



Food and Agriculture
Organization of the
United Nations



Context analysis

*for the country programming
framework for Palestine 2018-2022*

“Making the food system more inclusive, sustainable and resilient
for the wellbeing of the Palestinian people”

Cover photograph

Vegetable greenhouses in Tammoun, West Bank.
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**Food and Agriculture Organization of the United Nations (FAO)
Jerusalem, 2019**

FAO. 2019. Context analysis for the country programming framework for Palestine 2018–2022. Jerusalem. 100 pp.

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ISBN 978-92-5-130806-6

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Zucchini farmer in East Khan Yunis.
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Acronyms and abbreviations

AFOLU	Agriculture, Forest and Land Use sector
CPF	Country Programming Framework
CSO	Civil Society Organisation
DNH	Do Not Harm (approach)
EQA	Environment Quality Authority
ESS	Environmental and Social Standards
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FNS	Food and Nutrition Security
FTE	Full-Time Equivalent (labour units)
FWL	Food, Waste and Losses
GDP	Gross Domestic Product
GNI	Gross National Income
GS	Gaza Strip
HRBA	Human Rights Based Approach
ILO	International Labour Office
IPR	Intellectual Property Right
MDGs	Millennium Development Goals
MoA	Ministry of Agriculture
MoH	Ministry of Health
MoL	Ministry of Labour
MoLG	Ministry of Local Government
MoNE	Ministry of National Economy
MoSD	Ministry of Social Development
NASS	National Agricultural Sector Strategy
NIS	New Israeli Shekel
NM	Nautical Mile
NPA	National Policy Agenda
OECD	Organisation for Economic Co-operation and Development
PA	Palestinian Authority
PACI	Palestinian Agricultural Credit Institution
PADRRIF	Palestinian Agriculture Disaster Risk Reduction and Insurance Fund
PCBS	Palestinian Central Bureau for Statistics

PO	Producers' Organization
PPP	Public-Private Partnership
PSI	Palestinian Standards Institute
PWA	Palestinian Water Authority
R&D	Research and Development
SDGs	Sustainable Development Goals
SEFSec	Palestinian Socio-Economic and Food Security Survey
ToC	Theory of Change
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children Emergency Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
USD	United States Dollar
VC	Value Chain
WB	West Bank
WBGS	West Bank and Gaza Strip
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization



A Palestinian farmer woman harvesting wheat by hand.
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Executive summary

The development of Palestine is constrained by many factors that make the country highly vulnerable to both regional and global downturns. The Food and Agriculture Organization of the United Nations (FAO) has a long-standing commitment to helping Palestinians ease the impact of these constraints and making the country more resilient through actions in the specific fields of its mandate that are food and nutrition security and sustainable development of food systems.

The FAO Country Programming Framework (CPF) is the strategic document that streamlines and guides such a contribution. The CPF is a planning and management tool which outlines how FAO can best assist a country in meeting its development priorities, setting out jointly-agreed, medium-term priorities for Government-FAO collaboration. The CPF is also a key tool to guide FAO contributions to the implementation of the Agenda 2030 for Sustainable Development with specific reference to Sustainable Development Goal 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture".

In mid-2016 the FAO WBGs Office started the process of developing the CPF for Palestine. In order to do this, FAO started preparing a context analysis for the country programming framework for Palestine to collect and critically analyze the required background information/data to develop the theory of change, supporting the CPF design and implementation.

A participatory approach was used throughout the second half of 2016 and early 2017, aiming to achieve a common understanding among all stakeholders involved with the issues to be addressed by the CPF. The meetings, interviews and participatory discussions with all relevant stakeholders made the achievement of consensus possible around FAO's view on how to address the issues. The problems of primary production sector – including activities such as agriculture, fishing, aquaculture and forestry – cannot be properly addressed if some of the problems of the broader food system – i.e. the complex system made up by all value chains starting with primary production activities and ending with the various components of the final demand for agrifood products – are not tackled as well. This understanding is fully integrated in this document.

Overall context

The problems of the food system cannot be fully understood without taking into account the issues of the broader socio-economic context and the influence it has on the food system. The overall context is heavily dependent on the relationships between the Israeli government and the Palestinian government, the latter of whose space for policy action is limited in terms of control over its borders and customs revenues, monetary authority and policy, fiscal policy, and local governance (e.g. policy prerogative over Area C¹). The political situation is further complicated by the internal political divide and eroded political legitimacy. Thus, the public sector accountability and governance effectiveness is limited, restricting its ability to deliver on its obligations as a duty bearer to its people.

Restrictions on economic and productive activities, including restrictions on the movement of people and goods, severely impair the Palestinian economy and its potential for growth. The ability of the private sector to function, let alone thrive and generate employment, is limited. Palestinian producers have become increasingly cut off from their traditional trading partners and lost much of their competitive edge. These, along with the overvaluation of the real exchange rate, twisted the economic structure in favor of sectors not exposed to foreign competition.

¹Following a number of political agreements, control of the West Bank was classified into three areas A, B and C. Area A is under the control of the Palestinian Authority, Area B is under Israeli security control and administratively under Palestinian control, Area C is under Israeli control. These arrangements were supposed to be temporary pending the results of permanent status negotiations between Palestinians and Israelis; however they have continued as a *de facto* reality.

As a result, the GDP growth over the last decade or so has been volatile and sluggish. With economic stagnation comes high unemployment, especially among youth and women, and high informality of the labor market. The economy remains highly dependent on its public sector, which in turn is highly dependent on external budgetary support, and structurally unbalanced with tradable sectors – such as agriculture – suffering most.

The agrifood sector

The agrifood sector – i.e. the complex of production activities starting from crop and livestock production, fishing and aquaculture – has been operating well below potential. The agricultural value added was around USD 450 million in 2015, largely dominated by plant crops. The agro-industry contributed some more USD 361 million. The agricultural share in Palestinian GDP accounts for 3.6 percent while agrifood processing for 2.8 percent: as a result, the agrifood value chains as a whole represents 6.4 percent of Palestinian GDP.

However, agricultural output and productivity have lagged behind comparable countries in the region. Much of the difference in productivity is due to the impact of the occupation and related restrictions on the movement of people and goods, resulting in a lack of access to land, water and other natural resources, to equipment and materials, and to markets (both domestic and international) that severely impair construction and maintenance of infrastructure.

Nevertheless, the Palestinian agrifood sector plays a key role as a component of economic growth, an enabler of social development and a contributor to environmental sustainability.

As a supplier of raw materials and basic goods as well as a user of services and outputs of vital national sectors', primary production makes a key contribution to the industry, trade, transport, communication and service sectors. It also contributes to generating/saving foreign currency through exports/import substitution. In year 2015, agrifood exports achieved USD 255 million, while agrifood imports totaled USD 1 391 million, resulting in a trade deficit of USD 1 136 million. Agrifood commodities are among the most important export and import groups both accounting for 26.6 percent of total exports and total imports.

Furthermore, constituting an employment and livelihood source for a large proportion of Palestinians, especially some of the most vulnerable groups such as the poor and women, primary production is also one of the most important pillars of Palestinian society. As of 2015, this sector was employing some 84 000 people plus 4 000 fishers in the Gaza Strip, or 8.7 percent of the Palestinian labour force. Agro-processing accounts for another 20 000 jobs.

Females account for roughly 30 percent of Palestinian agricultural employment and 13.1 percent of total female employment in the country, representing an important share of the sector. However, gender differences in agricultural labour are rampant. Besides the huge gap in remuneration (both wage and income in self-employment), female labour is characterized by huge rates of unpaid labour and more casual labour relationships.

However, farming represents a crucial coping strategy for Palestinian households in times of crisis and contributes to improving households' food and nutrition security. It is also of primary importance in ensuring the steadfastness of Palestinians vis-à-vis the Israeli occupation.

Finally, if properly managed, farming, fishing and aquaculture can contribute to reducing the ecological footprint of primary production on the environment, mitigating its impact on climate change, and preserving the landscape and biodiversity.

Food and nutrition security

In a protracted crisis context such as West Bank and Gaza strip, characterized by pervasive risks, it is not surprising that food insecurity is still very high, with more than one quarter of the population classified as food insecure.

Food and nutrition insecurity is determined primarily by the lack/loss of an individual's labour entitlement that prevents access to food. This is particularly severe for the most vulnerable groups earning their livelihood through this entitlement, including youth, women and the disabled.

A second determinant of food insecurity is related to the lack/loss of the so-called own production entitlement, that is those people who gained their own livelihood producing directly a significant share of the food they consume and for some reasons cannot anymore produce this food. This is the case of other vulnerable groups such as Bedouins and herders living in Area C, people living in the seam zone, farmers whose farms are in the buffer zone in the Gaza Strip and more generally all farmers, herders and fishermen who face a lack of access to productive resources.

On the other hand, any household that has a reasonably unrestricted access to productive resources (land, home gardens) can use farming as a coping strategy in case of need, that is they can compensate the reduction in their labour opportunities (labour entitlement) and the reduced availability of food with direct production of foodstuffs (production entitlement) that can either directly be consumed or sold taking advantage of higher food prices.

From the nutrition viewpoint, the most important issue is the reported double burden of malnutrition – i.e. the coexistence of underweight and overweight especially among children. A better-balanced diet and access to food is key to addressing this issue. However, this calls for broader changes in people's lifestyles, where socio-demographic factors and cultural norms play a major role.

The institutional set-up

The institutional set-up of the Palestinian food system is a complex cobweb of organizations and policy frameworks that is generally far from being effective and efficient in supporting the operation of the agrifood sector and its modernization.

Three important issues deserve high priority of intervention, namely: (i) clarifying the role of the MoA, its mandate and functions vis-à-vis other Ministries; (ii) filling the regulatory gaps in important areas that could be instrumental to boosting the agricultural sector; and (iii) identifying more effective and efficient mechanisms of coordination within the agrifood value chains.

The institutional set-up for addressing food and nutrition insecurity in Palestine requires the development of a comprehensive national approach that would eliminate the current incoherence between the macro and sectoral policies and within sectoral policies and the absence of a clear national approach to food and nutrition security, the weak institutional structure, and the fragmented Palestinian management of the sector.

However, processes of legal reform are frequently controversial and highly vulnerable to political or institutional changes. This is especially the case in the Palestinian context, where the occupation and the geographical and political division between the West Bank and the Gaza Strip limit the national policy space, adversely impacting both the revision of legal frameworks and their effective implementation.

Therefore, strengthening national capacities to fully understand and carry out legal reform processes is key and special consideration should be given to the organization of participatory processes involving all key stakeholders, with a focus on smallholders and vulnerable groups (e.g. women engaged in the agricultural sector).

Agrifood sector challenges

The most important sector issues faced by agrifood operators can be clustered around a few groups of issues according to various stages in the value chains.

Agriculture inputs and productive resources

Palestinian agriculture relies heavily on imported inputs – fertilizers, herbicides and pesticides; seeds and seedlings; livestock feed and medicines – several of which are heavily constrained or banned (e.g. many fertilizers) under the terms of the occupation and almost all of which must pass through Israeli middlemen.

Water is a critical input for both crops and livestock, but restrictions to access have hindered economic activity, thus affecting the livelihoods of communities, deepening poverty levels and further increasing vulnerability. Overexploitation of the accessible water further depletes the aquifers and contributes to decreasing their quality. These effects are exacerbated by natural conditions and climate change, which is expected to increase the severity of water scarcity through increased spells of drought.

In this situation, recycled wastewater might be a precious resource for Palestinian agriculture. However, the potential offered by reclaimed water is not being realized due in part to the lack of efficient irrigation schemes, of enabling institutional framework, capacities for monitoring and management of reclaimed water utilization in agriculture, disincentives to private investment in agriculture, and the restrictions by the Israeli authorities.

Access to land and agricultural expansion have been severely undermined by the protracted occupation. Most land resources are located in Area C, where infrastructure and urban development is limited. Systematic erosion of the agricultural productive base, because of settlement expansion and urban expansion (particularly in the Gaza Strip), has deprived farmers and herders of their land.

Moreover, segregation of Palestinian territory is a fundamental challenge to conservation of ecosystems, landscapes and habitat, threatening biodiversity and cutting the natural ecological corridors.

Agricultural production

The production stage of Palestinian agriculture is characterized by fragmented agricultural systems (mixed-crop small holdings) and highly variable productivity.

Fragmented production is driven by rational risk spreading by individual farmers, inheritance rules, and selling part of the land in order to look for another source of livelihood. This process of fragmentation is a key driver of marginalization and impoverishment of small-scale farmers. The small scale of agricultural holdings and the weak organization of producers result in low bargaining power with input suppliers and produce buyers; high unit costs of extension and training; and insufficient scale and planning to participate in markets beyond the local and informal sectors.

Productivity is generally low and highly variable. Much of the productivity differences may be attributed to the lack of access to fertilizers and water and the destruction and disrepair of

agricultural and water-related infrastructure, small-scale inefficiency (lack of economies of scale) emanating from the fragmentation of the land and communities and by severe marketing difficulties.

[Agrifood processing and packaging](#)

The processing and packing segment is either dominated by large, sometimes export-oriented companies operating subscale (dairy, poultry, herbs and vegetables) or processing and packaging occurring minimally, if at all, at the local level. Neither of these models yet accommodates small-scale suppliers well. Efforts to include more small-scale producers have been generally hampered by the high cost of conducting training, quality assurance, and traceability across such a fragmented supply base.

This poses a serious problem for value added creation and distribution among the various actors, stemming from a poor inclusion of the farmers, especially smaller farmers and women, in the value chains; limited capacity and integration of producer organizations; fragmentation between different stages along the value chains; and unbalanced power between actors within the value chains.

[Agrifood markets](#)

Constraints on trade deprive the agriculture sector of low-cost inputs and markets for its products. Perishable agricultural produce with a short shelf life has been disproportionately impacted by the restrictions, which involve, for example, the unloading and reloading of products on trucks at checkpoints.

Products of farmers, herders, and fishermen are often not competitive in local and international markets. Israel's restrictions on the movement of farmers, services and agricultural trade entail additional transaction costs (twice as much as those borne by their Israeli counterparts) and time-related costs (four times the amount of time of Israeli counterparts). Palestinian farmers face also high price fluctuations.

The domestic Palestinian marketplace is comprised of fragmented retail supply at shops and stalls (hardly any supermarkets) and wholesale markets without professionally run wholesale businesses at their core. Traditional marketing strategies and fragmented trade chains reduce the profit margins for farmers and increase retail prices.

The small number of Palestinian exporters, primarily controlled by the major packing houses, mostly targets Israel, Western Europe and, increasingly, the Arab Gulf countries.

[Enabling environment for agrifood activities](#)

The agrifood sector suffers from inadequate service provision and legal frameworks. On the other hand, it features relatively good road infrastructure.

The availability and accessibility of agricultural services including extension, veterinary and marketing services is insufficient, limiting the potential for farmers, especially small-scale farmers and female-headed households to earn their livelihood from agriculture.

Lack of access to finance is a salient constraint on Palestinian agriculture. Access to credit is compromised by the impact of the ongoing occupation and an unfavorable political environment. Additional constraints are related to the small size of the typical agricultural production unit, the lack of acceptable collateral for commercial loans and the high level of risk associated with agricultural production, emanating from occupation-related restrictions, weather and/or price fluctuations.

Palestinian farmers have limited opportunities to enroll in agricultural insurance schemes. The Palestinian Disaster Risk Reduction and Insurance Fund (PADRRIF) has recently been established within the MoA to support farmers under disasters conditions, but it is not yet clear how effective this fund can be in achieving the stated objectives.

There is limited awareness on standards prevailing in key export markets, including Israel, the EU and neighboring Arab countries and even less capacity to comply with those standards. This contributes to low productivity, poor quality of products and high post-harvest losses, thus perpetuating poverty among farmers.

There is also need for a comprehensive approach to drafting and revising legal/regulatory frameworks aimed at filling the policy gaps, eliminating policy fragmentation, conflicts and overlap as well as ensuring effective policy enforcement.

In conclusion, there is room for Government action to provide public goods such as advanced infrastructure (e.g. cool chains), education and training, R&D, knowledge and information, basic services (e.g. cold chains), public health (e.g. veterinary services), business and organizational development, financial services (insurance and credit), as well as laws and regulations setting the rules of the game for private actors.

