A Review of the Palestinian Agricultural Sector

2007

Foreword

In the last two years, we have witnessed a serious deterioration of the economic, political and social situation leading to widespread poverty in the Palestinian Territories. Unless the current trend is inverted, the state of food security will be at stake. Over the last years and past crises, the agricultural sector has proved to be a shock-absorbing sector in terms of employment creation, income generation, food security and nutrition. Despite its fundamental role within the Palestinian economy and its great potential for economic and rural development, main constraints continue to be the absence of control over natural resources and the restrictions imposed by Israel to Palestinians to move freely and to market and export their goods in both local and international markets.

Undoubtedly, it has been widely recognized within the Agriculture Sector Working Group meetings for donor coordination, that the agriculture sector has a major role as a sustainable source of jobs, income and food for households. Moreover any investment in agriculture can play a major role in overall development within the Palestinian Territories as a basic sector, as it has a great potential for marketing and export, whilst providing inputs for other industries. Yet, the sector continues to be under funded by the international donor community.

The existing institutional framework and national commitment, places a great emphasis on adopting a developmental approach rather than focussing on short-term emergency programmes that might alleviate but not reduce poverty. A wide range of stakeholders are active in the agricultural sector including the Palestinian Authority, multilateral agencies, non governmental organizations and the private sector. While they are basically aligned in relation to the constraints and potentialities of the sector, further complementarities need to be sought as a means to achieve a greater impact, avoid duplications, and create synergies within the sector.

More than ever, there is a need to foster local economy by promoting activities that are able to generate in the short-term, both money and food in an effective way. Without compromising the sustainability of the agricultural sector, key interventions should aim to create sustainable sources of income, foster job creation, and enhance food security and nutrition. Working in the agricultural sector is complex, yet, support to agricultural activities in response to the new context is urgent since it will have a quick and direct impact in the local economy and create synergies with other emergency interventions devoted to increasing access to basic social services.

Spain, as a co-chair of the Agricultural Sector Working Group (ASWG), remains highly committed to fostering coordination and development of the agricultural sector. It is in this spirit that I hope that the Agricultural Sectoral Review is presented. I hope this study will help stimulate debate and influence donors and relevant Palestinian stakeholders to continue supporting the sector both in the Gaza Strip and West Bank. I am particularly grateful to Dr. Jad Isaac, Director General of the Applied and Research Institute of Jerusalem and his team, without whom this report would not have been possible. My sincere thanks also go to my colleagues Ms. Piedad Martin and Ms. Sandra Romero for her active involvement in the preparation and coordination of the document. I am also thankful to the core team of the ASWG, namely the Palestinian Ministry of Agriculture, the Ministry of Planning the Food and Agriculture Organization and the Secretariat of the Local Aid Committee for their essential support to the ASWG.

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Executive Summary

The Palestinian agricultural sector must serve a population of about 3.8 million people, providing both an economic and food resource to the Palestinians. Of approximately 6 million dunums which make up the total land area of Palestine, 30.5% is used for agricultural purposes. Of this land, 62.9% is in "Area C", the geopolitical area designated 'under full Israeli control', and as a consequence Palestinian access and movement within this area is severely restricted. Only 18.3% of the agricultural land in Palestine finds itself in "Area A", under full Palestinian control.

The type of agriculture practiced varies with region, but in general it can be divided into two groups. There is plant production, both rain fed and irrigated, and livestock production. Agricultural holdings in Palestine are usually small (average size 18.6 dunums) household holdings. The majority (88%) are owned outright by the household, but some are either fully rented, or owned land is supplemented by renting an extra area. There are 101,172 holdings in Palestine, nearly 70% of which are plant production only holdings, 7.6% are livestock only holdings, and the remainder practice mixed production.

In the plant production sub-sector, rain fed agriculture is dominant in terms of land area, occupying 86.8% of all plant producing lands. However, the actual contribution of rain fed agriculture to the total plant production is only 23.2%, not at all representative of the area devoted to this type of farming. Conversely, protected irrigated agriculture occupies only 2.3% of the total cultivated area and yet contributes 47.4% to the total plant production. Open irrigation yields the remaining 29.5% of production from the 10.9% of agricultural lands used in this manner.

The gross value of plant production in 2004/05 was US $495 million. There are over 100 main crop types, but the most dominant group are the fruit trees, of which olive production accounts for 81.1% of the area, and produces between 5,000 and 180,000 tons annually in a two-year production cycle. Citrus are the most important crop by economic value, although they occupy only 1.3% of the area and produce 70,000 tons/year. Citrus are also very water intensive crops and the production is concentrated mainly in the Gaza Strip.

Palestine is only allowed to use 18% of the water extracted from the West Bank aquifers, the rest is taken by Israel. In the interim agreement that Israel and the PLO signed in 1995 (Oslo 2, Protocol on Civil Affairs, article 40), there was no re-distribution of existing resources. Additional water for the Palestinians would be produced from previously unutilised sources according to the authorization of the Joint Water Committee. JWC has not met since the last Palestinian elections in January 2006. Irrigated agriculture in the West Bank, predominately in the Nablus and Jericho Governorates, is accountable for approximately 84.3 MCM/year, although the actual water needs are estimated to be 81 MCM/year. The extra water consumed is wasted as a result of inefficient irrigation practices, and losses resulting from poorly maintained infrastructure. In order to make up the necessary quantity of water, the West Bank is obliged to purchase 1.5 MCM/year of its own water back from the Israeli company Mekorot. The situation is similar in the Gaza Strip, where the calculated agricultural water demand is 82 MCM/year, but the actual consumption is 89.5 MCM/year, again relying on water purchased from Mekorot (3.05 MCM/year).

The value of total livestock production in 2004/05 was estimated to be US $438 million. Livestock holdings are also typically of small size, with over half of small ruminant (sheep and goats) holdings keeping a herd size between 1-19, and 71% of cattle holdings having just 1-3 heads of cattle. Small ruminants are the most important type of livestock held in Palestine in terms of number of holdings and value of production. However, a large problem associated with the keeping of small ruminants is that the area and access to Palestinian rangelands, on which ruminants have historically grazed, has been significantly reduced by the activities of the Israeli authorities. At present, the carrying capacity of accessible rangelands is approximately 2,600 ruminants, but in actual fact, 150,000-200,000 sheep and goats are using this area. This is placing a heavy reliance on agricultural inputs such as feeds. The poultry sub-sector is also under threat at present, with avian flu causing problems in the Gaza Strip, where thousands of chickens have been slaughtered, and consumers are increasingly concerned about buying poultry products.

In economic terms, the agricultural sector contributes between 11-20% to the GDP of Palestine, and produces 25% of all exports. Israel is the main importer of Palestinian produce, and controls all access to external markets, and so produce destined for other areas in the Arab world or Europe must first pass through Israel. Thus, the export potential of the Palestinian agricultural products, depends essentially on access and mobility which in turn is influenced by the geopolitical situation.

The agricultural sector is the third largest employer in Palestine, with 15.2% (2002-2005 average. 117,300 people in 2005) of the formal workforce, and up to 39% of the informal workforce employed in this sector. Many people, who have been unable to continue jobs in Israel as a result of ever tightening restrictions, are absorbed by the agricultural sector.

In general, agricultural production in Palestine is aimed at domestic consumption, as only around 20% is produced for direct retail. Producers will sell any surplus after domestic consumption in both the local and external markets. At present, the agricultural sector is able to exceed demand in the production of the main vegetables such as tomatoes and cucumbers, but is under-producing commodities like potatoes and garlic. Fruit production is generally unable to meet the requirements of the population, the exceptions being olives and grapes, and in the livestock sub-sector, fish and honey are the most notably under-produced commodities.

According to the Agricultural Projects Information System (APIS), the Palestinian agricultural sector is assisted by funding in the form of grants and loans from a range of donors. Since the year 2000, approximately US $138 million has been distributed to projects and organisations working in the agricultural sector. The most significant donors are foreign Government organisations, which contribute 64.4% of all funding, and the main recipient has been the Ministry of Agriculture, which has received 55% of all incoming funds. Funds are primarily directed towards land use and infrastructure projects. However, of all the funding expended and distributed by donors within Palestine, the agricultural sector receives an average of only 0.65% (according to the Palestinian Ministry of Planning (MoP) in 2004). Moreover, in the year 2006, the Ministry of Agriculture received only 0.9% of the total Palestinian Authority budget. In the last four year the MoA received only 0.7-1% of the PA annual budget (MoF, 2006)

The agricultural sector in Palestine faces a number of serious constraints, most of which are a direct result of the activities of Israeli control. The ongoing construction of the separation wall and the increasing number of physical impediments to movement, such as roadblocks and checkpoints are all having a dramatic effect on the ability of farmers to access their lands and markets. The costs of transporting goods to market, and receiving agricultural inputs, have increased as a consequence of longer journey times. Produce destined for external markets frequently spoils as it is detained at checkpoints. In addition to the restrictions on movement, the separation wall and network of Israeli roads, are effectively annexing important areas of agricultural land and agricultural water resources. The occupation has also caused a huge financial loss to the sector by demolishing all kinds of agricultural assets and infrastructures. Uprooting trees, destroying animal barracks, damaging agricultural wells, and slaughtering animals, are all techniques that continue to be employed. It is estimated that in the last 6 years, the direct and indirect costs to the agricultural sector resulting from the occupation practices have been more than US $1 Billion (MoA, 2006). The current political situation is also impacting upon the ability of the agricultural sector to perform.

Of particular note, is the issue of the 4,000 dunums of greenhouses, transferred in the month of September 2005 to the Palestinians after the Israeli withdrawal from Gaza, as an example of the export potential of the Palestinian agricultural sector. The potential for exports of high-quality agricultural produce is high, as was proved during the first agricultural season of 2006, but sensitivity to Israeli closures constituted a major constraint for marketing, with direct losses during the last season in the Gaza Strip; these losses are estimated at US $600,000 per day.

Other significant constraints, but ones which may be more readily addressed by the people of Palestine, are that the current agricultural production calendar is limited to only a few peak harvest months each year, and that the varieties of crops and livestock farmed are generally traditional breeds with low yields and low competition in international markets. The post-harvest, processing and transport infrastructure for Palestinian agricultural produce is inadequate to keep up with production, therefore it is difficult to produce goods which can compete in external markets. As mentioned previously, the water infrastructure and irrigation practices in some areas are inefficient, consequently, the area for potential irrigation is reduced.

The notable developments of 2006, concerning the agricultural sector, include the election of the Hamas Government to the PLC. This resulted in Israel refusing to forward tax rebates collected from Palestine, alongside the international community effectively freezing aid cooperation programme payments directly to governmental organizations. This has decreased the level of funding for development projects within all sectors, and so the agricultural sector has suffered accordingly. Stemming from a perceived increased risk to security, Israel also increased the level of closures and checkpoints during 2006, and hence increased disruption of movement of goods and people compared to previous years. The military operation "Summer Rains" on the month of June 2006 in the Gaza Strip has had a significant impact on the agricultural sector. Large areas of land were made inaccessible due to regular shelling and, in addition, tight Israeli control caused the complete collapse of the fishery sub-sector. In terms of food security, the agricultural sector is generally struggling to meet with demand in all but the basic vegetables. This problem has been exacerbated by the discovery of avian flu in the Gaza Strip in March 2006, which resulted in the culling of thousands of birds, and severely reduced consumer confidence in poultry products.

At the social level, the agricultural sector has been very important in absorbing workers who have been unable to retain jobs in Israel due to movement and permit restrictions. In fact, during 2006, the agricultural sector moved from being the 5th to 3rd largest employment sector for Palestinians. The agricultural sector has contributed to domestic incomes through both formal and informal markets, and has provided work to both women and young people, groups who often find themselves marginalised in the job markets.

It is proposed, therefore, that a suite of interventions must be implemented in the agricultural sector to combat these problems. First of all, due to the current socio-economic situation, there is a need to foster development of the agricultural sector - a source of house-hold employment, food security and income. Therefore, programs to reactivate production should be put in place to support rural livelihoods through diversification of production, input provision and infrastructure rehabilitation. To increase the potential irrigated area, it is proposed to encourage water harvesting, as well as the re-use of grey water, and to restore and improve the water supply infrastructure. In order to combat the weak production calendar and low competitiveness of Palestinian agricultural produce, agricultural diversification is being encouraged, through the supply of seedlings and seeds of novel non-traditional crop varieties with increased tolerance to the environment, or enhanced yields. Diversification in livestock management, such as moving to non-traditional breeds of ruminant, and implementation of aquaculture in existing agricultural water cisterns, will play an important role in maintaining a viable agricultural sector, as will implementing increased seasonality in production, with, in addition, produce geared towards greater market acceptability in external markets. It is also proposed to assist in the development of post harvest produce, including processing infrastructure by, for example, providing refrigerated trucks so that goods may remain fresh for longer to mitigate the inevitable delays during their transit. Strategies to enhance coordination and cooperation between NGOs, community organisations and government bodies are also suggested, in order that interventions may be implemented in an integrated manner across the board. A high priority is targeting vulnerable groups in the community, through empowering women and the youth sector, and improving the Bedouins livelihood, movement and access to the Palestinian natural pastures.

The political situation in Palestine is likely to change significantly in the short to medium term. Three possible scenarios have been envisaged, and depending on the actual political situation that reigns in Palestine, the needs of the agricultural sector will differ. The general focus of intervention must then be altered accordingly and, in order to facilitate this, the key needs of each likely political outcome have been summarized in Matrix1.

The following document investigates the status of the agricultural sector under the following headings:

Agricultural Lands. In this section the diversity of Palestinian agricultural lands are discussed, highlighting ownership issues, and problems of access and control as a result of the Israeli occupation.

Agricultural water resources, in which the current water availability, needs, and allocations are discussed. Agricultural production, in which the production of both plant and animal commodities is discussed, showing historical trends and areas of concern.

Agriculture in the Palestinian Economy. In this section the economic contribution of agriculture in Palestine is studied. The contribution to employment, food security, self sufficiency, and livelihood are investigated.

Organization, funding & resources of the agricultural sector. This section investigates the roles of governmental and non-governmental bodies in the management and development of the agricultural sector, along with an investigation into sources and uses of donor funding.

Constraints facing the agricultural sector. In this section, the constraints facing the Palestinian agricultural sector are discussed in detail. The primary concerns result from Israeli practices, but there are also issues resulting from management and infrastructural shortcomings.

Conclusions and proposed interventions. In this section, the impacts of the constraints have been assessed, and relevant interventions are proposed to mitigate major impacts, and to enhance development within the agricultural sector.

List Of Abbreviations

ACH – *Acción Contra el Hambre*

ADC – *Austrian Development Cooperation*

AMC – *Aid Management and Coordination (of the MoP)*

APIS – *Agricultural Projects Information System*

ARIJ – *Applied Research Institute - Jerusalem*

ASWG – *Agricultural Sector Working Group*

CBO - *Community based Organisation*

CFGB - *Canadian Food grains Bank*

FAO – *Food and Agriculture Organization*

FIVIMS – *Food Insecurity and Vulnerability Information and Mapping System*

GDP - *Gross Domestic Product*

GNP - *Gross National product*

GoI - *Government of Israel*

JICA - *Japan International Cooperation Agency*

MAS - *Palestine Economic Policy Research Institute*

MCC - *Mennonite Central Committee*

MCM - *Million cubic meters*

MoA - *Palestinian Ministry of Agriculture*

MoHE - *Ministry of High Education*

MoF - *Palestinian Ministry of Finance*

MoP - *Palestinian Ministry of Planning*

MTDP - *Medium Term Development Plan*

NGO - *Non Governmental Organisation*

OCHA - *UN Office for the Coordination of Humanitarian Affairs*

PAMS - *Palestine Assistance Monitoring System*

PAPA - *Palestinian Agribusiness Partnership Activity*

PCBS - *Palestinian Central Bureau of Statistics*

PLC - *Palestinian Legislative Council*

PNA - *Palestinian National Authority*

PWA - *Palestinian Water Authority*

SWG - *Sector Working Group*

UNDP - *United Nations Development Programme*

UNSCO - *Office of the United Nations Special Coordinator*

UNRWA - *United Nation Relief and Work Agency*

USAID - *United States Agency for International Development*

USDA - *United States Department of Agriculture*

WB – *World Bank*

WFP - *World Food Programme*

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1. Introduction

During the past seven years, the Palestinian agricultural sector has witnessed a profound transformation. Prior to the second Intifada, the relative role of agriculture in the future economy of Palestine had been a subject of debate. There were those who argued that agriculture was not something for the future in Palestine, considering the limited land and water resources. At the same time, there were those who saw, and still see great potential for developing the agricultural sector once the current political constraints are lifted. In the past seven years, agriculture has proved to be the most appropriate sector for dealing with emergencies that erupt in light of the political situation. Unemployment, poverty and lack of access to food as a result of the Israeli occupation practices, have emerged as priority problems that Palestinian society must deal with.

The Palestinian agricultural sector enjoys diversity in climatic conditions, the number of planted crops, the potential for increasing irrigated lands, and in the suitability to adopt the modern production and post-harvest treatment technologies which give agriculture the potential for improvement and development. The potential exists; therefore, to increase self sufficiency and to generate more money from exportation, especially when the detrimental practices of the Israeli occupation forces are ceased. At present, the annual production in many areas is restricted to only some part of the year. It would be desirable to have year-round production of agricultural commodities to remove seasonality in economic, employment and sufficiency issues related to the agricultural sector. Increasing the production calendar could be achieved by further crop diversification, or more use of greenhouses and irrigation regimes, and also by taking full advantage of the "natural greenhouse" which is the Jordan Valley. Additionally, is the improvement of post harvest infrastructure and services, including food processing, which all will assist in improving the Palestinian agricultural sector.

2. Agricultural Lands

The total area of Palestine covers 6,023,510 dunums, distributed between the West Bank (5,660,820 dunums, forming 94% of the total area of Palestine) and the Gaza Strip (362,690 dunums, forming 6% of the total area). In 2005, the Palestinian population was 3,762,005 people of which 63% lived in the West Bank and 37% lived in the Gaza Strip (ARIJ 2006; PCBS, 2006). The total area of agricultural land currently used by Palestinians covers 30.5% (1,833,350 dunums) of the Palestinian land area and 54.4% of the total suitable lands for cultivation (PCBS, 2006a). Rain-fed agriculture is practiced in 87.0% of the total cultivated area, while only 13.0% is irrigated agriculture. Please refer to Appendix 4, maps 1, 3 and 4 for a detailed view of land use and land cover, and map 5 for agricultural area distribution and production by governorate.


Source: Piedad Martin

In addition to limited land fertility, just 45% of owned lands are presently cultivated, 11.9% is arable but uncultivated, 8.5% is suitable for reclamation, 5.5% is unsuitable for reclamation, 0.4% is being used as grazing land, while 17.2% includes urban areas used for construction. 11.5% of owned land has been confiscated by Israel for the purposes of building new colonies, constructing bypass roads and building the separation wall (Isaac, J. and Saade, M. 1999).

Photo one: Agriculture and rangelands in Palestine.

2.1. Rangelands

Of the 1,500,000 dunums of existing rangelands, 1,275,000 dunums (85%) are closed to Palestinians as a result of Israeli Settlements or Military areas and the separation wall, thus, 225,000 dunums remain as open rangeland for the grazing of ruminants (i.e. sheep and goats). The estimated carrying capacity of this area is limited as the average annual rainfall varies between 100-250 mm, epically in the southern pastures of the West Bank. (ARIJ, 2004). There are currently between 150,000 and 200,000 ruminants in the area. This situation has existed for approximately 30 years.

2.2. Land Occupied by Israeli Settlements

The analyses of IKONOS satellite images for the year 2004, showed that the Israeli settlements in the West Bank contain agricultural lands with a total area of 67,743 dunums distributed in eight out of eleven governorates. The largest cultivated area is located in the Jordan Valley (including Jericho, Tubas and Nablus) and forms 95.1% of the total area followed by Ramallah with 3.3% and the remaining 1.6% is distributed in Bethlehem, Jerusalem, Tulkarm and Hebron (ARIJ, 2006). (Please see Appendix 4, map 5)

These lands are mainly cultivated with irrigated protected vegetables and cutting flowers, vineyards, date palms, stone fruits trees, etc. The estimated annual consumption of water reaches 60 MCM of the West Bank water which is used to irrigate the settlements' agriculture, which constitute up to 50% of the irrigated area in the West Bank. The total estimated production reaches 296,608 tons of vegetables, dates, grapes, oranges etc. per year. In the Gaza Strip, after the Israeli withdrawal, an additional 4,000 dunums of greenhouses previously exploited by the settlements were transferred to the Palestinians. Currently, this area is managed by the General Administration for the liberated areas, which is affiliated to the Ministerial Council. Currently, the greenhouses are not cultivated, and the Government is still investigating the best way to run them (MoA, 2007).

Photo Two: The impact of Israeli Separation wall on the (Palestinian agricultural lands (Source: Piedad Martin

2.3. Access and Control Over Lands

According to the geopolitical classification (see Appendix 3) of the Palestinian lands set by the Oslo Agreement, Palestinians exercise full control over area A, civil control over area B, with area C under full Israeli control. This classification gives the Palestinians control over most of the populated areas and limited control over natural resources and agricultural lands. In the West Bank, 62.9% of the agricultural lands (arable lands, mixed holdings, permanent crops and plastic houses) are located in area C, 18.8% in Area B and 18.3% in area A (Figure 1). Thus the Palestinian farmers have proper access to only 37.1% of their agricultural lands. (ARIJ, 2006).

In the Gaza Strip, despite the "full withdrawal" by Israel, and subsequent return to full Palestinian control, the Israeli Government has announced a security belt around the border with a total area of 58 km^2, consuming 15.8% of the total area of the Gaza Strip. These areas are inaccessible to the Palestinians due to continual shelling by the Israeli army forces.

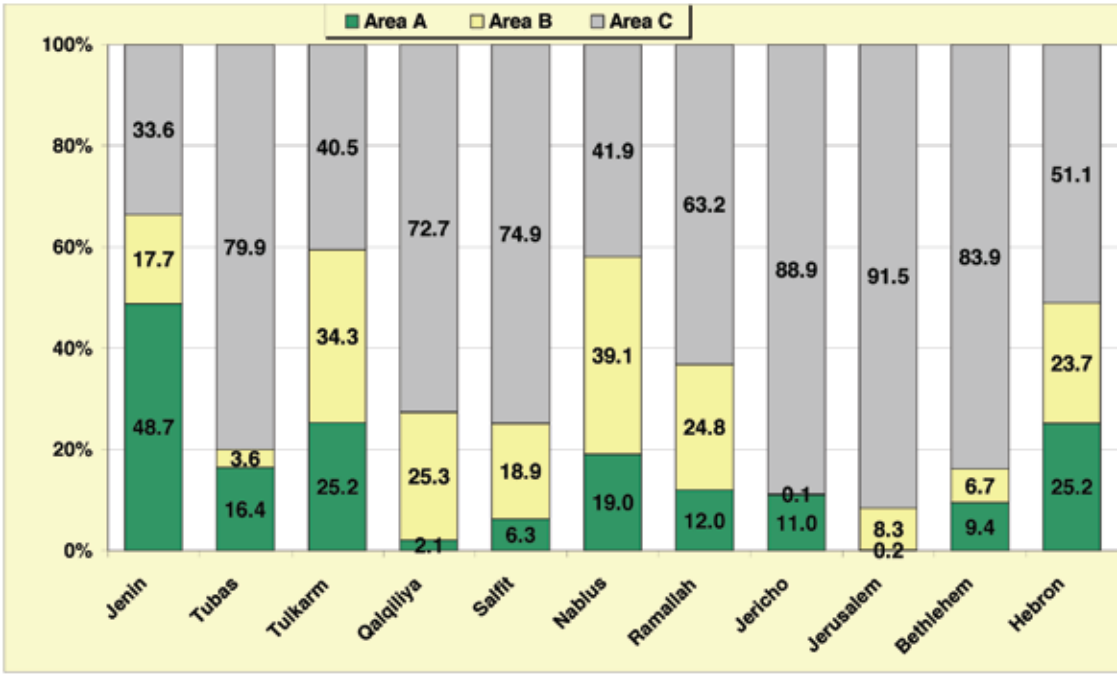


Figure 1: Distribution of the main agricultural areas in the West Bank- percentage in each geopolitical classification, by Governorate.

2.4. Agricultural Land Owners and Agricultural Holdings

The farm structure survey for Palestine conducted by the PCBS in 2004/05 showed that 95.5% of agricultural holders are males, the average family size of holders in Palestine is 7.9 persons and the average age of an agricultural holder is 47.2 years. Most of the agricultural holdings are household holdings: 96.8% of the agricultural holders are the head of the household; 88% of the holdings are owned[1]; 7.1% of holdings augment owned land with extra rented areas; 2.7% are entirely rented; 1.7% allotment/part of production (plant the land for part of production); 0.2% by force, (to cultivate the land without getting the approval from the land owner); other miscellaneous arrangements constitute the remaining 0.3% (PCBS 2005e).

The PCBS states that the total number of agricultural holdings in Palestine is 101,172. Plant holdings are the most common, averaging 69.5% (West Bank: 68%; Gaza Strip: 81.6%), followed by mixed holdings (plant and livestock) with 23.2% and finally the livestock holdings with 7.6%. Holdings that have livestock, both pure and mixed, are distributed 93.4% in the West Bank and 6.4% in the Gaza Strip. 48.9% of the livestock holdings (pure and mixed) in the West Bank are concentrated in the northern part with 36.9% in the southern parts and the remainder in the centre of the region (PCBS 2005e). The composition of livestock holdings (both pure and those with additional plant production), in terms of livestock type is presented in figure 2.

