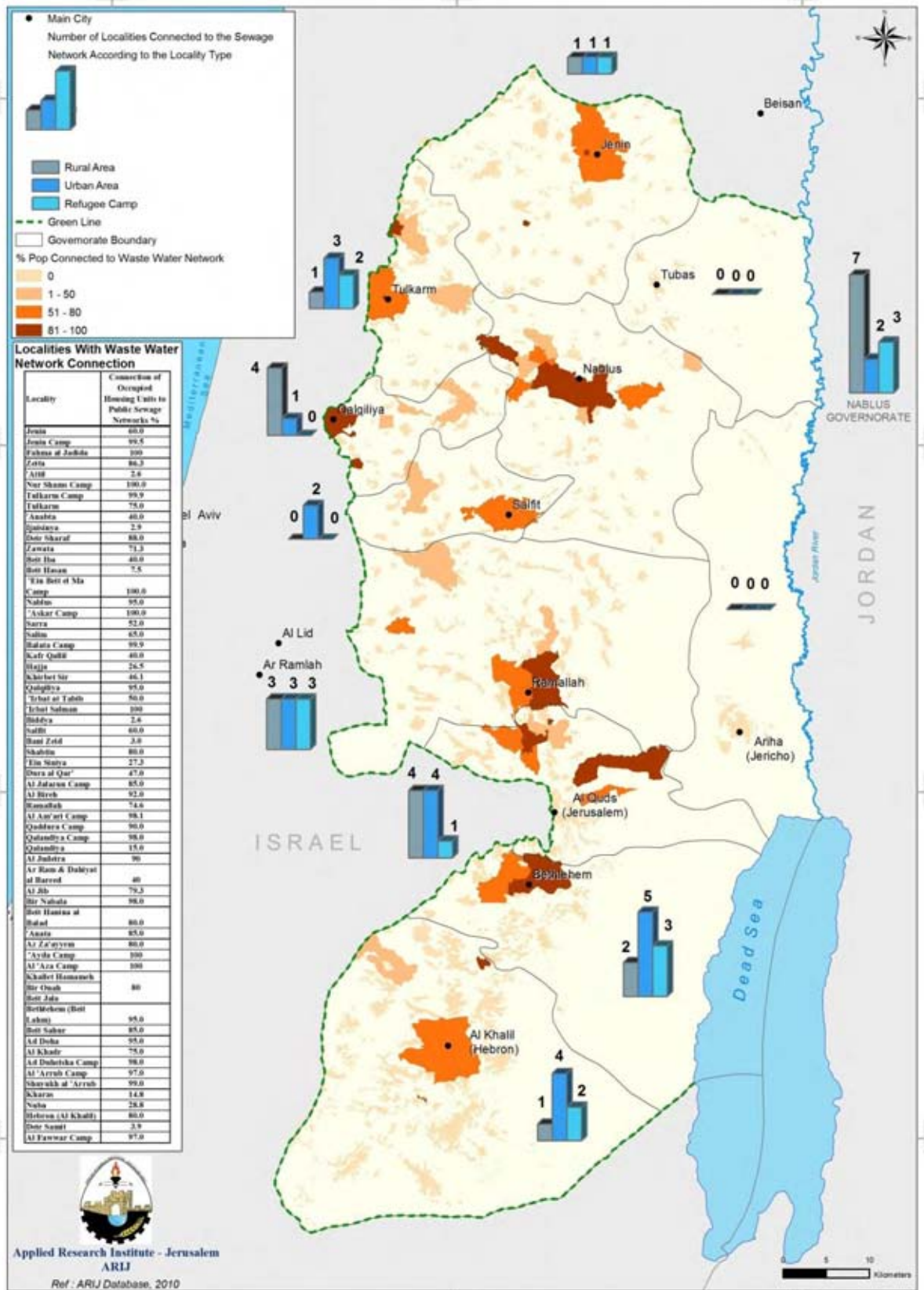
(2) Middle of West Bank refers to: Ramallah, Salfit, Jerusalem, and Jericho Governorate.

(3) South of West Bank refers to: Hebron and Bethlehem Governorates.

Source: PCBS, 2009.

Wastewater collection network is mostly limited to the major cities and refugee camps. To understand better the West Bank wastewater network coverage, Data was linked to its corresponding geographical space providing an easy and clear descriptive tool (Map 5.2.1). Based on a survey conducted by ARIJ in 2010; 63 local authorities in the West Bank that are connected to public sewage networks were targeted, this through questionnaire that addresses general information and other information related to the existing public sewage network. 53 local authorities, out of 63, completed the questionnaire. In accordance to the research results obtained through that survey, 39.68 % of the localities that were covered by sewage collection network were urban areas, 36.51% were rural localities and the remaining 23.81 % were refugee camps. The coverage distribution of the sewage collection network was also analyzed through the different West Bank Governorates (Map 5.2.1).

Connection to Wastewater Network by Village Boundary, 2010



Map 5.2.1: West Bank, Connection to Sewage Networks by Village Boundary, 2010

To summarise, households that use cesspits as wastewater disposal method in the oPt, are more likely to be found in the south of the West Bank (68.2% of the total households in this region are connected to cesspits), leaving the Gaza Strip with the biggest sewage connection coverage (PCBS,2009).

According ARIJ's 2010 field survey 25% of the sewage networks in the West Bank are in very good conditions, 30% of them are in good conditions and 8% of them are in bad conditions (Figure 5.2.5). As many of these networks are old, poorly designed and suffer from leakage especially those implemented during the 1970s. Moreover, many sewage collection pipes are of a small diameter (8 – 12 inches), and therefore, insufficient to deal with sewage inputs; , making blockages and flooding frequent phenomena. In addition, most of these networks serve part of the locality where the remaining wastewater is mainly collected through cesspits.