Organization of the agrifood value chains

Collective action by farmers and herders is weak, which limits the access of individual farmers and herders to credit, wholesale purchases of inputs and wholesale sales of produce, further marginalizing small-scale farmers by limiting their ability to compete in local and international markets.

Apart from a few success stories, there is a long-standing history of farmers' organizations that were not established or have not functioned for commercial purposes. Cooperatives succeeded where there are economies of scale downstream the value chain, for example at processing and marketing stage (e.g. strawberries in Gaza, dates in West Bank). They can also help in balancing the bargaining power of intermediaries along the value chain.

There is also a need to create intermediate bodies, democratically organized to represent all actors in a given value chain. This will give voice to those who really know the problems and the possible solutions, and will increase the incentive to the Government to be accountable, more effective and more efficient in delivering on its obligations as a duty bearer to agrifood actors.

Agrifood sector opportunities

The agrifood sector remains a strategic pillar of the Palestinian economy, with unparalleled potential for sustainable and quick recovery. A lot may be done, even under the current conditions, to contribute to Palestinian development. Despite the challenges faced by the Palestinian agrifood sector, there are some opportunities that can be seized to improve profitability, making the value chains more inclusive and the production practices more environmentally sustainable. These are:

- increased sales to domestic consumers – through domestic value chain rationalization and market growth potential;
- increased export sales – achieved by diversifying export market channels, aggregating farmers for gaining efficiencies in supply and market access, and targeting new and more accessible growth markets;

increased marketplace efficiencies in both domestic and export market access that see more margin captured by small producers – by introducing standards, grading and traceability (among other) practices, organizing farmers into aggregated groups for input and output market access, and helping firms collaborate via development of industry membership based organizations.

Towards a theory of change

Problem analysis

The context analysis was discussed in a participatory manner and validated through stakeholder consultations identifying the most important problems of the Palestinian food system. There is a wide consensus among stakeholders that any discussion on development in Palestine must start by recognizing that there are three sets of root causes, namely: (i) the Israeli occupation, (ii) the functioning of Palestinian governance, and (iii) other causes that do not (or only partially) depend on the first two, while also compounding them (e.g. economic cycle, demographic dynamics, socio-cultural factors, poverty and inequality, and environmental shocks and stressors).

Although acknowledging that the occupation plays a key role – partially generating unsatisfactory Palestinian governance – and therefore requires specific attention, improving Palestinian governance can produce some significant beneficial effects even if the occupation is not completely resolved.

These root causes contribute to some problems in the food system that eventually materialize in the four issues that need to be addressed by CPF, namely:

- unsatisfactory food consumption in terms of quality, safety and nutritional value of food consumed by Palestinian households;
- low competitiveness of farms and firms within agrifood value chains;
- socio-economic exclusion, especially of youth, women, small-scale producers, and marginalized groups such as Bedouins;
- environmentally unsustainable practices within agrifood value chains, primarily though not exclusively at agricultural production level.

Rationale

The stakeholders agree that CPF interventions should be characterized by:

- market-orientation: in the current Palestinian context, there is an enormous space for an increased role of private operators as actors of change within the economy: this calls for substantial improvements of competitiveness and efficiency of farms and firms within the agrifood value chains;
- inclusiveness: in a context featuring many types of exclusions (economic, social, etc.) "leaving no-one behind", primarily the most vulnerable groups (women, youth, etc.), should be a strategic objective;
- sustainability: in a context of limited, and often overexploited, natural resources, environmental sustainability is a pre-requisite of any intervention as well as for ensuring socio-economic sustainability (medium-long term viability) of activities;
- resilience-building: in a fragile and protracted crisis context, any intervention must include a resilience-building component (even in emergency, not only relief and rehabilitation, but also investment to increase resilience).

In a context such as the one of Palestine, CPF interventions need to be designed as a blend of both humanitarian and development components, acknowledging that the balance depends on the specific context of intervention – i.e. the characteristics of the targeted actor, the structural features of the subsector he/she belongs to, and the context within which he/she operates, primarily the nature and magnitude of risks he/she faces.

At the same time, despite the emphasis on the private operators as actors of change, the provision of public goods and services cannot be ignored. By and large, there is a key role to be played by the public sector to create an "enabling environment" for private action. The public bodies

should intervene to establish the rules that define the space for private operators and provide those goods/services that private operators are not willing/able to produce.

The adopted approach aims to stimulate transformative dynamics. Operationally, this translates into how to enhance the already operating dynamics towards wellbeing enhancing outcomes – e.g. upgrading from marginal to transition and commercial farms, and from food and nutrition insecure households to marginally food and nutrition secure households and to food and nutrition secure households – while slowing down or blocking possible negative dynamics – the regression from transition to marginal farms or from marginal farms to non-farms, and the regression from marginally secure to food and nutrition insecure households and preventing a high calorie and nutritionally unbalanced diet for food and nutritionally secure households.

Expected changes

The highest level expected result of CPF interventions (impact level) is to contribute to improving the wellbeing of the Palestinian people. Of course, this impact does not depend only on the CPF, being also the result of many other causal relationships.

Therefore, the CPF interventions are fully accountable only for the specific outcomes they can generate, which in turn contribute to the impact-level result. As a result of CPF interventions the wellbeing of Palestinian people will be enhanced because:

- a) households will sustainably consume safer and higher quality food thus being more food and nutrition secure,
- b) farms and firms along the agrifood value chains will become more competitive,
- c) the food system will be more inclusive, and
- d) the food system will be more environmentally sustainable.

Ultimately, the overall objective of CPF interventions is to make the food system more inclusive, sustainable and resilient, thus contributing to the wellbeing of the Palestinian people.



Introduction

The Country Programming Framework (CPF) is a planning and management tool that outlines how the Food and Agriculture Organization of the United Nations (FAO) can best assist a country in meeting its development priorities. In a short, jointly -agreed document, it sets out medium-term priorities for Government-FAO collaboration. The emphasis is on leveraging FAO's comparative advantage as the lead agency in the sectors of agriculture, forestry and fisheries, whilst aligning with a government's own strategic priorities. The identification of priorities for FAO's assistance also complements the activities of other UN Country Team members as reflected in the UNDAF and those of other development partners.

In mid-2016, the FAO Office for West Bank and Gaza Strip (WBGS) started the process of developing its first CPF. In order to do this, FAO started preparing a Context Analysis (CA) for the country programming framework for Palestine.² This was done using a participatory approach throughout the second half of 2016. The objective of the CA is to achieve a common understanding among all involved stakeholders of the issues to be addressed by the CPF.

Moreover, the TORs for the CA explicitly stated that "The CA is expected to define the Theory of Change, illustrating the changes that FAO will aim at introducing through the CPF based on a comprehensive review of the current state of affairs, opportunities and constraints that limit the potential of the broad agrifood sector to sustainably and inclusively contribute to the welfare of Palestinian people, in line with the SDGs and national development priorities."

The meetings, interviews and participatory discussions with all relevant stakeholders led to a shared view on how to address the issues: despite the focus on agriculture,³ the problems of this sector cannot be properly addressed



Palestinian farmers harvesting wheat by hand and filling sacks for storage.
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²Although the formal CPF document does not include a country profile, the FAO's Guidelines prescribe that an analysis of the country context is prepared internally by FAO.

³Here agriculture should be meant in its *latu sensu* meaning of primary production activities (i.e., farming, aquaculture, fishing, forestry).

if some of the problems of the broader food system⁴ are not tackled as well. This approach is fully endorsed in the CA.⁵

This document is organized accordingly. Section 2 analyzes the role of agriculture and food systems in the Palestinian economy and society, looking also at its environmental sustainability. Section 3 analyzes the institutional set-up, focusing both on the institutions (i.e. organizations) and the regulatory framework of the sector. Section 4 summarizes the challenges and opportunities for the Palestinian food system as emerged from the analysis. Section 5 outlines the expected changes FAO aims to introduce through its interventions over the next five years, that is the Theory of Change underpinning the CPF.

The Palestinian food system

2.1 Demographic trends

2.1.1 Recent population dynamics

The Palestinian population was 4.82 million in 2016, of which 1.88 million were living in the Gaza Strip and 2.94 million in the West Bank. This is the result of a sustained dynamic⁶ that led to a total population increase of almost 30 percent over the last decade (Table 2.1).

Table 2.1. Population in Palestine, West Banks and Gaza Strip, 2007-2016

Regions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016-2007 change
Gaza	1 395 720	1 440 332	1 486 816	1 535 120	1 588 691	1 644 289	1 701 436	1 760 037	1 819 981	1 881 136	34.8%
West Bank	2 323 469	2 385 180	2 448 433	2 513 283	2 580 167	2 649 020	2 719 114	2 790 328	2 862 486	2 935 365	26.3%
Palestine	3 719 189	3 825 512	3 935 249	4 048 403	4 168 858	4 293 309	4 420 550	4 550 365	4 682 467	4 816 501	29.5%

Source: PCBS (2016a).

In 2016, the population density for Palestine was around 800 people/km² but varied dramatically between the Gaza Strip and the West Bank. The residents of the Gaza Strip are mainly crowded into urban communities and refugee camps⁷ with a density of 5 182 people/km², which ranks it as one of the most densely populated areas in the world. In comparison, the population density in the West Bank is ten times less, being approximately 518 people/km². The average household size is 4.9 in the West Bank and 5.7 in the Gaza Strip.

⁴The food system “gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food and the outputs of these activities, including socio-economic and environmental outcomes” (HLPE, 2014: 29). Therefore, it is the complex of all value chains starting with primary production activities and ending with the various components of the final demand for agrifood products, such as private household consumption, Government demand, or exports

⁵Therefore, the next sections will analyze the whole food system. Whenever appropriate, the analysis will focus on its components such as the primary production activities (e.g. farming, fishing, etc.), the agrifood processing and distribution (that along with primary production activities constitute the agrifood sector), and household food consumption. The reference to such components will be self-evident explicitly mentioning it in the section title.

⁶The average Palestinian total fertility rate is twice higher than in most advanced Arab countries standing at 4.1 (ranking fifth among the most fertile of these countries), with higher fertility in Gaza Strip (4.5) than in West Bank (3.7).

⁷Registered refugees constitute a very important segment of the Palestinian population in West Bank and Gaza Strip, making up half of the total population according to UNRWA estimates (UNFPA, 2016). In this case also there is a high regional variation: in the Gaza Strip two thirds of residents are refugees while refugees account to one quarter of the West Bank population.

The present rate of natural increase of 2.8 percent remains high. The Palestinian demographic transition, particularly its fertility component, continues to lag behind that of many Asian countries, including other Arab countries. As a result, the Palestinian population is very young, with individuals under the age of 15 constituting 39.4 percent of the total population while the elderly (65 years and over) account for only 2.9 percent of the total population. The sharp increase in the Palestinian youth population (15-29 years old) has created a youth bulge, with youth as a share of the population reaching 30 percent (UNFPA, 2016).

Youth remain severely affected by the lack of opportunities, as evidenced by a youth unemployment rate (based on ILO's strict definition) of 32.3 percent in 2015 with figures of 22.5 percent in the West Bank and 50.6 percent in Gaza (Sadeq, 2016). Young women are especially disadvantaged (Table 2.2). Those who are active face sector and occupational segregation, which limit the employment opportunities available to them. As a result, female unemployment rates are even higher than the male rates (56.2 percent versus 26.5 percent, respectively, in 2015) and almost one third of the female youth population is outside of the labour force and not in education or training (Sadeq, 2016).

Table 2.2. Labour market indicators by age group and sex, 2015 (percent)

Sex	Age group	Labour force participation rate	Inactivity rate	Percent in the labour force	
				Employed	Unemployed
Total	15 - 24	32.7	67.3	59.3	40.7
	25 - 34	61.4	38.6	69.8	30.2
	35 - 44	59.0	41.0	85.7	14.3
	45 - 54	54.5	45.5	87.2	12.8
	55 - 64	35.6	64.4	86.8	13.2
	65 and above	9.0	91.0	93.5	6.5
	Total	45.8	51.2	74.1	25.9
Male	15 - 24	52.9	47.1	63.6	36.4
	25 - 34	90.5	9.5	76.9	23.1
	35 - 44	92.5	7.5	87.0	13.0
	45 - 54	86.9	13.1	86.4	13.6
	55 - 64	58.3	41.7	84.9	15.1
	65 and above	17.6	82.4	92.3	7.7
	Total	71.9	28.1	77.5	22.5
Female	15 - 24	11.6	88.4	39.2	60.8
	25 - 34	31.1	68.9	48.4	51.6
	35 - 44	24.4	75.6	80.7	19.3
	45 - 54	20.0	80.0	90.8	9.2
	55 - 64	12.3	87.7	95.9	4.1
	65 and above	2.5	97.5	100.0	0.0
	Total	19.1	80.9	60.8	39.2

Source: PCBS (2016d).

2.1.2 Population prospects

According to the most likely scenario, the total population in Palestine will almost double from 4.8 million in 2016 to 9.5 million in 2050.⁸ This doubling will happen notwithstanding that fertility is expected to reduce by half during this same period, dropping from 4.06 to 2.17 children per women.

In the Gaza Strip, fertility will decrease but remain above replacement level, from 4.5 to 2.4 in 2050, whereas in the West Bank it will decrease from 3.7 to replacement level over the same period. Hence, Gaza's population growth due to higher fertility and built-in population momentum will more than double the population from 1.9 to 4.8 million in 2050, unlike the West Bank which will see growth from 2.9 to 4.7 million. Ultimately, in 2050 Gaza's population (50.3 percent) will slightly exceed that of the West Bank (49.7 percent) and will remain younger on average.

Population density is expected to increase significantly due to high population growth (2.9 percent in the West Bank and 3.4 percent in the Gaza Strip). This is a serious development concern for Gaza as its population density will rise to nearly 14 000 inhabitants per square kilometer by 2050, threatening the economic, social and environmental sustainability of the territory (UNSCO, 2016).

Rapid population growth will increase demand for public services including healthcare and education. An increase in the proportion of the working age population (15-64 years) will dramatically increase demand for employment and the need to create new jobs for large numbers

of the working age population,⁹ in addition to the increasing pressure on natural resources, especially land, water and forests. Yet, it will also create a potential for a demographic dividend if the Government and society invest well in economic, social and governance policies and in human capital, while promoting equity, health, quality of education and productive employment.

2.1.3. Rural population

The majority of Palestinians (73.9 percent) live in urban centers, 16.7 percent in rural areas and 9.4 percent in refugee camps. This partly depends on the higher total fertility rate of urban areas (4.1) vis-à-vis rural areas (3.7)¹⁰ and partly because villages have been significantly urbanized, with many becoming the suburbs of urban centers.

One might think that concentration in urban areas is the result of massive rural-urban migration. However, data from 1997 and 2007 censuses reveal that this phenomenon is marginal and no clear population movement pattern can be identified between the three types of communities (cities, villages and refugee camps).¹¹

Rural labour movement in the West Bank has been directed towards the Israeli labour market and nearby Israeli settlements, where higher wages are offered compared to those offered in the local labour market. Hence labour migration to Palestinian cities has been limited.

⁸The total number of registered refugees in Palestine will increase from a bit more than two million in 2015 to almost 4.5 million in 2050. This has significant implications for social, educational, and economic interventions, but also for humanitarian aid that refugees receive.

⁹ According to IMF (2012: 1) "real growth rate of at least 8 percent per annum, with 3 percent productivity growth, is needed to absorb new entrants into the labour market and achieve a low long-term unemployment rate of 7 percent, while allowing for real wages to grow 1.5 percent per year."

¹⁰ This has been also influenced by the fact that urbanization is higher in the more pro-natalistic Gaza Strip than in the West Bank (UNFPA, 2016).

¹¹There are also no clear prevailing trends in any specific governorate, with the exception of Ramallah and Al-Bireh governorates, due to the concentration of government departments, local and international nongovernmental organizations, banks and major private firms that provide job opportunities to job seekers from the north and south of the West Bank. In the Gaza Strip, the North Gaza governorate is the largest recipient of internal emigrants. The least attracting governorates for internal migration are the Jerusalem governorate in the West Bank and Rafah governorate in Gaza Strip.