Photo Three: The agricultural lands in Palestine

1- The GoI retains civil authority in West Bank Area C imposing restrictions that prevent the registration of Palestinian private land which was limited prior to 1967. Thus, about one-third of West Bank Area C, where most of the agricultural lands are placed, remains unregistered in the Governorates of Ramallah, Hebron, Qalqilya, Nablus and Tulkarem. This has lead to a confiscation of land by the GoI leading to a situation where almost 40% of the West Bank outside East Jerusalem has been incorporated into the jurisdictional boundaries of settlements (World Bank, 2006)

Agricultural holdings mainly exist in rural localities (66.1%). Urban localities have 33.3% and the remainder are located in refugee camps. On a regional level, in the West Bank 71.2 % of the agricultural holdings are located in the rural areas, whilst in the Gaza Strip 72.6% of the holdings are located in urban localities.

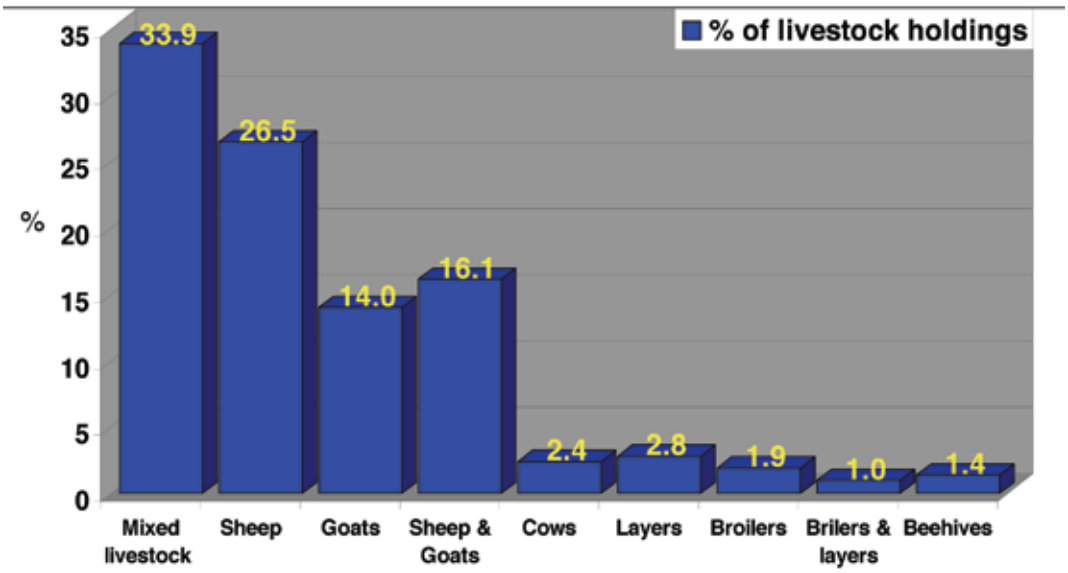
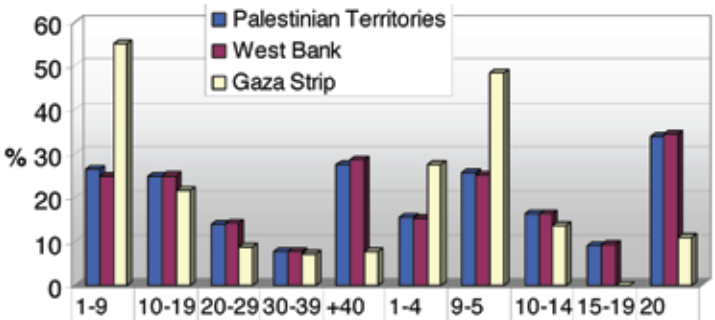


Figure 2: Percentage distribution of the pure and mixed livestock holdings in Palestine (PCBS 2005e).

Typically, agricultural holdings in Palestine are small and fragmented due to the Palestinian family inheritance land ownership system (where the father usually distributes his owned lands to his sons and daughters, who in their turn redistributed their lands to their coming sons and daughters. Such a system results in the reduction of land property size through portioning it amongst the inheritants), and land confiscation policies. The average area of agricultural holdings in Palestine is 18.6 dunums/holding (West Bank: 19.8 dunums/holding; Gaza Strip: 8.5 dunums/holding).

Specifically, 58.4% of the agricultural holdings are considered as smallholdings with an average area of 1-10 dunums. In the West Bank 56.0% of the holdings are within the average of 1-10 dunums, and in the Gaza Strip, smallholdings make up 77.5% of the total holdings. On the level of Palestine as a whole, 25.7% of agricultural land holdings cover an area of 11-40 dunums, 9.4% have an average area of 41-50 dunums, and only 8.1% cover 51 dunums and above (PCBS 2005e).

Over half (51.1%) of sheep holdings in Palestine are smallholdings with an average 1-19 heads only. In the Gaza Strip, smallholdings comprise 76.6%, and in the West Bank 49.7%. The percentage of goat holdings of 1-19 heads is 66.2%. This suggests that small ruminant holdings in Palestine are sporadic family enterprises rather than large agribusiness, as only 27.4% of the sheep holdings have more than 40 heads and only 33.8% of goat holdings have more than 20 heads (Figure 3). Cattle holdings are also usually small in size, with 71.1% of the existing holdings in Palestine containing just 1-3 heads, with just 11.9% of the holdings containing more than 10 heads (PCBS 2005e).



	1-9	10-19	20-29	30-39	+40	1-4	9-5	10-14	15-19	20
Palestinian Territories	26.4	24.7	13.7	7.8	27.4	15.4	25.5	16.3	9.0	33.8
West Bank	24.8	24.9	14.0	7.8	28.5	15.1	25.0	16.3	9.3	34.3
Gaza Strip	55.0	21.6	8.7	7.0	7.7	27.4	48.3	13.5	0.0	10.8

Figure 3: Percentage distribution of sheep and goat holdings by size and region, 2005 (PCBS 2005e).

3. Agricultural Water Resources

The West Bank is located over the three main aquifers, (Western, Eastern and North-eastern aquifers), with a total combined annual water discharge of 679 MCM. The Palestinians are allowed to use just 118 MCM/year (18%) while the Israelis control the remaining amount of water (82%) either by pumping it from the West Bank to Israel, and/or to the Israeli colonies inside the West Bank (PCBS, 2005f). Only 30.07 MCM of water accessible from wells in the West Bank is used for agriculture.

There are about 152 fresh water springs in the West Bank; the discharge of these springs varies from year to year, and even during the same year: discharge in winter is much higher than in summer. The average annual discharge for all the springs reaches 60.5 MCM/year (except for the Dead Sea springs) and about 87% of the springs are used for irrigation purposes. This means that about 52.72 MCM of spring water is used for irrigation. In addition, about 1.5 MCM are purchased from Mekorot (the Israeli Water Company) in the Northern Jordan Valley. (PWA, 2004).

The total water accessible for agriculture in the West Bank is, therefore, 84.3 MCM/year which is being used to irrigate up to 130,300 dunums, mainly concentrated in Jericho and Nablus Governorates. This area, and additional planted crops, need up to 81 MCM based on actual crop water requirements. The remaining 3.3 MCM is lost due to over irrigation and/or damage to water pipes and canal networks as they are outdated and not maintained, and/or to the Israeli practices (PCBS 2005d) (Figure 4). Therefore, up to 3,200 dunums of irrigated agriculture could be added to the existing irrigated areas if the available water resources were managed more efficiently.

In the Gaza Strip, ground water wells are the only source of water as there are no springs. There are more than 4,000 agricultural wells, and unlicensed digging of new wells is occurring continually (these wells should be licensed by Palestinian Water Authority). According to the PWA the agricultural water demand in Gaza for 2005 was 82 MCM (based on calculations of crop requirements and land area, and also including 2 MCM/year for livestock production). There is an additional 7.5 MCM/year extracted for irrigation purposes, bringing the total agricultural water consumption to 89.5 MCM/year, this is equivalent to approximately 54% of the total water demand in the Gaza Strip (but around 70% of the Gaza wells' supply capabilities). The municipal and industrial water demand is approximately 76.11 MCM/year, supplied 71.54 MCM/year from municipal wells, 3.05 MCM/year from Mekorot, and 1.52 MCM/year from UN wells. The extra 4,000 dunums of greenhouses in the Gaza Strip, made available as a consequence of the Israeli withdrawal, create an extra area to be irrigated, needing an additional 40 wells to supply 5-7 MCM/annually. (Al-Dadah and Mustapha, 2006).

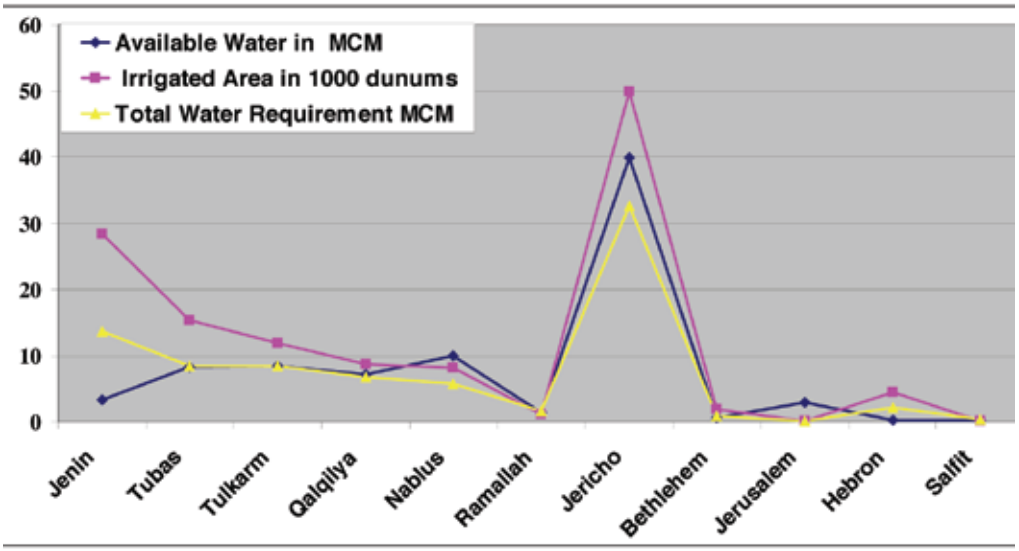


Figure 4: Distribution of water available and actual water consumption by the agricultural sector in the West Bank (PCBS 2005d).

The rate of water extraction from the coastal aquifer is much higher than the natural annual recharge rate by rain (50 MCM/year). As a consequence, the salinity level of the ground water in Gaza is high, and rising, due to intrusion of seawater from the Mediterranean. Another water quality problem in Gaza is associated with wastewater and untreated sewage leaching into the aquifer and contaminating groundwater, making it unsafe for human consumption hence unsuitable for direct irrigation. Additionally, bad agricultural practice, regarding the use of industrial pesticides and fertilizers, has a negative impact on groundwater resources.

Rainwater harvesting is practiced across Palestine, but clearly its effectiveness is determined by the amount of rainfall received in any area, and the technology applied. The contribution of rainwater to agricultural water resources is unknown, but in areas that receive significant rainfall, there certainly exists a great potential for further development in this field. According to APIS data, since the year 2000, up to 3,623 different rainwater harvesting systems have been either constructed or rehabilitated, including grey water treatment units that, in total, represent an average annual capacity of 205,250 m^3.

Photo Four: Water wells, cisterns and irrigation canals

The Palestinian water Authority is the main regulatory body for water resources management and development through leading the National Water council which contains all the stakeholders; ensuring most efficient management of available water resources; achieving optimal planning for water resources investment, whilst exploring further resources to ensure balanced management between supply/demeaned for all uses; controlling quality of the implementation of the water projects; and seeking to achieve strong co-operation between PWA and other relevant parties. The following chart presents the main role of the Ministries and other stakeholders in the water resources management. (ADC, 2006)

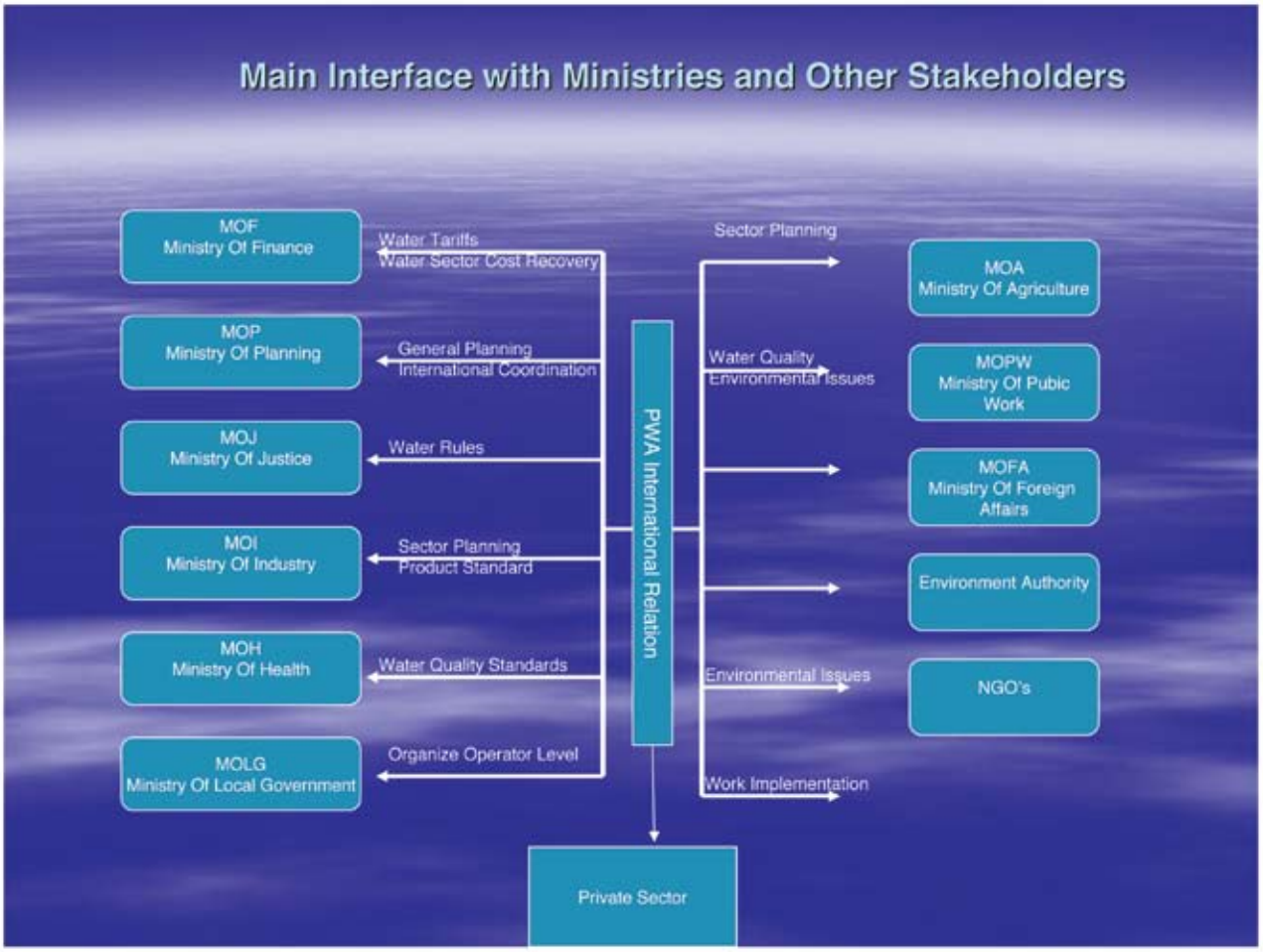


Chart one: the Ministries and other Stakeholders in the Water Resources Management in Palestine

4. Agricultural Production

4.1. Plant Production

4.1.1. Plant Production Area

The total cultivated area in Palestine is usually categorized into fruit trees (62.6% of total area), field crops (27.6%) and vegetables (9.8%). In the West Bank there is a predominance of fruit trees followed by field crops, both mostly watered under a rain-fed regime. Nevertheless, there is a significant area of irrigated vegetable production. In the Gaza Strip, there is a clear dominance of irrigated agriculture, mostly devoted to vegetables and fruit trees, with a significant area also for rain-fed field crops (Figure 5).

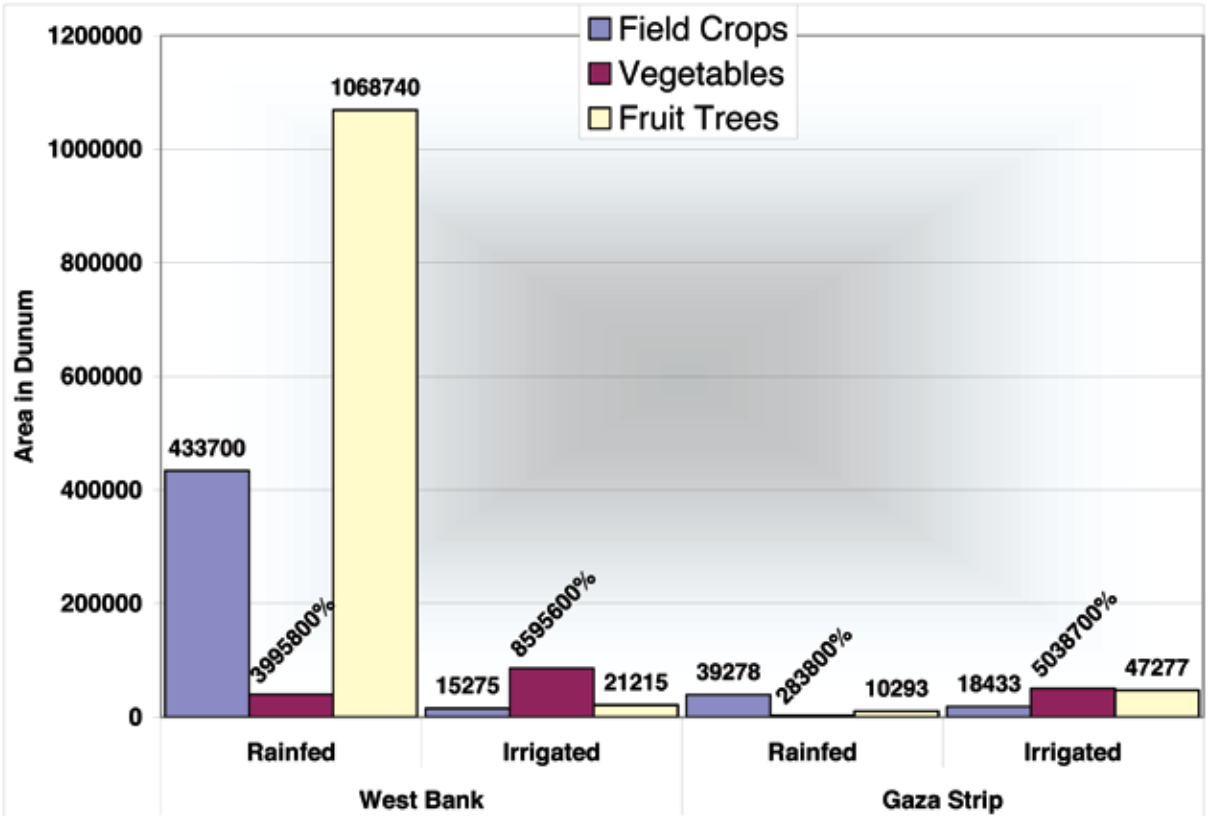


Figure 5: Distribution of cultivated areas by crop types in Palestine (2004/05) (Source: PCBS 2006a)

The West Bank contains 51.3% (122,446 dunums) of the total irrigated land area, and 96.7% (1,594,807 dunums) of the rain-fed cultivated lands in Palestine, with the remainder being found in the Gaza Strip. In the year 2005, the total area of greenhouse in Palestine was 24,516 dunums, of which 62.3% existed in the Gaza Strip. However, after the Israeli withdrawal from the Gaza Strip an additional 4,000 dunums of greenhouses were transferred to the Palestinians, which resulted in an increase in the greenhouse area in the Gaza Strip. Gaza now has approximately 18,193 dunums of greenhouse cover (PCBS, 2006a) (Please see Appendix 4, map 5). Currently these greenhouses are controlled and utilized by the Palestinian Authority, however, several control, management and marketing problems are encountered in their running. It is planned to export most of the greenhouses produce, but due to the irregular openings of the crossing points, the first season had recorded serious losses in the produced commodities (MoA, 2007).

Photo Five: Cropping systems in Palestine

4.1.2. Plant Production Value

The annual value of agricultural plant commodities produced was US $494.786 million in 2004/2005. Vegetable commodities had the highest contribution to production value (52.0%) followed by fruit trees with 34.1% and finally field crops with 13.9% (Table 1).

Table 1: Composition of the plant production sector in Palestine, by crop type and region (Source: PCBS, 2006a).

Crop type	West Bank			Gaza Strip			Palestine		
	Area (dunum)	Production (Ton)	Value (US$1000)	Area (dunum)	Production (Ton)	Value (US$1000)	Area (dunum)	Product-ion (Ton)	Value (US$1000)
Fruit Trees	1,089,955	203,765	139,343	57,570	57,093	29,572	1,147,525	260,858	168,915
Vegetables	125,914	338,891	149,090	53,225	255,174	108,110	179,139	594,065	257,200
Field Crops	448,975	133,431	51,842	57,711	69,325	16,829	506,686	202,756	68,671
Total	1,664,844	676,087	340,275	168,506	381,592	154,511	1,833,350	1,057,679	494,786
%	90.8	63.9	68.8	9.2	36.1	31.2	100.0	100.0	100.0

According to the size of producing areas, rain fed agriculture is the main sub-sector, occupying 87.0% of the total cultivated land. However, its contribution to overall plant production is only 28.5%, compared with the open irrigated agriculture which occupies 11.0% of total producing areas, yet contributes 43.1% of the total plant production. Irrigated protected agriculture occupies only 2.0% of the total cultivated area, but produces almost half of the total plant production (28.4%) (Figure 6). As can be seen in Table 2, irrigation substantially increases yield, and protected irrigation increases yield further. Protected irrigated vegetables, for example, produce a yield 18.6 times greater than would be possible with open agriculture (PCBS, 2005a).

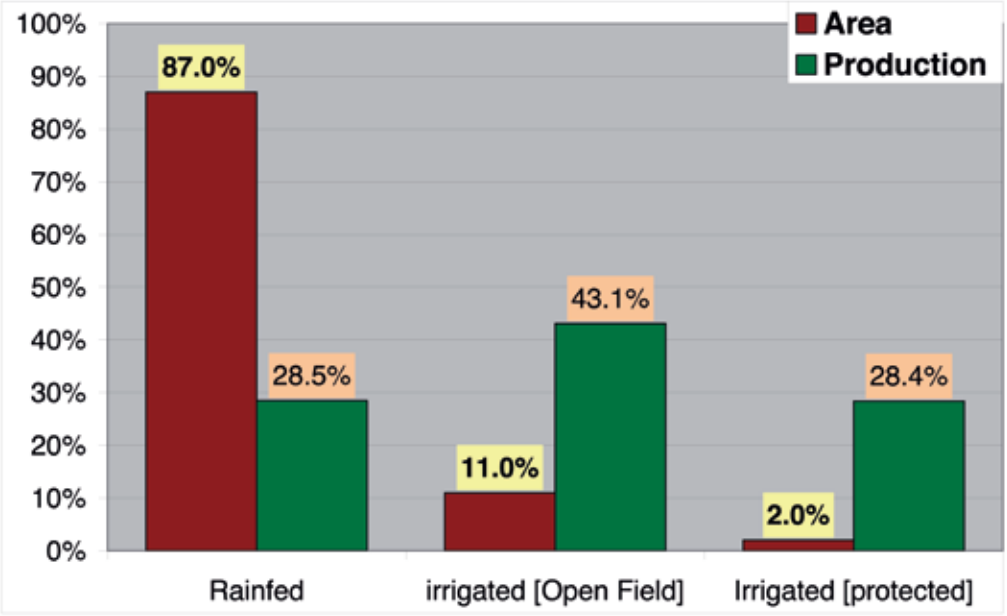


Figure 6: Distribution of plant production by planting system (PCBS, 2005a).

Table 2: Crop yields under different growing systems practiced in Palestine (PCBS, 2005a)

Growth regime	Fruit tree yield (Kg/ dunum)	* Vegetable yield (Kg/ dunum)	Field Crop yield (kg/dunum)
Rain fed	154.9	568.6	243.3
Open irrigated	1724.5	2714.5	2599.1
Irrigated (protected)	0.0	3316.7	0.0

****: includes greenhouses (66.5%), French tunnels (0.2%) and low tunnels (33.3%) respectively.***

4.1.3. Trends in Plant Production

Generally, there has been a decrease in the area of cultivated lands in Palestine, but an increase in plant production (Figure 7). In 2005, the agricultural area was 4.6% smaller than in 1995. Production varies year to year due to a wide range of factors including climate. The olive harvest in particular has great annual variation due to the olive's two-year cycle and the fact that 50.9% of the total cultivated area is covered by olive trees. 1999 was an exceptionally low production year, probably as a result of severe drought impacting rain fed areas, with cultivated areas yielding the lowest amounts on record. Plant production in 2004/2005 amounted to 1.06 million tons distributed between vegetables (56.2%), fruit trees (24.7%) and field crops (19.1%). Generally, Gaza contributes 36.1% of the plant production, and the West Bank contributes 63.9% (PCBS, 2005b).