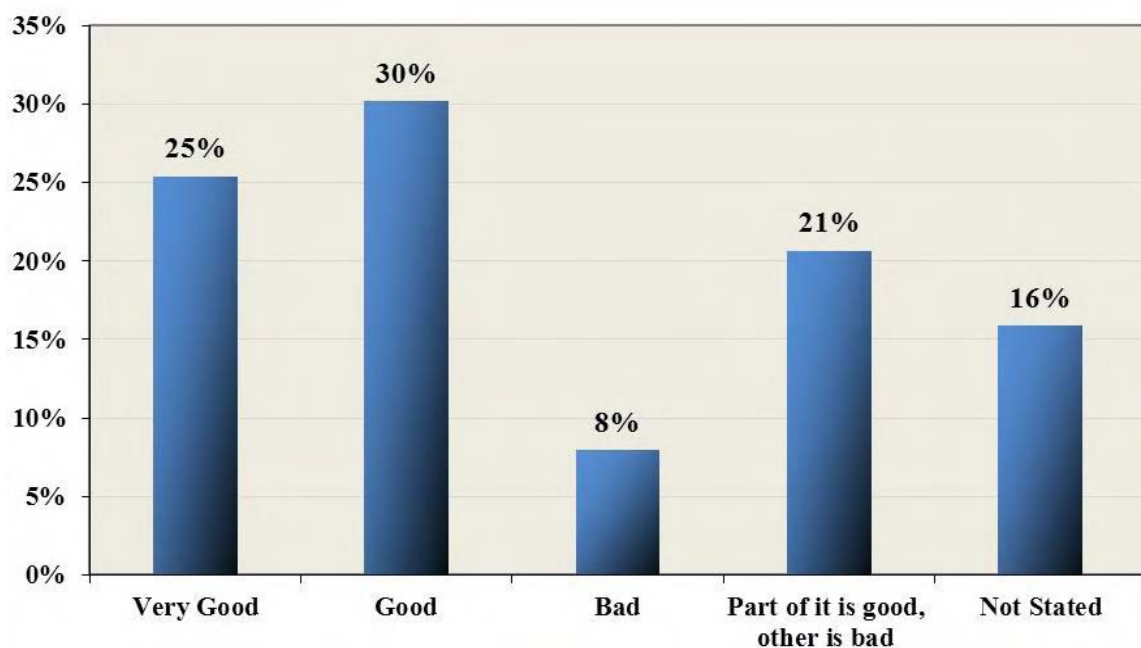


Figure 5.2.5: Status of Sewage Networks in the West Bank

Source ARIJ Field Survey, 2010

Wastewater Final Disposal

Collected wastewater if not treated, it is disposed into the environment. According to ARIJ's 2010 field survey, and in accordance with 2009 data from the Palestinian Central Bureau of Statistics (PCBS), the most common disposal method for wastewater in the West Bank remains cesspits. Only 6.33% (2.836 MCM) of the generated wastewater in the West Bank is being treated in centralized and collective wastewater treatment plants located in the West Bank, (Table 5.2.2) the remaining is being discharged untreated into the environment; part of which is being treated by Israeli treatment plants located inside Israel. Cesspits are purposely designed and constructed without a concrete lining in order to allow seepage into the ground. With time, cesspits are filled with wastewater which necessitates periodical emptying by vacuum tankers. The collected wastewater in the tankers is often released in the nearby wadis. However, septic tanks are environmentally preferable to cesspits as their design prohibits wastewater leakage to the ground. These tanks are rarely used in the West Bank. However, with vacuum tankers, whether with sewage from septic

tanks or cesspits, if there is not close available infrastructure to receive this sewage, those pollutants are discharged into the environment. Hiring the service of vacuum tankers despite of not being a real solution to the problem is a costly service that in many cases goes beyond citizens' affordability. In the Gaza Strip, there are also discharges of untreated wastewater into the Mediterranean Sea.

Among the major wastewater streams in the West Bank are: Wadi Zeimar, Wadi el-Sajour (Nablus), Wadi Beitunia (Ramallah), Wadi as-Samen (Hebron) and Wadi en-Nar (Bethlehem), (Photo 5.2.2).



Photo 5.2.2: Wadi en-Nar Wastewater Stream Bethlehem Governorate

Source: Photo Courtesy of ARIJ, 2011

The disposal methods of the generated wastewater in the oPt, vary accordance to available infrastructure. The variation in the quality of effluents disposed into the environment ranged between acceptable treated wastewater qualities (as the case of Al Bireh WWTP), to raw wastewater quality disposals (in the case of Wadi en-Nar wastewater stream) (Figure 5.2.6). In several instances, the wastewater that crosses the Green Line (Armistice Line, 1949) is treated in Israeli treatment plants and reused for irrigation purposes. The cost of this treatment is normally charged to the PWA and deducted annually by Israel from Palestinian tax revenues (PWA, 2010 Phone Conversation). ARIJ considers that the generated wastewater in the oPt, shall be treated and reused within the oPt. The adoption of such approach, will contribute in avoiding elevated costs paid to Israel as wastewater treatment concept, providing at the same time a non conventional water resource that can be utilized for irrigation, contributing in alleviating the water scarcity problem.

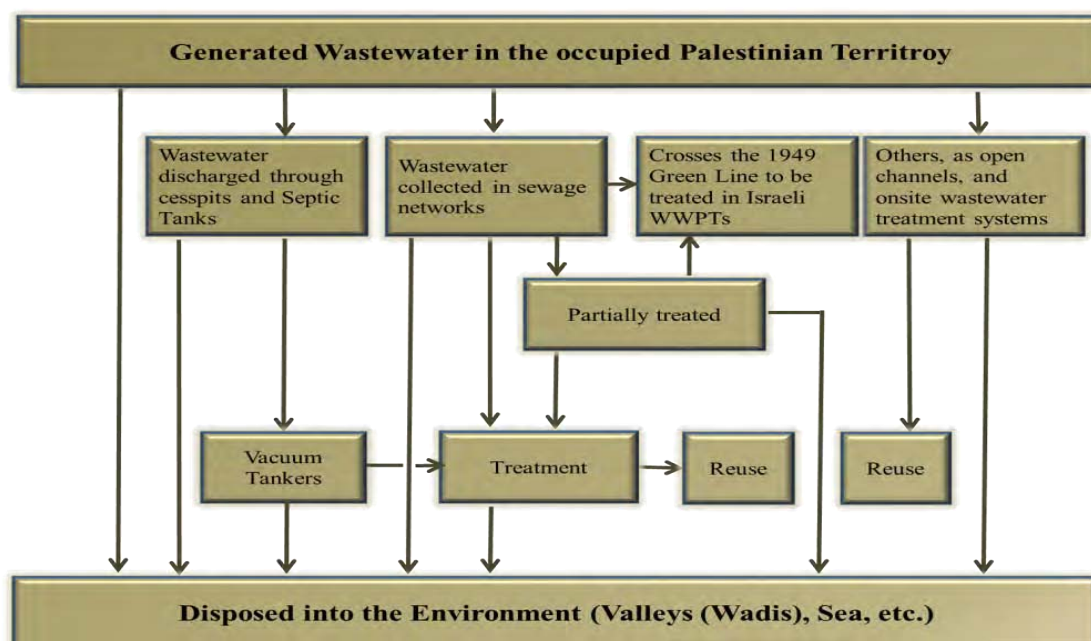


Figure 5.2.6 Disposal Methods of Wastewater in the occupied Palestinian Territory

Source: ARIJ field Survey, 2011

Wastewater Treatment

Sewage networks in the West Bank are rarely supported by wastewater treatment facilities. Appropriate treatment of wastewater has been neglected throughout the oPt; both by the Israeli occupation, and the lack of investment to the sector made the wastewater treatment sector incapable of providing this basic service to the majority of the Palestinian Population.

Table 5.2.2: Volume of Treated Wastewater in the West Bank Governorates for the Year 2010.

Geographical Scale	Volume of Treated Wastewater in the West Bank Governorates	
	(MCM/Year)	Percent (%)
Jenin	0	-
Tubas	0	-
Tulkarm	0.07	1.56
Nablus	0	-
Qalqilya	0.02	0.66
Salfit	0.01	0.97
Ramallah & Al-Bireh	2.64	33.52
Jericho & Al aghwar	0	-
Jerusalem	0	-
Bethlehem	0.02	0.38
Hebron	0.08	0.8

West Bank	2.836	6.33
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Source: ARIJ - Water and Environment Research Department (WERD) Database, 2010.

If we analyze the particular case of Ramallah and Al Bireh Governorate, with the highest wastewater treatment capacity in the West Bank, we find that the volume of treated wastewater in the year 2010 for Ramallah and Al Bireh Governorate was approximately 2.64 MCM. This number exceeds the collected wastewater in the sewage collection network for this governorate that was 2.14 MCM for the year 2010 (Figure 5.2.7). What explains that the treated wastewater exceeded the collected of this governorate is that those wastewater treatment plants receive volumes of collected wastewater by vacuum tankers. Al-Bireh WWTP also receives wastewater generated from Pesagot, the nearby Israeli settlement, which hosts around 1,572 Israeli settlers. This connection from the settlement with Al-Bireh WWTP was done without the approval of the PWA.

Concerning the remaining governorates of the West Bank, the services are limited mostly to the collection of wastewater with almost no treatment infrastructure.