Furthermore, development of transportation links and the proximity of Palestinian communities to each other, in view of the small area of the West Bank and Gaza Strip, have made internal migration unnecessary, giving preference to daily commuting.



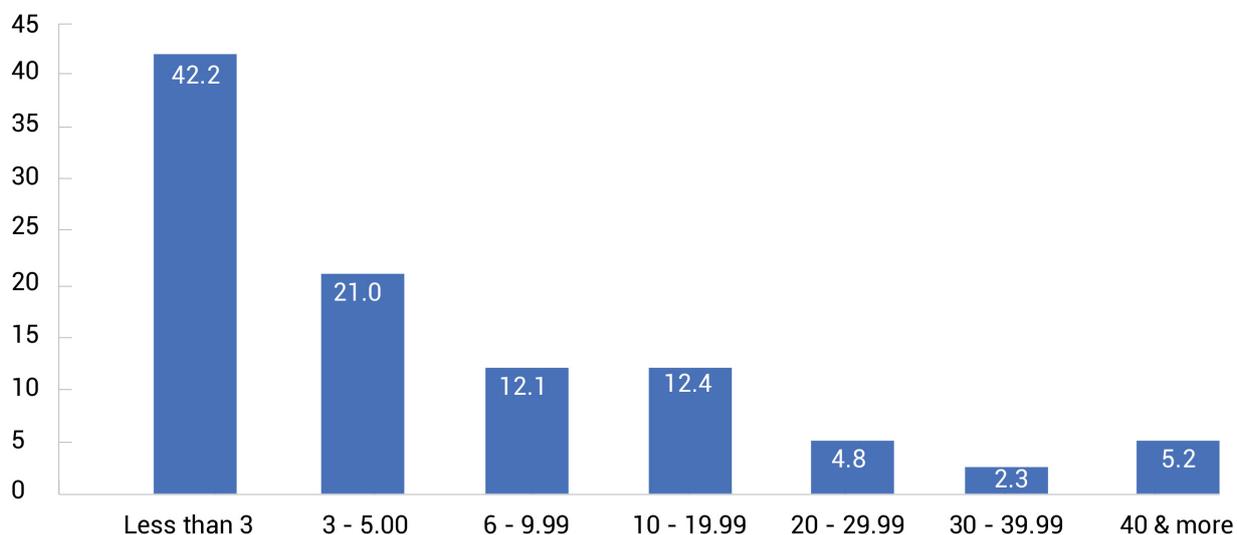
2.2. The primary sector in the national economy

2.2.1. Agriculture structural features

According to the last Agricultural Census (PCBS, 2011a), there are 111 000 agricultural holdings, with 81.7 percent in the West Bank and the remaining 17.3 percent in the Gaza Strip.

The vast majority of these holdings are small in size, with more than 42 percent of total holdings below three dunums each and roughly three quarters of total holdings – one fifth of total agricultural land – being divided into less than ten dunum plots (Figure 2.1). Typically, agricultural holdings in Palestine are small – the average size is 18.6 dunum per holding – and fragmented because of inheritance, lack of policies favoring land consolidation, and confiscation and destruction of land under occupation.

Figure 2.1. Distribution of agricultural holdings by area group, 2010



Usually these holdings are family farms owned outright by the household (88 percent of total holdings). Household consumption is the main purpose of production for most of these holdings (70.8 percent of the total).

The average holder is male (87.7 percent of total holdings), quite old (49.2 percent of holdings belong to holders older than 50 years), with low educational attainment (64.9 percent have completed only preparatory school or lower and 21.5 percent are illiterate or barely able to read and write), and whose main occupation is not agriculture (73.3 percent of total holders).

The sector is heavily weighted to crop cultivation, with nearly 70 percent of holdings producing only crops, 7.6 percent only livestock, and the remainder practicing mixed production (PCBS, 2011a).

Crops

The crop mix is heavily weighted to low-value crops (Figure 2.2), especially in the West Bank, where olive tree cultivation occupies approximately 57 percent of cultivated land, while field crops, vegetables and other fruit trees occupy the remaining area, each covering 24 percent, 10 percent and almost 9 percent, respectively. In the Gaza Strip, vegetable crops constitute 32 percent of the total cultivated area, followed by olive trees, other field crops and fruit trees, occupying 24 percent, 23 percent and 21 percent respectively.

On average, the returns are higher in the Gaza Strip than in the West Bank.¹² The crop returns are higher for vegetables than for field crops, while those of fruit trees are higher than for olives (Table 2.3).

Table 2.3. Crop mix and yields, Palestine, 2008

Crops	West Bank			Gaza Strip		
	Cultivated land (000 dunum)	Share of total (percent)	Average yield (USD /dunum)	Cultivated land (000 dunum)	Share of total (percent)	Average yield (USD /dunum)
Vegetables	93	10	2 500	34	32	2 900
Field crops	223	24	170	24	23	450
Fruit trees	84	9	830	22	21	2 200
Olives	530	57	100	25	24	160
Total	929	100	429	105	100	1 524

Source: Elaboration on Office of the Quartet (2015) data.

Rainfed agriculture dominates Palestine (Table 2.4). In 2010/11 (PCBS, 2012), rainfed agriculture occupied nearly 94.1 percent of the total field crop area, while irrigated areas accounted for 5.9 percent, located mainly in the governorates of the Gaza Strip (37.8 percent and 33.5 percent of field crop area in Gaza and Northern Gaza, respectively) and the Jordan Valley (92.9 percent of total field crop area in Jericho and Al-Aghwar governorate), as well as in semi-coastal areas in the West Bank (15.1 percent in Tulkarem governorate).

It is worth noting that, on average, switching from field crops to vegetables and from olive to fruit cropping, both in rainfed and irrigated agriculture could improve profitability.

¹² This depends mostly on (i) the higher value of Gaza's output mix (by and large, agricultural crops in Gaza are higher value products such as vegetables and fruit), (ii) the higher intensity of use of a much scarcer resource (land) in a peri-urban context, and (iii) the different production technology between the two areas, with the Gaza Strip showing a much higher share of irrigation and protected agriculture than the West Bank (cf. section 2.2.2 for data on yield gaps between the two areas).

Table 2.4. Yields and cultivated areas for rainfed and irrigated crops, Palestine, 2009 and 2010/11

Crops	Rainfed			Irrigated		
	Average yield (USD /dunum)	West Bank area share (percent)	Gaza Strip area share (percent)	Average yield (USD /dunum)	West Bank area share (percent)	Gaza Strip area share (percent)
Vegetables	435	2	1	2 947	9	31
Field crops	123	23	17	1 360	1	6
Fruit trees	561	70	0	2 236	1	20
Olives	101	56	4	169	1	20

Source: Elaboration on Office of the Quartet (2015) data.

Livestock

Livestock production is an integral part of the agricultural sector and plays a key socio-economic role both at the household and national levels. According to the most recent data (PCBS, 2012) on livestock and mixed holdings, that accounts for 30 percent of total agricultural holdings, host almost 40 000 cows, 732 000 sheep, 240 000 goats, 8.7 million poultry, and 44 000 beehives.

Ruminant livestock (cows, sheep and goats) require an intensive or semi-intensive breeding system.¹³ Intensive production requires a higher capital investment in infrastructure and administrative systems than a semi-intensive production system. In addition, intensive production requires high technical experience and knowledge in farm management, which is deficient among many farmers.¹⁴



Baking flat bread in Al Mughraqa, Gaza.
©FAO/Marco Longari

¹³ Intensive production entails confining livestock in narrow spaces, where they are fed, watered and milked without being released to graze. This system is adopted mainly by cow breeders (87 percent) and to a lesser degree by sheep and goat breeders (MoA, 2015). On the other hand, semi-intensive production (traditional) allows livestock to graze, while providing supplementary nutritional feed.

¹⁴ This problem is particularly important for female farmers who play a key role in dairy processing and therefore need specific attention in targeting capacity building interventions.

There are two types of production systems in the dairy sector: the traditional and industrial systems. The traditional production system includes small and medium-sized cattle breeders, who sell their products to consumers mainly at the local level. Industrial production includes a few large farmers producing roughly 85 percent of total annual raw milk production sold to dairy factories (MoA, 2015).

Feed supply, whether in terms of quality or quantity, is still unable to cover the existing need.¹⁵ The continuous rise in feed prices over recent years has led to increasing production costs,¹⁶ forcing many farmers to sell their livestock or use low-quality forage (low quality protein mixture) to feed their cattle.

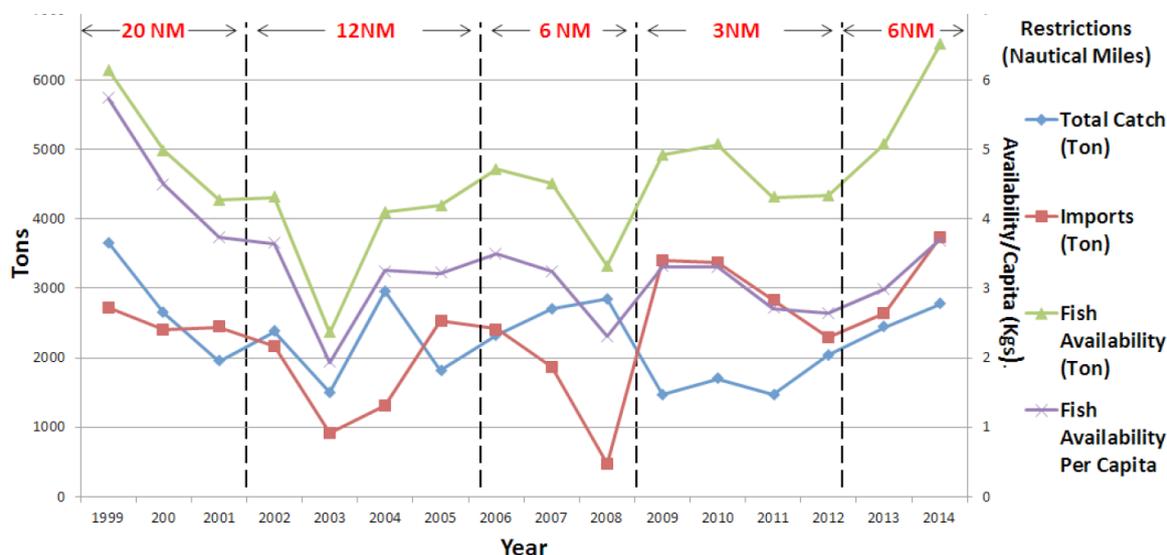
In conclusion, livestock agriculture (dairy, poultry, herding) is very resilient, but its reliance on imported inputs results in the reduction of livestock productivity, lower quality of animal products, and ultimately lower returns (MoA, 2015).

Fishery

The fishery sector in the Gaza Strip is a small but important sector both economically and socially. Unfortunately, its performance has been heavily constrained by the blockade and recurrent conflicts that have affected the Gaza Strip since 2007.¹⁷

Indeed, the fishing catch has been extremely volatile since 2000 (Figure 2.2) and currently it is well below the average catch of years prior to 2000. The most recent available data (FAO, 2016) report that in 2014 the year's total fish catch amounted roughly to 2 700 metric tons, still less than the total catch in 2008 (2 845 metric tons) and only 74 percent of the total catch in 1999 (3 650 metric tons).

Figure 2.2. Fishery production and consumption trends, 1999-2014



Source: FAO (2016), Annex 5.

¹⁵ More than 95 percent of wheat feed and 85 percent of protein feed is imported from Israel to feed sheep and goats. Furthermore, most of the feed and coarse fodder (high-cellulose feed, such as hay, straw and grass) used to feed dairy cattle is imported from Israel.

¹⁶ Feed is the main cost in livestock production, accounting for 75-80 percent of total milk production costs, and 55-65 percent of the total costs associated with small ruminant animals (MoA, 2015).

¹⁷ In 1994, a 20 nautical mile (NM) permissible fishing area was agreed under the Gaza-Jericho agreement between Israel and the Palestine Liberation Organization. In practice, Israel did not issue permits to all the fishers who requested them and only allowed fishing up to 12 NM from Gaza's coast. In October 2006, the fishing zone was further reduced to 6 NM and following Israel's "Operation Cast Lead" in 2009, Palestinian fishers came under additional restrictions; this time they were banned from travelling beyond 3 NM into Gaza's territorial waters, preventing them from accessing 85 percent of their allotted maritime areas. Following the ceasefire of the November 2012 conflict, the restricted fishing area returned back to 6 nautical miles west of the shoreline.

Table 2.5. Number of fishermen and boats in the Gaza Strip, 2009

Fishing site	Number of fishermen	Boat categories						Total
		Trawler	Large purse seiner (Lansh)	Small purse seiner (Hasaka)	Hasaka with engine	Felucca	Hasaka with oars	
Gaza	1 400	19	55	60	210	60	200	604
Deir el Balah	572	-	2	33	90	5	180	310
Khan Yunis	650	-	9	8	58	35	100	210
Rafah	475	-	5	28	50	20	55	158
Total	3 097	19	71	129	408	120	535	1 282

Source: Båge (2011), Table 4.

Gaza City is the only landing site that has a harbour and around 50 percent of the boats are based there, including all trawlers, while the rest of the fleet is based in Deir el Balah (25 percent of the total), Khan Yunis (15 percent) and Rafah (10 percent), with the last three being open beach landing sites. All sites require heavy investment for restructuring destroyed infrastructure.

In this context, open sea fishing has become non-reliable with a sinking source of fish supply due to continuing political conflict, restricted fishing zones within 3 to 6 NM from Gaza coast line, lack of harbor resources and facilities and lack of regulation and law enforcement.¹⁸ Moreover, the small amount of fish that are now caught under fishing zone restrictions, combined with the relatively low value sardines fetch at market,¹⁹ makes it difficult for fishers to earn a sizable income under current restrictions. An extension of the current fishing limit to 12 NM (and to 20 NM according to the Gaza-Jericho agreement) would allow fishermen to exploit higher value bottom fish leading to higher incomes and an increase in fish catch by an estimated 65 percent, thus restoring legitimate livelihood opportunities to over 3 000 Gazan families (FAO, 2016).²⁰



¹⁸ Other problems affecting open sea fishing are overfishing and coastal water pollution (cf. section 2.4.4).

¹⁹ Indeed, all fish is sold fresh. Although most ice plants do not function, some ice is available for traders. The only processing noticed was traditional salting of mullets, "Faseakh". Fish that is caught by Gaza fishermen and fresh imported fish is sold at the Gaza fish auction to traders. The fish is placed in boxes and sold on the street outside the fish market where the traders later sell the fish to consumers.

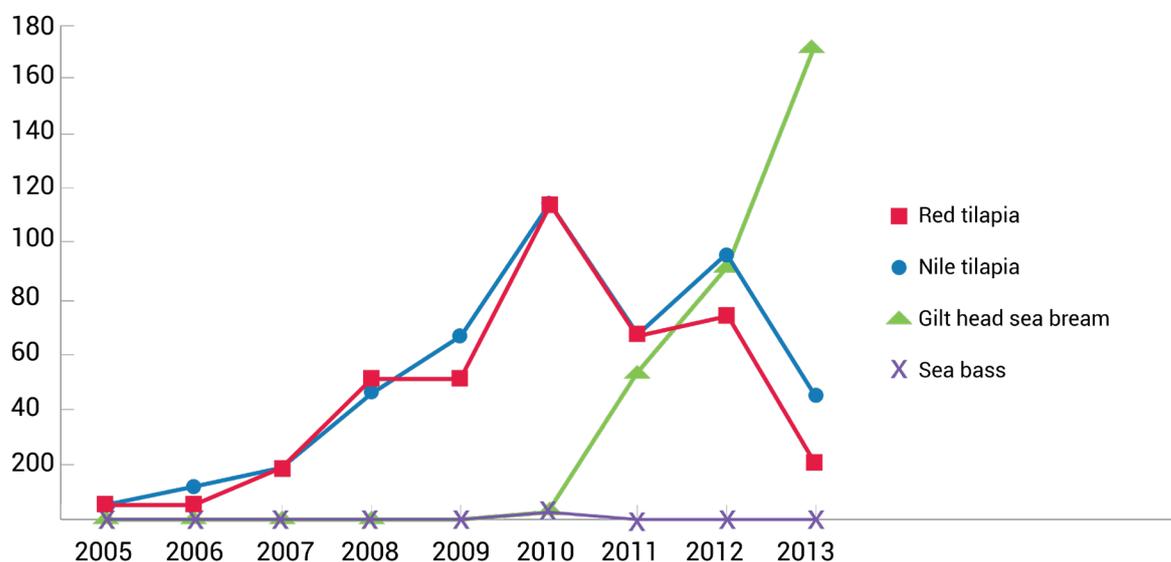
²⁰ From 12 to 20 NM, the seafloor is sandy and the depth increases gradually to some 700 meters; this zone is mainly suitable for catching all kinds of pelagic fish such as tuna, mackerel and sardines with purse seines, drift long lines and driftnets.