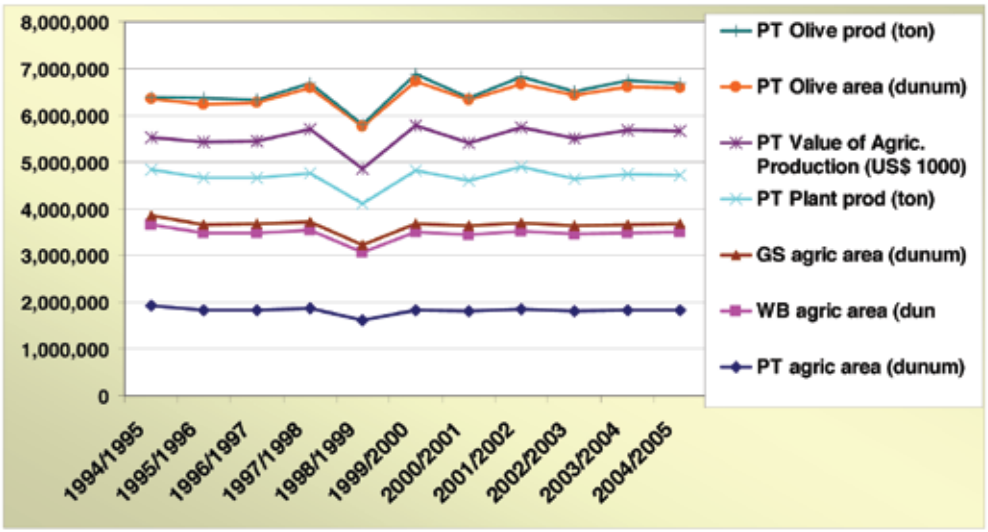


Figure 7: Trends in plant production in Palestine, 1994-2005 (Source: PCBS, 2005b & 2006a)

4.1.4. Diversity of planted crops

Currently up to 105 main crop types are cultivated, including 38 types of fruit tree (olives, almonds, other nuts, plums, apricots, peaches, pears, cherries, etc.) and 37 types of vegetable crop (snake cucumber, cucumber, tomato, onion, etc.) in addition to cut flowers and 30 types of field crop and grain (particularly wheat, barley, chickpeas, lentils, sorghum and vetch) which are cultivated according to rain fed and/or irrigation techniques (PCBS, 2005a).

a) Fruit Trees

Rain fed fruit orchards span much of the West Bank. Olives, citrus fruit, grapes and plums represent the leading fruit crops within the West Bank with a clear dominance of olive production accounting for up to 81.4% of the fruit tree area in Palestine. The plantations are concentrated in Nablus, Jenin, Ramallah and Al-Bireh, Tulkarm, and Salfit. Production can vary between 5,000 and 180,000 tons according to the bi-annual olive cycle (PCBS, 2005a).


Source: Piedad Martin

Citrus is by far the most important fruit crop in terms of value, although they account for only 2.4% of the total fruit tree area in Palestine, and the harvest is relatively small (approximately 60,000 tons annually).

The production is heavily water intensive and concentrated mainly in the Gaza Strip. Grapes are also an important rain fed crop, contributing approximately 50,000 tons to total annual production, and accounting for 6.6% of the total fruit tree area. Grapes are concentrated primarily in Hebron and Bethlehem districts. Almonds account for 3.7% of the total fruit tree areas, and are concentrated in Jenin and Tulkarem districts. In a relatively smaller area, but of larger economic importance, are various stone fruits, including plums, peaches and apricots, which are generally well maintained, efficient producers (PCBS, 2005a).

b) Vegetables

Cucumber, tomato, okra and squash are the main vegetable crops, comprising 63.8% of the total vegetable area of Palestine. Palestinians produce more than 87,210 thousand tons of vegetables annually. While 42.9% of that production is produced in the Gaza Strip the rest is produced in the West Bank, in both cases there is a high predominance of irrigation production (PCBS, 2005a).

c) Field Crops

Wheat and barely are vital crops that respond well to the environmental conditions of the Mediterranean region. Wheat covers an average area of 21.4 thousand hectares, representing 42.2% of the total area of the field crops (and a total production of 44,720 tons in 2005); while the area devoted to barely cultivation is around 10.9 thousand hectares or 21.6% of the total area of field crops (PCBS, 2006a).

There has been a noticeable fluctuation in the cultivated area of wheat in the West Bank within the last 25 years (the cultivated areas of wheat dropped from 46,490 hectares in 1967 to 15,660 hectares in 1992, and increased to 21.4 thousand hectares in 2005) (PCBS, 2006a). The recent augmentation in wheat production area is intimately related to the increase in movement restrictions and closure policies, instigating a change in the planting pattern toward crops that need less tending in order to minimize the need for physical access (WFP, 2006).

Photo Six: fruit trees in Palestine.

4.2. Animal Production

4.2.1. Livestock

Table 3 compares the type and numbers of livestock farmed in Palestine in 1998 and 2005. Since 1998, all the livestock numbers have increased except in the cattle's of local breeds and traditional beehives. The most significant increase was in the number of small ruminants (sheep and goats) which displayed an increase of 48.6% in 2005 compared with 1998 (PCBS, 2006a; c). Small ruminants, historically, have been the most important livestock sub-sector, and this is still the case today, with the number of small ruminants reaching a total of more than a million heads, most of which are sheep, concentrated in West Bank.

The poultry sector in the West Bank is larger than that of Gaza's, but in the latter, the production has been suffering since March 2006 due to the discovery of avian flu, with 8 confirmed cases of infection in Gazan farms which lead to the culling of 400,000 farm birds (WFP 2006b). In order to minimize the impact of avian influenza during the next high risk season (autumn 2006); a coordinated effort is being organized by both the Palestinian Ministries of Health and Agriculture, and some relevant regional and international organizations.

Table 3: Livestock production in 2004, by livestock type and region, compared with combined regional livestock production in 1998 (Source: PCBS, 2006a; c).

Sub-sector	2004/05			1997/98	% change (2005/1998)
	West Bank	Gaza strip	Palestine	Palestine	
Cattle[1]					
Local breed	4,546	0	4,546	5,127	-11.3%
Friesian	21,803	6,046	27,849	16,923	64.6%
Total	**26,349**	**6,046**	**32,395**	**22,050**	**46.9%**
Small Ruminants[2]					
Local Sheep	515,617	18,513	534,130	492,875	8.4%
Other Sheep	226,882	42,153	269,035	45,123	496.2%
Sub-total	**742,499**	**60,666**	**803,165**	**537,998**	**49.3%**
Local Goats	289,953	5,646	295,599	249,448	18.5%
Other Goats	71,290	4,309	75,599	2,810	2590.4%
Sub-total	**361,243**	**9,955**	**371,198**	**252,258**	**47.2%**
Total	**1,103,742**	**70,621**	**1,174,363**	**790,256**	**48.6%**
Beehives[3]					
Traditional	3,771	0	3,771	4,282	-11.9%
Modern	42,919	17,995	60,914	53,568	13.7%
Total	**46,690**	**17,995**	**64,685**	**57,850**	**11.8%**
Poultry (1000 bird)[4]					
Layers	1,809	747	2,556	2,061	24.0%
Broilers	24,625	16,016	40,641	38,550	5.4%
Total	**26,434**	**16,763**	**43,197**	**40,611**	**6.4%**

[1] The Holstein-Friesian is the most common breed in Hebron, while local breeds are dominant in Tubas. Cattle production is most widespread in Hebron followed by Nablus, and Jenin.

[2] 28.6% of sheep are in Hebron, then Jenin, Nablus and Bethlehem. 97.3% of the goats are in the West Bank (mainly in Hebron, Bethlehem and Jenin).

[3] 12.8% of the total number of beehives is found in Jenin Governorate, followed by North Gaza, and Tulkarm Governorates.

[4] There are 8,940,000 birds in Hebron which equals to 22.0% of the total broiler production in Palestine. Next highest are Khan Yunis and Tulkarm. 17.5% of Palestinian layer bird production was found in Ramal-lah and Al-Bireh Governorate, followed by Gaza, Hebron Governorates respectively.

The bird flu issue is particularly important in Gaza considering the region's dependence on poultry as its main source of protein. Without it Gaza would face serious economic and food security issues.

The bee-keeping sector, however, has shown itself to be highly feasible, mostly at a house-hold level, producing honey in a sustainable way due to its high local market price and the adaptability of the beehives to the local conditions.

The West Bank produces 79.2% of Palestine's total livestock production (white and red meat, dairy, table eggs, and honey). The largest contributions by governorate are Hebron (22.9%), Jenin (11.1%) and Nablus (10.5%). Meat and milk production is concentrated in Hebron, Jenin and Nablus governorates and egg production in Gaza and Hebron.

The value of livestock production (white and red meat, dairy, table eggs, and honey) in 2005 was US$ 437.5 million, compared with US$ 342.3 million in 1999. This represents an increase in the value of livestock production between 1999 and 2005 by 21.8%. The contribution of the livestock sub-sectors to the total livestock production of Palestine in 2005 was as follows: 55.0% meat, 30.8% dairy and 9.3% table eggs and 4.9% other products (e.g. honey, by-products etc) (PCBS 2006a; c).

Despite the increase in livestock production achieved over the last six years, production costs remain high. In 2004 livestock production inputs made up 64% of the livestock production value, with feed forming 68.8% of total livestock production costs, followed by veterinary services and medicines (14.3%). This reflects the acute need for increasing national production of feedstuffs in order to increase the production value of the livestock sub-sector.

It is important to mention that the production potential of local breeds has been shown to be limited compared to that of improved or other adapted breeds[2]. The farmers involved in agribusiness activitie=s have recognized the differences in production, and the feasibility of introducing improved breeds with the support of the Ministry of Agriculture, NGOs and the private sector, they have started changing or cross-breeding their local breeds with improved breeds. However, the existence of local breeds persists at the family farming level due to their high resistance to drought, climatic changes, limited sources of feed, simple rearing systems, their specific products, taste, and their inherent value as part of local land races and biodiversity.

Photo Seven: livestock production in Palestine

2-Especially in the case of local sheep breeds compared with the Assaf breed, and local cattle breeds compared with the Friesian breed, local goats [Samar] with Shami breed, old beehives [clay] with modern beehive, Italian bee strains with others strains, and local chicken eggs and meat production with improved breeds.

Important needs in Veterinary services, which are being addressed by certain donors such as the brucellosis, project in addition the avian flu outbreak, but the capabilities of the MoA to address this are very low.

4.2.2. Fisheries

Fishing occurs from the Gaza Strip with the average annual catch ranging between 1,507 tons in the year 2003 and 2,995 tons in 2004 (Figure 8). The value of production varies depending on the amount and the species caught. The total value of fish caught in 2004 was US $7,029,000 (PCBS, 2005d) the Gaza Governorate contributing 86.3% of total fish caught in that year. The catch is dominated by the sardine Sardinella aurita, although more than 20 other species are regularly caught. The fishery sector is estimated to provide jobs to 3,500 people, with an unknown contribution to the informal employment market (OCHA, 2006). There are 890 small fishing boats and 120 big boats in the Gaza Strip (MoA, 2007). As of 2004 there were 725 registered fishing boats. Since the start of the Israeli offensive "Operation Summer Rains" on June 28th 2006, there has been a complete ban on fishing from the Gaza Strip, which remains in place at the time of writing. For the period between the end of the previous ban on fishing (October 9th 2005) until the start of "Operation Summer Rains" (June 2006), fishing had been restricted by Israeli army to a narrow strip within 6 nautical miles from the coast. Generally, during 2006 there has been a complete ban on fishing from the Gaza Strip for more than 110 days (MoA, 2007). As a consequence the catch comprised mainly juveniles and breeding adults, resulting in non sustainable exploitation of fish stocks. Since the discovery of avian flu in the Gaza Strip, the pressure on the fishery sector has increased dramatically.

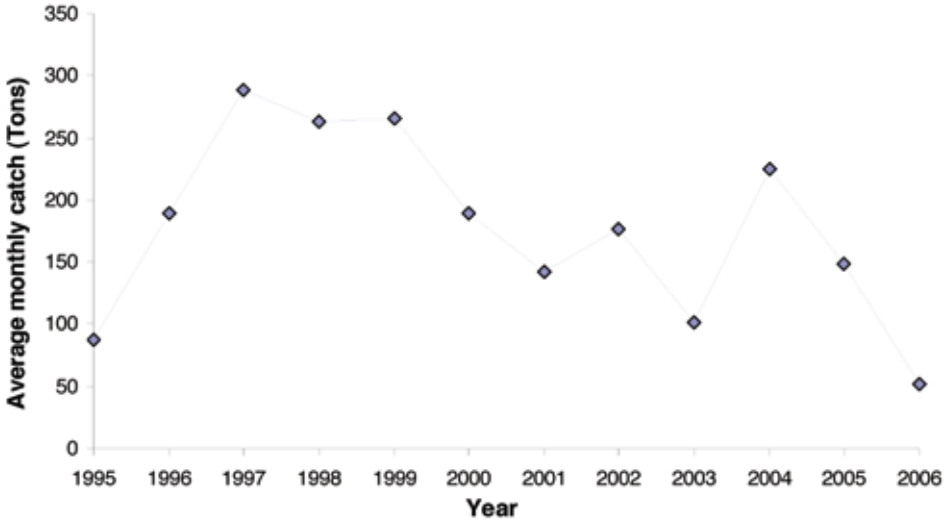


Figure 8: Average monthly fishery catch from the Gaza Strip, 1995 – April 2006 (Source: OCHA 2006 a)

5. Agriculture in the Palestinian Economy

5.1. Economic Contribution of the Agricultural Sector

The agricultural sector is a vital sector in the Palestinian economy as it has demonstrated to be one of the key sources of growth in the economic recovery that took place from 2003-2005 (World Bank, 2006a). The changes in agricultural activities are usually linked not only with climatologic conditions but also with socio-political changes and conflicts. The Palestinian economy is highly susceptible to external shocks, political events and the Israeli business cycle, including fluctuations in Israeli agricultural productivity. For this reason, the Palestinian economy is extremely vulnerable (WFP, 2006). Prior to the Intifada (2000), the agricultural sector contributed less than 10% to the GDP (PCBS, 1994-2004).

Therefore, the contribution of the agricultural sector varies from one year to the next, based on the activity of other economic sectors, and the accessibility of the Israeli job market to Palestinian workers. Despite the reduction in the contribution of the agricultural sector to the total Palestinian GDP in the period between 1997 and 2001, its contribution has gradually increased since 2002. The total contribution value between 1995 and 2004 varied from its lowest value in 2002 with US $387.1 million, to a maximum of US $487.5 million in 2004 (Figure 9) (PCBS, 1994-2004). On the other hand, the GDP estimates for the years 2005 and 2006 showed a decrease in the Agriculture contribution to the Palestinian GDP, reaching only 7.0% and 8.0%, respectively.

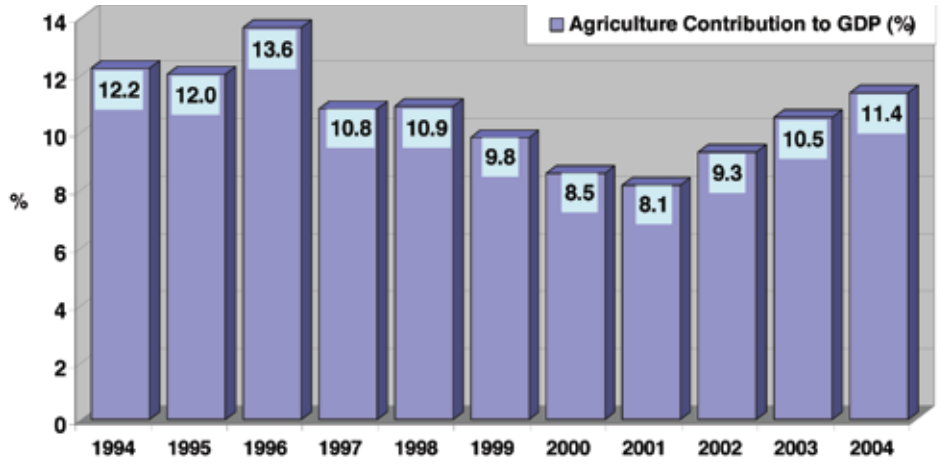


Figure 9: Agricultural Sector contribution to the total Palestinian GDP (1994-2004) (Source: PCBS, 1994-2004)

5.2. Contribution to Exports and foreign exchange

Agricultural products account for 25% of the export trade from Palestine. Fruit (including strawberries and dates), olives and olive oil, vegetables and cut flowers are the primary export products. The shift to export-oriented agriculture increased the exploitation of cash crops and the dependency on imports of agricultural inputs used for intensive farming. It also increased the dependency on Israel, as it is an inevitable primary transit point of all available marketing channels (WFP, 2006).

Israel is the main importer of Palestinian agricultural products (around two-thirds of the total), followed by the Arab Countries and the European Union (World Bank, 2006,). Due to political conflicts, the value of agricultural commodities exported to Israel and other countries fell from US $97.3 million in the year 2000 to US $21.1 million in 2003, with a negative balance of US $76.2 million. During this period, exports to Israel fell by 84.7%. This demonstrates the significant impact of export reduction on Palestinian economic strength and viability. The value of imported Israeli agricultural commodities was significantly lower in 2003 compared with 2000–US $159.1 million and US $ 386.7 million respectively, thus representing a reduction of 58.9%, as shown in (Figure 10) (PCBS 2005d). Exportation and agribusiness strategies should support and empower small-scale farmers rather than focus primarily on big farmers.

Photo eight: Agro-marketing activities

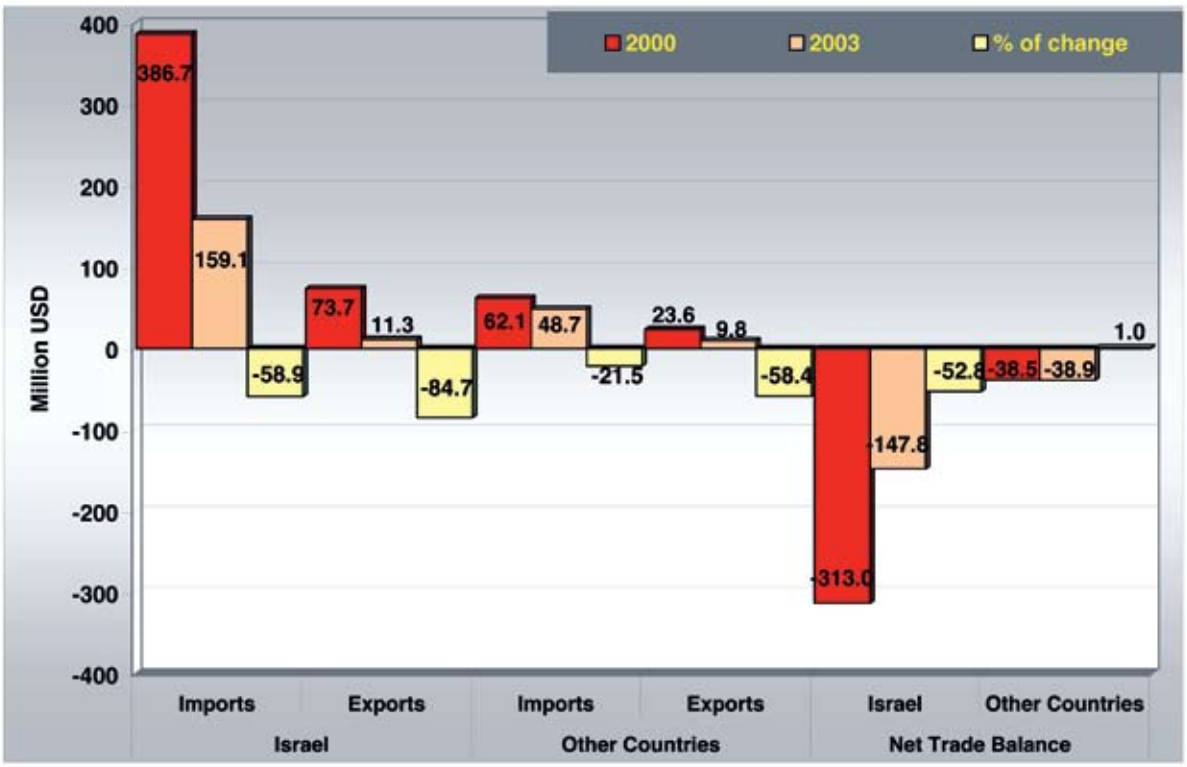


Figure 10: agricultural commodities export-import balances by region (Source: PCBS 2005d)

Coordination of the private sector is undertaken by PalTrade who head the development of Palestinian trade as a driving force for sustainable national economic growth. PalTrade is formed of 190 Palestinian businesses, among which are a number of food processing companies, collectively known as the National Trade Development Organization (NTDO). The main objective of this organization is to improve trade competitiveness through trade promotion and capacity building.

Since January 2007, the Israeli Government has reopened the Bissan checkpoint for Palestinian agro-products from the Jordan Valley passing into Israel. Farmers are given marketing permits for their commodities. These are checked and transported by Israeli trucks. This procedure has resulted in reducing the transportation time and cost. On the other hand, the farmers and the locals who are living in the northern area are still suffering from Israeli soldier's practices in Tayasir checkpoint in Tubas, since they can only pass after strict and long checking processes. The other major crossing point is Karni, where the Palestinians are used to marketing their commodities; however, the Israelis open the crossing point at certain times, according to their desire, leaving the Palestinians, and thus their commodities under the mercy of their resolutions. Many of the agri-commodities get damaged on the crossing point, while farmers or traders are waiting for the opening, causing serious loss to both the farmers and the traders. (During 2006, The Karni crossing point was closed 30% of the year and thus the passing of the Palestinian commodities to the West Bank and Israel was forbidden). Furthermore, the amount of the Gaza Strip agricultural commodities transported to the West Bank and Israel has been reduced to 25,000 tons in the year 2006, compared with the year 2005, which was 70,000 tons (MOA, 2007). It is worth mentioning that the amount of money invested on establishing the security measures on the Karni checkpoint that was funded by USAID, has reached up to 44 million $ USD. This will impose more constraints to the movement of goods and people through that point.

Rafah crossing point, on the other hand, only opens for passengers but not for the passage of agricultural commodities. Thus, the only way for Gaza Strip to export agricultural products is through Israel and/or through Israel to the West Bank, then through Jordan. Last year 1000 tons of Gaza's tomato exported to Saudi Arabia, through Israel to the West Bank then to Jordan and finally to Saudi Arabia. However, this way takes time, is expensive, and affects the quality of the exported commodities.

Exportation and agribusiness strategies should support and empower small-scale farmers rather than focus primarily on big farmers. This can be done through creating strong marketing cooperatives and developing Geographic Identity (GI) to the rural/local products to add value to such products and assist in improving their production procedures and marketing potentials.

It would be interesting to mention Organic Agriculture, as there are initiatives in that direction, the Italian Cooperation has been funding this kind of Agriculture. The national NGO PARC is implementing this type of agriculture. It doesn't have quotes at the European level for instance; this could be an interesting door for exports (this could also be mentioned in the exporting section). It implies less use of inputs (pesticides, fertilizers, etc...), it has a higher demand for manual labour, and it has a higher value than the agricultural product coming from the agriculture which makes intensive use of pesticides and fertilizers. The health benefits are for the agriculture workers (especially women, youngsters and children) and for the consumers.

EUREPGAP (**http://www.eurepgap.org/Languages/English/index_html)** is based on Integrated Crop Management (ICM) and covers food safety, traceability, record keeping and internal inspection, seeds, fertilization and water use, crop protection, produce harvesting, packaging and post harvesting, waste and pollution management, workers safety and environmental protection. ACDI/VOCA and through a sub-grant to the Palestine Trade Center (PalTrade) has provided an intensive year full of training and extension activities targeted 40 strawberry and cherry-tomato farmers. In May 2006, the first group of 29 Palestinian farmers (24 Strawberry and 5 cherry tomatoes) received the first EUREPGAP certificates in Palestine. See Annex seven

5.3. Contribution to Employment

5.3.1. Formal Employment

Agriculture plays a vital economic role as it provides a source of livelihood for a substantial proportion of the population, especially during the closures of Palestine, when working in Israel becomes impossible (a situation which has been deteriorating since the outbreak of the second Intifada in 2000 until the present day). The agricultural sector is seen as a refuge for thousands of workers in times of checkpoint closures, hence lack of access to the Israeli job market, when people are forced to search for alternative local job opportunities. A study conducted by UNSCO in 2005, found that there has been a clear shift in the type of economic activity pursued by rural communities, and that agriculture has become the main employer in the majority of rural communities studied despite increasing rural industry (UNSCO, 2005). (Please see Appendix 4, map 5 of distribution of agricultural distribution by production and governorate)

Since 2002 the agricultural sector has ranked third in terms of the number of people employed in each sector, after services, other branches, and commerce. Previously it was ranked fifth, after the aforementioned sectors, also behind construction, mining, quarrying, and manufacturing, job types typical of employment found within Israel (Figure 11) (PCBS, 1996-2006a & PCBS, 2007).