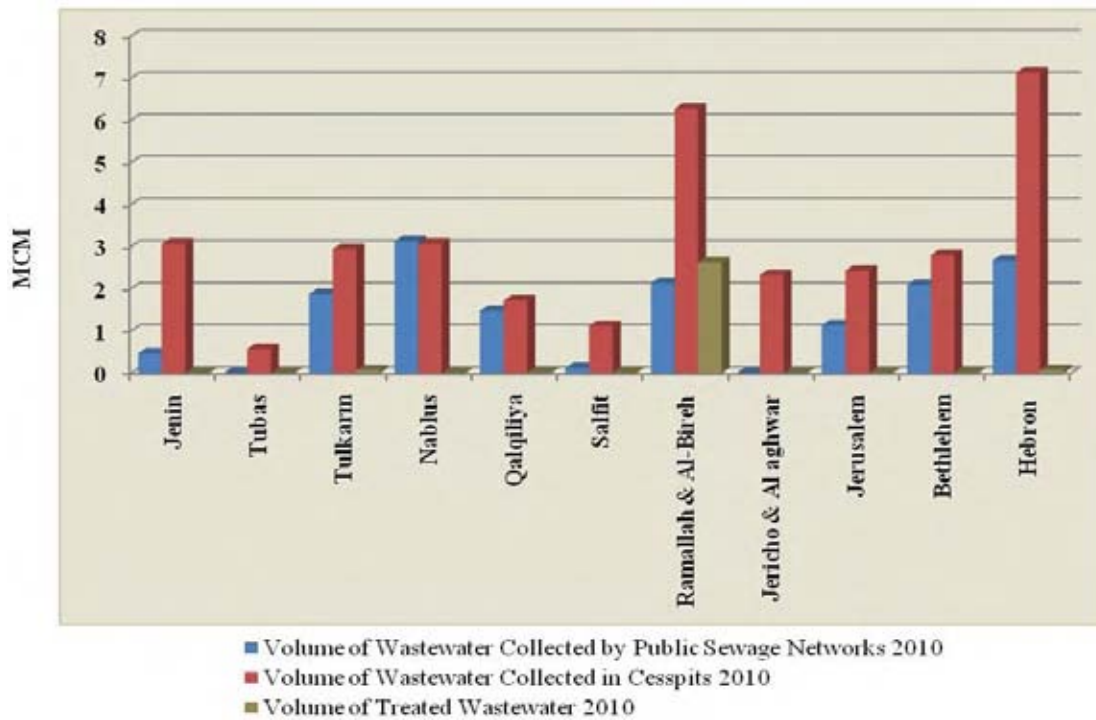
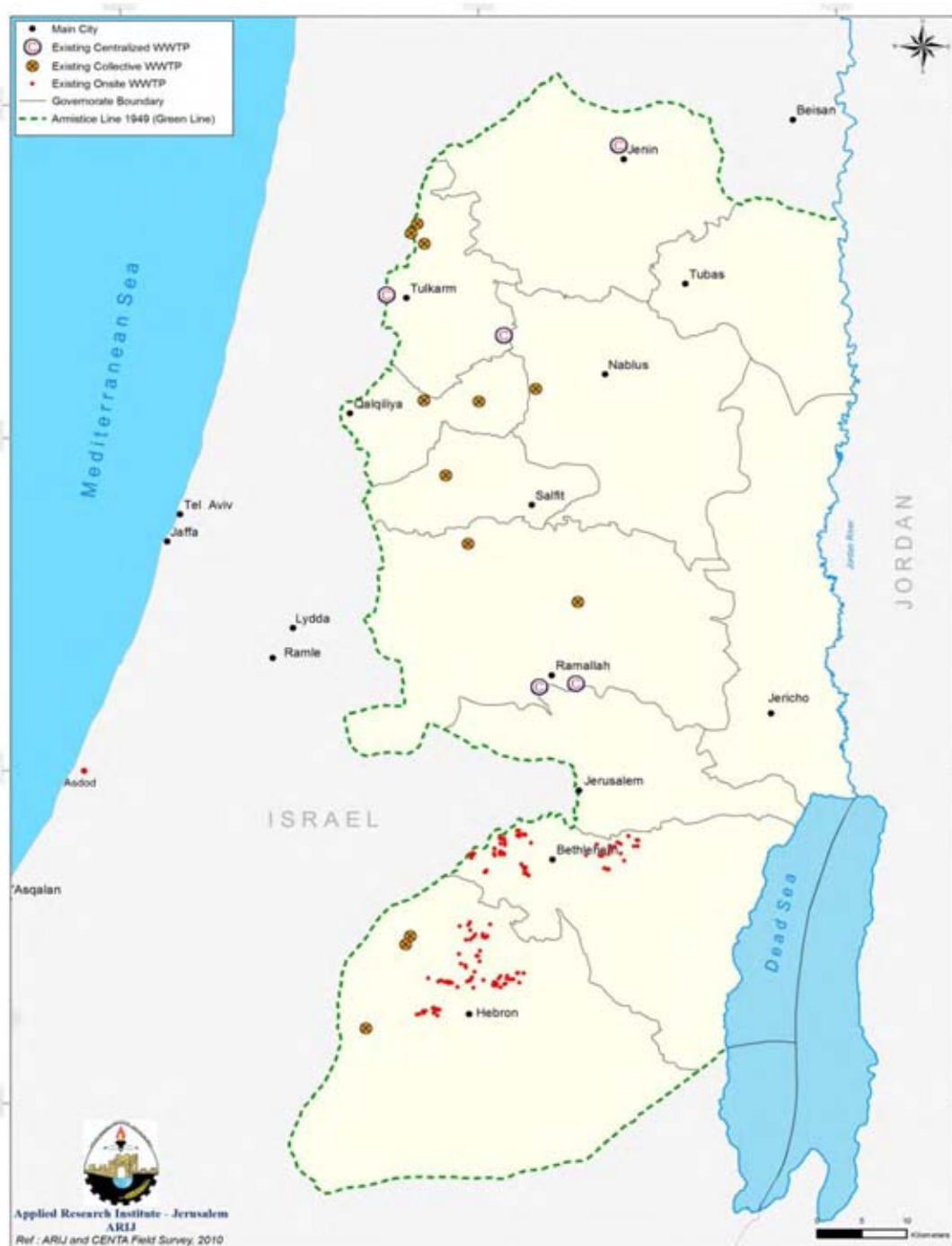


Figure 5.2.7: Volume of wastewater collected in sewage networks, disposed in cesspits and treated in the different West Bank governorates, 2010

Source: ARIJ Database, 2011

To analyze the wastewater treatment infrastructure in the oPt, this infrastructure was divided in accordance to size and treatment capacity into three main categories: (1) Centralized Wastewater Treatment Plants (often serves an entire locality, city, refugee camp, etc.), (2) Collective Wastewater Treatment Systems (often serves a neighborhood, a cluster of houses, several buildings, etc.), (3) Onsite Small Scale Wastewater Treatment Systems (often serves one house, one building). Analyzed wastewater infrastructure covered the three categories for the West Bank and only the Centralized Wastewater Treatment Plants category for The Gaza Strip. In The West Bank there are five centralized wastewater treatment plants (WWTPs), thirteen

collective wastewater treatment systems, and 180 existing onsite wastewater treatments systems dispersed over the West Bank (Map 5.2.2) (ARIJ & CENTA, 2010).