Aquaculture

The dismal situation of capture fisheries has led to a scarcity of fish and large scale import of fish from Israel, Egypt and other countries.²¹ In such a context, aquaculture may be an alternative and sustainable source of fish in the Gaza Strip (ILO, 2015).

Aquaculture is a relatively new business that started on a small scale with government support after the establishment of the Palestinian Authority (PA). Commercial production began only in 2005. In 2010, farmed species included tilapia (red – *Oreochromis sp* and silver/Nile - *Oreochromis nilotica*), which accounted for 76 percent of the production volume of farmed fish species and is farmed both in freshwater irrigation tanks and in intensive seawater farms, as well as European seabass (*Dicentrarchus labrax*) and Gilthead seabream (*Sparus aurata*), which are farmed in intensive terrestrial seawater farms constructed along the coastline (Padiyar, 2011). Figure 2.3 illustrates these trends in aquaculture production since its inception in Gaza. As of 2015, virtually all aquaculture production is Gilthead seabream.

Figure 2.3. Aquaculture production trends in the Gaza Strip, 2005-2013



Source: FAO (2016), Annex 5.

In 2011, the West Bank had more than 40 freshwater-based farms (irrigation tanks) using semi-intensive production systems, farming Nile tilapia and, to a minor extent, red tilapia. In the Gaza Strip, there were 13 intensive fish farms and about 90 extensive freshwater irrigation-based farms (integrated with agriculture). Most of the intensive farms operated using brackish water²² to produce red tilapia, sea bass and seabream along the beachfront and have greenhouse facilities to control the temperature and light.

In the Gaza Strip, there are also three private, on-land fattening sea bream aquaculture and hatchery businesses (Ayasa, 2017). There are also some plans to establish mariculture cages to produce seabream that may represent a good opportunity to increase the production of fish and integrate with the on-land hatcheries' activities (fingerlings supply).

²¹ The most recent data show that more than half of total fish available in Gaza is imported (cf. Figure 2.2). For the whole of Palestine, about 85 percent of domestically consumed fish is imported (Padiyar, 2011).

²²They source water from saline groundwater using tube-wells and drain the farm water back to open sea without any treatment.

Though promising, the aquaculture/mariculture sector is facing several challenges, namely: the risk of political unrest (damage or destruction because of military operations), technology risk (restriction on gaining knowledge, dependency on neighboring countries for farm inputs), freshwater scarcity²³, and unfavorable coastal sea conditions (heavy wave actions, high pollution levels).

2.2.2. Agricultural productivity

Despite sharing a similar soil and climate, Palestinian agricultural output and productivity lag behind that of Israel and comparable countries in the region. For example, on average, the Palestinian yield is half that in Jordan and only 43 percent of the yield in Israel.

Average yields are generally greater in the Gaza Strip than in the West Bank (Table 2.6) thanks to more intensive production systems generally based on irrigation and protected agriculture (e.g. greenhouses). As a result, the yields of most important crops are generally higher in Gaza than in Jordan, yet still lower than in Israel.

Table 2.7 provides a comparison of productivity values for selected products in Israel and Palestine. Much of the productivity difference observed between the two economies may be attributed to the impact of occupation and trade restrictions on Palestinian agriculture (World Bank, 2013; UNCTAD, 2015; UN, 2016). A lack of access to fertilizers²⁴ and water (cf. section 2.4.1), the inflated cost of inputs – seeds, seedlings, improved varieties of livestock, animal feed – and the destruction and disrepair of agricultural and water-related infrastructure²⁵ all impact the sector's productivity.



A beneficiary of the FAO Project tending to the vegetable garden.
©FAO/Marco Longari

²³In a context such as the one in Gaza Strip, there is no scope for exclusive utilization of freshwater resources for aquaculture and therefore freshwater fish need to be grown in agricultural irrigation tanks to increase the efficiency of resource utilization.

²⁴Average fertilizer application rates average 37 kg of nutrients/harvested hectare in the West Bank (90 kg on vegetable crops), 147 kg in Gaza, 127 kg in Jordan, and 225 kg in Israel (Office of the Quartet, 2015). UNCTAD (2015) estimates that agricultural productivity has declined by 20 percent to 33 percent since enforcement of restrictions on fertilizer import.

²⁵Additional losses and costs are incurred due to damage to infrastructure and structures, such as feeder roads, animal sheds, plastic housing, wells, irrigation systems and water cisterns.

Table 2.6. Crop yield comparison between West Bank, Gaza Strip and neighboring countries, 2008 (q/ha)

	West Bank	Gaza Strip	Jordan	Israel
Vegetables	344	466	414	648
Fruit trees and grape vines	63	152	112	198
Field crops	26	134	40	78
Olives	9	13	16	24

Notes: Yields for West Bank and Gaza Strip represent full crop mix; yields for Jordan and Israel represent those countries' average yields for Palestine's top five crops.

Vegetables: tomato, cucumber, eggplant, squash, cauliflower; field crops: potato, dry onion, barley and wheat; and trees: grapes, oranges, lemons, plums and tangerines.

Source: Elaboration on Office of the Quartet (2015) data.

Table 2.7. Productivity of selected agricultural products, Israel and Palestine (t/ha/year)

Crops	Palestine	Israel	Palestine/Israel
Irrigated			
Chickpeas	1.5	3.0	0.50
Oranges	30.7	42.5	0.72
Bananas	32.5	65.0	0.50
Dates	5.0	15.0	0.33
Table grapes	6.7	26.0	0.26
Tomatoes	127.0	400.0	0.32
Rainfed			
Winter wheat	1.6	2.5 - 6.2	0.63 - 0.25
Barley	1.4	0.5 - 2.0	2.8 - 0.7
Olives	0.4 - 2.4 ^a	1.5 - 2.5	0.27 - 0.96
Livestock			
Milk cows ^b	4 716	11 448	0.41

^a Average of 16 years.

^b litres/cow/year.

Source: UNCTAD (2015), Table 3, modified.

Palestinian agriculture is also negatively impacted by small-scale inefficiencies (lack of economies of scale) emanating from the fragmentation of the land and communities (World Bank, 2008; Gisha, 2015) and by severe marketing difficulties that induce many to sell their produce to local wholesalers at the daily market rate.

Due to the high level of risk and uncertainty and limited availability of related services, such as finance (Sabri, 2008), insurance and marketing, investment in agricultural production is very low. Many choose to reduce risk by minimizing inputs and by growing several crop types, limiting the value of their yields.

It is also important to note that part of the difference in productivity is related to technical, organizational and managerial factors, which are, to some degree, under Palestinian control. These include problems and inadequacies in such areas as the application of available modern agricultural systems and techniques by farmers, research, the securing of enhanced seed and

crop varieties and livestock breeds with high productivity, veterinary services, plant protection, marketing, financing and post-harvest services.

Higher efficiency could therefore be pursued in order to improve the productivity and profitability of agriculture especially in areas under Palestinian control, even under current circumstances of occupation and mobility restrictions.

[2.2.3. Agricultural service provision](#)

Public (and private) services represent a fundamental component of the enabling environment that makes agricultural activities possible. In general, the Palestinian agricultural sector suffers from weak agricultural services, hindering sound agricultural investment as well as weakening the sector's competitiveness and profitability (MoA, 2016).

Agricultural research

There are weaknesses in the coordination mechanisms between agricultural research institutions – i.e. the National Agricultural Research Center, agricultural colleges and non-governmental research centers. All these institutions are negatively impacted by fluctuating and uncertain financial resources allocated for research. As a result, these institutions face challenges in renovating and maintaining their tools, equipment and facilities. Furthermore, academic research seems to not be properly oriented to meet Palestinian farmers' and extension service's needs (MoA, 2016a).



A Palestinian farmer working in his bell pepper greenhouse.
©FAO/Marco Longari

Agricultural education

Many students graduate from universities and agricultural training programmes, but their qualifications and abilities generally do not match with labour market demand. Consulting services in the field of agricultural policy are also underdeveloped (MoA, 2016a).

Agricultural extension

MoA and private companies supplying production inputs are the most important sources of extension services to farmers.²⁶ According to the Palestinian National Agricultural Extension Strategy (MoA, 2016b) the most important issues are the limited scope of coverage of extension services, the use of individual visits to farms as the most common method used when providing extension, and the fact that agricultural research stations do not play an active role in providing advice or responding to the problems faced by farmers. The lack of coverage of operational costs and capacity of extension officers are the key factors adversely influencing the efficiency and effectiveness of governmental agricultural extension services (MoA, 2016a). The role played by private companies in extension is usually limited to their specific role of input supplier (e.g. seeds, agrochemicals) aiming to sell agricultural inputs. The role that producer organizations can play in providing advisory and business development services is yet to be recognized.

Veterinary services

Veterinary services play a pivotal role in animal health, food hygiene and public health protection. The government provides veterinary services through veterinary clinics affiliated with the MoA, as well as via the private sector. There are, however, some issues that need to be addressed to improve the effectiveness of services provided (El Idrissi and Diop, 2010). For instance, there is a need to review the competencies of the current veterinary service organogram around core regulatory functions. In addition, the authority and technical capability of the veterinary service needs to be strengthened and to support trade activity, the veterinary service should have adequate capabilities and legislative support for zoonotic control of import/export of animals and animal products; effective systems to communicate and consult with stakeholders and beneficiaries, especially for animal health surveillance and control programs, need to be developed; and certain missions could be delegated to the private sector. In order to do so, a legislative framework for private veterinary practice needs to be elaborated and implemented, making provisions for accreditation / authorization / delegation mechanisms.

Plant protection and quarantine

Plant protection and quarantine services are key for protecting plant production through the implementation of regulations, as well as phytosanitary measures that prevent the introduction and outbreak of plant pests and diseases. The MoA is the competent authority responsible for recording, controlling and regulating all national trading operations and the use of agricultural pesticides (MoA, 2016a). Some issues that need to be addressed are mostly in the areas of regulation and capacity development such as accelerating the review process for the phytosanitary legal framework; reviewing the current structure of plant protection and quarantine services to reduce the overlap of roles and functions; improving the skills of staff and capacities to manage and operate technical structures, like labs for diagnostics, surveillance and pesticide quality testing.

²⁶ MoA provides extension services to farmers on a regular basis and indirectly through its extension units distributed in all governorates. These services are offered through companies supplying production inputs, which in turn provide agricultural extension services to farmers as part of their purchase process. In addition, a number of civil society organizations provide such services as part of their agricultural development projects, which are usually limited in scope and lifecycle.

Agricultural finance

The annual demand for agricultural loans is estimated at about USD 200 million. Only 30 percent of this amount is available from formal sources (MoA, 2016a), with the remaining share being provided by traders, brokers and borrowing from relatives. Generally, farmers feel that access to credit is unsatisfactory (Sabri, 2008).²⁷ In response to this, the Palestinian Government established the Palestinian Agricultural Credit Institution (PACI), under the Decree Law No. 8 in 2015 to help farmers and agricultural companies obtain loans for both investment and working capital. This institution is in the process of developing its administrative and financial systems to ensure the implementation of its tasks.

Agricultural insurance

Agriculture is an activity where risk is pervasive. In acknowledging this, the Palestinian Government issued the Decree Law No. 12 of 2013 establishing the Palestinian Agricultural Disaster Risk Reduction and Insurance Fund (PADRRIF). This governmental institution specializes in managing the risks, both environmental and man-made, faced by agricultural farmers. However, it is not yet fully operational.



Workers harvesting greenhouse tomatoes, Bal Al Sharkiah, West Bank.
©FAO/Marco Longari

²⁷ The conditions under which credit is provided by traders and brokers does limit the value added that is achieved by the farmers: for example, selling lambs right after weaning to pay back the trader not allowing the fattening and proper value to be realized by the farmers.

Agricultural marketing and post-harvesting

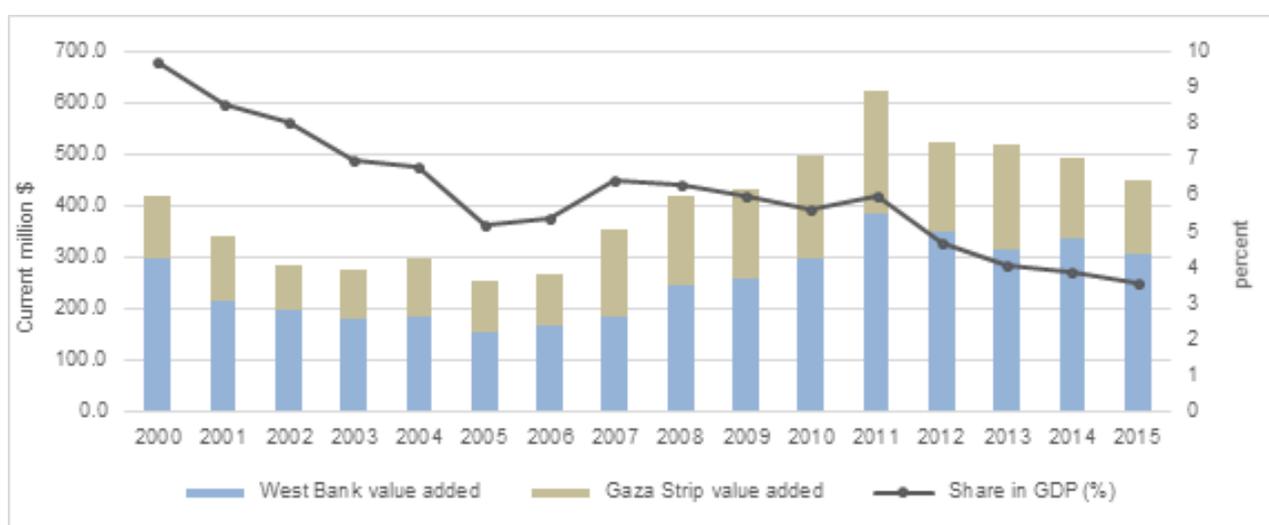
Agricultural marketing and post-harvest services are critical for any value addition to agricultural products. Unfortunately, these are heavily constrained by structural as well institutional problems (ARIJ, 2015a). Poor infrastructure at central wholesale markets as well as along the supply chains (e.g. lack of refrigerated storehouses, grading and packaging) and administrative and regulatory problems (e.g. lack of registration of product sources and prices, lack of regulatory frameworks) compounds the problems caused by the occupation, leading to loss and waste along the supply chains. Small landholdings, weak organization of small-scale producers and limited integration of producer organizations and cooperatives contribute to fragmentation of supply chains and direct delivery of agricultural produce by the farmers to traders and eventually to low value addition and profit margins.

2.2.4. Agrifood value added

Agricultural value added was around USD 450 million in 2015, largely dominated by plant crops (between 60 and 75 percent of total cultivation according to different sources, cf. Technoserve and Oxfam, 2011; MoA, 2015). The agro-industry contributed an additional USD 361 million. In relative terms, the agricultural share in Palestinian GDP accounts for 3.6 percent while agrifood processing accounts for 2.8 percent: as a result, the agrifood sector as a whole represents 6.4 percent of Palestinian GDP.²⁸

The evolution of the agricultural value added was quite variable over the last fifteen years (Figure 2.4). It is self-evident that the agricultural sector reflects the performance of the overall economic cycle and more importantly it mirrors the constraints imposed by the occupation and open conflicts on the farmers' operations.