The average percentage of persons employed in the agricultural sector between 2002 and 2005 reached 15.2%. In 2005, the number of people employed in the agricultural sector was 117,400 of which 75.9% were in the West Bank and 24.1% in the Gaza Strip (MAS, 2006). In the West Bank, agricultural activities are concentrated in the rural areas where up to 50% of the Palestinian population reside. (Please see Appendix 4, map 6 of distribution of employment and unemployment by governorate)

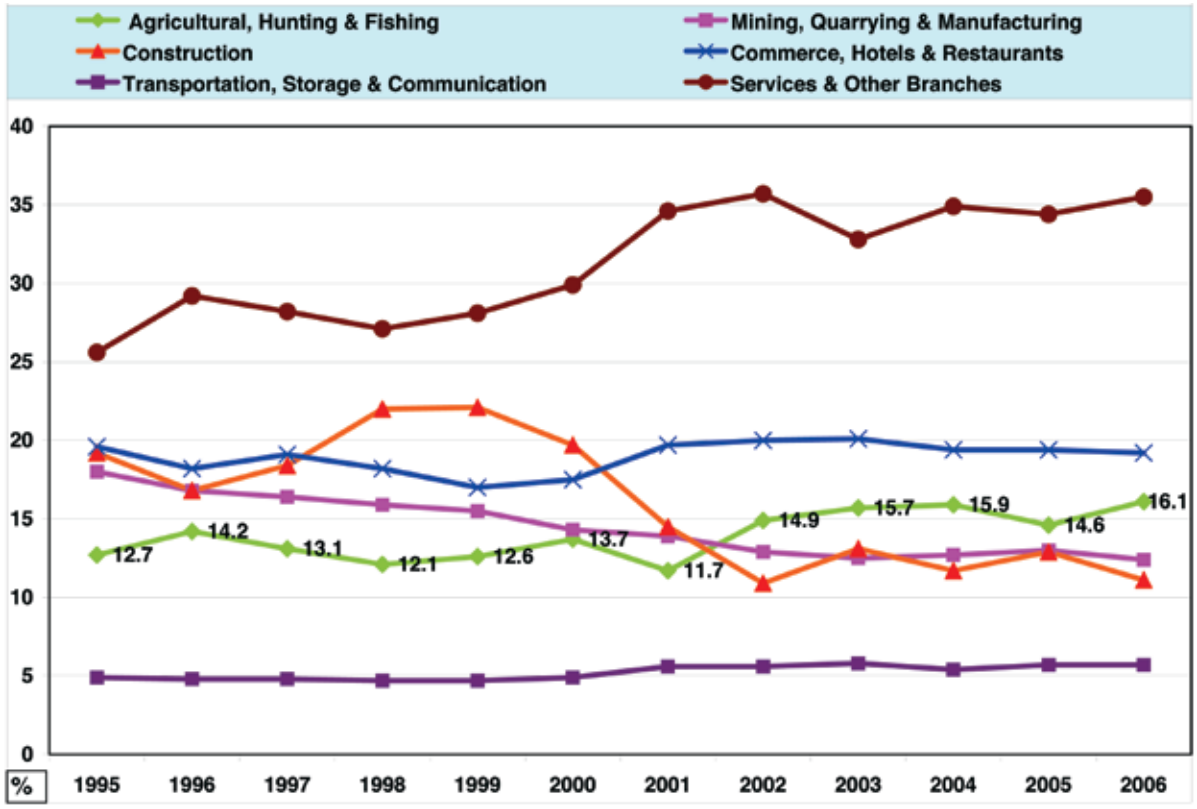


Figure 11: Distribution of Employed Persons in Different Palestinian Economic sectors in percentage, 1995-2005 (PCBS, 1996-2006a, & PCBS, 2007).

Following the closure of the Gazan borders, destruction of agricultural lands by Israeli incursions, and military invasions between the years 2000-2006, the productivity of the agricultural sector in Gaza has decreased. Consequentially, the percentage of the workforce employed in this sector has also decreased, contrary to the trend of a general increase observed in the West Bank during the same period (figure 12).

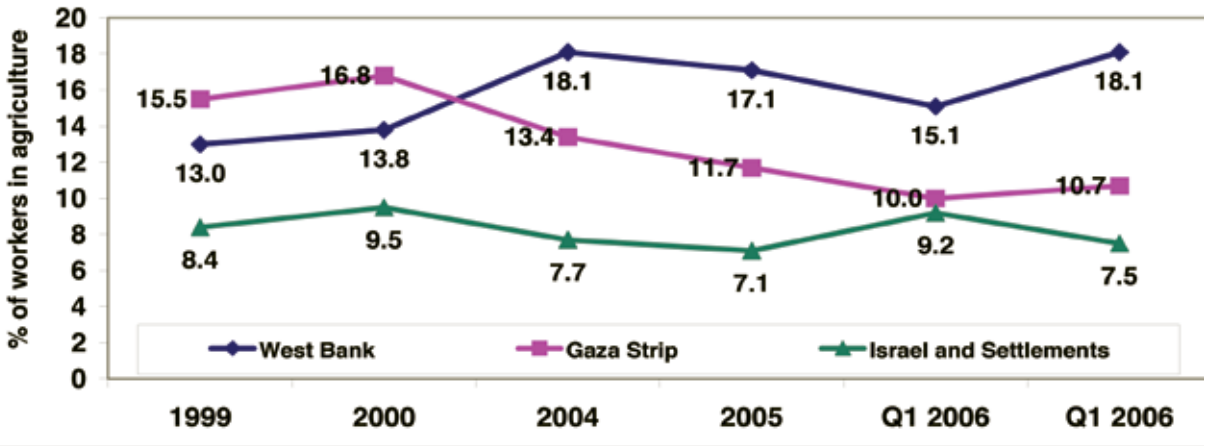


Figure 12: Trends in the percentage of the employed workforce in the agriculture, hunting and fishing sector, 1999-2006, in the West Bank, the Gaza Strip and Israel (PCBS, 1996-2006b).

Regarding employment in agriculture, the PCBS has stated that 40.1% of the agricultural holdings in Palestine have only one formal permanent employee, while only 2.6% of the agricultural holdings have 6 or more permanent employees. The average number of permanent employees per agricultural holding in Palestine is 2.1. On average, males form 77.8% of the permanent agricultural workforce in Palestine (West Bank: 75.7%;

Gaza Strip: 92.1%) (PCBS, 1996-2006a). Distribution of types of permanent employment in the agricultural sector can be seen in figure 13. About 23.2% of the permanent agricultural employment in Palestine is made up of the 30-39 year old age group, while the average age of the permanent agricultural employee in Palestine is 41.3 years. Plant-only holdings employ 62% of the permanent agricultural workforce, 7.6% are employed in livestock-only holdings and 30.4% in mixed holdings. According to the PCBS, 71.5% of the temporary agricultural workforce is employed in plant production holdings, 2.9% in livestock production holdings and 25.6% in mixed agricultural holdings.

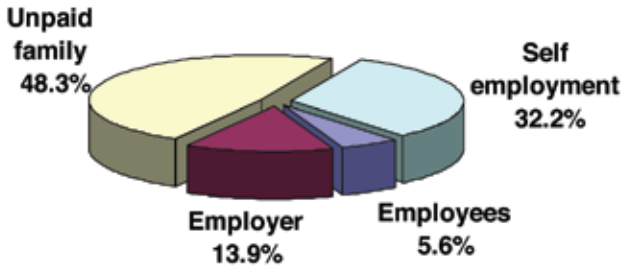


Figure 13: The composition of permanent employment within the agriculture, hunting and fishing sector, expressed as percentages of the total workforce employed in this sector.

Regarding women's involvement in the sector, in 2005 women (15 years of age and older) constituted 13.5% of the formal labour force in Palestine while in 2006 the female participation was 14.5%. Although this indicates a limited participation in the formal labour market, their participation in the informal, traditional market is relatively extensive. Generally, the services sector contains the highest portion of the female formal working force with 48.7%, followed by the agricultural sector with 34.3% (Figure 14). The main role of women in the agricultural sector is in farming, processing and marketing of household agricultural produce (PCBS, 1996-2006a & PCBS 2007). This shows that the rural woman is actively involved in agricultural activities (formally and informally), which lays more pressure and responsibilities on her. Therefore, the rural woman should be trained to improve her qualifications and knowledge in order to be able to generate more income.

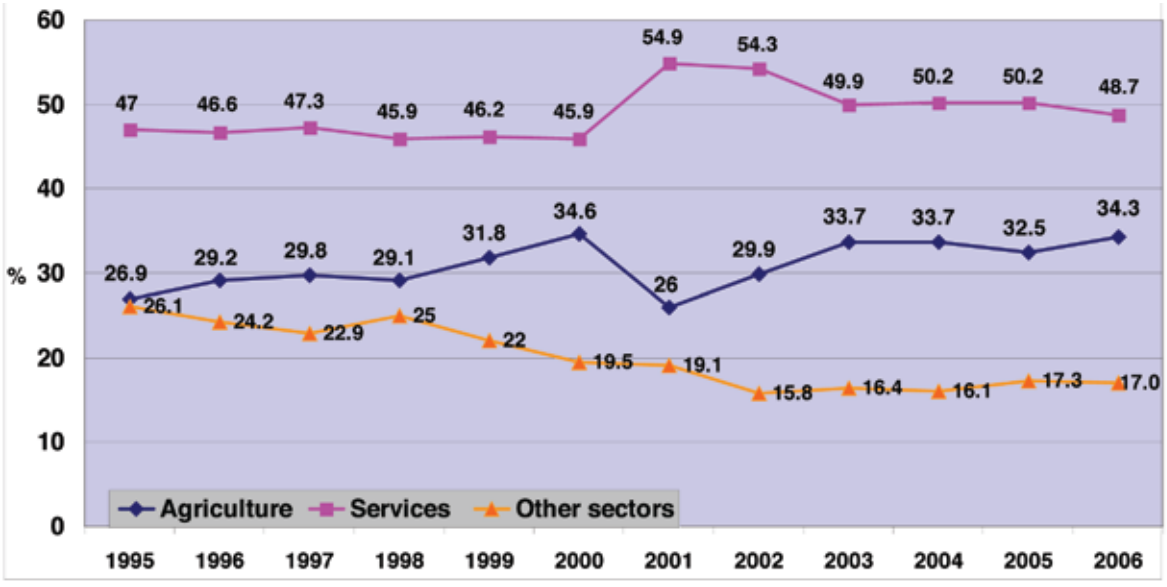


Figure 14: Distribution of employed women in Palestine, percentage of female workforce in various sectors 1995-2006 (PCBS, 1996-2006a & PCBS, 2007)

5.3.2. Informal Employment

The informal economy refers to ways of generating income which are unregulated by the institutions of society; this is carried out in a legal and social environment, in which similar activities are regulated. Palestine has a great involvement in informal activities to compensate for the loss of jobs and the prevalence of female-headed households, and to improve the income of poor households. The importance of the informal sector is often underestimated but since the year 2000, rising unemployment amongst young people has enhanced an informal sector that has partially absorbed the severe impacts of reduced income (UNRWA, 2004). In fact, according to the World Bank nearly half (48%) of the working poor work only sporadically, compared to 30% of other workers (Word Bank, 2004). In addition, women and youth are known to be more involved in the informal market. Agriculture has guaranteed work for more than 39% of those who work in informal sectors (G. Zughayar, 2006). Moreover, it provided an alternative source of income to more than 17% of Palestinian families in 2004, which cultivated their lands and raised livestock for their survival. The agricultural sector constitutes the strongest foundation for developing the status and role of Palestinian women, as statistics indicate that almost 90% of the women in the informal economy work in this sector.

The current deteriorating economic situation is causing a shift from waged work to unpaid family employment or self-employment, which implies an increase in informal work. According to a 2005 study conducted by UNSCO in the West Bank, agriculture and livestock rearing make up one third of all employment in the sampled rural communities. Agriculture and livestock rearing effectively constitute a crises response to alleviate the effects of checkpoint closure on households, despite their limited development capacity due to the inadequate availability of water and land (UNSCO, 2005).

5.4. Contribution to Food Security and Self sufficiency

Agricultural activities in Palestine are characterized mainly as family, economic or food production activities (Table 4). It is clear that at present the agriculture sector is more relevant in terms of food security than as a direct income provider though revenues, as only around 20% of agricultural commodities are produced for direct sale, the rest go primarily towards domestic consumption.

Photo Nine: Role of Women in agriculture sector

Table 4: Use of agricultural products in Palestine

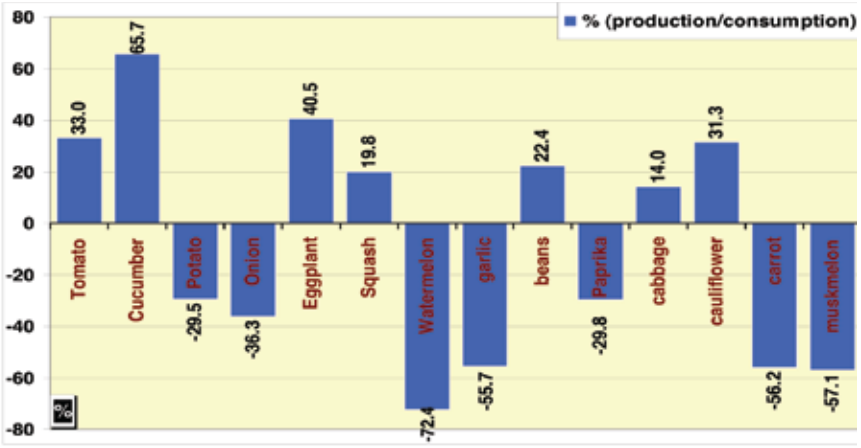
Use	Mixed/pure plant production	Livestock production
Domestic consumption	57.6%	45.6%
Surplus sold (after domesticconsumption)	22.7%	34.7%
Direct sale	17.9%	22.7%
Other	1.9%	

A study conducted by the Ministry of Agriculture in the year 2005 concerning the production and consumption rate of agricultural commodities in Palestine, showed that the agricultural sector is meeting the Palestinian populations' requirements for the main vegetables such as tomatoes, cucumbers, squash, eggplants, beans, peppers, cabbage and cauliflower, with production surpluses which are usually exported to Israeli markets. However, the local production of potato, onion, watermelon and garlic does not meet the Palestinians' consumption (Figure 15a).

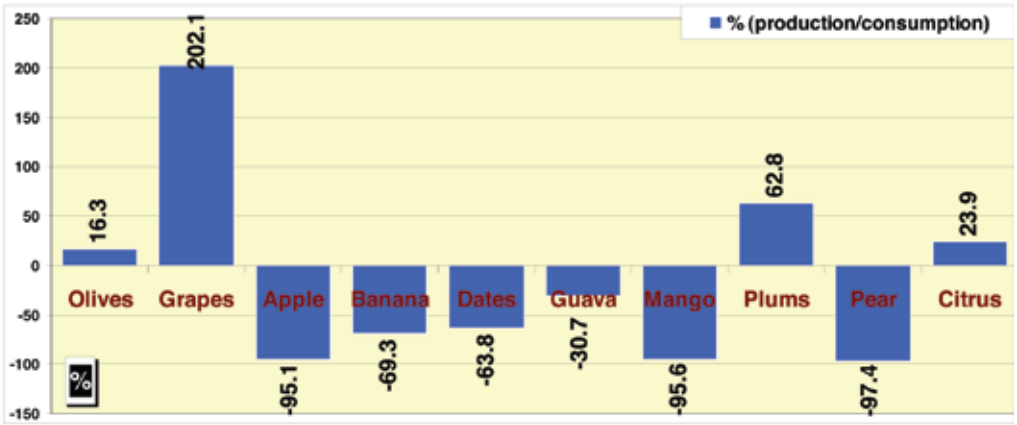
Regarding fruit production, there is a general inability to meet the local consumers' demand, yet the local production of olives, grapes and citrus has achieved self-sufficiency, and there are surpluses which are usually marketed to Israel and/or other countries (Figure 15b)

The livestock production sub-sector in Palestine has been characterized by continuous growth in some types of animal production, which gives an opportunity to reduce the existing production-consumption gap in the majority of the main livestock commodities. Nevertheless, there is a clear shortage in fish and honey production (Figure 15c) (Jebreen and Mohammed, 2004).

a) Vegetables



b) Fruits



c) Livestock production

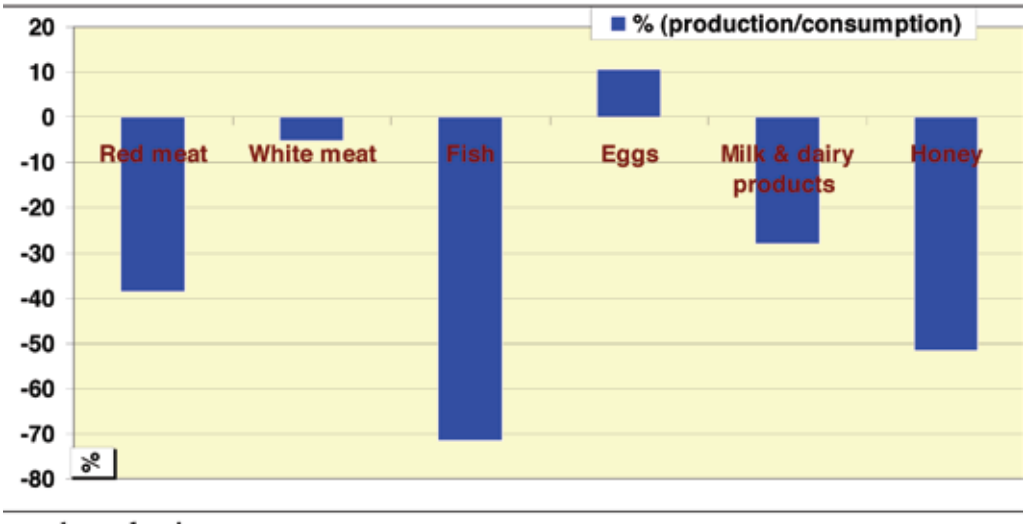


Figure 15: Production/consumption balance for the major agricultural commodities produced and consumed in Palestine (Source: Jebreen and Mohammed, 2004).

5.5. Contribution to Income and Livelihood

Daily wages for formal agricultural workers usually vary based on territory: the highest wages are paid to those who work in Israel (75.6 NIS (US $16.8)/day) followed by the West Bank (53.5 NIS (US $11.3)/day) and finally Gaza Strip (33.4 NIS (US $7.4)/day) (See figure 16). The workers in this sector usually work for 18-21 days per month depending on territory, accessibility, and availability of work. The current political conditions have affected the average daily wage in different territories: the daily wage during the period 2001 to 2005 was reduced by 10.3% in the West Bank, 3.5% in Gaza Strip and 1.3% in Israel compared with the years 1999-2000. (See Figure 16) (PCBS, 2005d). Daily wages in the agricultural sector are generally lower than the average daily wages in all other economic sectors. Workers in other sectors can expect to earn US $15.4 and US $9.1 per day for the West Bank and the Gaza Strip respectively (See figure 17) (PCBS, 2005d).

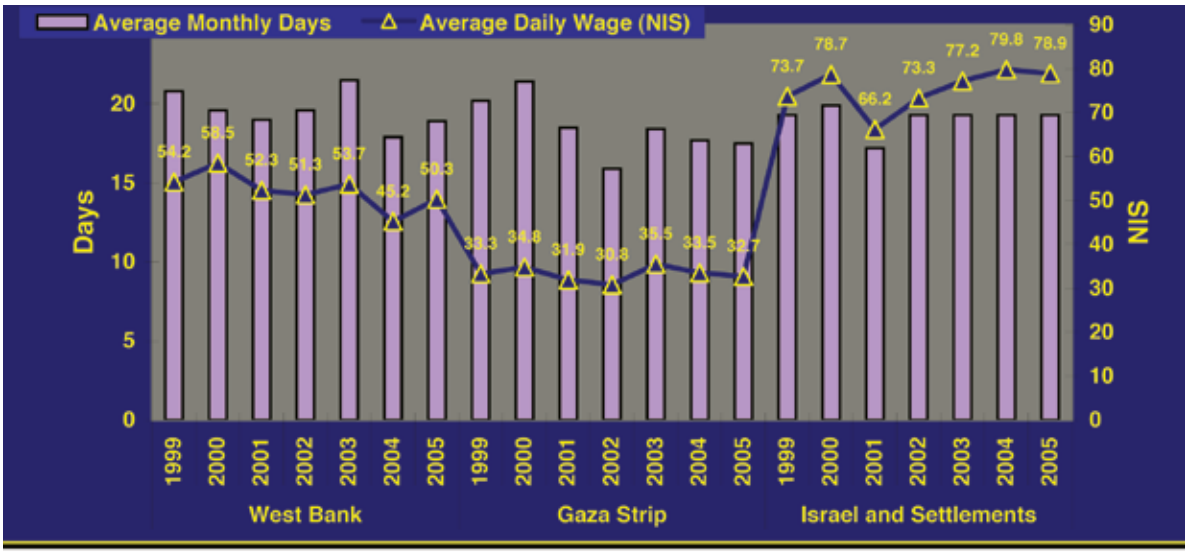


Figure 16: Distribution of average monthly working days and daily wages of the Palestinian agricultural workers between 1999 and 2005 by Territory. (PCBS, 2005d)

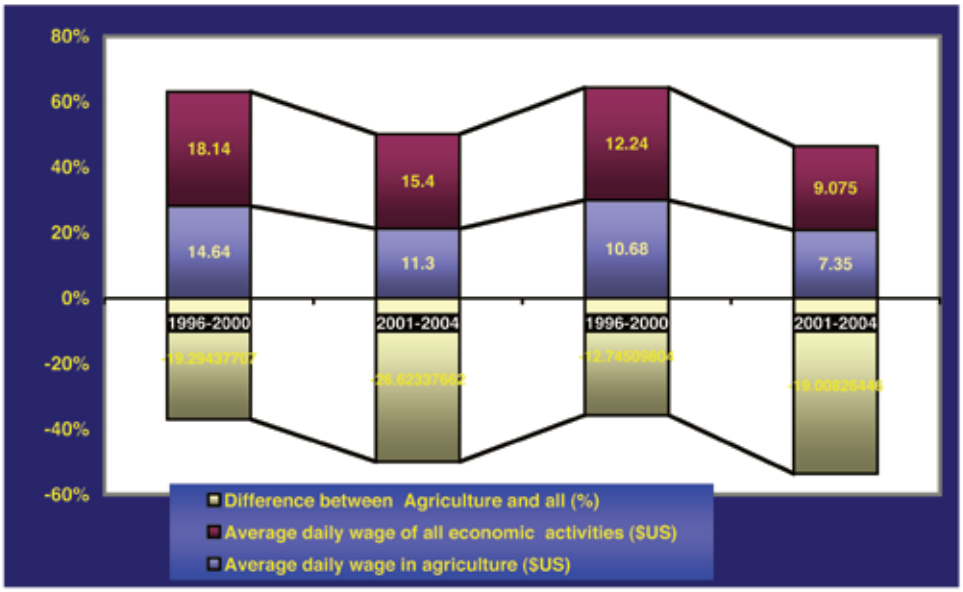


Figure 17: Average daily wages for agricultural workers compared with the average daily wage of all economic sectors in the West Bank and the Gaza Strip between 1996 and 2004. (PCBS, 2005d)

Regarding food production for household consumption, land fragmentation is a limiting factor for the feasibility of cultivating crops and forages under rain fed conditions. In the year 2004, a survey was conducted by ARIJ for 100 households from 9 different rural communities in the Bethlehem Governorate (a project funded by the Mennonite Central Committee (MCC) & Canadian Food grains Bank (CFGB)). It showed that 35% of household land ownership is between 0.5 to 5 dunums, 16% is between 6-10 dunums, 17% is between 11-20 dunums, 14% is between 21-30 dunums and 18% is between 31-100 dunums. Thus, more than half of Palestinian household land ownership is between 0.5 to 10 dunums, which impacts the potential of such small land ownership to meet the household needs from cereals and other legumes. Thus the sustainability of the dry land farming system is threatened by the current inheritance laws. Nevertheless, many of the farmers rent or share the lands owned by other people in order to increase their production (ARIJ, 2004b).

Despite the high efforts of the farmers to meet their households' food requirements from their agriculture, they are still producing less than their needs for different food cereals and pulses. Their cultivations are covering only 62.1% of their households required wheat flour, 86% each of the required lentils and chickpeas, and only 51.3% of olive products. The vegetable growers are producing more than their household needs from vegetable crops, and thus they can sell the surplus and generate more income (Figure 18). This can happen in the years where rainfall and its distribution are good and suitable for plant growth and production, but in the years where the growing season suffers drought, these levels of production will be significantly decreased. Thus the contribution of household cultivations towards food security will become very limited, making the dry land cultivation in these areas risky, as it is entirely dependent on rainfall.

The yield of different cultivated crops is limited for the field crops and forages with average yields ranging from 70-80 kg/dunum except for wheat, which has seed production of 164 kg per dunum. The rain fed cucurbits (snake cucumbers and squash) give more production, up to 270 kg/dunum. While open field and under plastic houses irrigated vegetables give the highest production. This type of cultivation is neither sustainable nor economic as the rural farmers are using tap water, which is very expensive. Most of the farmers are cultivating their backyards for their own consumption except for those who are cultivating green houses. The average estimated economic values for the production per one dunum of each cultivated crop is 412.5NIS for wheat seeds, 121.3 NIS for barley seeds, 353.5 NIS for lentil seeds, 225 NIS for common vetch seeds, 311.6 NIS for bitter vetch seeds, 274.2 NIS for chickpeas seeds, 7340 NIS for vegetable fruits, 945 NIS for cucurbits fruits, and 45 NIS fruits (the year 2005 was considered an unproductive year for olives, as olive trees have a two-yearly fruiting cycle (the first year producing well and next year producing little).

Nevertheless, productivity can be improved as shown by the study on the economic feasibility of constructed greenhouses conducted by ARIJ in the southern part of the West Bank, which was funded by ACDI/VOCA/ USDA. According to it, the average annual greenhouse crop production per dunum was 25.5 tons/dunum/year from different crops. The average monthly net profit was US $646/dunum/month or US $7,752/dunum/year. As the average ARIJ greenhouse size was 0.44 dunum, annual net profit/family/year is estimated at US $3,405 (ARIJ, 2005). The benefit is less regarding irrigated home garden crop production, since calculations for 1 dunum of vegetables and fruit trees revealed that the average production is 730 kg/dunum/year. The home garden family income from 1 dunum is estimated at US $417/year/family.