Map 5.2.2: Existing Wastewater Treatment Plants in the West Bank

- Existing Centralized Wastewater Treatment Plants

The existing centralized WWTPs in the oPt, are incapable of providing this basic service mainly due to the growing Palestinian population and lack of sufficient infrastructure. Those centralized wastewater treatment systems if not constantly

updated, modified and/or supported by additional wastewater treatment infrastructures, become obsolete and incapable of providing the expected ability to serve the population. The existing centralized WWTPs in the West bank are: Al-Bireh, Ramallah, and Tulkarm; Jenin and Nablus are expected to start operating soon (Table 5.2.3).

Table 5.2.3: The Existing Centralized Wastewater Treatment Plants in The West Bank

Name of Wastewater Treatment plant	Wastewater Treatment Technology	Actual Flow	Status of WWTP
		(m ³ /day)	
Al-Bireh Wastewater Treatment Plant (Ramallah & Al-Bireh Governorate)	Extended Aeration Process	5,000	Operating well with high efficiency
Ramallah Wastewater Treatment Plant (Ramallah & Al-Bireh Governorate)	Extended Aeration Process	2,200	Not operating well (overloaded) and does not meet the requirements for effluent discharge
Tulkarm Wastewater Pre-Treatment Plant (Tulkarm Governorate)	Primary Treatment (Stabilization Ponds)	7,120	Operating well with high efficiency
Jenin Wastewater Treatment Plant (Jenin Governorate)	Aerated Lagoons	9,000	Under rehabilitation
West Nablus Wastewater Treatment Plant (Bablus Governorate)	Activated Sludge Process	(2010): 7,500 (2020): 14,000	It is expected to be in operation in December 2012

Note: The Source of wastewater for those systems is domestic, commercial and industrial wastewater; the expression (na) means: not available.

Source: ARIJ Data Base, 2011

In the Gaza Strip there are another group of centralized wastewater treatment plants; Beit Lahya wastewater treatment plant, Gaza and Rafah. Concerning Khan Younis currently utilizes a temporary basin to achieve partial treatment. (Table 5.2.4 & Map 5.2.3).

Table 5.2.4: The Existing Centralized Wastewater Treatment Plants in The Gaza Strip

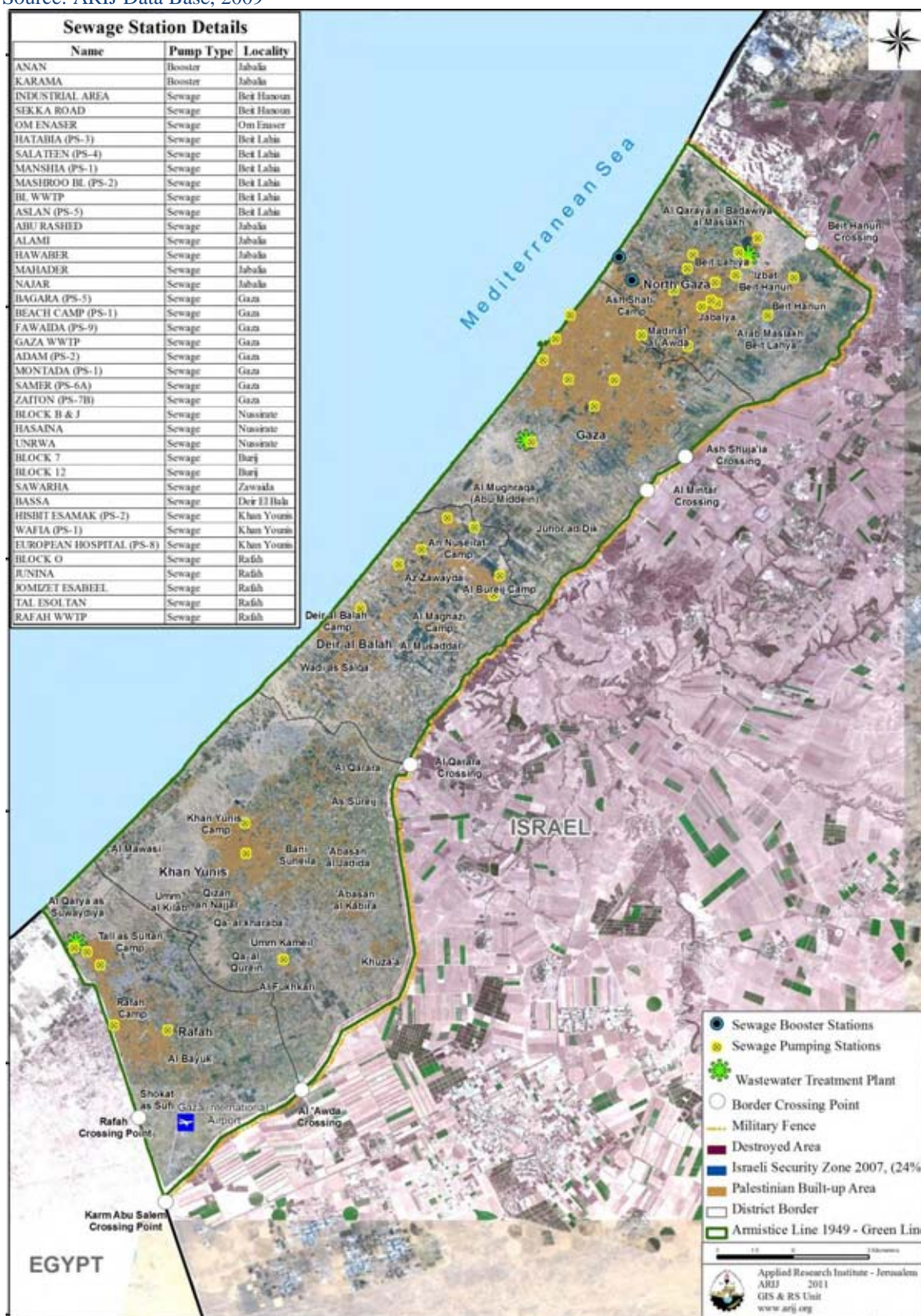
Name of Wastewater Treatment plant	Wastewater Treatment Technology	Actual Flow	Status of WWTP
		(m ³ /day)	
Beit Lahia Wastewater Treatment Plant (North Gaza Governorate)	Aerated Facultative Ponds	18,000	Overloaded expected to be Upgraded
Gaza Wastewater Treatment Plant Gaza Governorate)	Two ponds system originally design/Upgraded 1986 ,two more ponds (Aerobic and anaerobic)/ Upgraded 1999, Two Trickling Filters + Aeration Lagoon +Drying Beds	42,000	Overloaded expected to be Upgraded
Khan Younis No Wastewater Treatment Plant. Only Temporary Basin	Al Amal Storm Water Basin utilized temporarily to get partial treatment	na	Not Enough Treatment Achieved
Rafah	Lagoon / Upgrade will include , trickling filter, aerobic pond, anaerobic pond and sludge drying bed	8,000	Not Enough Treatment Achieved

Notes:

(1) The Source of wastewater for those systems is domestic, commercial and industrial wastewater

(2) na: not available.

Source: ARIJ Data Base, 2009



Map 5.2.3: Existing Wastewater Treatment Plants and Sewage pumping Station**Locations**

Source: CMWU, 2009

- Existing Collective Wastewater Treatment Systems

In addition to the existing centralized wastewater treatment plants (WWTPs), some non-governmental organizations (NGOs) and academic institutions have established collective wastewater treatment systems in several localities that lack sewage collection networks and that depend on cesspits for wastewater disposal. Such wastewater treatment systems are composed of a sewage collection network or a vacuum truck collection system plus a collective WWTP. (Table 5.2.5) outlines the location of the existing collective treatment systems, the type of sewage collection system, the applied wastewater treatment process, the operational year of the system, the status of WWTP and the implementing institution.