Figure 2.4 Agricultural value added and share of agriculture in GDP, West Bank, Gaza Strip and Palestine, 2000-2015



Source: Elaboration on PCBS (2016b) data.

The reduction of the share of agriculture in GDP, which decreased from roughly ten percent at the beginning of the period to a meager 3.6 percent in 2015, partly reflects structural change in the economy, which is characterized by a shrinking primary sector with economic growth.

²⁸ This estimate is based on PCBS (2016b and 2016f) data, taking into account the value added of agriculture and food related industries, namely manufacture of food products, beverages and tobacco. According to other estimates, the share of agriculture and agro-processing accounted for 5 percent and 2 percent, respectively, in 2013 (Office of the Quartet, 2015).

However, in the specific context of Palestine it also reflects two other factors, namely:

- the misallocation of resources to non-tradable sectors as a result of limitations on the movement of goods (UNCTAD, 2016) and real exchange rate appreciation,²⁹ and
- the lower profitability of Palestinian agriculture compared to similar agriculture sectors in the region³⁰ as a result of inadequate access to land and water and the low rates of fertilization, restricted marketing conditions and limited integration with the rest of the economy (UNCTAD, 2015) (cf. section 2.2.2).

2.2.5. Agrifood trade

In 2015, agrifood exports reached USD 255 million, while agrifood imports totaled USD 1.391 billion, resulting in a trade deficit of USD 1.136 billion (PCBS, 2016c). Agrifood commodities are among the most important export and import groups, accounting for 26.6 percent of total exports and total imports, respectively.³¹

Agricultural trade composition is quite concentrated (ITC, 2016). For instance, the share of the top three products among processed food exports accounted for roughly 70.6 percent in 2015, while the top three fresh food exports accounted for almost 60.8 percent of the total. The same applies to imports, with the top three fresh food items accounting for 87.1 percent of the total and a share of the top three processed food products equal to 27.3 percent.



Sorting greenhouse tomatoes, Furush Beit Dajan, West Bank.
©FAO/Marco Longari

²⁹ The long-term appreciation of the real exchange rate largely depends on productivity differential and financial flows (mostly remittances and aid) as empirically proven by Khalil and Dombrecht (2011).

³⁰ The Office of the Quartet (2015) estimates that in 2010/11 the average value of agricultural production per worker in Palestine (USD 5 700 per full time equivalent) was one third of that of Jordan (16 700 USD /FTE) and one fourth of that of Israel (22 900 USD /FTE).

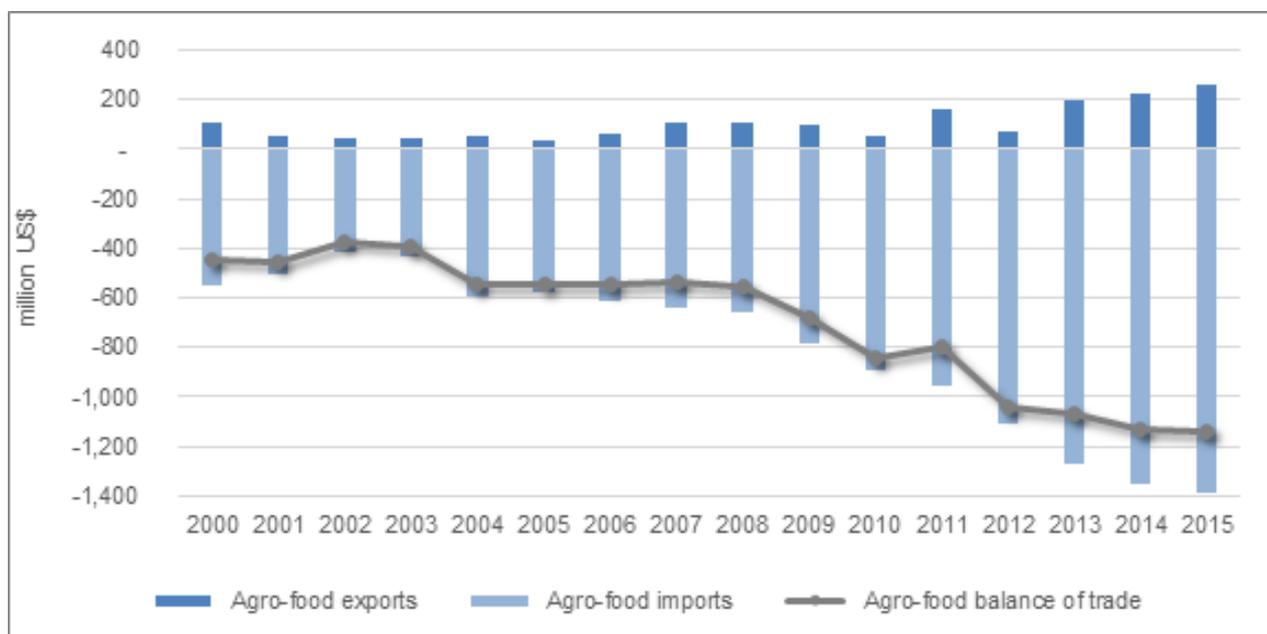
³¹ Specifically, virgin olive oil was the third most important export commodity (USD 39 million in 2015) and fresh cucumber the fifth one (USD 29.6 million). Among imports, preparation for animal feed ranked sixth (USD 133 million) and bovines was the eighth most important commodity (USD 61.6 million) (PCBS, 2016c).

The sector diversification of trading partners is quite low with the top three partners accounting for more than 70 percent of total trade both for exports and imports. In addition to Israel, which is the major trading partner, Arab countries and the European Union are also important partners.

Over time, annual agricultural imports have increased, significantly exceeding exports (Figure 2.5) with trade restrictions threatening the viability of well-established Palestinian agribusinesses in recent times.

Opportunities for exports exist for many agrifood sectors, especially when looking at the growth of national supply and international demand. According to ITC (2016) the annual increase of the share of Palestinian agrifood exports in world agrifood exports has been growing faster over the most recent years than the growth of the share total Palestinian exports in total world exports. Import substitution opportunities exist also for many agrifood products where trade deficit has expanded in recent years, such as in vegetables and fruits.

Figure 2.5. Agrifood trade, Palestine, 2000-2015



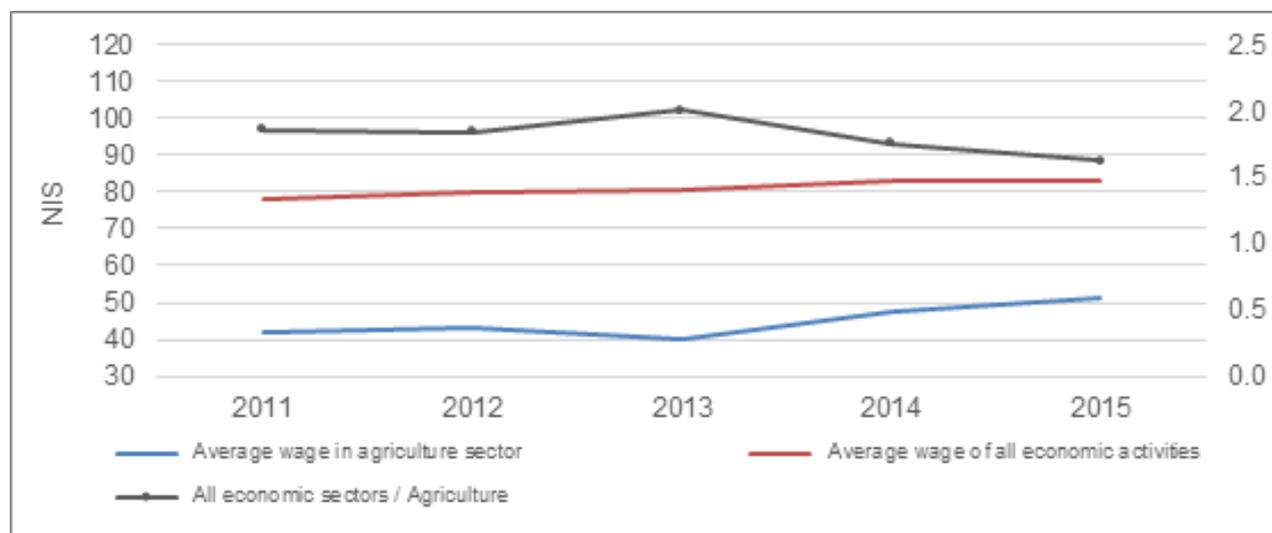
Source: Elaboration on PCBS (2016c) data.



2.2.6. Agricultural incomes

Agricultural wages have been increasing slightly in current terms in recent years. They grew faster than average wages for all economic sectors, reducing the gap between the agricultural sector and the rest of the economy (Figure 2.6). Yet, the latter remains on average 60 percent higher than the former.

Figure 2.6. Average wage in agriculture and all sectors, Palestine, 2011-2015



Source: PCBS (2016d).

The sector's negative premium is not the only difference in remunerations (Daoud and Fallah, 2016). There are significant differences in agricultural wages both by gender and by place of employment (Table 2.8). A rough estimate of the gender gap in 2015 suggested male wages were 22.6 percent higher.³² Anecdotal evidence also suggests that the majority of unpaid labour by women and children (outside of care work) might be in the agricultural sector.

Table 2.8. Average agricultural daily wage in NIS per gender and place of employment, 2015

Place of work of the wage employee	Male	Female	Total	Male/Female
West Bank	71.5	..	71	..
Gaza Strip	24.1	..	24.7	..
Israel and settlements	127.7	..	129.1	..
Total	78.1	63.7	77.4	1.23
West Bank / Gaza Strip			2.87	
Israel and settlements / West Bank			1.82	

Source: Elaboration on PCBS (2016d) data.

Geographically, the differences are even more striking: on average an agricultural wage employee in Gaza Strip gets roughly one third the wage of an agricultural employee in West Bank, who in turn gets almost one half the wage of a Palestinian employee working in Israel or in the settlements.

Similar differences also exist in the case of agricultural self-employment (Tables 2.9 and 2.10). The lower average remuneration in the agricultural sector as compared to non-agricultural sectors

³² It should be emphasized, however, that this is just a rough estimate being the ratio between the male and female wage rates as provided by PCBS (2016d) not controlling for the type of job or other factors that might influence the difference between the two.

explains the relative larger share of poverty of households whose primary activity is farming. However, it should be noted the fundamental buffering role of farming (food self-consumption) in the case of shocks and for the poor/excluded such as female-headed households. In other words, agricultural production is a key component of household resilience (cf. section 2.3.2).

Table 2.9. Average monthly income in NIS for self-employed by economic activity and region, 2015

Economic Activity	Region		
	West Bank	Gaza Strip	Palestine
Agriculture, Hunting & Fishing	2 096	843	1 785
All activities	2 447	782	1 989
AGR / All activities	1.17	0.93	1.11

Source: Elaboration on PCBS (2016d) data.

Table 2.10. Average monthly income in NIS for self-employed by economic activity and gender, 2015

Economic Activity	Gender		
	Males	Females	Total
Agriculture, Hunting & Fishing	1 877	725	1 785
All activities	2 128	945	1 989
AGR / All activities	1.13	1.30	1.11

Source: Elaboration on PCBS (2016d) data.



2.3. Social aspects of agriculture

2.3.1. Agrifood employment

The agricultural sector is an important driver of the Palestinian economy since it creates job opportunities in the local Palestinian market. As of 2015, this sector was employing some 84 000 people or 8.7 percent of the Palestinian labour force (PCBS, 2016d). Agro-processing accounts for an additional 20 000 jobs (Office of the Quartet, 2015).

Also the fishing industry, despite modest in size, plays an important role as a source of income and employment for the Gaza despite being modest residents, accounting for some 4 500 formal and informal jobs (FAO, 2016).

However, the sector has been negatively impacted by conflict in Gaza.³³ The lack of labour opportunities and under-employment have had severe negative social and economic impacts on the fishing communities as a whole (cf. section 2.3.3).

The share of agricultural labour on the total labour force has been declining for both sexes (Figure 2.7).



³³ For instance, the total number of jobs of the extended fishing industry (i.e. fishers, traders, repairers, transporters, guards, net makers, painters, mechanics, processors, boat builders, hardware dealers etc.) lost as a result of the war between 2008 and 2011 amounts to more than 8 300 units, affecting more than 52 000 people including family members (Bâge, 2011).

Females employed in agriculture represent an important share accounting for roughly 30 percent of Palestinian agricultural employment and 13.1 percent of total female employment in the country. However, gender differences in agricultural labour are rampant. Besides the huge gap in remuneration (both wage and income in self-employment, cf. section 2.2.6) female work in agriculture is characterized by (FAO and Al-Markaz, 2011; PCBS, 2016d):

- being mostly unpaid family member labour: 82 percent of total female agricultural jobs versus 18.3 percent of male jobs;
- being more casual: 48.4 percent of total female work in agriculture is below 14 hours per week while the same time of jobs account only for 31.6 percent of agricultural male labour;
- featuring lower human capital levels: illiterate women account for 54 percent of total female jobs in agriculture vs. 33.3 percent of male jobs; and
- a larger proportion of female agricultural workers employed in Israel and in the settlements: 45 percent of total female employment in Israel and the settlements versus 8.6 percent of male employment.

Figure 2.7. Share of agricultural employment on total employment per sex and average daily wage in agriculture, Palestine, 2001-2015



Source: Elaboration on PCBS (2016d) data.

Historically, the agricultural sector has played an important role in providing employment opportunities, especially in times of crisis, during which it was difficult to work in other sectors (MoA, 2016a). Despite the prevalence of the gender gap, the large share of female employment also emphasizes the importance of the agricultural sector to women's empowerment. These characteristics highlight the role of the agricultural sector in strengthening the resilience of Palestinians, especially some of the most vulnerable groups such as women.³⁴

2.3.2. Home gardening

A recent PCBS survey (PCBS, 2016e) indicates that in 2013/14 more than 27 percent of Palestinian households had a garden; this figure was 33 percent for West Bank households and 17 percent for the Gaza Strip. Despite the tiny size of these gardens, whose average area amounts to only 200 m², the vast majority of households with a garden (92 percent) utilized it for agricultural production. There were about 2.5 million horticultural trees in gardens in Palestine, of which 84.7 percent were in the West Bank, and 15.3 percent were in the Gaza Strip. More than one quarter of these trees were olive trees, followed by citrus trees and vines, each accounting for roughly one fifth of the total. The share of areas cultivated with vegetables accounted for almost 80 percent of temporary crop cultivation, while field crops are cropped on the remaining areas.

³⁴ However, the agricultural sector does not absorb a significant share of youth employment: the most updated data show that in the first quarter of 2017 (PBS, 2017) only 8 percent of the employed youth work in agriculture.

Results indicate that ten percent of households in Palestine reared domestic livestock totalling over 32 000 sheep and more than 10 000 goats. Domestic poultry reached 570 000 birds, while the number of beehives was more than 1 300.

The vast majority of Palestinian households farm their own garden or rear domestic animals for household consumption (Table 2.11). This characteristic significantly contributes to increasing Palestinian households' resilience to food and nutrition insecurity.

Table 2.11. Percentage Distribution of households farming home gardens or rearing domestic animals

Region	Product Distribution Pattern		
	Household Consumption	Other ^a	Total
Households farming their own garden			
West Bank	98.0	2.0	100
Gaza Strip	98.9	1.1	100
Palestine	94.1	5.9	100
Household rearing domestic animals			
West Bank	95.4	4.6	100
Gaza Strip	96.3	3.7	100
Palestine	94.2	5.8	100

^a Include for sale, given as a gift, other.
Source: PCBS (2016e).