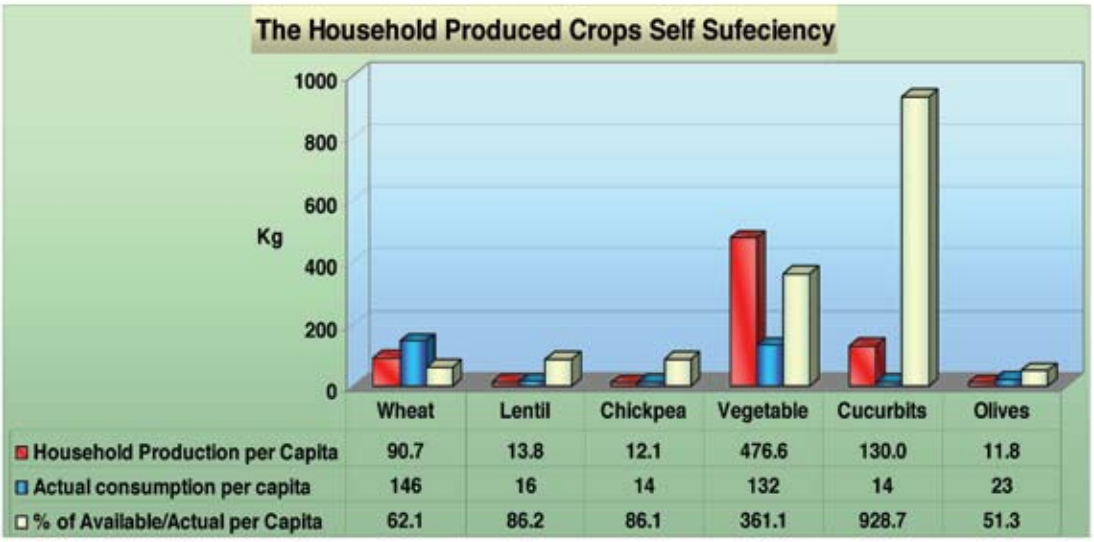


Figure 18: Household self sufficiency from produced crops.

Home food production can be complemented by livestock products. For example, a sheep and goat farm with ten heads of pregnant females can produce 2,250 litters of milk per year with a value of 11,250 NIS and 15 off-springs amounting to 9,000 NIS. The net profit after subtracting feed and vaccines costs reached up to 12,400 NIS. Regarding poultry, a home farm with 70 laying chickens can produced an average of 2100 eggs per month, with a total value of 840 NIS/month, and the net income after subtracting the feed costs is around 500 NIS per month.

Thus, household agricultural production has the potential to positively contribute to the family food security situation, both by providing products and income from sales. Even though a high degree of self-sufficiency is difficult to achieve with the current productions methods, this could be improved by better extension services both for the plant and animal holdings, introduction of improved varieties, better irrigation techniques and adaptation of the production calendar.

6. Organization, Funding, Resources & Services of the Agricultural Sector

6.1. Palestinian Agricultural Policies and Organizations

The Ministry of Agriculture of the PA is the governmental body responsible for the organisation and development of the agricultural sector. This ministry has the official competencies to issue a sector MTDP, and to give developmental guidelines. Other Governmental bodies that have some input into the agricultural sector, include the Job Creation Program, which is particularly prevalent in the Gaza Strip, the Ministry of Local Government, the Palestinian Economic Council for Development and reconstruction, and the Palestinian Water Authority.

In the year 2005, the MoA developed an Agricultural Medium Term Development Plan (MTDP) 2005-2007. The MTDP has divided the needs for development in the agricultural sector to programs with proposed projects and budgets. It identified 7 agricultural programs and 33 projects, with a total budget of US $102.6 million. The MTDP programs were prioritized under the following objectives (MoA, 2005):

- Improve food security through food availability, accessibility and quality (7 projects with total budget of US $12.3 million) forming 11.4% of total required budget;
- Institutional reform and capacity building (6 projects with a total budget of US $11.989 million) forming 11.1%;
- Development of natural resources (6 projects with a total budget of US $18.195 million) forming 16.9%;
- Support and provide technical assistance to farmers victimized by Israeli aggressions (4 projects with a total budget of US $17.110 million) forming 15.8%;
- Development of marketing and agricultural trade (3 projects with a total budget of US $11.77 million) forming 15.8%;
- Preservation of green areas and wildlife (2 projects with a total budget of US $1.25 million) forming 1.2%; and
- Disengagement of Gaza (4 projects with a total budget US $30 million) forming 27.8% of total required budget.

In 2005, the number of operational agricultural cooperatives and societies in Palestine was 204, compared with 109 in 1998 and 113 in 2001. 74% of the 204 existing agricultural community based organizations (CBO's) are located in the West Bank, and 26% are in the Gaza Strip. A significant increase in the number of CBO's has occurred since 2001 due to an increase in donors and donations supporting the formulation of such organizations. CBO's guarantee fair distribution of funds, prompting sustainable impact; consequently, they empower communities, and improve transparency as well as governance (PCBS, 2005d).

Based on the PCBS statistics for the year 2005, there are 7,241 existing operational agricultural establishments (private and nongovernmental organizations) in Palestine (5762 establishments exist in the West Bank and 1479 establishments in the Gaza Strip). Besides the existing establishments for the farming of cattle, sheep, goats and poultry, which form 61.2% (6846 establishments) of the total operational establishments in Palestine, there are 23 establishments for meat production and preservation, 231 establishments for manufacturing oil and vegetables and animal lipids, 72 establishments for manufacturing dairy products, 135 establishments for manufacturing grain mill products, 27 establishments for manufacturing prepared animal feed, 22 establishments for manufacturing tobacco products, 15 establishments for tanning and dressing of leather, 1 establishment for manufacturing pesticides, 476 establishments for water collection, purification and distribution for agriculture and other uses, 293 establishments for the wholesale of the agricultural raw materials and livestock, 2 establishments specialized in renting of agricultural machines and 63 establishments providing veterinary services (PCBS 2005g).

CBO's are classified according to their activities. The most dominant type are agricultural services CBO's (forming 27%), followed by agricultural production (15.2%); livestock and poultry (14.7%); marketing (12.7%), olive pressing (7.4%), bee keeping (apiculture) (5.9%), and finally, lending and supply of inputs (4.9%).

Coordination is also given by the existence and organization of regular meetings of the Agricultural Sector Working Group (ASWG), which functions within the umbrella of the Economic Strategy Policy Group as part of the recently reformed structure for donor coordination in Palestine. The aim of this Group is to improve the performance in the sector, in order to better channel the assistance for the Palestinian Agriculture and avoid duplication of efforts. The Palestinian Ministry of Agriculture (MoA) and the Spanish Cooperation as the Co-chairs of the ASWG, in cooperation with the Palestinian Ministry of Planning (MoP) as its secretariat, responded to the demands of the participants in the Group by proposing the development of a consolidated information database for all agricultural and agricultural-related projects, including their geographic distribution, in order to know who is doing what and where in Palestine. The Agricultural Projects Information System (APIS) was developed as an internet based and interactive database to facilitate the access to the database to all users (it can

be found at: (http://www.ps) and has proved to provide valuable on-line information to identify under-funded areas; the level of funding and support to different sub-sectors and their geographic areas and the current status of different agricultural sub-sectors and their needs.

According to the Agricultural Projects Information System (APIS) records, there are 70 organizations working in the agricultural sector in Palestine, of which 21 are Foreign Governmental Organization, 18 are International NGOs, 13 are Multilateral Agencies, 12 are Palestinian NGOs and 6 are PNA institutions (APIS, 2006).

The APIS database is in the process of being transferred and managed by the FAO, while waiting for the possibility to transfer it to the Ministry of Agriculture, which is the final administrator of the database.

In 2006 a number of Palestinian Non-Governmental Organizations established a network of agricultural organizations and cooperatives named Shama´. One of the main objectives of this network is to promote advocacy regarding agricultural practices, the acquisition of inputs, commercialization of products, confiscation of lands, etc.

On the other hand, several agricultural and rural organizations/cooperatives have established the Palestinian Rural Development Union. This union aims to improve the livelihood of rural Palestinian areas, and to improve rural commodities as well as to preserve their national identity through developing a Palestinian Geographic Identification for national rural commodities.

6.2. Human Resources, Nurseries, Agricultural Equipment, Services, Capacity Building and education:

Agricultural Engineers: The number of registered agricultural engineers in the Palestinian Territory amounted to 1,551, 819 of these in the Gaza Strip.

Extension services and capacity building to the Palestinian framers: Since the year 1994, The Ministry of Agriculture has employed extension agents in all Palestinian Governorates through activating the Agricultural Directorates. The extension agents provide the farmers with agricultural extension, veterinary services, and training programs. Lately MoA has developed an organized extension and planning department to improve household (rural) agriculture and agribusiness. Additionally, women development units were created to empower the role of rural woman and to strengthen her effective participation at the household as well as national level. It is worth mentioning that MoA and the Agricultural NGO's used to cooperate in providing their extension services and exchanging experiences to train the farmers and build their capacities.

Since the beginning of the government employees strike in 2006, this type of services has been minimized significantly. This has highly affected the farmers, and over loaded the extension services carried out by the Agricultural NGO's. They are finding themselves unable to solve all problems in all areas thus, the farmers (especially small farmers), are left without receiving the essential extension and veterinary services. This limits their production quantitatively and qualitatively, especially, with regards to the health of their ruminants and vaccination programs.

Agricultural Education (schools & Universities) and research: There are two agricultural schools in the Palestine. The first one is Al-Arroub Agriculture School in Hebron Governorate in the West Bank and the second is Beit Hanoun Agriculture School in Gaza Strip. Additionally, there are four universities in the West Bank and Gaza providing BSc. degrees in Agriculture. These universities are Al-Azhar University in Gaza, Hebron University, An-Najah University and Al-Qud Open University in the West Bank and all have three to four main agricultural fields. (MoHE, 2003)

Furthermore, the National Agricultural Research Centre (NARC) which belongs to the Ministry of agriculture is well equipped to conduct researches, experiments and field trials in the field of agriculture (e.g. seeds breeding program).

Research activities in the field of agriculture in Palestine are still limited compared with other countries. The scientific research is limited in the existing universities and research institutions and MoA. The existing research is still classical and there is a lack of research laboratories and infrastructure.

Nurseries: The data from 2005 indicates that the number of nurseries in Palestine was 196, with 119 nurseries in the West Bank. Most (103) of the existing nurseries are concentrated in the north of the West Bank. In terms of nursery type, mixed nurseries are dominant with 60 nurseries recorded, followed by vegetable nurseries (51). The area occupied by the nurseries in Palestine is 1,081 dunum, 917 dunums in the West Bank and 164 dunums in the Gaza Strip.

Agricultural Equipment: There are 11,404 tractors in Palestine (3.4% are in the Gaza Strip), 5039 ploughs (3.5% in the Gaza strip), 6,411 cultivators (1.1% in the Gaza Strip), 9,883 spike – tooth harrows (24.2 are in the Gaza Strip) and 7859 (14.4% are in the Gaza Strip) etc. (PCBS, 2005e)

6.3. Funding in the Agricultural Sector

Based on data collected via APIS by the actors in the agricultural sector, the total agricultural sector budget between 2000 and September 2006 was US $138 million, of which 84.8% were grants and 15.2% were loans. Foreign Government Organizations contributed 64.6% of the receiving fund followed by multilateral agencies with 33.38% (Figure 19).

The MoA has been the main recipient of donor funding for agricultural projects, receiving 55% of funds recorded in APIS (it is worthy to mention that the MoA has traditionally received a very small share of the PNA budget depending on foreign aid based on fund raising by projects). The rest is distributed as presented in figure 20. International and foreign organizations have become more active in Palestine since the year 2000. Funds are distributed mainly to projects concerning land use (31%), followed by infrastructure (24%), then production and irrigation projects (12%). Some important sectors are being neglected in funding, such as: livestock, machinery and equipment, building, research, and planning. In addition, even if there are punctual activities regarding rural finance and private sector support, these are the least supported sectors.

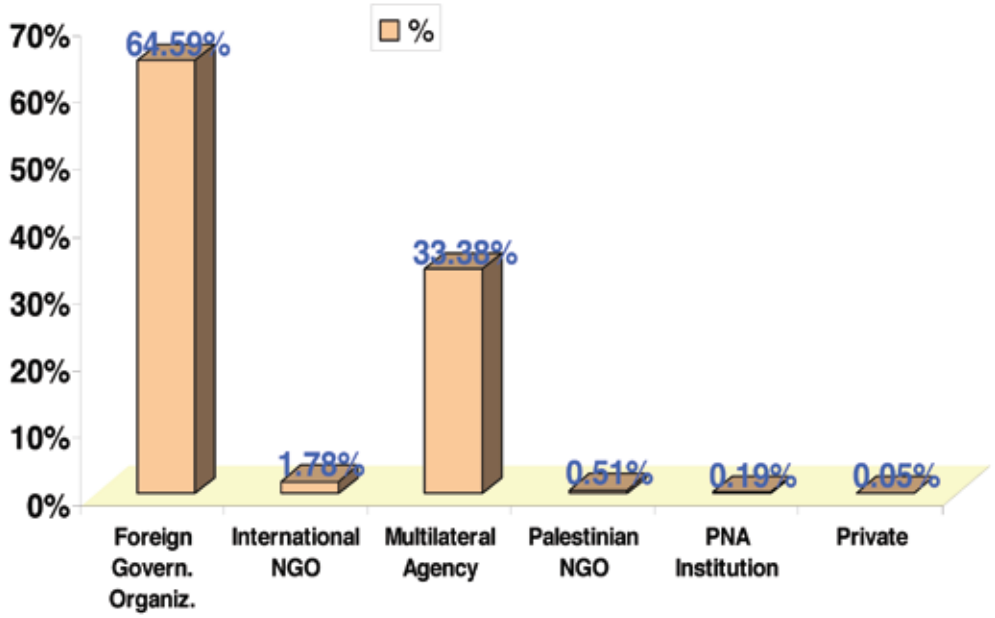


Figure 19: Percentage distribution of Donors contributions to agricultural projects in US dollars. (APIS, 2006)

For a detailed breakdown of funding expenditure, please refer to appendix 1, figure 1. On a regional basis, funding is distributed: 75.8% to the West Bank; 17% to the Gaza Strip; and 7.2% on Palestine-wide projects. At the Governorate level, Hebron is the largest recipient (14.5%), followed by Jenin (10.3%), Nablus (7.3%) and Tulkarm (7.1%), with the lowest amounts going to Jericho (1.3%) and Rafah (0.9%) (APIS, 2006) (See appendix 1 figure 2 for a detailed breakdown).

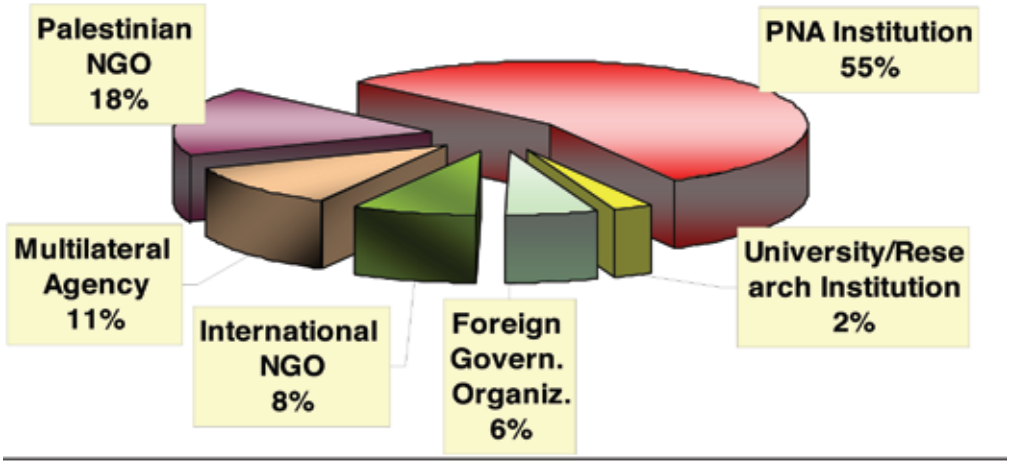


Figure 20: Percentage distribution of Recipients of donors' funds for agricultural projects in US dollars

Palestine Assistance Monitoring System (PAMS – http://dp.mop.gov.ps/amc/sectorprofile.asp) is a long-term tracking system and database for donor assistance to the Palestinian National Authority and Palestinian people, which was implemented by the Directorate General of Aid Management and Coordination (AMC) of the Palestinian Ministry of Planning (MoP) in 2004. It showed that the agricultural sector has received only 0.65% of the total budget committed and dispensed by donors as grants and loans to different sectors in Palestine between 2002 and 2006. Figure 21 and Table 5 display the current levels of contribution of some of the main donors to the agricultural sector and pipeline projects until October 2006. The total donor budget for the announced current projects was US $56,220,000 million.

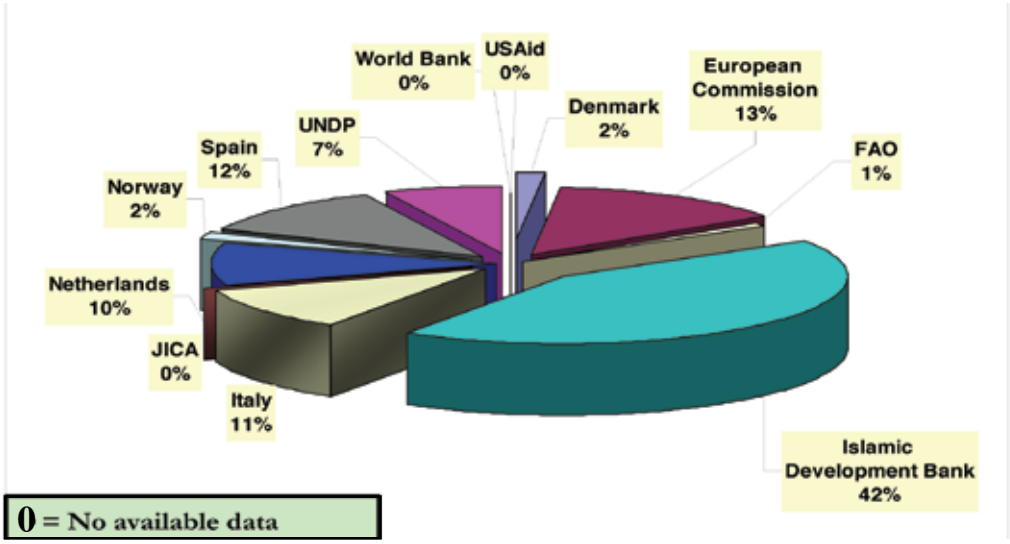


Figure 21: Distribution of donors' contribution in agricultural sector in 2005/2006

Table 5: Specific Agricultural Information based on the mapping of donor activities in the Economic Sector (LACS, 2006)

Donor	Ongoing	Contribution	Pipeline
Denmark	Capacity building project in Agriculture ends in 2007.	US $ 1.0 million	
European Commission	1. Sustainable Access to food and Economic Security in Jenin (SAFES).	1,250,000 Euros	
	2. The Palestine Food For Life Programme. (Ramallah District)	1,249,856 Euros	
	3. Development of Marginal Land and Water Resources in the West Bank. (Bethlehem, Hebron, Tulkarm & Jenin Districts)	1,115,676 Euros	
	4. Ensuring Sustainable Food Security in the West Bank: a big challenge for small ruminants.	1,141,544 Euros	
	5. Review and Cost-Benefit Analysis of Ongoing Land Development Approaches and Methods in the West bank and Gaza Strip (Service contract for study).	159,444 Euros	
	6. Support to Agricultural Production and Diversification in the PA Near the Israeli Newly-Built Separation Wall. (Tulkarm and Qalqlia Districts)	575,000 Euros	
	Management of a Food Insecurity and Vulnerability Information and Mapping System – Phase II	837,432 Euros	
FAO	Urgent Fund for Avian Influenza	US $ 45,000	
	Emergency Assistance for preparedness and response to Avian Influenza outbreaks in West Bank and Gaza Strip (co-funded by SFERA Avian Influenza Response Program)	US $ 343,200	
Islamic Development Bank	Agricultural Development Project II	US $ 9.0 million	Al-Aqsa Fund manager designated by the Arab League: US $ 19.43 million allocated to agriculture
	Agricultural Development Project III	US $ 2.0 million	
	Land development in Tulkarm District (with UNDP)	US $ 2.0 million	
	Construction of wheat mills in WB and Gaza.	US $ 6.5 million	
	Export promotion	US $ 1.27 million	
	Palestinian Product Marketing	US $ 10.0 million	
Italy	1. Agricultural Revitalization Project (ARP). West Bank and Gaza (with FAO)	US $ 1.5 million	Considering second phase of the ARP with FAO.
	2. Quality Olive oil project. West bank and Gaza (with FAO)	1.1 million Euro.	
	3. Land development in the Southern West Bank (with FAO)	2.2 million Euro	
	4. Regional Integrated Pest Management Project (IPM) (with FAO)	US $350,000	
JICA	Jericho Development Master Plan - feasibility study which may result into an agricultural project.	--	
Netherlands	1. Land Development (Northern West Bank and Gaza)	3.3 million Euros	Support for vegetables export sector in Gaza, EurepGap standards and developing agro-business.
	2. Support for Flower Export Sector. Gaza	US $ 1.7 million	
Norway	1. Support to horticulture in the Gaza Strip (with FAO)	US $ 445,070	
	2. Support to household food security and gender generated income in West Bank and Gaza Strip through bio-intensive backyard agricultural production and cottage industry	US $ 445,000	
Spain	1. Laboratory of analysis of pesticides and pesticides residues. Gaza.	442,500 Euros	Approx. 2.0 mill euros through Spanish NGOs in West Bank and Gaza Strip and 500,000 euros through FAO in the Gaza Strip
	2. Pilot Project on palm tree development in the Jordan Valley	380,000 euros	
	3. Food Security and Job Creation in the Gaza Strip, Phase IV and V	2,670,000 euros	
	4. Land Reclamation Programme. Nablus district	987,951 Euros	
	5. Support to Food Security in rural communities in Southern West Bank (Bethlehem, Hebron)	745,000 euros	
Switzerland	Supporting Palestinian Farmers Union in olive oil production project	--	--
UNDP	2. Participatory Natural resources Management-IFAD	US $ 3.8 million	Mainstreaming Biodiversity Management (Medicinal and Aromatic Plants Production Processes) - GEF, US $2.5 million
USAid	1. Palestinian Agribusiness Partnership Activity (PAPA)	--	--
World Bank	1. Industry Program Development – Enhance the Olive Oil market productivity and export potential	--	--

-- No available data

The draft EMERGENCY SUPPORT PROGRAM to the Occupied Palestinian Territory, 2006, prepared by the Ministry of Planning, proposed activities and projects including budgets required by different areas to be funded by different donors. The total required budget was US $748,000,000 for one year. The portion allocated to the Ministry of Agriculture was US $70,250,000 forming only 9.4% of total allocated budget (MoP, 2006).

As concluded in the ASWG of July 2006, over the past five years Palestine has witnessed a scarcity of resources in the agricultural sector. Within the current context, there is a need to raise awareness on its constraints and potentials as well as in mobilizing additional funding. 2006 has seen a serious deterioration in the situation of Palestine. Local coping strategies are almost exhausted so many families have started practices to alleviate the situation. Such practices may, however, seriously undermine community survival and development in the medium term. The agricultural sector can be used to work against an increase in widespread poverty as it is a 'shock-absorbing' sector in terms of food security, economic development and job creation. However, the sector faces serious constraints when compared with other sectors. These include: lack of control over natural resources; restrictions on movement and access to markets; and avian influenza.

Even from an emergency point of view, actions related to improved access to food through economic and agricultural development projects are under-funded, as indicated by the current support to the Consolidated Appeals Process. This includes all geographical areas and sub sectors as well as visions for the future of the agriculture sector (employment generation, income and investment through crops, food production, decreasing dependence on imports, fighting poverty in order to kick start the economy).

7. Constraints Facing the Agriculture Sector

7.1. Impact of Increased Closures and Restrictions on Movement

Physical impediments such as checkpoints, roadblocks, earth mounds/walls/trenches, gates, fences, "flying" checkpoints, back-to-back cargo platforms and the separation wall, no access "Israeli only" roads, and the need for permits for general movements, all serve to severely disrupt access of farmers in Palestine to natural resources, land, crops, and markets. The routine obstructions and delays have been getting more commonplace since 2001, but have increased significantly since the beginning of the year 2006 (OCHA, 2006b). At present there are 51 checkpoints, 118 roadblocks, 51 road gates, 35 earth wall and 77 partial checkpoints operating in the West Bank, as well as any number of random "flying" checkpoints. There has been an increase in the number of people seeking work within Palestine following restrictions on the number of permits issued by the Israeli Authorities – only 12,500 permits were issued in 2003, compared with approximately 130,000 before September 2000. As mentioned previously (section 3.3) many of these people are absorbed by the agricultural sector, resulting in the erosion of the agricultural productive capacity, and a sustained decline in income, effectively creating a subsistence economy heavily dependent on informal employment.

Delays and closures at checkpoints result in farmers having to pay more for transporting their products, forcing them to take alternative, longer and riskier roads to get access to markets in Palestine. Transportation costs have increased by around 35.6% compared to pre-Intifada prices, with journey times showing an increase of around 40% (ARIJ & ACH, 2006: The Palestinian Marketing System). These obstacles create problems in marketing agricultural products to the local, Israeli, and external markets, especially for perishable and short shelf-life commodities such as strawberries, tomatoes, cucumbers, flowers, grapes and fisheries products, which are detained for long periods at checkpoints. Based on USAID and Paltrade findings, direct losses to exporters of Palestinian agricultural commodities on days when Karni checkpoint was closed in 2006, during high production seasons, was in the region of US $600,000 per day, with losses to agricultural producers amounting to 80% of this value (World Bank, 2006a).

A marketing survey that was conducted by ARIJ and ACH for 100 farmers and traders from Tubas Governorate in the year 2006; found that 98.3% of the farmers are losing part of their production capacity due to the movement restriction practices. 70.0% of the farmers have experienced between 5 and 20% production losses, while 20.0% have experienced losses between 25 and 40%, and 10% of farmers have lost over 40% (ARIJ and ACH, 2006).