Table 5.2.5: The Existing Collective Wastewater Treatment Systems

Locality-Governorate	Wastewater Treatment Technology	O: Operational Year D:Design Flow A:Actual Flow Both D&A are in (m ³ /day)	Status of WWTP	Implementing Institution
Kharas-Hebron	Upflow Anaerobic Sludge Blanket (UASB) - Horizontal Flow Constructed Wetlands	O: 2003	Not Functioning (since March 2010)	Palestinian Hydrology Group (PHG)
Nuba - Hebron		D: 120		
		A: 100		
Bani Zeid (Al-Gharbiyeh) - Ramallah & Al-Bireh	Upflow Anaerobic Sludge Blanket (UASB) - Vertical Flow Constructed Wetlands	O: 2002	Malfunctioning	
		D:120		
		A:200		
Deir Samit – Hebron	Septic Tank - Anaerobic Upflow Gravel Filter	O:2004	Functioning well with moderate efficiency	
		D:100		
		A:20		
Hajja-Qalqiliya	Sedimentation Tank – Horizontal Flow Constructed	O:2001	Malfunctioning	
		D: 13.5		
		A: na (Overloaded)		
Hajja-Qalqiliya	Sedimentation Tank – Horizontal Flow Constructed	O:2004	Functioning well with moderate	
		D:30- 40		
		A:40		

Locality-Governorate	Wastewater Treatment Tecnology	O: Operational Year D:Design Flow A:Actual Flow Both D&A are in (m ³ /day)	Status of WWTP	Implementing Institution
	Wetlands		efficiency	
Sarra-Nablus	Constructed Wetlands	O:2004	Not Functioning (since 2006)	
		D: na		
		A: na		
Bidya - Salfit	Septic Tank – Horizontal Flow Constructed Wetlands	O:2007	Malfunctioning with low efficiency	
		D: 11.2		
		A: na (Overloaded)		
'Attil – Tulkarm	Septic Tank – Anaerobic Upflow Gravel Filter – Aerobic Tricking Filter – Polishing Sand Filter	O:2006	Malfunctioning with low efficiency	Palestinian Agricultural Relief Committees (PARC)
D: 14 A: na (Overloaded)				
Zeita – Tulkarm		O:2008	Functioning well with moderate efficiency	
		D: 14		
		A: 30-35		
Sir - Qalqiliya		O:2006	Functioning well with moderate efficiency	
	D: 14			
	A: 15			
Zeita - Tulkarm	Septic Tank – Constructed Wetland	O:2004	Malfunctioning with low efficiency	United Nations Development Program (UNDP)
		D:na		
		A:na		
'Ein Siniya-Ramallah & Al-Bireh	Anaerobic Baffled Reactor – Activated Sludge Process – Multimedia	O:2007	Not Functioning (since the mid of 2009)	Birzeit University
		D:10		

Locality- Governorate	Wastewater Treatment Tecnology	O: Operational Year D:Design Flow A:Actual Flow Both D&A are in (m ³ /day)	Status of WWTP	Implementing Institution
	Granule Filtration – Ultraviolet Disinfection	A:na		
Nahhalin - Bethlehem	Extended Aeration Process – Chlorine Disinfection and Sand Filtration	O:2007	Functioning well with high efficiency	Applied Research Institute – Jerusalem (ARIJ)

Source: ARIJ Field Survey 2010

Box 2**Efforts made by stakeholders to contribute in the development of the wastewater treatment and reuse in the Palestinian rural areas**

In 2007, ARIJ implemented a collective wastewater treatment system in Nahhalin Village - Bethlehem Governorate with the support of the Mennonite Central Committee (MCC) and the Swiss Agency for Development and Cooperation (SDC).

In the absence of wastewater collection and treatment infrastructure in the village this wastewater treatment plant is used to treat the wastewater that is collected by vacuum tankers from cesspits and/or septic tanks. In the past the collected wastewater used to be discharged in the close open spaces neighboring the villagers households, this practice used threat both villagers' health and environment.

This collective wastewater treatment plant contributes in:

(1) Protecting the environment from pollution, and the villagers from health threats (Preventing as possible the problem of cesspit and / or septic tanks over flooding, thus in this way eliminating the source of pollution and waterborne diseases).

(2) generating a non conventional water resource that can be utilized for irrigation purposes after the adoption of the reuse recommendations indicated by the EQA, MoA and PWA.

Currently the PWA and ARIJ with help of the Austrian Government are working in an upgrade for this wastewater treatment facility, having as main goal the improvement of its sustainability.



Photo 5.2.3: Nahaleen collective wastewater treatment plant – Bethlehem Governorate

Source: Photo Courtesy of ARIJ, 2011

- Onsite Small Scale Wastewater Treatment Systems

In addition to the existing centralized and collective WWTPs, onsite small scale wastewater treatment plants have been established in several rural localities of the West Bank, where the dispersed pattern of houses in these rural localities makes it economically unfeasible to construct wastewater collection networks and centralized

wastewater treatment plants. On-Site small scale wastewater treatment plants, which often serve a single house or building, respond to the needs and conditions in rural localities. They can solve the wastewater collection and disposal problems in such communities, along with the benefit of generating a water resource that can be utilized for irrigation purposes as land and agriculture are available.

Two types of onsite small scale wastewater treatment systems were implemented in the West Bank, namely: (1) Black wastewater treatment and, (2) Grey wastewater treatment. Table 5.2.6 shows the agencies that implemented on-site small scale black/grey wastewater treatment plants, and the number of the implemented units.

Table 5.2.6: Agencies that implemented on-site small scale black/grey wastewater treatment plants

Implementing Agency	WWTP Type	Total Number of WWTPs
Applied Research Institute – Jerusalem (ARIJ)	Black WW	180
	Grey WW	107
Palestinian Hydrology Group (PHG)	Grey WW	156
Union of Agricultural Work Committees (UAWC)	Grey WW	67
United Nations Food and Agriculture Organization (FAO)	Grey WW	67
Palestinian Wastewater Engineers' Group (PWEG)	Grey WW	81
Palestinian Agricultural Relief Committees (PARC)	Grey WW	80

Source: Implementing Agencies, 2010

Example of stakeholder's contribution in the development of the wastewater treatment and reuse in the rural Palestinian localities, where no available sewage collection network (Box 3)

Box 3**Efforts made by stakeholders to contribute in the development of the wastewater treatment and reuse in the Palestinian rural areas**

Huge efforts by local NGOs have been done to alleviate the faced problem resulting from the lack of collection and wastewater treatment infrastructures needed to provide this basic service to Palestinian citizens. An example is ARIJ locally made wastewater treatment developed model (Photo 5.2.3 & photo 5.2.4), which simplified sophisticated treatment technologies and adjusted them to serve Palestinian basic needs, in this system no need to separate the gray wastewater from black wastewater and which is the case of most Palestinian households. At the same time in those systems the treated wastewater can be reused onsite, minimizing the high costs of pumping treated effluents to targeted lands. Such contributions can provide real and feasible solutions for the wastewater sector in the rural Palestinian areas.



Photo 5.2.4: ARIJ's Small Scale Onsite wastewater Treatment Plants

Source: Photo Courtesy of ARIJ, 2011



Photo 5.2.5: ARIJ's Small Scale Onsite Wastewater Treatment Plants

Source: Photo Courtesy of ARIJ, 2011

4. Limitations and challenges facing the Palestinian wastewater sector

Lack of legal instruments & Enforcement

Rural Palestinian areas in the West Bank and Gaza Strip are subject to serious environmental threats. Discharge of untreated wastewater, unregulated agricultural practices, and a general lack of infrastructure lead to adverse environmental impacts - such as deterioration of ground and surface water quality.