2.3.3. Food and nutrition security

One fifth of rural households in the West Bank were food insecure in 2014. However, significant improvements in the incidence of food insecurity were made between 2013 and 2014 (approximately 6 percentage points, cf. FAO-WFP, 2016). An even more significant improvement was observed for rural Gaza households.³⁵

Obtaining a livelihood from the primary sector – agriculture, animal breeding and fishery – is usually associated with intermediate performance in terms of food security: ten percent of West Bank agricultural households and 35 percent of those in the Gaza Strip are severely food insecure compared to households receiving their major source of income from assistance (either from international organizations or social assistance) that show an incidence of severe food insecurity that is on average two to three times higher.³⁶

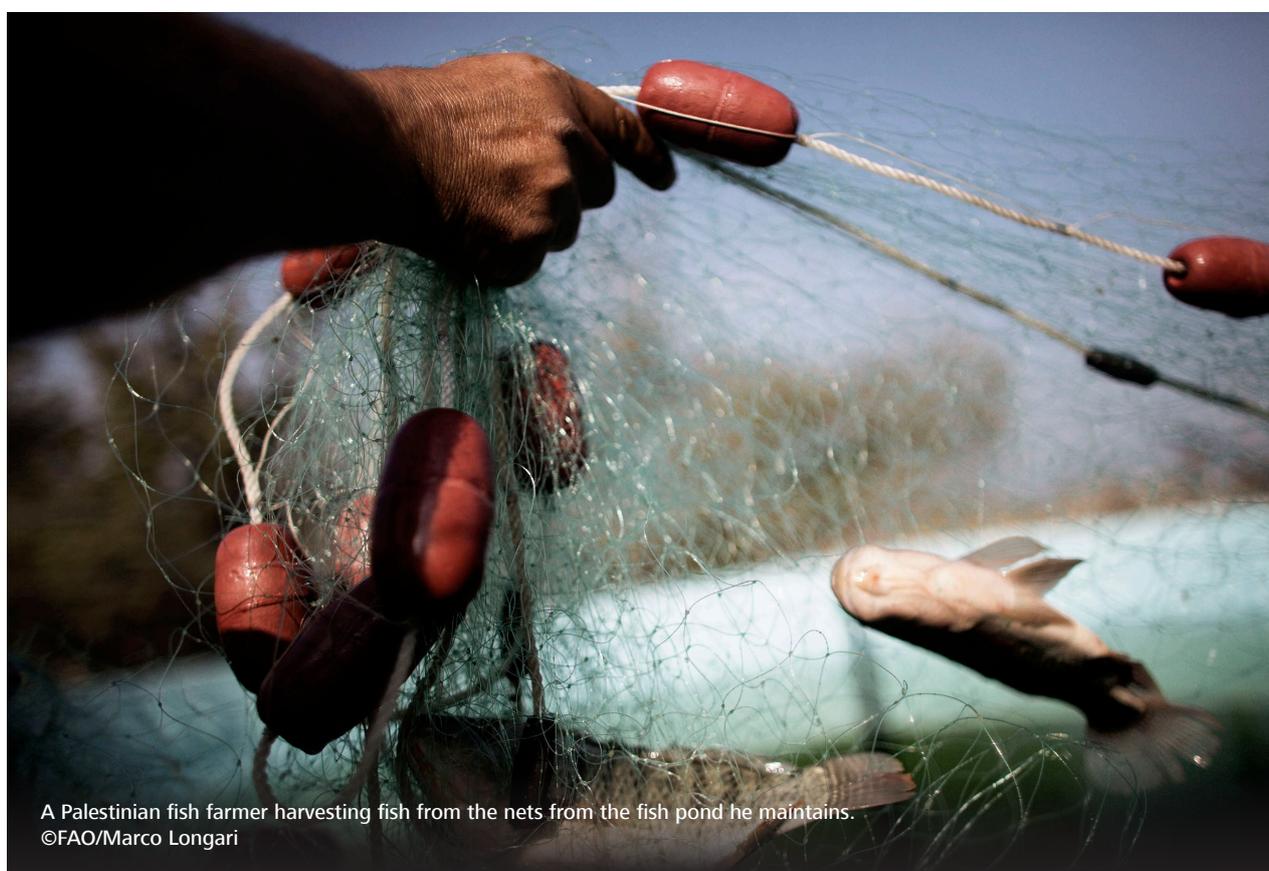
This suggests that overall, rural households and those with the option of cultivating home gardens (cf. section 2.3.2) are relatively better equipped than other households to respond to shocks affecting food security. The explanation is likely to be related to the possibility for agricultural households to compensate the reduction in labour opportunities (labour entitlement) and the reduced availability of food with direct production of foodstuffs (production entitlement) that can either be directly consumed or sold, taking advantage of higher food prices.

³⁵ This result is even more striking given the impact of the July-August 2014 conflict in the Gaza Strip.

³⁶ Vice versa, the households that have access to Israeli jobs or insurance and those whose major source of income comes from salaries paid by international organizations are those that have better food security performance (FAO-WFP, 2016).

The inverse is true for fishers and their families, who are some of the most affected by food insecurity in the Gaza Strip. Over half of this population group are food insecure and have become increasingly so, compared to other population groups.³⁷ The incorporation of fish into the Gazan diet and the large source of protein it represents, although important, is limited by the ongoing limitation of fishing grounds, the lack of fuel to operate boats and sea water contamination through untreated sewage.

There are also some emerging nutrition-related issues in Palestine. The coexistence of underweight and overweight – the so-called ‘double burden’ of malnutrition – remains a major problem, especially among children. Data from the first nationally representative Palestinian Micronutrient Survey (MoH and UNICEF, 2013) show that the prevalence of stunting (height-length for age <-2 z-scores) was 13 percent among boys and 7.3 percent for girls³⁸ while wasting (weight for length-height <-2 z-scores) showed a prevalence of 4.4 percent in the whole sample. On the other hand, 22.1 percent of boys and 23.1 percent of girls were overweight or obese (obesity was found in 7.2 percent of boys and 4.9 percent of girls).³⁹



A Palestinian fish farmer harvesting fish from the nets from the fish pond he maintains.
©FAO/Marco Longari

As expected, there are also significant regional differences, with the Gaza Strip usually performing worse than the West Bank (MAS, 2017). Stunting, which for Palestine was 10.3 percent for children aged 6-59 months, stood at 11 percent in the Gaza Strip and 9.5 percent in the West Bank. Similarly, the prevalence of wasting was on average 4.5 percent with a prevalence of 5.5 percent in the Gaza Strip and 3.4 percent in the West Bank.

³⁷ Fishers have had to sell personal assets or borrow money from friends and relatives to continue to invest in and maintain their fishing gear. In 2010, Qatar Charity undertook a study on the socio-economic aspects of the fisheries and found that: 91.9 percent of fishermen and their families live under the poverty line, 88.3 percent suffer from extreme poverty, 47.1 percent are food insecure, and 87.8 percent depend on assistance (93.4 percent of which is food assistance) (Båge, 2011).

³⁸ The prevalence was slightly higher in the Gaza Strip (13.5 percent of the boys and 8.1 percent of the girls).

³⁹ Overweight and obesity are also a problem in pregnant women of whom the respective prevalence was 31.3 percent and 26.2 percent based on body weight and height measured before the 17th gestation week. In lactating Palestinian mothers, overweight had a prevalence of 36.9 percent and obesity of 23.3 percent.

In a recent study on school children in the West Bank, Massad et al. (2016) showed that the factors associated with being underweight were male sex, mother being unemployed, and households not having enough food to eat for at least two days in the previous month. Factors associated with obesity were older age and time spent watching television. When overweight and obesity were combined in the analysis, they were inversely associated with increasing number of days spent playing sports.

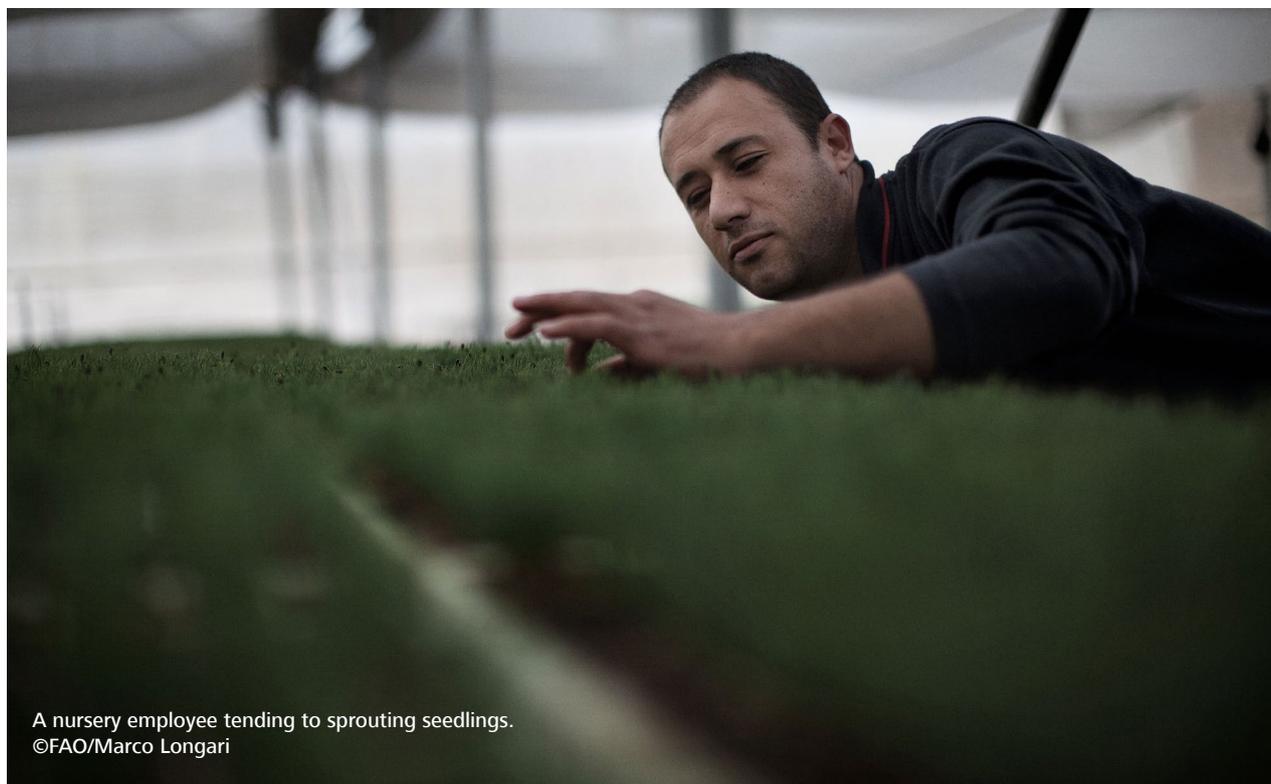
A recent report (Ng et al., 2014) highlights a worrying trend among young Palestinian generations. Between 1980 and 2013, the percentage of obese girls increased by 62.3 percent compared to 63 percent for young men, leaving the prevalence of obesity at 12.5 percent and 11.9 percent, respectively. The combined prevalence of overweight and obesity is 2.5 times as much for both categories. It is also confirmed that the prevalence rates for females are generally higher than those for males.

Despite that the causes of being overweight and obese do not depend exclusively on a high calorie diet, and addressing the issue calls for broader lifestyle changes,⁴⁰ there are no doubts that the issue of a better-balanced diet, and therefore, access to food as well as better nutrition information and education are also essential.

2.4. Agriculture and the environment

2.4.1. *Water use in agriculture*

Water is essential to life and in a dry climate such as that of Palestine, water is even more vital than in other situations. This is particularly true for agricultural production that crucially depends on the availability of water.



A nursery employee tending to sprouting seedlings.
©FAO/Marco Longari

⁴⁰ Indeed, socio-demographic factors (age, sex, educational level, and marital status) play a major role. This is mostly due to decreased physical activity and greater than necessary food consumption, particularly with an increase in energy coming from fat. Two other factors are smoking and urbanization. In addition, "leisure-time physical activity is not a common concept in the Palestinian context, especially for rural women, where lack of sex-segregated facilities and cultural norms are prohibitive factors." Women in urban areas face similar cultural restrictions.

The water currently used for agriculture in Palestine does not exceed 150 million cubic meters annually, which represents 45 percent of total Palestinian water consumption (MoA, 2016a). The critical situation and performance of the water sector is reflected by the limited irrigated agricultural areas in Palestine in general, constituting only 12 percent of agricultural land in the West Bank, in comparison to 77 percent in the Gaza Strip, 37 percent in Jordan and 59 percent in Israel.

In an environment characterized by the lack of significant surface water sources along with the restrictions placed on Palestinian investment in infrastructure for water resource development in Area C (B'tselem, 2016), groundwater remains the primary source of water in Palestine. Agriculture in the West Bank uses 60 million cubic meters. However, according to most recent estimates (PWA, 2013) Palestinians extract only around 14 percent of the groundwater quantities in the West Bank, while Israel extracts more than six times as much, largely exceeding the allocation between the two parties according to the Oslo Agreement (Table 2.12).

Table 2.12. Water allocation according to the Oslo Agreement and utilization, 2012 (Mm³)

Basins	Israel	Palestine	Addition quantity for Palestinian development	Total
Oslo Agreement				
Western Aquifer	340	22	-	362
North-Eastern Aquifer	103	42	-	145
Eastern Aquifer	40	54	78	172
Total	483	118	78	679
Utilization (2012)				
Western Aquifer	411 ^a	28	-	439
North-Eastern Aquifer	103 ^a	23	-	126
Eastern Aquifer	150 ^b	53	0	203
Total	664	104	0	768
Utilization/Oslo agreement				
Western Aquifer	1.21	1.27	-	1.21
North-Eastern Aquifer	1.00	0.55	-	0.87
Eastern Aquifer	3.75	0.98	0.00	1.18
Total	1.37	0.88	0.00	1.13

^a Figures referring to year 2011 because no updated figure has been released by Israeli Government.

^b This includes 100 Mm³ from Dead Sea springs, which Israel prevents Palestinians from developing.

Source: PWA (2013): Table 4, modified.

Overall, extraction of groundwater largely exceeds the renewable quantities. Excessive groundwater extraction is increasing the water table depth and making low quantities of water available to Palestinians reliant on the pumping of shallow wells. Tests show that most of the wells in the Jordan Valley have a high concentration of chloride exceeding the acceptable guidelines of the World Health Organization (250 mg/l), whilst showing a quite low nitrate concentration (PWA, 2013).

The amount of water used in agriculture in the Gaza Strip is estimated to be approximately 90 million cubic meters annually, which is equivalent to almost 54 percent of its total water consumption. The excessive use of groundwater⁴¹ has deepened the coastal aquifer water table and led to saltwater intrusion from seawater into the groundwater (PWA, 2015). Furthermore, overexploitation of groundwater, the intensive use of agricultural pesticides, in addition to the inflow of sewage into the aquifer, have resulted in high concentrations of nitrate ion in groundwater.⁴² The water sector is facing a dangerous situation that may become irreversible within the coming three years if the reasons for its deterioration are not rapidly addressed (MoA, 2016a).

Despite the significant interest of farmers in increasing the irrigated agricultural area, the growing demand for water due to steady population growth has not been accompanied by comparable growth in water supply, either from conventional nor non-conventional sources.

This has exacerbated competition in water use, leading to increases in the price of water⁴³ and the cost of delivery to farmers. From one side, this limits the prospects for the development of irrigated agriculture and, from the other, this has contributed to the growing phenomenon of unlicensed wells and unsustainable pumping practices, especially in the Gaza Strip. On average, water abstraction from wells for agricultural use accounted for 45.6 percent of total well abstraction in 2012 (PWA, 2013).



A Palestinian farmer woman and member of the Bezaria Bee Keeping Cooperative carrying her beekeeping protective gear.
©FAO/Marco Longari

⁴¹ The aquifer renewable amount is 55-60 Mm³ per year while the total groundwater abstraction in the Gaza Strip (both domestic and agricultural uses) can be estimated between 180 and 200 Mm³ per year (PWA, 2015).

⁴² Recent estimates (PWA, 2015) show that 96 percent of Gaza Strip's groundwater resources are polluted with high proportion of nitrates and chlorides that exceed accepted international guidelines for potable water resources.

⁴³ According to B'tselem (2016), "The price of water purchased from private contractors is NIS 25 to 45 per cubic meter, depending on the distance from the water source to the village. This sum is as much as four times the highest price of water for household consumption paid by residents of the Israeli city of Tel Aviv (NIS 12.6 per cubic meter for any consumption over 3.5 cubic meters a month), and up to three times as much as the comparable price rate in the settlements of Ariel and Karnei Shomron (NIS 14.8 per cubic meter). In the Palestinian communities that are forced to buy water from tankers, the average monthly outlay on water consumption per family in summertime is NIS 1 250 to 2 000 – as much as half of all monthly expenses. In contrast, the average monthly expenditure for water consumption in the settlements is NIS 150 per family, or 1.4 percent of family expenditure."