7.2. Restricted Access to Land

In June 2002, the Israeli government launched its policy of unilateral separation between Israel and Palestine by creating a Separation Zone on the Palestinian lands in the West Bank. The Zone cuts through the western part of the West Bank and runs from north to south grabbing fertile agricultural lands, isolating Palestinian communities in enclaves, undermining the territorial contiguity between the Palestinian villages and cities, and commandeering natural resources. When complete, the Separation Wall will isolate behind it 555 km^2 of Palestinian land (approximately 10% of the total West Bank area). It will enclose 98 Israeli settlements, accommodating 83% of the Israeli settler's population in the West Bank. It will also increase the number of Palestinian localities isolated behind the Wall to 59. As of April 2006, 43.7% (307 km length) of the planned Western Separation Wall had been completed, and 12.8% was actively under construction (Appendix 4, map 2). The western segregation zones annexes 169,998 dunums of fertile agricultural lands (30.3% of total area threatened by the Western segregation plan) to Israel. This area forms 10.2% of the total area cultivated in the West Bank. Rain-fed agriculture is practiced in 95.7% of this area, irrigation being used only on the remaining 4.3%. The average annual production of this area is 65,143 tons, with an economic value of US $38 million – equal to 5.7% and 7.8% of the West Bank agricultural production and agricultural economical value respectively.

In addition, Israel has created a de facto Eastern Separation Zone without walls or fences but through control of access points along the Jordan Valley and the shores of the Dead Sea. This zone has a total area of 1664 Km^2, representing 29.4 % of the West Bank and includes 43 Israeli settlements and 42 Palestinian localities. Of the land threatened by the Eastern Separation Zone, 274,651 dunums, or 16.5%, is agricultural land. Irrigated agriculture forms 7.1% of this area, the rest is rain-fed land. The annual agricultural production of this area is 146,858 tons; i.e., 13.0% of the Palestinian agricultural production, with an economic value of US $99.8 million, will be threatened as a result of this segregation zone. Furthermore, this segregation zone contains more than 80% of the Palestinian rangeland areas where herders currently graze their sheep and goats (Isaac and Hrimat, 2005). In the Gaza Strip, the Israeli forces have created a security belt around the border with a total area of 58 km^2, consuming 15.8% of the total area of the Gaza Strip. These areas are inaccessible to the Palestinians due to continual shelling by the Israeli forces.

The prolonged years of Israeli occupation has converted large areas in Palestine to desert. Indicators of desertification are apparent in the Eastern Slopes region, which is characterized by steep slopes that limit the agricultural activity to animal grazing. The closure of 85% of this zone by the Israeli Occupation Authorities for military purposes, has led to severe overgrazing of the small area remaining accessible to Palestinian herders. Overgrazing has resulted in the loss of the vegetation cover, a decrease in the biodiversity, soil erosion problems and, ultimately, intensive desertification. The rangeland supplies 1,700 tonnes of animal feed (0.075 t/ha over 22,500 ha (Le Houerou, 1998). This is less than 2% of the feed requirements of the herds. The difference (i.e., 98% of the feed requirements) is currently being made up with commercial feeds.

7.3. Restricted Access to Water Resources, and Deteriorating Water Quality

Currently 136 water wells, with a combined average annual pumping rate of approximately 44.1 MCM (million cubic meters), are utilised by the Palestinian population in Separation Zones. The number of water springs isolated by the Western Separation Zone is 46, with a combined average annual discharge of approximately 23 MCM. Up to 221 dunums of inland water areas are isolated in the Western Separation Zone, and 685 dunums in the Eastern Separation Zone, which constitutes 99% of the total inland water area of the West Bank. Needless to say, access to these water sources is becoming increasingly difficult as the Separation Wall and other barriers spread (Isaac and Hrimat, 2005).

Palestinians are prohibited from extracting any extra water from existing wells or springs within Palestine to compensate for the loss of access to wells beyond the Separation Wall. Each well is equipped with a meter, and the quantity of water that can be extracted is controlled by Israel. The drilling of new wells in the West Bank must be licensed by the Joint Water Committee and the Israeli Water Officer. No new licences have been issued since the Oslo accords.

In the Gaza Strip, limited water availability is compounded by the fact that what groundwater there is, is becoming increasingly saline resulting from salt water intrusion, as well as increasingly contaminated as a result of leachate from sewage cesspits and untreated wastewater dumping. Polluted and saline water, unfit for human consumption, is therefore also unfit for direct irrigation of crops whereby it may come directly into contact with human food supply.

7.4. Destruction of Agricultural Assets

From the beginning of the Al-Aqsa Intifada until the middle of 2005, a total of 79,270 dunums of fruit trees, greenhouses, fruit, vegetables and open field were confiscated and/or destroyed in Palestine, with a total estimated loss of US $340 million (MoA, 2005). 31,235 dunums of irrigation networks, 1,327 ponds and reservoirs, 608.9km of farm fences and enclosures, and 1,327m of main water lines were bulldozed. Over the last five years, 20,810 agricultural properties in the West Bank have been fully or partially destroyed as a result of the Israeli Occupation practices, including 770 agricultural warehouses and 754 poultry and livestock sheds (Figure 22). In addition it has been reported (MoA, 2006) that the Israeli forces killed 14,749 sheep; 12,131 cattle; 899,797 chickens; 350,158 egg-laying hens and 1,650 rabbits, and spoiled 15,265 bee hives during the same period (See Appendix 6).

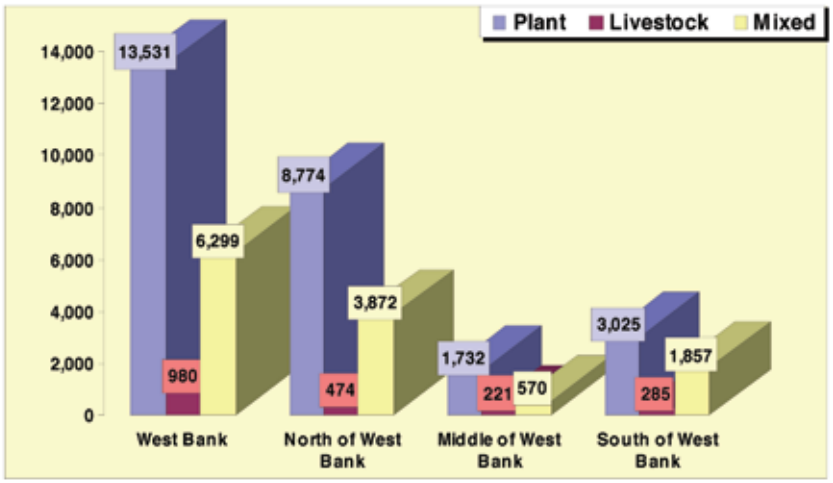


Figure 22: Number of Agricultural Holdings Subjected to Damage in the West Bank due to the Israeli Measures by Type of Holding and Region (28/09/2000-03/05/2005).

Between October 2000 and March 2006, West Bank farmers suffered the uprooting of 588,218 trees, a figure approximately 5.5 times greater than the number of trees uprooted between 1993 and 2000. In the Gaza Strip, more than 1 million trees were uprooted from Palestinian agricultural lands during the second Intifada. Overall, the Israeli Forces have rooted out 1,343,279 fruitful trees, including 443,965 olive trees; 33,771 palms; 83,459 almond trees; 87,033 vines; 20,400 banana trees and 127,977 others (MoA, 2006).

The activities of the Israeli Occupation have resulted in significant deforestation, leading to further land degradation in Palestine. Large areas of planted and natural forest has been destroyed by the Israeli Forces in making way for new Israeli settlements and military bases. (Isaac, J and Hrimat, N, 2005)

7.5. Structural Constraints

7.5.1. Economic

There has been a gradual increase in the wholesale prices index of different locally produced agricultural commodities. In the year 2005 it reached 152.7% of the 1996 base year. Similarly, the wholesale prices index of the local fisheries production in 2005 was 186.3% compared with the 1996 base year. The wholesale price index for imports of the same commodities reached 133.9% for agricultural produce and 135.1% for fisheries products in 2005 compared with 1996 (Figure 23) (PCBS 1999-2006b).

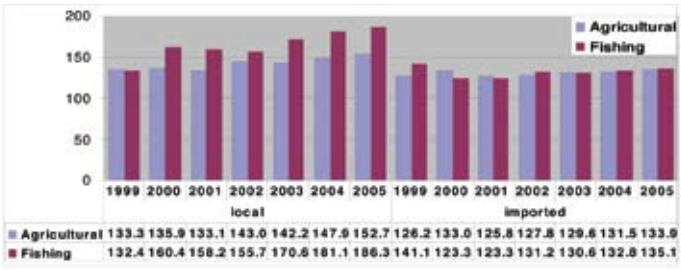


Figure 23: Wholesale Price Index by Categories in Palestine, Base year (1996 = 100%) (PCBS 1999-2006b)

Wholesale and consumer prices of local products have increased so much that they cannot compete with Israeli products, often of a higher quality and available on the market at a similar price. The comparison of consumer price in the Palestinian markets between four Palestinian and Israeli agricultural commodities (apple, garlic, carrot, and potato) in 2002 and 2005, showed that there was a significant increase in the price of the Palestinian commodities. The average consumer price of Palestinian products in Palestine was 75.9% of the price of Israeli products in 2002, and increased to 94.9% in 2005 (Figure 24). This increase is a result of the increased costs of production, and increased losses caused by lack of access, both direct results of the occupation (PCBS 1999-2006b).

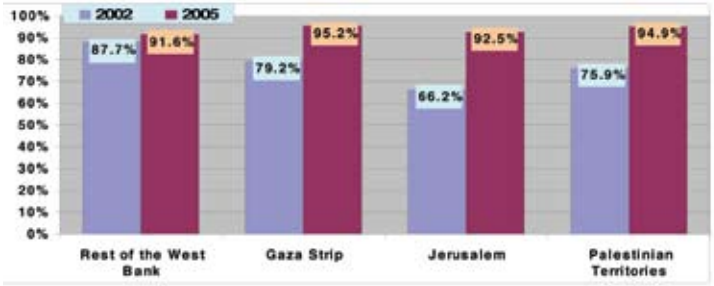


Figure 24: Average cost of local commodities expressed as a percentage of the average cost of Israeli commodities in Palestine in 2002 and 2005. Commodities investigated were apples, garlic, carrots and potatoes. (PCBS 1999-2006b).

Market prices in Palestine are strongly influenced by the cost of production inputs, the transportation and transaction costs of local commodities, and the costs of agricultural inputs imported from Israel and/or other countries. As Israel controls and restricts the movement of goods in and out of Palestine, some products are increasingly difficult to acquire. For example, the GoI has imposed harsh restrictions on the import of fertilizers and livestock feeds from abroad in order to prevent the diversion of Palestinian trade directly with Israel. This results in a few suppliers being able to control prices within Palestine, consequently raising costs for farmers, and reducing the profitability of agricultural products.

7.5.2. Marketing

Marketing strategies in Palestine are still traditional. Farmers usually sell their products through an agent who takes a certain commission. Often, a small proportion of products are sold directly to wholesalers, retailers, or consumers. However, Israeli agricultural products (whether from inside the Green Line or from Israeli settlements) enter local markets directly with no need for agents, and so these products are generally more competitive.

There are local central markets distributed throughout the main cities, retail markets which are located in the small towns, villages and camps, and travelling salesmen who take their agricultural commodities to marginal localities in Palestine using their own vehicles. Formerly, Nablus held the central market for agricultural products in the West Bank, Jericho was the centre through which the Jordan Valley products were marketed to the West Bank or exported to Israel and beyond, and Hebron was the centre through which goods were distributed form the southern West Bank to the North.

Currently, distribution of local markets in the West Bank has changed due to intensified closures imposed by the GoI. In the post-2000 period, progressive fragmentation of established patterns of economic activity has taken place, confining it to smaller geographic areas (WFP, 2006). This has resulted in the emergence of new local centres away from the traditional markets previously mentioned. Thus, new trade activity has developed in traditionally non-trading rural and small town communities (e.g. Beita in the Nablus district and Qabatia in the Jenin district) because of the difficulty in accessing urban centres (UNSCO, 2005).

The flow of produce from Palestine to Israel has been limited. It is only possible by procuring permits in advance and they are only awarded in limited numbers. Since the beginning of the Second Intifada, the Israeli authorities have restricted the marketing of Palestinian agricultural products in Israeli markets. However, the quantity of Palestinian agricultural commodities entering the Israeli market illegally, is impossible to measure, as the Palestinian Authority does not have full control over the land and borders of Palestine.

The possibilities for the export of surplus vegetables, grapes, citrus and olive oil to the markets of neighbouring Arab countries and other countries, are limited for many reasons, such as the weak competitiveness of these products and high production and marketing costs, in addition to the restrictions imposed by Israel, and existing limitations by some of the importing countries.

Palestinian traders access foreign markets through Israeli ports of entry and exit, where Palestinian products, particularly agricultural goods, face strong security measures and movement restrictions despite the terms of the Paris Protocols which affirm the principle of equal treatment for Palestinian and Israeli goods. Sale of Palestinian products in European markets is restricted to small quantities of fruit and vegetables sent through Israeli companies. However, Arabic markets can remain a main channel for marketing Palestinian exports, to activate trade exchange between Palestine and the European market and to assist in promoting cooperation with Arab markets (ARIJ and ACH, 2006).

In 2005 a service-oriented agricultural export company was established. This included more than 25 founders from West Bank, Gaza Strip and Jordan. Harvest Export aims to promote exportation of high-value, high-quality products produced by Palestinian agricultural cooperatives, and farmers in Gaza and the West Bank, to new and existing markets. This year, Harvest Export is merging with Maysam Agriculture Company, increasing their capital to US $30 million. Other strategic partners will also join this initiative, which may promote export of Palestinian products abroad.

Photo Ten: Palestinian agro-marketing and agro-industry

During the last three years, Palestinian agro-marketing and agro-produce companies such as Zadouna Company established to process the excess production (e.g. pickling and freezing vegetables) and to promote the export of Palestinian products abroad.

Still, there is no clear idea of the consequences of initiatives aiming to promote and facilitate exports. This could imply privatisation of the management of terminals based on the partnership between the Palestinian and Israeli private sectors. Even if this could be a window of opportunity to market Palestinian produce abroad, it could also act to perpetuate Israel's control over Palestine, and ease the marketing of settlements' produce in markets where they currently have been denied access.

Still, the exportation of Palestinian agricultural commodities to Israel or abroad is being controlled by GoI, which gives priority to marketing Israeli produce, only allowing movement of Palestinian commodities when there is a shortage in Israeli products. This indicates that the Palestinian agro-marketing system is unstable, unfeasible and risky. However, it is expected that the coming two years will witness more marketing potential for Palestinian commodities, especially as Israel has announced 2008 to be a fallow year.

7.5.3. Technical/Production

The potential for agricultural production in Palestine is high due to the diversity in available agro-eco-zones, climatic conditions, soil fertility and water resources. However, the continuous restrictions on all Palestinian natural and human resources imposed by the occupation, means that development of the agricultural sector has been limited. What little development has taken place has been mainly in subsistence agriculture, not in agribusiness, which is detrimental both to the agricultural sector and to the Palestinian economy. At present post-harvest treatment facilities such as pre-cooling, grading and packing, cold storage, refrigerated transport and other infrastructure, is inadequate, severely limiting the ability of Palestinian agricultural produce to compete with other markets. In addition, some external markets such as Europe, demand standards that, as yet, Palestinian producers are often unable to achieve.

At present, the plant production calendar for Palestine is heavily biased towards producing commodities only in certain months. For example, in the Tubas district, there are 17 vegetable crops grown in addition to olive trees. The seven major vegetable crops are tomato (27.2%), cucumber (25.8%), eggplants (15.5%), squashes (9.2%), potatoes (5.2%), beans (4.6%) and sweet corn (3.8%). Despite the variety of crop types, 86.8% of production occurs in seven months of the year, between December and June (Figure 25). December is the month of highest production (17.8%), with the lowest monthly production occurring in August (3.1%) (ARIJ and ACH, 2006). This leads to an unmatched demand and supply of agricultural products that can produce surpluses and even decrease the price of certain commodities due to their high availability at certain times of the year.

Figure 25: Monthly production of the main vegetable crops in Tubas Governorate

Additionally, the performance and yield of existing varieties and breeds of livestock and plants cultivated in Palestine should be studied and improved.

Additionally, the agricultural output of Palestine is severely limited by water related constraints. The current water usage and management of agricultural water resources is not optimal, and as a consequence total production is not as high as it could be. Another concern regarding water usage is that in some areas, the plants cultured have a very high water demand (e.g. citrus, and bananas in the Jordan Valley). Although these crops may have a high commercial value, they are not necessarily the most appropriate use of available resources. In fact, it is important to promote crops and techniques more adapted to current environmental conditions. This is the case of the palm tree which can cope with high salinity levels existing in the Jordan Valley and the Middle Area in the Gaza Strip. Table 6 presents the summary structural constraints facing agricultural sub-sector of Palestine.

Table 6: Summary of Structural Constraints Facing Agricultural Sub-Sectors of Palestine

Economic / Marketing	**Agricultural production:** - Production of plants with high water usage relative to crop value ratio, e.g. bananas and citrus. - Uncompetitive plant production calendar and cropping pattern. - High cost of production inputs - Compliance with international quality and production standards Water: - Weak enforcement of existing laws that restrict well drilling and water usage; - Low water prices especially in the Jordan Valley and Gaza; - No clear policy with respect to local water markets and no framework for promoting and regulating these markets; Land and land use: - High cost of land reclamation and limited credit mechanisms; - Absence of laws to permit control of grazing in common areas; - Increased encroachment on limited available land for urban uses; - Weak land registry system.
Technical / Production	**Agricultural production:** - Limited knowledge of salt tolerant crops or trees with high economic value using brackish water; - Lack of post harvest facilities (grading, packaging, storage and suitable means of transportation). - Lack of breeding programs to improve local varieties and breeds of livestock and plants. **Water:** - Over extraction of aquifers (e.g. the coastal aquifer) - Inefficient use of irrigation water - Deterioration of existing water infrastructure such as wells, springs, ponds and canals; - Lack of technical expertise in modern irrigation management practices; - Limited and inefficient use of water harvesting opportunities. - Limited mass wastewater collection systems in urban areas, and a complete lack of such systems in rural areas; - Low efficiency of existing wastewater treatment plants; **Land and land use:** - Land degradation; Soil erosion; and Creeping soil salinization; - Desertification in some areas; - Loss of sustainability; - Lack of physical and biological data about rangelands - Lack of research, inventory and monitoring of forest and nature areas; - Tree species are planted without any clear knowledge of the potential natural vegetation, adaptation to the site and objective for the future; - Lack of inventory data and a lack of planning of afforestation;
Institutional	**Agricultural production:** - Limited extension services provided to the farmers; - Lack of existing plans for shifting Plant Production towards self sufficiency. • **Water** - Unclear property rights in water resources (over certain wells and springs); - Poor coordination amongst public agencies over water resource management; - Weak enforcement of regulations; - Refusal by Israel to permit new water infrastructures in WBGS; • **Land and land use** - Weak land registry system; - Poor enforcement of laws regarding land management; - Lack of land use planning; - Competition among public institutions on land management issues; - Lack of expertise in integrated land resource management; - Shortage of decision support systems and planning tools for land management; - Fragmentation of land ownership through inheritance;

7.6. Institutional

7.6.1. Collapse of the Role of Central Government in 2006, and the Implications for the Palestinian Agricultural Sector

The MoA's support to the agricultural sector has not being guided by an integrated strategy and therefore lacks both, resource based planning, and planning on the basis of projects (WB, 2006). This situation leads to ineffective coordination as well as overlap and competition amongst Directorates Generals. The current MTDP reflects planning based on projects and a lack of union between outputs and objectives. Additionally, the status quo situation was taken as the basis for planning so it is unrealistic due to the current situation, where priorities should be shifted towards a more high impact approach[3].

In recognition of these weaknesses, and the need for an improved strategic planning process, the MoA took part, as a pilot Ministry, (together with the Ministry of Health and the Ministry of Education) in an exercise to integrate planning and budget. This also involved the Ministries of Planning and Finance. This institutional building approach was fostered by the UK Department for International Development, and included the revision of the MoF accounting system, as well as financial law, with the objective of unifying the accounting and monitoring systems of the MoF. The pilot phase was expected to finish in May 2006, but has been frozen since January 2006.

From an institutional point of view there is still a need to complete this process following the already established working sequence in accordance with the MoA: 1) planning for sector strategy (plurianual MTDP), 2) review of the mandate and functions of the MoA and 3) human resources development plan according to the defined objectives. These processes should be developed through a participatory planning approach that would allow the ownership of established priorities by the MoA staff.

Following the PLC election victory by Hamas in 2006, GoI has refused to return tax rebates owed to the PA. This massive financial loss has been compounded by the fact that international donors have also either stopped aid or attached severe conditions to its delivery.

This has sharply reduced the performance and activities of different Ministries. The MoA is one of the affected Ministries, where on a local level; problems experienced may be such as ministry employees being unable to reach their work sites due to financial limitations. This has limited the capabilities of the MoA. While no consolidated data is available, it appears that donor funds have been directed to Palestinian and international NGOs, UN agencies, and the private sector, with new constraints imposed on the methods of communication and implementation processes.

Under such conditions, cooperation between Palestinian private, Non Governmental and Governmental sectors becomes limited, and the integrity of their provided services is unplanned, as their programs are mainly affected by the donors' constraints and program. In fact, small-scale farmers become obliged to market their products directly to the consumer and markets. Additionally, a general strike of public sector workers was announced at the beginning of September 2006. At the time of writing this strike continues especially in the West Bank and has all the expected consequences. In regards to the lack of resources and difficulties associated with the provision of services, we foresee a complete freezing of the Ministry's activities. This implies the halt, not only of public

3- The MoP prepared on 2006 the draft "Emergency Support Program to the Occupied Palestinian Territory", which proposed activities and projects including budgets required by different areas to be funded by different donors. The total required budget was US $748,000,000 for one year. The portion allocated to the MoA was US $70,250,000 forming only 9.4% of total allocated budget (MoP, 2006).

services, but also policy development and regulatory framework enforcement. Therefore, all the dimensions of the sector are affected by this situation. This includes: response to emerging problems traditionally managed by the public sector (e.g. Brucellosis or Avian Influenza), certification of agricultural commodities for exportation, and the delivery of export permits, extension, as well as veterinary services provided to farmers (these are non-existent or limited to NGOs); coordination between the Palestinian private sector and agricultural NGOs, donors, international agencies and foreign NGOs (these are limited and lack proper institutional guidelines); the former activation of existing councils (e.g. olive oil council, poultry councils) and joint committees such as the Agriculture Sector Working Group (fast losing its dynamism); the decrease in monitoring the olive harvest and the creation of contacts to market olive oil, etc. This has resulted in the collapse of agricultural sector activity as well as misguidance concerning its development, further resulting in many losses to farmers and the private sector, hence affecting the sustainability of Palestinian agriculture in general.

8. Conclusions and Proposed Interventions

From the previous analysis, it can be concluded that there are two major agricultural production systems emerging in Palestine: competitive agro-businesses that rely on high inputs and intensive irrigation in greenhouses, geared mainly towards export; and traditional farming systems that rely mainly on rain-fed farming and mixed agricultural production, and are geared mainly towards local markets and personal consumption.

Considering the small size of land holdings in Palestine, promotion of medium or large scale agro-businesses is unlikely. However, the Israeli disengagement in Gaza and the transfer of 400 hectares of greenhouses to the Palestinians, presented an opportunity for a large scale agro-business operation. Regrettably, this enterprise failed to achieve its objectives due to the closure of Gaza and the subsequent produce blockade by Israel, preventing sales to European markets.

To improve and monitor development in the agricultural sector, the following main interventions and related activities should be taken into consideration:

8.1 Intervention Concerning Water Management and Agricultural Diversification

The most influential constraints facing the agricultural sector are closures, and the subsequent restricted access to lands and markets, as well as the lack of availability of water. If the Palestinians obtained their full water rights and just 24% of the “extra” water was used in agriculture, the current irrigated area could be doubled to 0.25 million dunums. Given that 500,000 dunums of arable lands in the West Bank are suitable for irrigation, this would give a huge boost to the potential productivity of the region.

Since the agricultural sector is now the largest water consumer in Gaza, there is a need to increase the efficiency of use by adopting new crop patterns and using alternative water resources. According to estimates regarding the economic benefits of using treated waste water in irrigation, there is potential to develop this technique, particularly to irrigate citrus and olives, but also to introduce new crops such as mango, guava and avocado, or to produce alfalfa (Al-Dadah, 2006). In the Jordan Valley, agriculture has been gradually moving away from water intensive banana and citrus, with 31% and 37.5% reduction in area respectively since 2004. During the same period, less water demanding, more salinity tolerant date palm plantations have doubled in area.

Water management is a crucial issue in Palestine, and a successful agriculture sector must incorporate a variety of strategies to cope with the precarious conditions. One such strategy requires diversification of crops away from water intensive varieties. Agricultural diversification is also very important in ensuring that the production calendar can be increased, enabling harvesting and marketing of fresh products to happen all year round. Diversification will also help to maximise the use of available resources. For example, culturing fish in existing irrigation ponds will enable the existing standing water to be utilised prior to its use for irrigation. For that reason, and due to the current situation of increasing vulnerability as regards Palestinian house-holds, it is important to diversify production of agricultural products, as shown below.