Environmental enforcement in the oPt has often been regarded as weak and ineffective, particularly due to the Israeli occupation and the changes of the political status. The neglect of the Israeli occupation to the environmental sector for decades, the economical difficulties that the PNA went through, and rapid population growth, made the wastewater collection and treatment infrastructures incapable of giving real solutions; thus making the enforcement of the law in many cases almost impossible. No logical alternatives to solve the problem in many cases, a clear example is: According to the Palestinian Environmental Law issued in December 1999, article 30 under chapter 3 which is related to water environment stated that “No person shall be allowed to discharge any solid or liquid or other substance unless such a process conforms to the conditions and standards that the specialized agencies

determine”, but in most cases there is no wastewater treatment facility available to absorb the load of collected wastewater in vacuum tankers to be treated to meet the standards as specified by the EQA , so no real alternative solution. The lack of appropriate infrastructures in the oPt in many cases did not allow environmental alternatives, that can help in the enforcement of the law (MEnA, 1999).

At the same time the enforcement of the law has been limited due to the political divisions of the oPt into Areas A, B and C; the lack of authority of the PNA in Area C, is a clear example of the geographical limitations that the Palestinians have in the enforcement of the law within the oPt.

Strategies to improve environmental enforcement generally involve strengthening the legal instruments of enforcement, particularly the usage of civil penalties and criminal prosecution. Rigid interpretation of the law and formal legal penalties shall characterize the environmental enforcement. Real environmental alternatives shall be available in parallel to additional agreements between both Palestinians and Israelis to cover the existing gaps and that does not help in improving the law enforcement in the environmental issues.

Wastewater Management

The existing improper management of wastewater poses a severe environmental threat in terms of its capacity which deteriorates nature and biodiversity, as well as groundwater quality. It also poses serious public health risks represented by the spread of diseases arising from the contamination of food, water, air, and soil. Improving wastewater management is one of the greatest challenges facing environmental planners in the oPt.

The wastewater management has been identified among the most urgent elements in PES. The PES calls for maximizing the coverage of household’s connections to the sewer system, rehabilitating the existing wastewater treatment plants and/or constructing new treatment plants. Treated wastewater is considered a vital resource that can replace fresh water used for irrigating agricultural lands. Thus, if wastewater could be treated to an adequate standards, it could be reused for irrigation purposes, relieving pressure on precious fresh water resources in the oPt and, thus, contributing to solving the water crisis in the region.

A stakeholders’ questionnaire conducted by ARIJ team in 2010 concluded that, around 71% of the stakeholders who work in the wastewater sector stated that the PWA does not perform its role as expected due to the following constraints among others: (ARIJ & CENTA, 2010)

- Weak technical capacities.
- Weak administrative capacities.
- Israeli control over Area C.
- Obstruction of the wastewater development projects by the Israelis (the PWA decision making abilities are very limited).
- Pressure added by the Israeli settlements.
- Lack of financial capabilities and dependence on funding agencies to implement sanitation projects.

- The reluctance of funders to invest in sanitation projects because of high investment costs and low revenues.
- Non-allocation of part of the PWA financial resources to wastewater issues.
- Lack of laws and legislations that regulate wastewater management.
- Regulation is almost non-existent and its enforcement is not supervised.

Box 4

Efforts made by stakeholders to contribute in the Development of the Wastewater Management in the oPt

Currently ARIJ, jointly with the Spanish Center for New water Technologies (CENTA), with the support of the Spanish Agency for International Development Cooperation (AECID) and in collaboration with the PWA and other stockholders, is issuing a document that can serve as guideline to be followed during decision making regarding wastewater collection and treatment infrastructure, this through a project entitled “A Proposed Environmentally Sound Wastewater Management System for the West Bank”. This document has as overall objective to develop a proposed environmentally sound wastewater management system to be implemented to ensure improving the sanitation conditions.

Source: ARIJ & CENTA , 2010

Political Situation

Coordination between Israelis and Palestinians on wastewater issues has been absent. In effect, during the period of occupation Palestinians have had limited control over these issues. Any further delays in taking serious steps towards genuine co-operation will lead to a further deterioration in the wastewater situation. The complex situation of no co-operation has widened the gap between the parties and deepened the mistrust in all matters and at all levels. Prior to the establishment of the PNA in September 1993, none of the municipalities and village councils possessed any power of regulation or legislation. Laws existed since the Israeli occupation of 1967 had been initially inherited from the Ottoman, British, and Jordanian administrations. As an occupational measure, Palestinians were prohibited from amending the legal framework. However, the Israeli civil administration made various amendments to the Jordanian law following the 1967 occupation to fit their own interest. The political and bureaucratic hurdles put in place by the Israeli civil administration since that time and the hampering of power increased pressure on the West Bank itself and caused various negative effects on the economic, social and environmental situation; therefore, minimum progress in the wastewater sector has been made in the oPt . There are long-term environment challenges that need to be addressed in parallel with the additional environmental risks and damages created by the ongoing conflict, and many long-term environmental solutions cannot become a reality without a peace process for the region, (UNDP, 2005).

Since settlers in the West Bank use Israel's water-supply system, neglect of wastewater treatment in the area has almost no effect on them. Palestinians, however, and especially residents of small towns and villages, rely on water from natural sources. As a result, pollution of these sources aggravates the chronic drinking-water shortage in the West Bank. Also, use of untreated wastewater for agriculture contaminates crops and harms a major sector of the Palestinian economy. In the long

run, the flow of untreated wastewater will also diminish land fertility. In addition, since most settlements have been established on ridges and hilltops, their untreated wastewater flows to nearby Palestinian communities, which are usually located further down the slope (B'Tselem, 2009). The law must be enforced against polluting settlements. Also, the government of Israel and the PNA must act jointly to immediately advance planned Palestinian wastewater treatment projects. Israeli settlements irresponsible practices in some cases, pollutes the environment in the oPt for examples of such violations see [Table 5.2.7](#) and [Photo 5.2.5](#).

Table 5.2.7: Some of the Israeli violations to the Palestinian Environment

Israeli Settlement	Date of Violation	Violation and Affected Area
Yakir	10-Jul	Pollution of the agricultural lands and water springs in Wadi Qana, west of Deir Istiya - Salfit Governorate.
Ariel	11-Jun	Pollution of Al Matwi well, which is considered the main source of water in the region as it covers 30% of the water needs of the City of Salfit and the villages of Farkha and Khirbet Qais - Salfit Governorate.
Kfar Etzion	11-Apr	The dumping of sewage and wastewater into 10 dunums of agricultural lands. Wadi Shkhiet in the town of Beit Ummar town - Hebron Governorate.
Kfar Etzion	10-Oct	Israeli settlers dump their sewage and wastewater towards large agricultural areas. Wadi Shkheit in the town of Beit Ummar - Hebron Governorate.
Alon Moreh	10-Oct	The dumping of sewage and wastewater into the lands of Deir Al Hatab Village and the destruction of 220 Old Roman Olive trees - Nablus Governorate.
Sha'are Tekvah	10-Feb	The dumping of sewage and wastewater into 'Azzun Al 'Atmeh secondary school - Qalqilyah Governorate.
Ariel	11-Jun	Burqin Village: Sewage is dumped into the areas of Baten Al Hammam and Wadi Al Beer areas, both located west the city of Salfit/ Salfit Governorate. The sewage forms a stream that reaches Wadi Burqin on its way to the lands of the village of Kufr Al Deek.
Ariel	11-Apr	Marda Village: the Israeli occupation authorities pumped Ariel settlement's sewage through tunnels that were constructed beneath the route of the Wall and caused this sewage water to mix with rain water, which at the end flooded towards Palestinian lands- Salfit Governorate.
Betar Illit	11-May	Dumping wastewater into the lands of Nahhalin Village southwest of Bethlehem city- Bethlehem Governorate

Source: ARIJ Monthly Reports Database 2011

Whilst there may be strong laws in a de facto sense, enforcement agencies tend to lack resources in terms of the de jure protection of rights, and are often subject to political and geographical limitations.