Non-conventional water use has a significant, but as yet untapped, potential in Palestine. In fact, while there are a lot of ongoing wastewater projects including the construction of treatment plants, the only one completed at this moment is the Al Bireh plant, but its effluent is not yet reused.⁴⁴ In addition, on a small scale about 800 household level grey water treatment plants are currently operating locally, with a total annual effluent of about 0.5 Mm³/y. In the Gaza Strip, there are scattered wastewater reuse pilot projects for agriculture with a total reuse capacity of not more than 1.0 Mm³/y.⁴⁵

Desalination of brackish water is an important option implemented on a limited scale in the West Bank, mostly as small-scale pilot projects in the Jordan Valley. In the Gaza Strip, this technology is currently used on a local scale only, although it is a key requirement in water resource management and very urgent to up-scale.⁴⁶ Brackish groundwater is also used as feedstock for small-scale desalination plants.

2.4.2. Land use in agriculture

There is a large discrepancy in land use data (FAO, 2015a). The latest agricultural census (PCBS, 2010) estimated that the total area of agricultural land was 1 207 km² of which 91.6 percent (or 1 105 km²) is in the West Bank and 8.4 percent (or 102 km²) is in the Gaza Strip. However, a land-use analysis of satellite images conducted by the Applied Research Institute of Jerusalem (ARIJ) in 2010 (ARIJ, 2015) indicated that the area of agricultural land in the West Bank was 2 151 km².⁴⁷

A recent estimate provided by the Office of the Quartet (2015) shows that roughly 38 percent (or 2 300 km²) of Palestinian land area can be classified as agricultural land, with roughly 55 percent of the cultivable land currently uncultivated and 8 percent of the total land area a candidate for land reclamation to enhance the cultivable area (Table 2.13). Area C, which represents the largest part of West Bank land and falls under Israeli civil and military control, accounts for almost two thirds of the West Bank's agricultural land.⁴⁸ Similarly, access to some 40 percent of agricultural land in the Gaza Strip is prevented.⁴⁹

Results of the 2010–2011 agricultural census indicate a cultivated land area of 1 029 km² (PCBS, 2011). Although, this figure cannot be compared with data of previous years, it is likely that this area has decreased over the years.⁵⁰ The chief causes of the decline in land use include the expansion of Israeli settlements, restricted access to water, urban expansion at the expense of agricultural land and construction of the separation barrier (UNCTAD, 2015).

⁴⁴ Although, there are efforts to transfer its effluent to the Al-Auja area to be used for palm trees and other crops.

⁴⁵ Regarding recharge, infiltrating a total of 7-8 Mm³ of partially treated wastewater in the northern area of Gaza Strip is going on through the ENGEST project.

⁴⁶ The existing Deir El Balah seawater treatment plant has started to be expanded from a capacity of 0.22 Mm³/y to 0.95 Mm³/y (2 600 m³/day). In addition, a seawater desalination plant, planned to be constructed in the southern part of Gaza Strip with a capacity of 6 000 m³/day (2.2 Mm³/y) is at feasibility study stage. A regional seawater desalination plant with a capacity of 55 Mm³/y is planned to be built in the central area of the Gaza Strip, but this also is at feasibility study phase (PWA, 2013).

⁴⁷ This variation in estimates is due to the use of effective agricultural land to build the agricultural census of 2010, i.e. agricultural land whose area exceeds 1 dunum for rainfed agriculture and 0.5 dunum for irrigated agriculture (ARIJ, 2015).

⁴⁸ Less than 1 percent of Area C, which is already built up, is designated by the Israeli authorities for Palestinian use; the remainder is heavily restricted or off-limits to Palestinians, with 68 percent reserved for Israeli settlements, circa 21 percent for closed military zones and circa 9 percent for nature reserves (World Bank, 2013).

⁴⁹ Israel still prevents farmers' from accessing their land in what is known as the "buffer or border areas" that stretch along the eastern borders with Israel and extend over a depth ranging from 150 meters to one kilometer. The total agricultural land in the border areas is estimated to at least 62 Km².

⁵⁰ In fact, not only data of cultivated area for years before 2010 are estimated from MoA administrative records while the Agricultural Census are actual data from the surveyed universe of agricultural holdings, but also the definitions differ, being the Census considering only holdings having an area larger than one dunum.

Table 2.13. Cultivable land in Palestine, 2010-11

Land types	000 dunums	percent
Agricultural land	2 300	38.2
- West Bank	2 100	34.9
- Gaza Strip	200	3.3
Non-agricultural land reclaimable for cultivation	465	7.7
Non-agricultural non-reclaimable land	3 255	54.1
Total land	6 020	100.0

Source: Elaboration on Office of the Quartet (2015) data.

There has been a steady decline in the West Bank areas devoted to the production of field crops, vegetables and fruit trees, with field crops experiencing the steepest decline since the late sixties. Areas for field crops in Gaza have declined since 1970, while fruit tree area has steadily declined since 1990.

These trends show that the Palestinian agricultural sector has been the most affected by occupation. As a result, its contribution to the gross domestic product has been declining (cf. section 2.2), despite its high potential to make a major contribution to the Palestinian economy, if more areas were cultivated with high-value crops and the constraints on productivity imposed by occupation removed.

Another area where occupation is having a heavy impact is nature and biodiversity conservation. Most of the protected areas are located within Area C, where control continues to be under the exclusive authority of Israel: none of them is accessible for the Palestinians, not even for management and conservation purposes.

The segregation zones along the western and eastern parts of the West Bank within Area C are another concern for conservationists, which isolate and/or fragment approximately two thirds of the natural reserves in the West Bank (ARIJ, 2015b).

This causes major challenges in conserving representative ecosystems, landscapes and habitat linkages especially between protect areas and forests.⁵¹ Moreover, it determines a great threat to the biodiversity because of its negative impacts on the movement of terrestrial fauna by adding further to the fragmentation of ecosystems and habitats and by cutting the natural ecological corridors.

⁵¹ Forests cover approximately 1.38 percent of the total area of the West Bank and 0.48 percent of the Gaza Strip (ARIJ, 2015b).

2.4.3. Climate change and agriculture

Climate change model projections show high confidence that temperatures will increase in the future in Palestine (ARIJ, 2015b), though there is less consensus on the scale of such temperature increase (EQA, 2016a). The Coupled Model Intercomparison Project Phase 5 (CMIP5, 2016) results suggest that it is very likely that temperatures will continue to increase throughout the twenty-first century over the Eastern Mediterranean. It is likely that summer warming will be more intense than winter warming and that the length, frequency, and/or intensity of warm spells or heat waves will increase throughout the whole region.

There is medium confidence in an annual mean precipitation decrease in the Eastern Mediterranean and, paradoxically, an increase in extreme rainfall events in spite of the decrease in rainfall totals thus suggesting longer drought periods (CMIP5, 2016). Furthermore, intra-seasonal variation in rainfall is expected to become more extreme, with fewer, but more intense rainfall events within the season. Likewise, inter-annual variation in rainfall is also expected to increase, with very wet years alternating with longer multi-annual droughts.

In general, the impacts of climate change include ongoing deterioration of freshwater habitats, decline of scrubland and woodland areas, and increased frequency and severity of forest fires.⁵² Negative impacts of climate trends on crop and terrestrial food production have been more common than positive ones. Studies have documented a large negative sensitivity of crop yields to extreme daytime temperatures. In addition to heat stress, drought stress resulting from the combined effects of high temperatures, reduced precipitation and higher evapotranspiration will reduce crop productivity of major crops (wheat, barley, corn) with strong adverse effects on national and household livelihood and food security.



⁵² The biological diversity and ecosystem functions of the transition zones between the desert and the Mediterranean climates are often identified as the most susceptible to climate change impacts because they are rich in species and constitute the distribution limit of many species, which may disappear due to climate change (EQA, 2012).

Further changes in climate and CO₂ concentration will increase the distribution and the competitiveness of invasive weeds making their control progressively more difficult.⁵³ The general depletion of regulatory genetic diversity may lead to deterioration of environmental adaptation. Furthermore, earliness in flowering time reduces reproductive success and has a major impact on grain yield and therefore is a red light that may result in the future extinction of these wild crop relatives. Climate change impacts on wild-crop relatives necessitate the continuous efforts for in situ and ex situ conservation of these important genetic resources for future crop improvement.

Future climate change projections suggest, in addition to reductions in major crop yields, more frequent and severe region-specific occurrences of climate extremes such as heat waves, drought episodes, and intense rainfall events. Based on historic trends, these are expected to increase the frequency of periods of rapid cereal price increases, thus increasing food insecurity and malnutrition especially amongst the poor.

Last but not least, changes in the incidence and geographic range of vector- and water-borne diseases due to changes in the mean and variability of temperature and precipitation, particularly along the edges of their distribution.

All the above findings point to a high vulnerability of the Palestinian agricultural sector as a whole and of some subsectors in particular (Table 2.14), as reported by the National Adaptation Plan to Climate Change (EQA, 2016a).

Table 2.14. Issues ranked as “highly vulnerable” by the Palestinian National Adaptation Plan to Climate Change

Theme/sector	West Bank	Gaza Strip
Agriculture	<ul style="list-style-type: none"> • Olive production • Grape production • Stone fruits • Rainfed vegetables • Field crops • Irrigated vegetables • Grazing area and soil erosion • Irrigation water • Livestock production 	<ul style="list-style-type: none"> • Livestock production • Cost of agricultural production • Employment • Vegetable production • Olive production • Citrus production • Irrigation water
Coastal and marine	n/a	<ul style="list-style-type: none"> • Fishing/fisheries • Coastal agriculture • Condition of beaches
Food	<ul style="list-style-type: none"> • Domestic food prices • Imported food prices 	<ul style="list-style-type: none"> • Domestic food prices • Imported food prices

Source: EQA (2016a), Table 4.

At the same time, it should be acknowledged that agriculture contributes also to greenhouse gas

⁵³ Nevo et al. (2012) sampled 10 wild emmer wheat (*Triticum dicoccoides*) populations and 10 wild barley (*Hordeum spontaneum*) populations in Palestine and Israel in 1980 and again in 2008. They performed phenotypic and genotypic analyses on the collected samples and found profound adaptive changes of these wild cereals over the last 28 years. These included earlier flowering time and depletion of regulatory genetic diversity.

emissions: in 2011 the agriculture, forestry and land use sectors (AFOLU) accounted for 476.9 Gg of CO₂ eq, or 15 percent of total Palestinian emissions, mostly in the form of nitrous oxide and methane as a result of fertilization and livestock rearing (EQA, 2016b).⁵⁴ However, it should be emphasized that this is the only sector with carbon sinks and therefore is key for any mitigation strategy. Indeed, net emissions in the AFOLU sector declined over time though still largely positive.

These conditions necessitate urgent mitigation⁵⁵ and adaptation measures. Indeed, a societal consequence to climate change is the susceptibility to food insecurity and the depletion of farmers' productive assets following multiple crop failures. Candidate mechanisms for reducing these impacts include climate-smart agriculture, treated wastewater reuse, water resource management, and any intervention that enhance the resilience to food and nutrition insecurity at household as well as national level (e.g. through Disaster Risk Reduction and Management interventions).⁵⁶

2.4.4. Fishery environmental issues

The main and central challenge to fishery is the extremely limited fishing zone within 3 to 6 NM from the Gazan shore, which affects not only the economic viability of the industry, but also the long-term sustainable exploitation of fisheries, which in turn has a profound effect on the fishers' livelihoods and on the food security of Gazans.



Selling shellfish in Gaza.
©FAO/Marco Longari

⁵⁴ Specifically, nitrous oxide emissions were 328.0 Gg CO₂ eq. and resulted from use of ammonium sulphate as a fertilizer; emissions of methane were 184.3 Gg CO₂ eq. and resulted from livestock and manure management; and the net sink was -35.4 Gg CO₂ eq. (EQA, 2016b).

⁵⁵ It is assumed that agricultural activities and emissions will grow in line with population. The MoA has plans to increase forest area by 200 hectares per year until 2018 that could save around 9 000 tons CO₂ eq. per year (EQA, 2016b).

⁵⁶ The Palestinian Government is aware of the challenges and preparing for climate change both institutionally, becoming party to the UNFCCC in March 2016 and ratifying the Paris Agreement in April 2016, as well as operationally, by preparing adaptation and mitigation plans (EQA, 2016a and 2016b).

The approximate total fishing area according to the Oslo Agreement is 400 NM²; with the 3 NM zone enforced between 2008 and 2012 effectively decreasing the fishing area to 60 NM² – a reduction of 85 percent in spatial area for the fleet. This has determined an overexploitation of the small pelagic stocks (i.e. anchovy and sardine) living within the three-mile fishing area. This can potentially have negative implications not only on the sustainability of Gaza's fishing industry but also in the overall stock management of the Mediterranean.

Another key environmental issue is sewage pollution of the sea. In fact, the functionality of wastewater networks in Gaza have suffered from damage sustained by military incursions and the effects of the blockade, which have delayed the entry of necessary maintenance materials. Operation of infrastructure is also currently subjected to electricity fluctuations. Most of the wastewater treatment plants in Gaza are overloaded and are working beyond their designed capacities. This means that about 89 million liters per day of untreated or partially treated sewage is discharged into the sea.

Contamination of the coastal waters may result in changes in nutrient levels, abundance, biomass and diversity of organisms; bioaccumulation of organic and inorganic compounds; and alteration of trophic interaction among species. Receiving waters with high flushing capacity are able to dilute or eliminate most of the conventional pollutants but persistent toxic compounds and long-lived pathogens will always be troublesome, risking water and seafood quality and safety.

2.5. Conclusions

The Palestinian agrifood sector plays a key role as a component of economic growth, an enabler of social development and a contributor to environmental sustainability.

As a supplier of raw materials and basic goods as well as a user of services and outputs of vital national sectors', primary production makes a key contribution to the industry, trade, transport, communication and service sectors. It also contributes to generating/saving foreign currency through exports/import substitution.

Furthermore, constituting an employment and livelihood source for a large proportion of Palestinians, especially some of the most vulnerable groups such as the poor and women, primary production is also one of the most important pillars of Palestinian society.

In particular, farming is a crucial coping strategy for Palestinian households in times of crisis and contributes to improving households' food and nutrition security. It is also of primary importance in ensuring the steadfastness of Palestinians.

Finally, if properly managed, farming, fishing and aquaculture can contribute to reducing the ecological footprint of primary production on the environment, mitigate its impacts on climate change, and preserve the landscape and biodiversity.

3. The institutional set-up

3.1. Institutional framework

The agrifood sector is a multidisciplinary and multifaceted sector whose governance involves many governmental, non-governmental, civil and private institutions. The functions and powers of these institutions can be summarized as follows.

Governmental bodies

The Palestinian Government influences the agrifood sector directly through its public budget allocation towards the sector and the issuance of relevant legislation as well as indirectly framing the overall economic and institutional space for the involved actors through the management of peace negotiations and foreign aid as well as informing donors' actions.