In conclusion, the following interventions concerning the above have been identified:

1. Interventions concerning water management

- Rehabilitate and construct water cisterns, increase the reservoir capacity across the West Bank and Gaza Strip
- Increase the water delivery capacity through rehabilitation of wells and networks, particularly in the Gaza Strip, Jordan Valley, Qalquilya and Tulkarm
- Increase the efficiency of water use: develop irrigation and water harvesting techniques, and research grey water reuse.
- Foster an optimum crop water requirement on crop level through implementing extension programs.

2. Agricultural diversification and food security:

- Support land development activities in the West Bank and Gaza Strip.
- Provide seeds and seedlings for home gardens to encourage urban agriculture initiatives in the Gaza Strip.
- Foster intercropping of trees with fodder, and the plantation of trees in marginalized rural communities
- Provision for supporting beekeeping programs
- Encourage fish production both with intensive systems and the use of irrigation ponds
- Distribution of chickens and rabbits for small scale farming

3. Encourage sustainable agriculture strategies, such as:

- Introduce improved varieties of field crops, forages and fruit trees (citrus, apples, olives, grapes, almonds)
- Rangeland management according to the grazing capacity
- Restricted use of pesticides and introduction of Integrated Pest Management
- Introduce biotechnology including cell cultures and micro-propagation of dates, bananas, etc.
- Conservation and optimisation of the use of natural resources (soils, water and nutrients)
- Use alternative sources for green forage production (e.g. hydroponics)

4. Interventions concerning the revitalisation of agricultural production and marketing

The agricultural sector is facing several constraints that are increasing production costs and limiting production capacity. These constraints include structural limitations (technical, economic and institutional), but also external ones (closures, restrictions of movements, direct destruction of assets, market fragmentation, etc.). In fact, agricultural land and assets are one of the most affected resources by GoI policies. Therefore, there is a need to encourage traditional producers to maintain their activity and to support and provide sustainable livelihoods in communities where unemployment rates are high and agricultural activities are already both a source of income and food.

Additionally, the competitiveness of Palestinian agricultural produce is limited by the high cost of agricultural inputs, and by the high costs and risks associated with transporting produce both within Palestine and to external markets. In order to address these problems it will be necessary to increase the production of agricultural inputs within Palestine, or to open new channels for their import. Unfortunately the problems associated with transportation of produce are a direct result of the occupation practices, and so any improvement on this front must come as a result of negotiations with the GoI.

One of the main problems facing the marketing system in Palestine is the shortage in available post-harvest treatments including grading, packaging, storage facilities and suitable means for transportation. Establishing food processing plants could absorb agricultural surpluses of citrus fruits, certain vegetables (particularly tomatoes and cucumber), and fruits. Moreover, local processed food could substitute imports from Israel and other countries, which would improve the Palestinian trade deficit. Increasing the capacity of the post-harvest treatments would also be a necessary step towards increasing the competitiveness of Palestinian agricultural produce.

In view of the reasons exposed above, the following lines of intervention have been identified:

A. Support existing agricultural activities by providing inputs and investing in agricultural infrastructure, with special attention to:

- Rehabilitation of damaged land and infrastructure: wells, roads, irrigation networks, greenhouses, etc.
- Diversification of commercial crops via seedling provision of profitable and drought resistant varieties (e.g. seedless grapes, palms, mango, etc.)
- Provision of small machinery for agriculture (tractors, etc.)
- Improve access to extension, and support services to farmers
- Support cooperatives to improve cost efficiency of input acquisition, and economic benefits of the production marketing
- Support on-going and new initiatives to utilize local resources and experience, to produce the feasible and possible agricultural inputs locally.

B. Support marketing of agricultural production:

- Improve managerial practices through training, to increase quality and quantity of production to increase competitiveness
- Assist in implementing phytosanitary regulations and in meeting standards set by external markets such as Europe
- Provision of olive fly traps to increase the quality of olive harvests
- Develop a production and marketing information program for domestic Israel, and other international markets, deepen the related knowledge and practices, such as seasonal price studies, supply and demand disparities
- Develop cold storage systems, and provision of vehicles with cooling systems for transporting agricultural commodities
- Re-furbish or build new wholesale markets with better storage facilities to improve sanitation and efficiency
- Forge partnerships with the EU, Arab world, Israel and Eastern Europe.

C. Increase access to credit for farmers and agro-industry:

- Establish and promote rural financial cooperatives to enhance small farmer's access to credit, and mobilize rural saving
- Establish a line of credit for larger farmers, exporters and agricultural service industries.

5. Interventions concerning livestock production

The Palestinian livestock production sub-sector is an important contributor to domestic food security and lifestyle (through the provision of basic food products such as red meat, dairy products, poultry and egg), as well as providing an economic resource. Clearly, there are problems facing this sub-sector particularly in the form of access to grazing lands, and availability of agricultural inputs such as feed concentrates, feeding seeds, hay, green forages, veterinary services and medications. Additionally, there is a need to improve the quality of locally produced milk and milk products to compete with Israeli and other imported dairy products. There is also a need to diversify the livestock production in order to maximise the use of existing resources, such as culturing fish in agricultural ponds.

On the other hand, apart from the avian influenza crises, the livestock farming industry has suffered severely from destructive Israeli activities; especially the fishing sector in the Gaza Strip where 3,500 people have lost their source of income from the constraints imposed by the Israeli military forces preventing them accessing the sea and catching fish. In relation to the livestock production there is a need also to differentiate between the small and medium scale industries, and the family production devoted to own consumption and income generation. Nevertheless, there are several needs of intervention that have been prioritized, see below:

A. Provide support to decrease the costs and increase quality of livestock products:

- Provision of veterinary services
- Provision of fodder and seeds of forage crops to plant in order to produce feedstuffs locally.
- Rehabilitation of barracks, shades and other infrastructures
- Encouraging the breeding of highly adapted and productive breeds
- Provide formal and informal training to improve the level of knowledge and technology related to poultry, dairy, sheep and goat production
- Rehabilitation of natural rangelands and management according to grazing capacity

B. Adopting and implementing national disease control programs, especially for infectious and epidemic diseases. This should be done in full collaboration with neighboring countries and international organizations, especially for mitigating the negative effects of avian flu on the poultry sub-sector .

C. Support and revitalize the fishing sector in the Gaza Strip: infrastructure rehabilitation, equipment provision, capacity building.

D. Support a meat and dairy products importing system that encourages the protection of local produce, giving top priority to removing current restrictions to the free importation of feedstuffs from the least costly sources.

6. Interventions concerning sector coordination, institutional strengthening and capacity building

Despite the large number of agricultural NGO's, foreign and international organization cooperatives, councils and committees present in Palestine, the cooperation between different stakeholders is limited and needs to be empowered, activated, and improved for the benefit of the farmers as well as the agricultural sector.

All proposed interventions should be implemented as part of an integrated approach, involving the coordination and cooperation between NGOs, Government agencies and other concerned parties, particularly the agricultural stakeholders, i.e. the farmers, families and CBO's. It is also important to focus on activities that will increase the role of marginalised sectors within communities, such as women and Bedouin.

Capacity building programs for the MoA staff are still needed to provide guidelines and coordination within the PNA in order to develop national policies and strategies that involve several Ministries (e.g. national food security policy, development and enforcement of regulatory framework [especially for land ownership registration, international trade, etc.], and participatory planning approaches for land use and management and the elaboration of contingency plans). Additionally, it is very important to develop a mechanism to involve stakeholders in policy formulation, applied research and extension programs. Nevertheless, due to the current political context and the implications on the dysfunction of public services, there is a high risk of "brain-drain" from public institutions. This is already taking place.

In this regard, the following interventions to improve both, coordination within the sector, and the diagnosis based on realistic data, are proposed, taking into account the need to maintain the final objective of reaching a high-performing policy making body, involving all stakeholders in the agricultural sector:

- Continue and expand activities such as the Agriculture Projects Information System, the Agricultural Sector Working Group for donor coordination, and the Food Insecurity and Vulnerability Information and Mapping System
- Promote an integration of priorities and planning between existing organisations
- Create a common coordinated policy of agro-credit to increase the access to funds for both small and large producers, and develop a national agricultural insurance or compensation fund
- Build human resources capacities at the MoA and related organizations, as well as the grassroots.

The intervention needs vary within Palestine on a regional basis. Appendix 2 presents a comprehensive table detailing the regional intervention needs both in the West Bank and the Gaza Strip. This table may be used as a quick reference guide to identify regional needs, in order to prioritise regional development projects.

The major constraints are leading to serious considerations about the future of Palestinian agriculture. However, the methods in which these problems must be addressed will change, depending on the development of the political situation. Even without the ability to predict the future political developments in Israel and Palestine, one can still foresee the following three possible scenarios:

1. Continuation of the status quo, and possible further deterioration. Donor aid is still limited to emergency. Unemployment is high and the public sector becomes dysfunctional.
2. Slight improvement of the situation, with Israeli unilateral steps to consolidate the six major settlement blocks, the Western Separation Zone and de facto annexation of the Jordan Valley, but at the same time improving transportation contiguity through two separate road networks, one for Israelis and one for Palestinians. Donor aid is restored.
3. A political breakthrough and the resumption of negotiations towards a final settlement. Donor aid grows and regional cooperation progresses. The Paris protocol is revisited and Palestinians have better marketing options. Unemployment is reduced considerably, and the GoI allows more Palestinian labourers to work in Israel. Large infrastructural projects, mainly in construction, are initiated.

Given the three possible political scenarios listed above, it would be pertinent to devise intervention strategies that may be employed in any such eventuality. Matrix 1 displays the key areas of focus for interventions in the medium term, and how the focus for general interventions should shift, depending on the political scenario.

Matrix 1: Priorities for intervention strategies depending on possible future political climate scenarios

Intervention/ Activity	Scenario 1	Scenario 2	Scenario 3
Water management and agricultural diversification			
Water harvesting, delivery infrastructure and efficiency of use	●●●	●●○	●●○
Land development	●●●	●●○	○○○
Subsistence agriculture and food security: home gardens, urban agriculture, animal distribution.	●●●	●●○	○○○
Diversification of crops and rural products targeting the local markets and community needs	●●●	●●○	●○○
Diversification of crops targeting high value cash crops and agribusiness support	●○○	●●○	●●●
Revitalisation of agricultural production and marketing			
Rehabilitation of damaged land and infrastructure	●●●	●●○	●○○
Support to existing agricultural activities through inputs, small machinery, extension services, cooperatives, etc.	●●●	●●○	●○○
Improvement of competitiveness, quality and quantity of production	●●●	●●●	●●●
Post harvest treatment infrastructure, storage facilities and means of transportation for agricultural commodities	●●●	●●●	●●●
Production calendar improvement towards increasing marketing	●●●	●●●	●●●
Access to credit for farmers and agro-industry	●●●	●●●	●●●
Foster marketing agricultural produce to internal markets	●●●	●●○	●○○
Foster marketing agricultural produce to external markets	●○○	●●○	●●●
Livestock production			
Livestock sector improvement targeting the available veterinary services, feed production, rehabilitation of shades, improving breeds, milk and meat processing	●●●	●●●	●●●
Livestock production improved towards collected commercial production	●○○	●●○	●●●
Support to fishing sector	●●●	●●○	●●●
National disease control programs: mitigation of Avian Influenza incidence and impact	●●●	●●○	●○○
Sector coordination, institutional strengthening and capacity building			
Enforcement of existing agricultural information systems and coordination networks	●●○	●●○	●●●
Existing networks and councils (e.g. olive and oil council, poultry council, etc.) improvement and empowerment	●●○	●●○	●●○
Sustainable sector elemental plans and strategies integrating priorities of existing organisations.	●●○	●●●	●●●
Common policy on fostering credit accessibility and creating a national agricultural insurance and calamity fund	●●●	●●●	●●●
Human resources capacities built at the MoA and related organizations as well as the grassroots.	●●○	●●○	●●○

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10. Appendices

Appendix 1: Funding

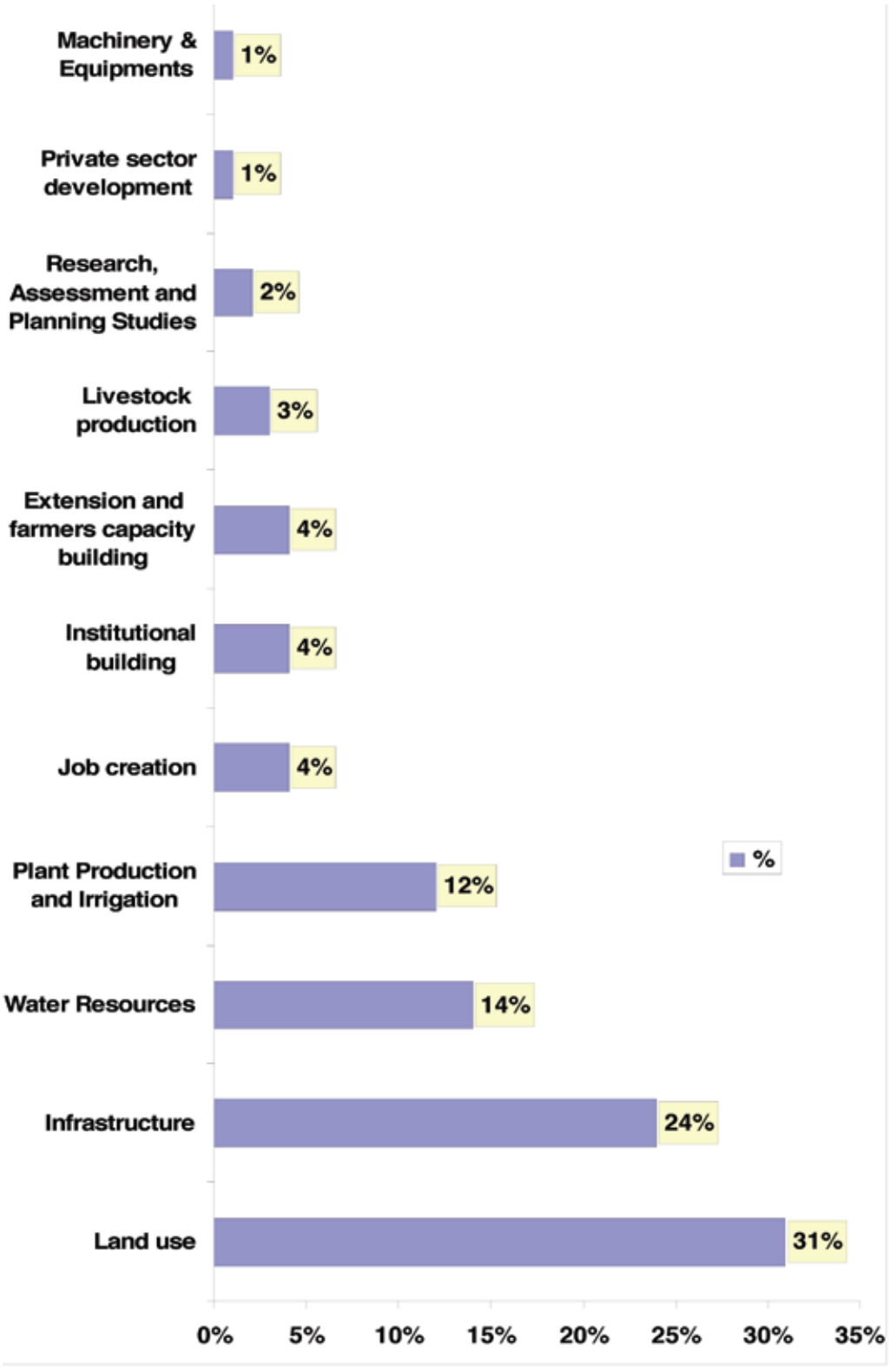


Figure 1: Distribution of Funds expended by implementing organizations – percentage to different agricultural sub-sectors' activities

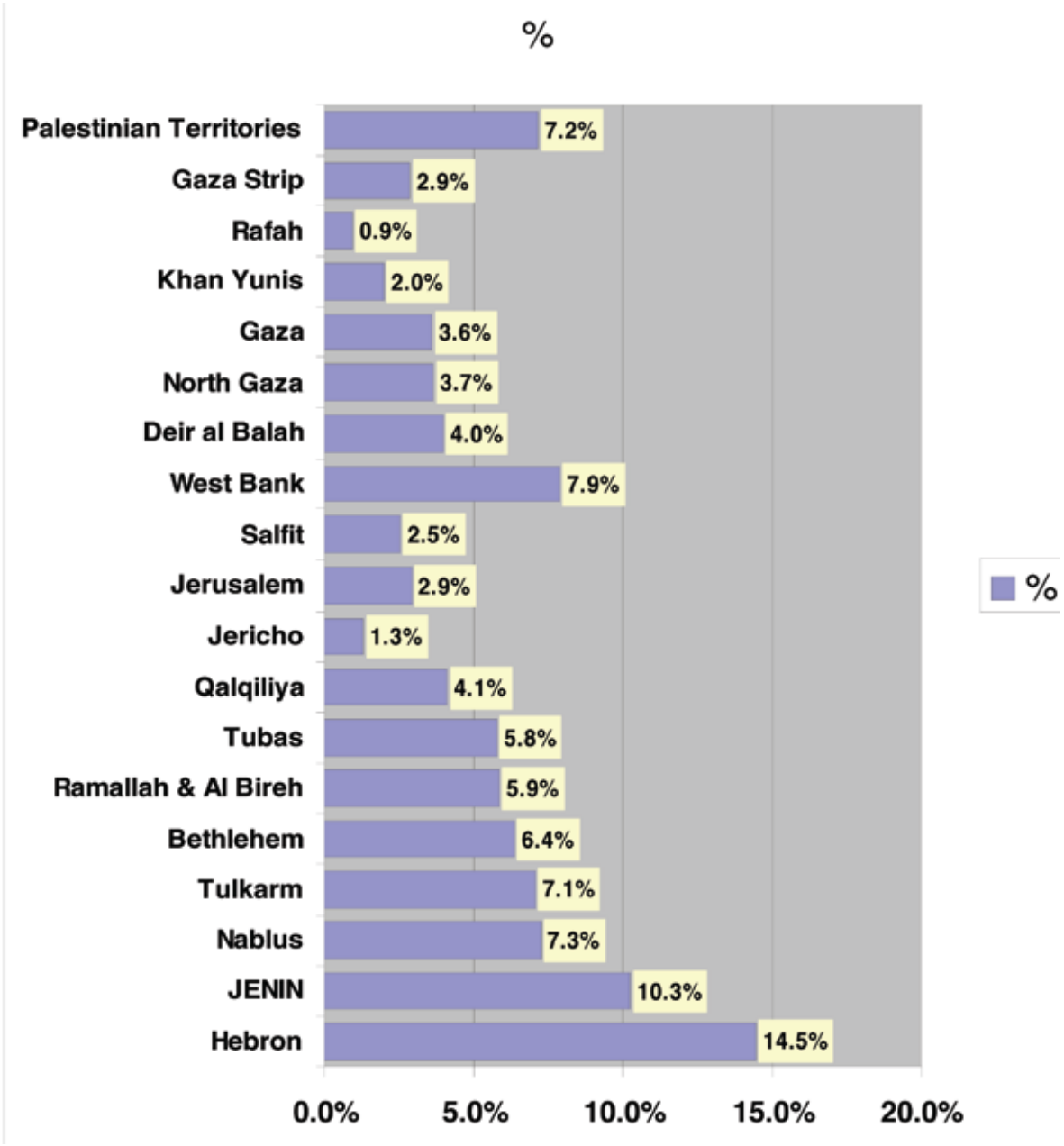


Figure 2: Distribution of Funds expended by implementing organizations – percentage to each Governorate

Appendix 2: Regional Intervention Needs

The agricultural areas are classified according their main agricultural activities. Therefore the following are agro-zones

1. West Bank: Southern Zone (Bethlehem, Hebron Governorate & East Jerusalem), Jordan Valley Zone (Jericho and Eastern Parts of Tubas), Central Zone (Ramallah, Nablus, and Salfit), North East (Jenin and Tubas), and West-north zone (Tulkarm and Qalqiliya).
2. Gaza Strip: Northern, Middle and Southern zones.

Zone	Main Agricultural Activities	Priority activities
I. West Bank		
1. Southern Zone (Bethlehem, Hebron & East Jerusalem Governorate)		
1.1.Central and Western Part (Good amounts of rainfall, mountainous areas, limited numbers of water springs, fertile soils and sloped mountainous areas.)	Rainfed agriculture is dominant: Olive trees, stone fruit trees, grapes. Dominant rain-fed agriculture, some vegetables. Irrigated agriculture: existing in areas where water springs are available. Livestock: small ruminants and poultry farms and limited numbers of beehives.	1. Water management and diversification of agricultural production • Rainwater harvesting, cistern construction and rehabilitation. • Reuse of treated grey water and wastewater. • Provide vegetables seeds and seedlings for home gardens. • Provide vigorous and healthy seedling of suitable fruit trees varieties for intercropping cultivations (stone and pomes fruit trees). • Land development (terraces) (job creation). • Diversification through: small chicken and rabbit farms, beehives distribution and aquaculture in agricultural ponds • Rangeland sustainable management 2. The revitalisation of agricultural production and marketing • Improve access to agro credit 3. Livestock production: 4. Sector coordination, institutional strengthening and capacity building • Farmers' capacity building and improving cooptation work.
1.2. Eastern part (Medium to low annual precipitation, limited sources of water (drought), warm temperature, limited soil fertility, grazing areas with low grazing potential.)	Rainfed agriculture is dominant: Field crops (food cereal and legumes), forage crops (seeds and hay) Livestock: large numbers of small ruminates (sheep and goats)	1. Water management and diversification of agricultural production. • Rainwater harvesting cistern construction and rehabilitation. • Reuse of treated wastewater. • Increasing cultivated lands through providing the farmers with the seeds of suitable field crops and forage crops. • Rangelands sustainable management 2. The revitalisation of agricultural production and marketing • Improve access to agro credit 3. Livestock production: • Provide the farmers with veterinary services and vaccines. • Build new and rehabilitate existing livestock barracks • Encourage improvement of breeds 4. Sector coordination, institutional strengthening and capacity building Farmers' capacity building and improving cooptation work.

Zone	Main Agricultural Activities	Priority activities
2. Jordan Valley Zone (Jericho and Eastern Parts of Tubas Governorates)		
(Low amounts of rainfall, permanent source of water (springs and wells), water soil salinity problems, warm temperatures, limited access to water due to occupation and over pumping problems.)	Irrigated agriculture is dominant: trees include citrus, banana, palm; vegetables and strawberry (cash crops); and limited areas of forages.	1. Water management and diversification of agricultural production • Rehabilitate existing agricultural wells. • Provide seedlings of seedless grapes, palm trees. • Provide barley, alfa-alfa and Sudan grass seeds. • Foster optimum water requirement on crop level • Aquaculture in agricultural ponds 2. The revitalisation of agricultural production and marketing • Support the agricultural inputs • Proving vehicles with cooling system for transporting the agricultural commodities. • Develop cold storage system for surpluses in produced agricultural commodities. • Improve grading and packaging facilities • Improve access to agro credit 3. Livestock production: • Support the agricultural inputs. • Improve livestock sector and food processing facilities. 4. Sector coordination, institutional strengthening and capacity building • Empower the existing marketing channels and crate new ones. • Farmers' capacity building and improving cooptation work.

Zone	Main Agricultural Activities	Priority activities
3. Central Zone (Ramallah, Nablus, and Salfit)		
(Good average of annual rainfall. Mountainous sloped areas.)	Rainfed agriculture is dominant: fruit trees (olive trees, stone fruit trees, figs). Irrigated agriculture where water springs exist Livestock: both small ruminants and cattle	**1. Water management and diversification of agricultural production** • Construct and rehabilitate existing rainwater cisterns and home gardens. • Reuse of treated wastewater. • Provide olive trees with pheromone traps, suitable storage tankers for olive oil and containers to transport the olive fruit to the olive mill. • Land development (job creation). • Distributing seedling of most suitable fruit types and varieties. • Provide extension services. • Distribution of Beehives. **2. Revitalisation of agricultural production and marketing** • Rehabilitation of infrastructure, especially agricultural roads. • Improve marketing systems. **3. Livestock production:** • Rehabilitate livestock barracks. • Provide veterinary services **4. Sector coordination, institutional strengthening and capacity building** • Farmers' capacity building and improving cooperation work. • Improving farmers' capacities, cooperation and marketing their produce.

Zone	Main Agricultural Activities	Priority activities
4. North East Zone (Jenin and Western Part of Tubas Governorates)		
(Moderate rainfall and warm temperature, natural pastures.)	Rainfed agriculture is dominant: field crops and forages, olive trees, and vegetables. Limited irrigated areas where springs and wells are exist. Livestock: large numbers of small ruminants and cattle.	**1. Water management and diversification of agricultural production:** •Cisterns construction and rehabilitation. •Rehabilitate existing irrigation springs and wells. •Home gardens. •Distributing seeds of proper field crops and forages. •Distributing organic fertilizers. •Land development. **2. Revitalisation of agricultural production and marketing** •Improving olive cultivations, oil production and marketing system. • Improving Marketing value. **3. Livestock production:** •Rehabilitate livestock barracks. •Provide veterinary services **4. Sector coordination, institutional strengthening and capacity building** • Provide suitable extension services.