Photo 5.2.6: A vineyards field in Beit Ummar town, north of Hebron Governorate flooded with wastewater coming from a nearby Israeli Settlement, Beit ‘Ayn.

Source: Photo Courtesy of ARIJ, 2010

In the Gaza Strip, damaged sewage infrastructure not often can be repaired due to the Israeli blockade. Those blockades lead to delays in repairs and to lack of electricity and fuel which is necessary to operate the wastewater treatment facilities (Box 5).

Box 5

Case Study, Damages inflicted by the Israeli Military Invasion to the Gaza Strip “Operation Cast Lead”

On 27 December 2008, the Israeli aircrafts started shelling Gaza Strip from the air, and the military Israeli boats were shelling Gaza Strip coast all over the shore line. Afterwards, the Israeli tanks started invading the Gaza Strip from different locations. The war has lasted for 22 days, and then the cease fire has started on 18 January 2009 (Table 5.2.8).

Table 5.2.8: Some of the estimated damages by categories and type encountered during the aforementioned Israeli Military invasion.

Damages By Type	Governorate	Locality	Estimated Cost
			(USD)
Wastewater Network	North	Beit Hanoun	36,000
		Beit Lahia	500,000
		Jabalia	26,000
	Gaza	Gaza	139,750
	Rafah	Rafah	133,000
Wastewater Facilities	North	Beit Hanoun	10,000
		Beit Lahia	24,000
	Gaza	Gaza	100,000

Expected Un seen damages, especially in Rafah where the vibration of bombs damage nearby networks	All Over The Gaza Strip	450,000
Services (Water and Wastewater) provided to re-allocated people	All Over The Gaza Strip	750,000
Civil Works, Equipment and Materials Damages	All Over The Gaza Strip	570,000
Contingency	All Over The Gaza Strip	250,000
NGEST Damages	North Gaza Emergency Sewage Treatment Plant	183,950
Total USD		3,172,700

Source: CMWU, 2009

With the pass of time the Israely attitude toward the Palestinian wastewater sector infrastructure in the oPt is not changing (Box 6).

Box 6

Case Study: Destruction of Al Nussirat Sewage pumping Station and the partial damage of the CMWU Gaza Main office

On 19 August 2011, the Israeli jet-fighters raid over the Gaza Strip destroyed Al Nussirat sewage pumping station; this pumping station was constructed by the UNRWA, designed to collect and divert sewage from Al-Nussirat and Al-Burraj camps to Gaza Central Wastewater Treatment Plant, which is under construction. 200,000 Palestinians in the Middle Area would be affected as consequence of the destruction this pumping station. In the absence of the destroyed pumping station, wastewater will flow into the neighboring valley, deteriorating the water quality and increasing potential health risks for citizens living in the area. The Cost of the damages in this sewage pumping station is estimated to range between 1.5 to 2 million USD (CMWU, 2011).

The same day the CMWU Gaza main office was partially damaged as a result of other Israeli jet-fighters raid over the Gaza Strip. The damages were estimated 30,000 USD (CMWU, 2011).



Photo 5.2.7: Al Nussirat sewage pumping station destroyed by Israeli jet-fighters

Source: CMWU, 2011

The UN estimated that between 50,000 to 80,000 cubic meters per day of untreated and partially treated wastewater are discharged into the Mediterranean Sea since January 2008; threatening the environment in the region. However, the planning and execution of development projects are complicated and constrained by the continued Israeli Occupation of the Palestinian territory. This adds layers of bureaucracy to the planning and permitting processes, considerably retarding progress, besides directly damaging infrastructure through the Israeli military aggression. Thus, there is an urgent need for progress in the political situation and for international pressure to be brought to bear on Israel to desist from targeting the Palestinian infrastructure of wastewater and otherwise. Israel exploits Palestinian wastewater that crosses the Green Line (Armistice Line 1949), reuses this wastewater and charges the Palestinian Authority for building the plants and for the treatment of the wastewater in them (B'Tselem, 2009).

According to an assessment conducted by the World Bank in 2009 “Assessment of Restrictions on Palestinians Water Sector Development”, the wastewater projects in the oPt suffer from the lowest rate of approval and the longest delays in the JWC (World Bank, 2009); As stated in this assessment “Of the sixteen Palestinian wastewater projects presented to the JWC, one has been implemented and two more were approved recently”. The following five key issues hold up wastewater projects in the oPt as referenced in the aforementioned assessment:

1. Israeli authorities have often insisted on connecting settlements
2. Israeli authorities have required an extremely high effluent quality standard, considerably above the internationally recommended World Health Organization (WHO) norms, and well beyond the capacity of the PNA and Palestinian people to afford.
3. The high cost of wastewater treatment plants makes the PNA dependent on a handful of donors, and hence on the politics of bilateral aid.

4. Given the need to locate plants away from cities, and to reuse effluent further downstream, there are almost inevitably investments to be made in area C, which triggers the whole set of Civil Administration issues.
5. In the very water scarce environment, ownership of the effluent has become an issue.

Bad practices that affect negatively the wastewater sector

Bad practices whether by Palestinians or Israelis, become limiting factor for the achievement of sustainability and development of the wastewater sector; those practices included typical causes attributed to insufficient legislation, lack of respect for the rule of law, weak rules, enforcement means, lack of authority over the territory, mismanagement and political situation.

Examples of such negative practices can be of different origins: (1) Palestinian Administrative level, e.g. Housing construction permits shall not be issued unless save sewage disposal method is guaranteed (2) Citizens' Practices e.g., unsafe disposal and reuse of raw wastewater, (3) Israeli Administrative Level, e.g. Israeli Unjustified delays in the process of permits issuing for the building of wastewater infrastructure (4) Israeli settlers practices e.g. The disposal of wastewater that comes from Israeli settlements pollutes Palestinian neighboring areas (5) Politics and political situation e.g. Damages faced in the wastewater sector due to Israeli military interventions and closures as the case of the Gaza Strip. At the end what so ever is the origin of the failure in the sector is, the environment is who will pay the negative consequences.

5. Principal Failures and Violations to the Palestinian Wastewater Sector and Right to Sanitation

Participation

The participation of the citizen in the development of the wastewater sector from the very start, will provide timely and exhaustive information and will offer an opportunity to the citizens to express their views and participate in the decision making process. This process will encourage the entire society to participate in facing the current challenges and to be part of the solution. The lack of environmental awareness, humble participation and involvement of the citizen in the previous years, made in some cases irresponsible citizens being part of the problem and not part of the solution; clear examples are illegal wastewater discharge practices and irresponsible unsafe reuse utilization of raw wastewater.

NGOs in cooperation with the National Institutions, the most active and the best organized part of the public, can actively work on promoting dialogue between stakeholders, public informing, education on the sanitation problems and their solutions, to protect the right of the citizens to a healthy environment and to raise awareness on water and sanitation issues. NGOs and local institutions also are able to pay greater role in the process of drafting, implementing and monitoring wastewater

reform plans at all levels, as well can play an important role in, disseminating information on the reforms underway and promote dialogue.

Providing basic service and Accessibility

In the West Bank the wastewater treatment and collection service, is in the first place, the responsibility of the local authority (utility, municipality or village council); Those service providers are run like a commercial business; with a non-profit approach , but keep their accounts on basis that guarantees their sustainability. In the refugee camps, the United Nations Relief and Works Agency (UNRWA) have been providing the sewage collection service. In the Gaza Strip, the water and wastewater services are provided by the CMWU.

The wastewater collection and treatment services provision has been limited also due to limitations in the coverage of sewage networks and wastewater treatment available infrastructure (World Bank 2009).

The Palestinian accessibility to the wastewater collection service in the oPt was as follow: only 29.5 % of the total households in the south of the West Bank had access to this service; 43.6% of the total households in the Middle of the West Bank and 34% of the households in the north of the West Bank. Concerning the Gaza Strip, the accessibility to this service is much better than that of the West Bank covering 83.8% of the total households (PCBS, 2009).

The percentage of treated wastewater from the total generated amount in the West Bank is only 6.33% (ARIJ, 2011) and therefore, huge volumes of collected untreated wastewater are disposed in the Valleys (Wadis) and Open Spaces, which are finally infiltrated in the ground putting at risk of pollution the ground water resource, in the Gaza Strip, portion of the collected wastewater goes untreated to flow in the Mediterranean Sea.

To conclude, the accessibility to the wastewater treatment service whether in the West Bank or in the Gaza strip is much less than the wastewater collection service.

Affordability

Service charges generally represent a relatively small share of household expenditure. Water and wastewater services were traditionally considered as social services and were provided at very low prices; thus the consumers have problems accepting a rapid increase of prices, especially in a situation of deteriorating service quality. Currently the situation in the region is aggravated by widespread poverty, to pay for these vital services.

Such analyses for water and wastewater services should become an integral and indispensable element of tariff revision procedure; they should be introduced into the

regular practice in the process of approving tariffs and strategic development plans of water and sewerage utilities. Such analysis might also be useful in revising water consumption standards as well as levels and quality of services. Affordability assessments should be required by feasibility studies for large investment projects to ensure that consumers would be able to repay the investments. Results of the affordability and willingness to pay analyses serve as a valuable source of information needed for designing social protection programs and for establishing eligibility criteria for social assistance. Social protection systems should be realistic i.e. financially sustainable, based on actual budget capacities to provide such support. Now days, tariff are set at full cost recovery levels and are regulated by the PWA, where there is an annual tariff review. The schedule has to be adopted by the Utility Board and reviewed by the PWA, as regulator.

Good Governance

a. Sustainability of structural reforms

To achieve appropriate structural reforms for the wastewater sector, careful planning with a clear long-term vision is required. For sustainability to succeed, an adequate awareness can help the PNA, institutions, donors, and citizens in order to perceive sustainability in an entirely different manner than has been done in the past. For this reason, greater awareness should form the first step towards sustainable development. Structural reforms shall also work on facing water scarcity by considering nonconventional water resources alternative to reduce the gap between water supply and demand. One of these non-conventional resources is treated wastewater and its reuse for various purposes. As a substitute for freshwater in irrigation, wastewater has an important role to play in water resources management. Wastewater reuse can contribute to water conservation and impact positively the Palestinian economy. Moreover, wastewater use schemes, if properly planned and managed, can have positive environmental impact, besides providing increased agricultural yields.

b. Quality of budget and public investment process

The requirements for an efficient wastewater management cannot be accomplished unless there is a strong commitment from multilateral institutions to fund such activities. Investments to the wastewater sector shall be well planned and oriented to achieve a sustainable development.

Projects are not planned procedures that ensure no duplication and overinvestment. Therefore, there is a need for the harmonization of the PWA strategies with donor policies towards the wastewater problems.

c. Efficiency and equity of public expenditures

Public expenditures to the wastewater sector have been limited due to uncertain budgets in the PNA and due to the lack of financial resources that allow the allocation of budget for such huge projects.

The limited economical resources used to be assigned for most urgent needs, the priority originally was to guaranty water supply to the Palestinian communities; in the

last years this vision is changing, and importance to develop the sewage network collection, wastewater treatment and reuse is becoming a vital need.

As consequence of the Israeli Palestinian ongoing conflict, the development of the wastewater sector depended mostly on funds that are obtained through projects as part of received international aids.

Conclusions and Recommendations:

Despite that the sewage collection coverage has been increased in the last few years in the oPt, there is still a lot of work to be done. The sewage collection systems in the absence of available wastewater treatment infrastructure used to transport the problem rather than solving it. As stated earlier, neither the available sewage collection networks nor the available wastewater treatment infrastructure can prevent damages caused to the Palestinian environment and population. The worse part of the wastewater sector in the oPt, is wastewater treatment; where the available infrastructures are not enough and the limited existing infrastructure face many difficulties in most cases, among them are: sustainability, overloaded working conditions and lack of experienced staff. Furthermore, Israeli practices in the oPt are in many cases an additional challenge to the wastewater sector. Currently the PNA, many donor agencies, local institutions and several national and international NGOs are trying to do their best to improve the Palestinian wastewater sector, but despite that, several wastewater streams and many sewage collection pipes are discharging raw wastewater without being treated, putting the surrounding aquifers and seas at risk .

Wastewater knows no boundaries and so raw wastewater irresponsibly released by either Palestinian communities or Israeli settlements, ultimately affects the shared water sources and the environment. The wastewater sector in the oPt was and still negatively affected by the Israeli occupation, and this situation has shaped and limited the development of the oPt ever since. Limited rural development, poor capacity building, weak economy, poverty, poor health and sanitation conditions, environment deterioration, occupation and complex political situation, low enforcement of the law and limited control over the territory are the main dominant limiting characteristics in the oPt. As a result, the PNA exists in a complex environment over which it has no control, because it is not officially recognized as the government of a state or a country. The implementation of basic and essential projects and plans require many years to be achieved and sometimes they are not achieved at all. Quick results should not be expected unless the political and economic status of the country changes dramatically in a positive direction.

Both Israel and the PNA should agree on accepting common criteria and principles, recognizing that each of the nations on an international watercourse has a right to water and sanitation. Mechanism of joint cooperation have to be established.

The new agreements should, therefore ensure each the obligation to cooperate, including adequate coordination. However, resolving conflicts over water rights will require a major effort. Based on the available existing water resources and the projected needs for development it is believed that there will always be a regional shortage. Utilizing non-conventional water resources will be the closest alternative,

this release the importance of converting the generated wastewater from a threat to the environment, to a real alternative solution to face the current water crisis. It is therefore beneficial for both Israel and Palestine to jointly manage the valuable regional water resources to ensure their sustainable development. Adopted reforms at national level shall be able to overcome challenges and guarantee sustainability to the sector. A good management approach together with an efficient legal framework and a powerful enforcement, can contribute in developing the sector. Enhancing the capacity of the Palestinian staff working in this field is essential at this critical stage. . Wise investments in the wastewater management can generate significant returns. The Palestinian NGOs and other grass-root organizations can play an important role supporting the PNA in facing the current situation and helping in achieving a sustainable developed sector.

Solutions shall be socially and culturally appropriate, as well as economically and environmentally viable. Meeting the wastewater challenge is not a luxury but a prudent, practical and transformative action. The wastewater sector, if well managed can pass from being a threat to both the environment and public health, to a valuable resource that can promote the economy wheel through the generation of green employment contributing in reducing poverty, improving food security, health and therefore economy. Treated wastewater also represents a water resource that can be utilized to combat desertification in the oPt. Reuse of wastewater for irrigation, shall form a vital component of the Palestine's future water strategy.