Zone	Main Agricultural Activities	Priority activities
5. Western Zone (semi- coastal) (Qalqilya and Tulkarm)		
(High amounts of rainfall, Ground water is available,)	Irrigated agriculture is dominant: fruit trees (citrus and olive trees), vegetables and greenhouses. Rainfed: fruit trees and field crops. Livestock: cattle and small ruminants.	1. Water management and diversification of agricultural production: • Rehabilitate existing irrigation canals, networks, and agricultural wells • Rehabilitate existing greenhouses 2. Revitalisation of agricultural production and marketing • Providing farmers with production inputs (seeds, seedlings, organic fertilizes). • Improving production quality and produce healthy food creates new marketing channels. • Improving storage capacities. • Establish cool transportation system for agricultural commodities • Improve access to agro credit 3. Sector coordination, institutional strengthening and capacity building • Farmers' capacity building and improving cooptation work. Improving farmers' capacities, cooperation and marketing their produce.
II. Gaza Strip:		
6.1. Northern Zone North Gaza (Jabalia and Beit Hanoun) (Good amount of rainfall, Ground water is available with good quality).	Intensive and Irrigated agriculture: vegetables, citrus trees and cut flowers. Agricultural activities (60% plant production, 30% livestock, 10% fishery)	1. Water management and diversification of agricultural production • Establishing and rehabilitating main irrigation pipelines. • Provide farmers with production inputs (seeds, seedlings, organic fertilize). • Land reclamation/rehabilitation. • Provide irrigation networks. • Assist in constructing rainwater harvesting lakes. 2. Revitalisation of agricultural production and marketing • Rehabilitate existing wells, greenhouses and construct agricultural roads. • Improving production quality and produce healthy food. • Create new marketing channels. • Establish cool transportation system for agricultural commodities. • Improve storage capacities. • Improve access to agro credit. 3. Livestock production: • Providing poor families with small ruminants, beehives, layer chicken, feed and forages. • Improving veterinary services. • Supporting fishermen with fishing and packaging equipment. 4. Sector coordination, institutional strengthening and capacity building • Farmers' capacity building and improving cooperating work. Improving farmers' capacities, cooperation and marketing their produce.
6.2. Middle Zone Gaza and Deir Al-Balah (Medium amounts of rainfall, ground water with high salinity.)	Citrus, vegetables, and palm trees are planted but less intensive than the northern part. Agricultural activities: (53% plant production, 40% livestock, 12% fishery)	
6.3. Southern Zone (Khan Younis and Rafah) (Low rainfall ground water resources with low quality)	Vegetables, field crops, fruit trees. Agricultural activities: (60% plant production, 35% livestock, 5% fishery)	

Appendix 3: Geopolitical classification

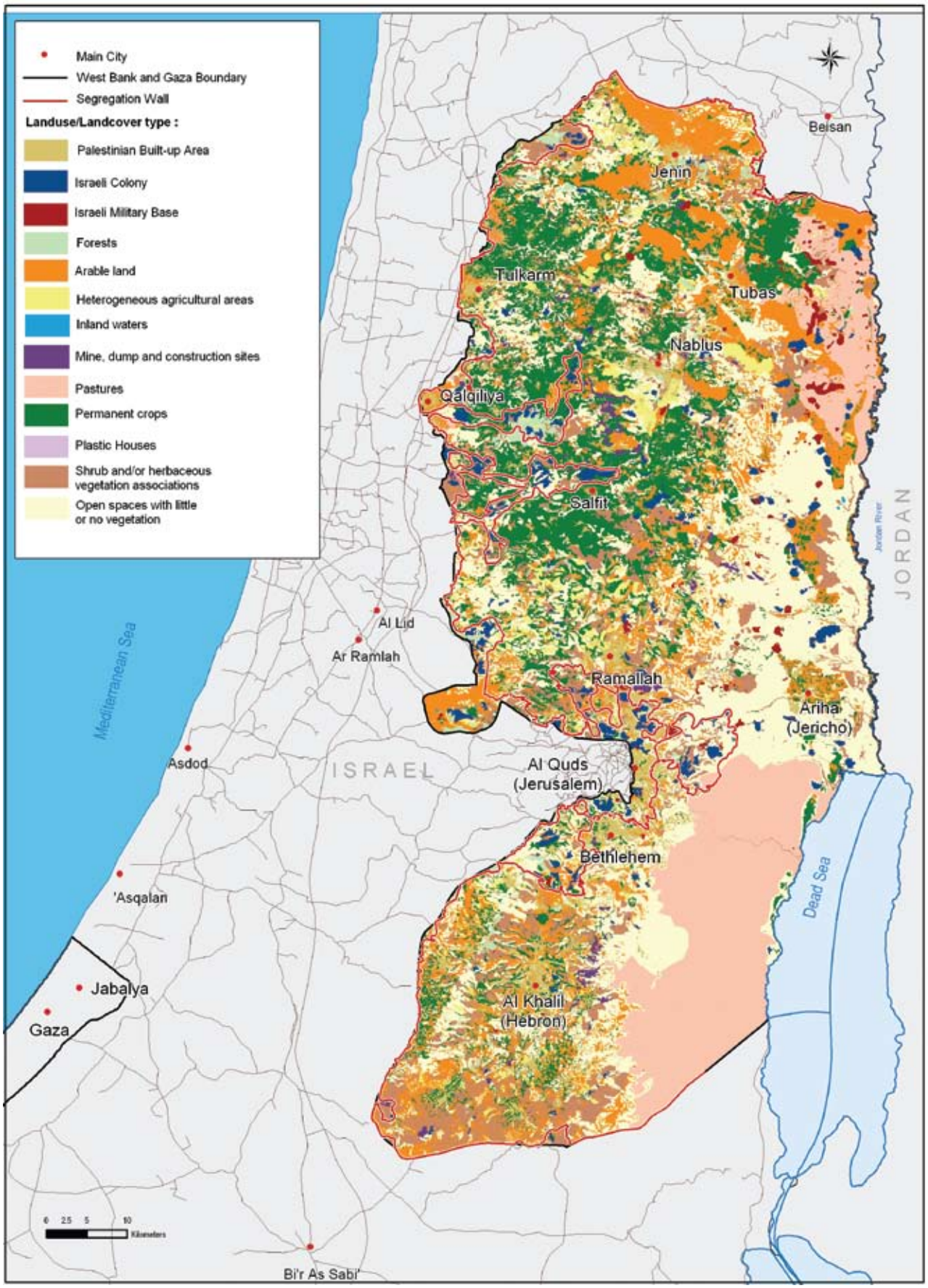
Table 1: The Redeployment percentages according to the agreements

Agreement	Date	Area of the West Bank		
		A	B	C
Oslo II	September 1995	3 %	24 %	73 %
Wye I	October 1998	10.1 %	18.9 %	71.0 %
Wye II & III (not implemented)		18.2 %	21.8 %	60.0 %
Sharm I	September 1999	10.1 %	25.9 %	64.0 %
Sharm II (implemented in delay)	January 2000	12.1 %	26.9 %	61.0 %
Sharm III (implemented in delay)	March 2000	18.2 %	21.8 %	60.0 %

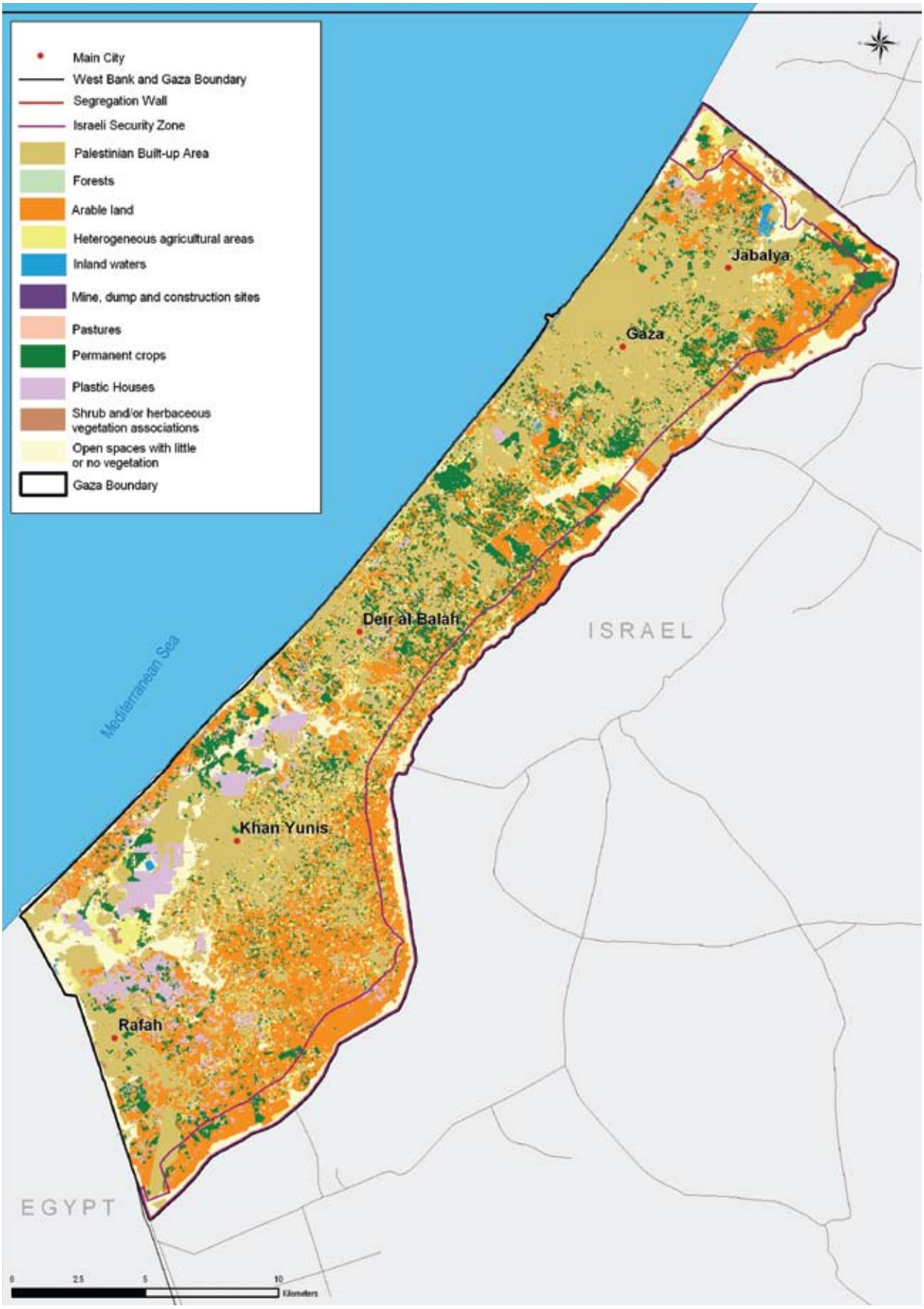
Appendix 4: Maps

Map 1: Agro-eco-zones

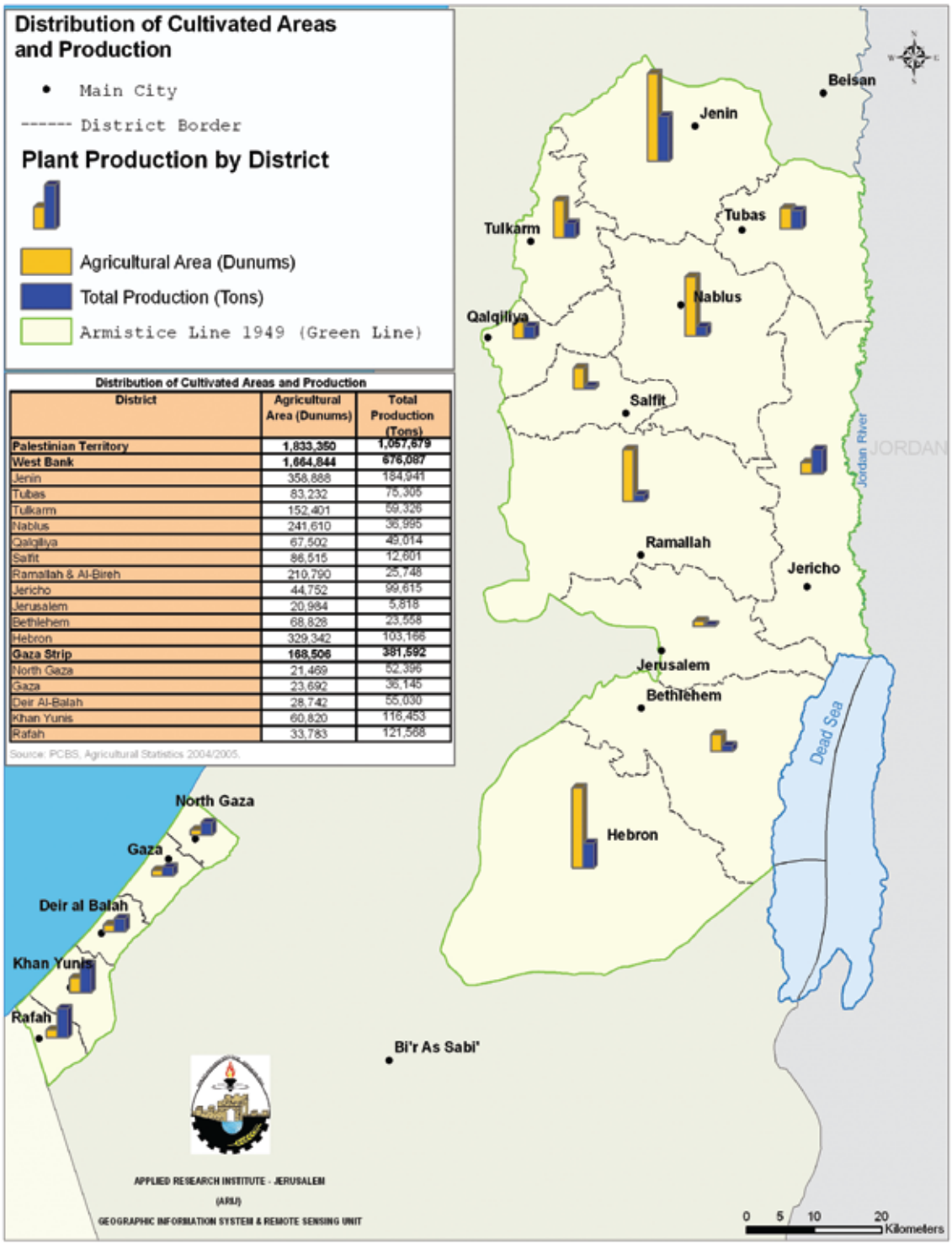
Map 2: Israeli Anticipated Separation Zones in the West Bank



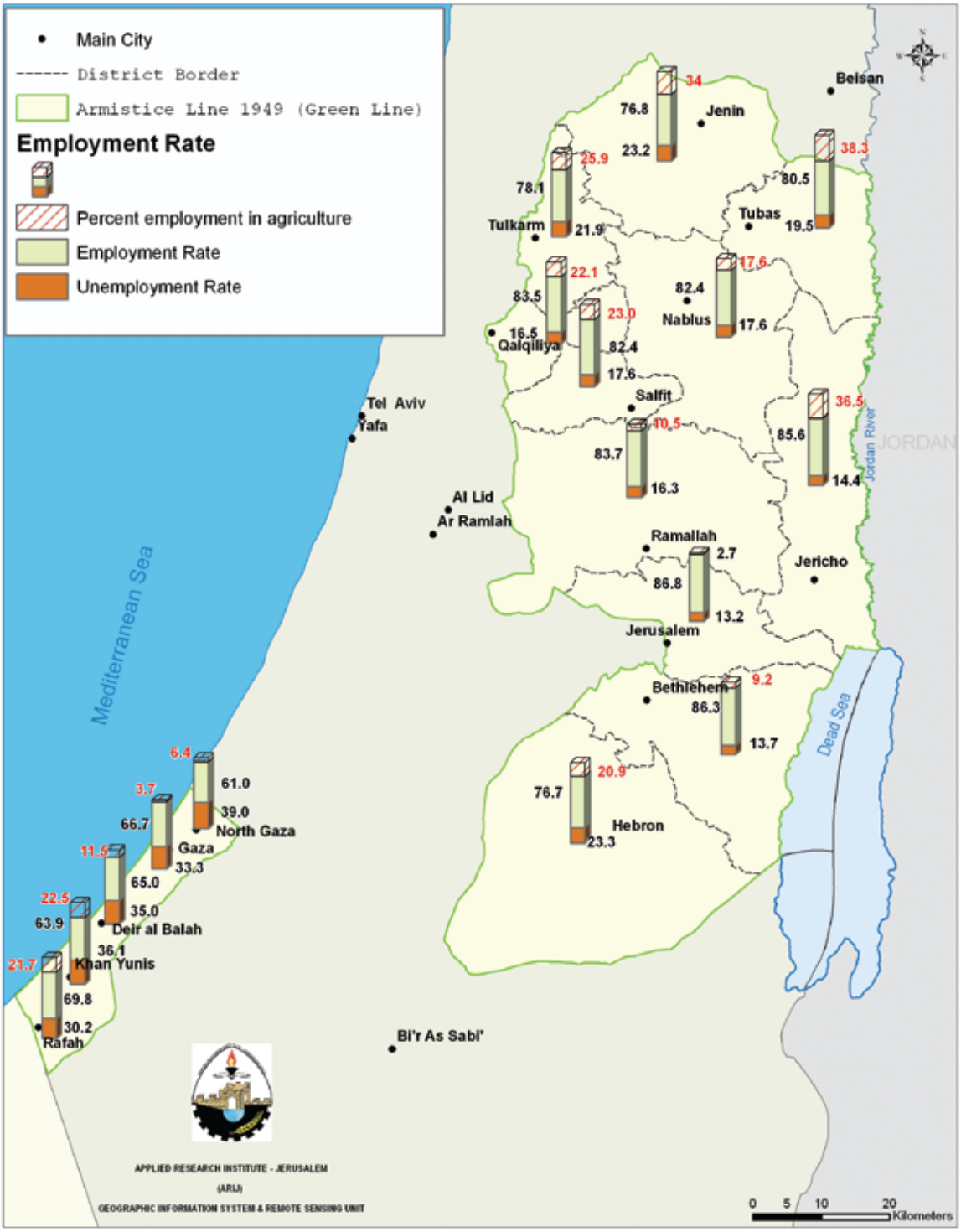
Map 3: Land use in the West Bank



Map 4: Land use in the Gaza Strip



Map 5: Distribution of agricultural area and production by governorate 2004/05.



Map 6: Distribution of employment and unemployment by Governorate 2006.

Appendix 5: Sustainable Agriculture Strategies

1: Sustainable Agriculture Strategies:

- Farm and production systems management
- Soil/water/plant relationship and water and nutrients conservation
- Conservation of indigenous landraces
- Rangeland management
- Reuse of effluents and sewage sludge
- Restricted use of pesticides and introduction of Integrated Pest Management (IPM)
- Introduction of cell cultures and micro-propagation of dates, bananas etc.
- Introducing improved varieties of apples, peaches, olives, grapes and almonds
- Improvement of traditional cropping/ livestock systems
- Combating desertification and salinisation of soils
- Conservation of land and natural vegetation
- Optimization of land and soil utilization
- Improvement of the biomass of natural vegetation of range lands and wilderness.
- Investigation of the endangered species and the conservation of them.
- Evaluation of the grazing capacity of natural range land, and the implementation of a calendar for grazing periods, duration and number of permitted livestock.
- Inventory, collection, researching, and conserving the local varieties of different cultivated crops.
- Identification of economical crops landraces and their wild relatives.
- Use of hydroponics technology for green forage production.
- Improvement of the livestock production (Shami goats)
- Introduction of the intensive systems of fish production, and an improvement of the irrigation ponds of the Jordan Valley in order to use it for fish production.

2. Organic Farming

- Organic farming technologies
- Biological Pest Control
- Use of composts
- Micro-propagation
- Traditional crops and medicinal plants

Appendix 6: An Assessment of the Israeli Practices on the Palestinian Agricultural Sector: September 29, 2000 to December 31, 2005

The Ministry of Agriculture (MOA) has formed emergency committees in all districts in order to continue to provide the MOA services under closure. These committees have worked with institutions on the national level in order to evaluate the losses. The report produced summarized the various damages suffered by the Palestinian agricultural sector during the period between 29/9/2000 and 31/12/2005, and the findings are summarized below:

The following tables contain information regarding losses resulting from the destructive practices of the Israeli Occupying Forces.

Table 1 shows numbers of destroyed trees during the period of 29/9/2000 – 31/12/2005

Table 2 shows numbers of livestock damaged during the period 29/9/2000 – 1/12/2005

Table 3 shows damages caused by the Israeli aggression on the Palestinian agricultural sector, including the destruction of agricultural wells and other agricultural constructions, during the period of 29/9/2000 – 31/12/2005

Table 4 shows bulldozed area, in dunums, planted with vegetables under green houses and open fields, and field crops during the period of 29/9/2000 – 31/12/2005

Table 5 shows Distribution of the Palestinian direct losses ($ 1000) in the agricultural sector, during the period of 29/9/2000 – 31/12/2005

Table 6 shows a Summary of the Palestinian losses in the agricultural sector as a result of Israeli aggression and closure of Palestine during the period of 29/9/2000 – 31/12/2005

Table 1: Numbers of uprooted and destroyed trees during the period of 29/9/2000 – 31/12/2005

District	Olive	Citrus	Stone fruits	Forest	Dates	Bananas	Vine	Other	Total (1000)
Total (West Bank)	157114	1750	21141	2662	33	20400	34868	30842	268.81
Total (Gaza Strip)	307831	548527	66459	7586	33561	0	56435	99976	1120.38
Grand Total (Palestine)	464945	550277	87600	10248	33594	20400	91303	130818	1389.19

Table 2: Numbers of livestock damaged during the period of 29/9/2000 – 31/12/2005

District	Cattle	Sheep & Goats	Poultry	Layers	Beehives	Others	Total
Total (West Bank)	256	12233	450485	152244	2902	10887	629007
Total (Gaza Strip)	857	2808	465932	198048	12393	200	680238
Grand Total (Palestine)	1113	15041	916417	350292	15295	11087	1309245

The numbers including trees destroyed by separation wall

Table 3: Damages caused by the Israeli aggression on the Palestinian agricultural sector, including the destruction of agricultural wells and other agricultural constructions , during the period of 29/9/2000 – 31/12/2005

District	# of Agricultural Stores	# of Animal Enclosures	# of Wells	Irrigation networks (dunum)	# of Agricultural ponds and reservoirs	walls and fences (meter)	Main lines of water pipes (meter)
Total (West Bank)	43	1198	28	5468.5	458	58969	27322
Total (Gaza Strip)	760	529	392	24262.25	1255	635868	956007
Grand Total (Palestine)	803	1727	420	29730.75	1713	694837	983329

Table 4: Bulldozed area, in dunums, planted with vegetables under green houses and open fields, and field crops during the period of 29/9/2000 – 31/12/2005.

District	Green houses	Open field	Field crops	Total
Total (West Bank)	281.07	5318	9511.5	15110.57
Total (Gaza Strip)	1896	7200.75	4358	13454.75
Grand Total (Palestine)	2177.07	12518.75	13869.5	28565.32

Table 5: Distribution of the Palestinian direct losses ($ 1000) in the agricultural sector, during the period of 29/9/2000 – 31/12/2005.

Item	West Bank	Gaza Strip	Total
Losses: value of fruit trees	23897.67	236472.28	260369.95
Losses: value of livestock	6072.06	5491.37	11563.43
Losses: value of infrastructure and agricultural construction	4686.48	27326.71	32013.19
Losses: value due to bulldozing of green houses and planted fields	3893.62	20680.82	24574.44
Losses: value of fishers sector	0.00	300.00	300.00
Other losses	10649.82	5279.25	15929.07
Total	**49199.65**	**295550.43**	**344750.08**

Table 6: Summary of the Palestinian losses in the agricultural sector as a result of Israeli aggression and closure of the Palestinian Territories during the period of 29/9/2000 – 31/12/2005.

Type of damages	Value ($ 1000)
First: Direct losses	
Uprooting of plants, bulldozing areas of crops, and destructing of green houses and farming equipment, and livestock	344750.08
Second: Indirect losses	
Losses due to inaccessibility to conduct the agricultural activities such as replanting of bulldozed areas of trees and field crops	67190.4
Losses in the olive sector, due to difficulties for the farmers in accessing their lands to pick olives. In addition, there were tens of tons of olive fruits stolen and confiscated	16115.18
Reduction of agricultural and livestock product prices in local markets	152585.45
Loss in livestock production	32315
Loss in fishing sector	12955.59
Losses due to the increase in the price of animal feed	32019
Loss from stopping the exports to Israeli and world markets	62668
Reduction of revenues from agricultural transportation, marketing and exporting	59770
Losses of contract farm workers	331840
losses because of bulldozing agricultural areas which were planted with various types of crops, and cost of its rehabilitation	61468
Sub-total	828,926.62
Grand Total Direct and indirect losses in Agricultural sector	**1,173,676.7**

Source: Ministry of Agriculture. Report on Palestinian agricultural losses due to recent Israeli actions. Ramallah (September 29, 2000 – December 31, 2005), Palestine.

Appendix 7: The EUREPGAP Certificate

CERTIFICATE

CERTIFICATE Nº: C804433GAPFV-03.2006
REGISTRATION Nº: CU 804433

Field of attention:

Eurepgap
F&V (Fresh) Fruit and Vegetables
Option 1

Issued to:

Khaled Abed Alaha Al-Astal
Khan Younis, PALESTINE
Project in: PALESTINE

Standard:

Fruit and Vegetables
Version 2.1 - Oct04

Valid until: 3 April 2007

Control Union Certifications declares to have inspected the unit(s), and/or product(s) of the above mentioned client, and have found them in accordance with the standards mentioned above. This certificate covers the unit(s), and/or product(s) as mentioned in the authenticated annex of this certificate.

This certificate is in force until further notice, provided that the above-mentioned client continues meeting the conditions as laid down in the client contract with Control Union Certifications. Based on the annual inspections that Control Union Certifications performs, this certificate is updated and kept into force.

Date of certification:
3 April 2006

Place and date of issue:
Kiryat Bialik, 10 April 2006

EUREPGAP®

Declared by:

On behalf of the Managing Director
Miss I. Polder
Certifier

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PRODUCTS
RvA C 412

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