The MoA is the most important governmental body involved in the agrifood sector, performing major duties in the regulation and management of agriculture in addition to the oversight, supervision and delivery of certain basic services. The Ministry carries out these functions from its headquarters, agricultural and veterinary directorates and governorate offices as well as its main meetings.⁵⁷

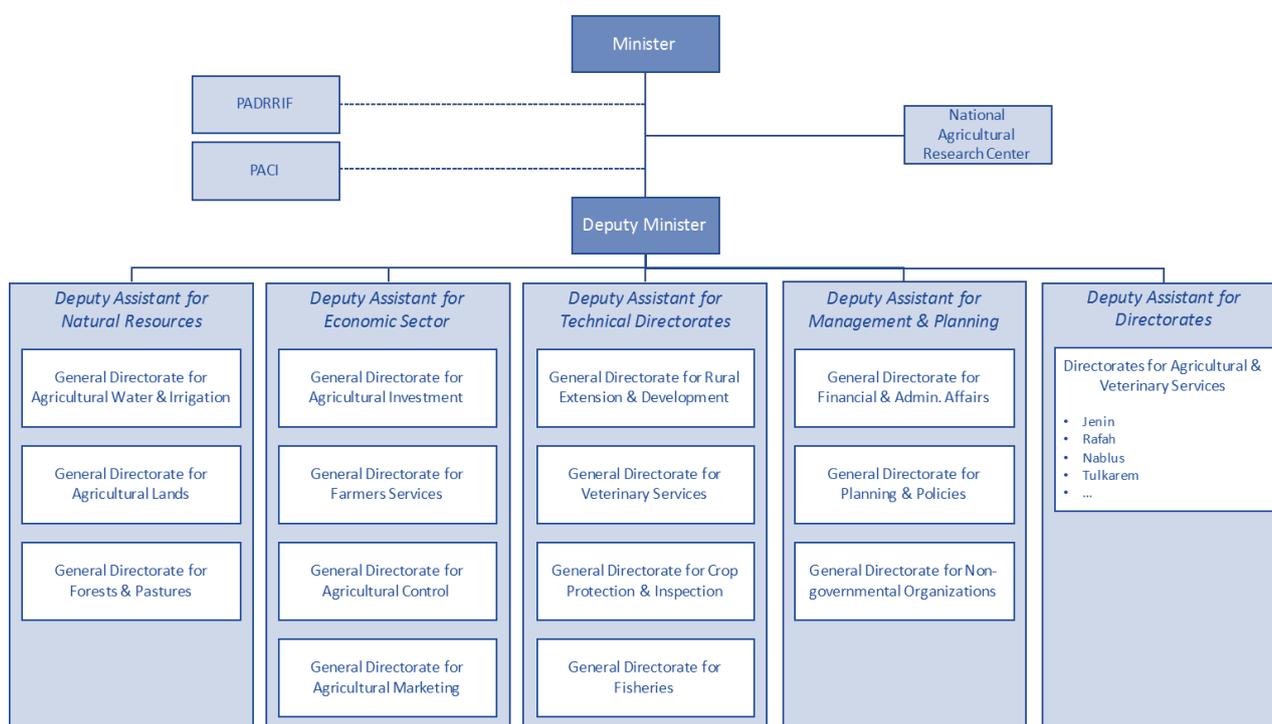


⁵⁷ According to the National Agriculture Sector Strategy 2017-2021 (MoA, 2016a) the Ministry has 1 710 employees with various technical and managerial functions divided between the southern (472 employees) and the northern governorates (1238 employees, including 440 employees working on regular contracts and day labourers), within an organizational structure led by the MoA. MoA's budget of 2016 amounted to about USD 28 million distributed on wages and salaries, operational and capital expenditures, in addition to approximately USD 6.5 million on development projects.

The MoA is organized into five clusters of General Directorates (Figure 3.1), namely:

- Natural Resources focuses on all natural resources used in agriculture, namely water, land, forests and pastures;
- Economic Sector deals with economic issues such as investments and funding, services to farmers, marketing, and controls;
- Technical Directorates deal with agricultural technical issues such as rural extension and development, veterinary services, crop protection and inspection, and agricultural research;
- Management and Planning focuses on sector management and is organized into three general directorates, namely financial and administrative affairs, planning and policies, and non-governmental organizations; and
- Directorates of veterinary and agricultural services that constitute the MoA branches in the field.

Figure 3.1. Ministry of Agriculture structure



Moreover, the MoA leverages a system of research centers (NARC) to help it carry out Research and Development activities in the agricultural sector. Furthermore, the Palestinian Agriculture Disaster Risk Reduction and Insurance Fund (PADRRIF) and the Palestinian Agricultural Credit Institution (PACI) were recently established with the mission of creating a conducive operational environment for Palestinian farmers by protecting them from various natural and human-made disasters through agriculture insurance and supporting them through credit and investment.

In addition to the MoA, there are several ministries and public institutions that play major roles in the development, regulation and delivery of services to the agricultural sector. These include:

- the Ministry of National Economy (MoNE), which is responsible for Palestinian trade policy (including trade of agricultural inputs and products), promotes local products, supervises and holds commercial conventions and protocols, registers companies and related activities, and prepares specifications and standards⁵⁸;

⁵⁸ Additional institutions that provide some services for agriculture include the Ministry of Planning and Administrative Development, Ministry of Finance, Ministry of Interior, Ministry of Women's Affairs, Governorates, Palestinian Central Bureau of Statistics, Palestinian Economic Council for Development and Reconstruction (PECDAR), Palestinian Land Authority, and Palestinian Investment Promotion Agency.

- the Ministry of Local Government (MoLG), which is responsible for territorial planning (at regional, municipal and rural level) and oversees the wholesale markets and slaughterhouses;
- the Ministry of Labour (MoL), which supervises the functioning of the labour market, is responsible for the registration of agricultural cooperatives and develops strategies and laws for cooperatives;
- the Ministry of Health (MoH), which is responsible for ensuring public health and, with specific reference to agriculture and food, plays a key role in food safety inspection and zoonotic disease control;
- the Ministry of Social Development (MoSD), which is responsible for social protection interventions. In partnership with other ministries, CSOs, the private sector and international organizations, it seeks to provide social protection for the Palestinian people, through programs in areas of protection, care and prevention, empowerment and an awareness-based approach;
- the Palestinian Water Authority (PWA) whose mandate is to regulate the management of water sector and sanitation in Palestine. It aims to achieve an optimal and equitable use of water resources among different sectors to ensure water and food security and economic development;
- the Environment Quality Authority (EQA) whose mandate is to ensure the protection of the environment, biodiversity and natural resources. Its activities include carrying out environmental assessments as well as awareness and environmental education campaigns. It also contributes to the development of specifications and standards related to the environment and acts as focal point for climate change;
- the Palestine Standards Institution (PSI), which is responsible for technical regulations and quality standards for agriculture inputs and outputs as well as for food and feed.

Quasi-governmental bodies

Pursuant to Article 1 under the Amended Law on Agriculture No. 11 of 2005, some Agricultural Commodity Councils were established as quasi-governmental bodies. The current status of these Councils is quite heterogeneous (Table 3.1). Acting under special regulations, these Councils set up frameworks that regulate the working relationships of respective stakeholders, but not all are functioning. So far, there is no legal basis for these Councils and their internal regulations are also not officially endorsed. The updated Agricultural Law that will specify the tasks and functions of the Councils will address this issue.



Non-governmental bodies

There are 35 Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs) involved in agriculture. They have played an essential role in agricultural development before and after the establishment of the PA. Their activities, fields of work and geographical coverage vary, noting that a large portion of the donors' funds are channeled through NGOs and CSOs.

Table 3.1. Status of Agricultural Commodity Councils, 2017

Council name	Active/ not active	Availability of Management Board / Strategy
Fruits and Grapes Council	Active	MB / Strategy
Vegetables Council	Active	MB / Strategy
Palm trees Council	Active	MB / Strategy
Olive oil Council	Active	MB / Strategy
Palestinian Bees Council	Active	MB only
Palestinian Poultry Council	Not active	MB only
Palestinian Council for Sheep and Goats	Not active	MB only
Palestinian Grains Council	Not active	MB only
Palestinian Milk and Cattle Council	Not active	MB only
Equine Council	Not active	MB only
Agricultural Marketing Council	Proposed	
Food Safety Council	Proposed	
Council for International Technical Cooperation	Proposed	
Irrigation water management Council	Proposed	
Land development and green Palestine	Proposed	

Private sector organizations

The private sector is organized into more than 200 cooperatives and more than 110 000 holdings. However, the effectiveness of these organizations can vary significantly according to their geographical location (e.g. Gaza Strip versus the West Bank and districts within the West Bank), the specific sector of intervention (e.g. product mix) and ultimately their own history and past experiences. By and large, these organizations do not appear to be very effective and efficient in carrying out their own operations.⁵⁹

Donors and international institutions

A large number of agricultural projects have been implemented to support enhanced food security, a task shared by the Palestinian Government, Palestinian civil society organizations, international organizations such as FAO, WFP and UNRWA, and donors.

The Humanitarian Response Plan (HRP) is the operational tool that mainstreams protection through programming protection-focusing interventions and advocacy efforts. This is a mechanism of intervention targeting Palestinian agriculture, specifically most vulnerable farmers.

⁵⁹ The most recent assessment is the one of ILO (2014) on agricultural cooperatives in the West bank. Adopting a wide definition of agricultural cooperative enterprises (e.g. including also cooperatives promoting rural development as well as credit and savings opportunities), the study identified 230 cooperatives in the West Bank, involving almost 18 700 members of which only 7 percent were women. According to ILO (2017), 42.2 percent of these cooperative require technical assistance to develop sound business plans, while for the remaining 57.8 percent the recommendation is to re-register either as charitable, non-governmental or private business.

Inter-institutional coordination bodies

The Agriculture Sector Working Group (ASWG), co-chaired by the MoA and Spain, constitutes an important mechanism that coordinates efforts of immediate agricultural stakeholders. It includes representatives of Palestinian organizations, donors and international institutions. However, the effectiveness of coordination and efficient use of resources in agriculture needs to improve.

The Food Security Sector (FSS), co-led by FAO and WFP, is part of the humanitarian system coordination architecture, which aims to strengthen food security analysis and response among a wide range of stakeholders, including line ministries as well as international and Palestinian NGOs. It plays a key role in linking humanitarian and development interventions for the Palestinian Authority.

3.2. Policy frameworks

The legal framework in Palestine is quite complex because it is a mix of different legal systems. Most of the laws issued prior to the Basic Law of 2002 continue to apply in Palestine, including British Mandate laws, the Jordanian laws that used to govern the West Bank before 1967, the Egyptian law that governed Gaza Strip before 1967 and more recent legislation enacted by the Palestinian Authority in pursuing its own legitimate policy objectives or as a result of the accession of Palestine to international treaties and conventions.⁶⁰ The agricultural and food sectors are no exception, and this situation might constitute an obstacle for the development of the food system.

3.2.1. Agriculture

The basic legal framework that regulates activities in the agricultural sector is the Law No. 2 of 2003 on Agriculture, its amendments of 2005 and its implementing bylaws (FAO, 2014 and 2015b).

Since 2011 a number of laws and regulations have been passed, namely: regulation on agricultural pesticide; regulation on prevention of smuggling of plant products; feed regulation; regulation on animal tagging, registration and tracking system; regulation on veterinary products; regulation on animal health monitoring and veterinary quarantine; the Palestinian Agriculture Disaster Risk Reduction and Insurance Fund law; and the agricultural credit corporation law. Additionally, the National Agriculture Research Center regulation has been adopted.



Wheat harvesting in Tammoun, West Bank.
©FAO/Marco Longari

⁶⁰ Customary legislation, based on sharia law is also relevant. Alongside every formal legal system in Palestinian history, there existed a system of customary law known as *urf*, which means “that which is known” in Arabic. This was a system of rules outside the court system, which handles disputes based on traditional oral customs. Through the use of *urf*, Palestinians can use alternative dispute resolution, specifically forms of participatory justice.

Moreover, other laws and regulations have been presented to the Cabinet of Ministers and are pending approval, including a law on specialized agricultural councils, a law on cooperatives as well as amendments to some adopted regulations such as the preparation of a draft law specific to plant health to replace the regulation on agriculture quarantine.

There are also some regulations in the pipeline or under modification such as the one on livestock and poultry market systems; a regulation on agricultural fertilizers; a regulation on bio-safety; an amendment to the regulation on prevention of smuggling of plant products; a regulation on slaughterhouses; an amendment to the Agriculture Law; and a regulation on poultry farms.

Having in place the required legislation is a necessary but not sufficient condition for effective governance of the sector, which is also constrained by a number of other factors related to the occupation and to the limited capacities of the relevant Palestinian institutions.

For example, agricultural relations between Israel and Palestine are based on Annex V of the Protocol⁶¹ on Economic Relations, which includes an article on Agriculture (Article VIII). According to this article, the Palestinians will have the right to export their agricultural produce to external markets without restrictions, on the basis of certificates of origin issued by the Palestinian Authority. Unfortunately, this arrangement, conceived as temporary, has been partially implemented and, most of all has not evolved into a more effective regulatory system due to the lack of progress in the peace process.

3.2.2. Food and nutrition security

The Palestinian legal system lacks explicit rules on the protection of the right to food. Moreover, there are no specific rules that guarantee food and nutrition security in Palestine (MAS, 2017). However, an indirect reference to this can be found in Article 10 of the Basic Law of 2003 on the protection of basic human rights and liberties that in principle includes also the right to food as a basic human right, linking it to ensuring human dignity.



FAO Qablan village womens cooperative produces bread.
©FAO/Marco Longari

⁶¹ Specifically, this refers to the Paris Protocol to the Oslo Agreements (the Protocol) and the Palestinian-Israeli Interim Agreement. Article VIII recognizes that agricultural products of both sides will have free and unrestricted access to each other's markets, with the temporary exception on sales of poultry, eggs, potatoes, cucumbers, tomatoes and melons, to be gradually removed on an increasing scale until they are finally eliminated by 1998 (Paragraph 10).

Food and nutrition security is indeed a multidimensional concept and as such it is a cross-cutting issue. As a result, though there is no law that specifically focuses on it, many other laws reference this concept. For instance, Article 2/9 of the Palestinian Agriculture Law of 2003 obliges the MoA to work on promoting food security to implement the objectives of this Law.⁶²

The Decision of the Council of Ministers No. 243 of 2005 concerning the Protection of Fish regulates the fishing profession, including licenses as well as the import, export and marketing of fish, so as to enhance its contribution of fisheries and fish farming in food security (article 2/8). The Public Health Law No. 20 of 2004 does not tackle the issue of food security explicitly; rather it deals, to some extent, with food safety issues (see below).

Similarly, there is no reference to food security in the Law-by-decree on Water No. 14 of 2014, which has an important indirect relevance to the agricultural and food production strategies, as well as public health considerations. This law codifies all people's right to receive an appropriate quality of water according to need and with a fixed and uniform price.

The legal framework for food safety is fundamentally composed of: Public Health Law No. 20 of 2004, Agriculture Law No. 2 of 2003, the Palestinian Standards and Measurements Law No. 6 of 2000, the Decree on the Law of Industry No. 10 of 2011, and the Consumer Protection Law No. 21 of 2005. There is no umbrella food safety law, although several proposals have been discussed in recent years.

There are several regulatory weaknesses related to the regulatory framework for food and nutrition security, including food safety. These include the fragmentation of the regulatory framework, which is based on several pieces of legislation rather than an umbrella food safety law. The legal framework is thus not harmonized, uncoordinated and results in functional overlap between authorities thereby compromising the effectiveness of monitoring, control and enforcement of food and nutrition security measures.

3.3. Conclusions

The institutional set-up of the Palestinian food system is a complex cobweb of organizations and policy frameworks. It is generally far from being effective and efficient in supporting operation of the agrifood sector and its modernization.

Three important issues deserve high priority of intervention, namely:

- a) clarifying the role of the MoA, its mandate and functions vis-à-vis other Ministries;⁶³
- b) filling the regulatory gaps on important areas that could be instrumental to boosting the agricultural sector;⁶⁴
- c) identifying more effective and efficient mechanisms of coordination within the agrifood value chains.

The institutional set-up for addressing food and nutrition insecurity in Palestine requires the development of a comprehensive national approach that would eliminate the current incoherence between the macro and sectoral policies and within sectoral policies and the absence of a clear national approach to food and nutrition security, the weak institutional structure and fragmented Palestinian management of the sector.

⁶² The Agricultural Law addresses various matters related to food security including: Agricultural wealth, water sources, desertification, plants, natural resources, agricultural and animal biodiversity, sustainable use of resources and fisheries etc.

⁶³ The mandate of the MoA (art. 2 of the Agricultural Law) is not sufficiently clear vis-à-vis the mandate of other ministries. This may result in overlapping and grey areas for functions related to the food safety of agricultural products, environmental protection or the IPR resulting from the development of plant or animal new varieties, among other topics.

⁶⁴ Such as producers' organizations, access to credit and agricultural finances, agricultural insurance schemes, quality certification, PPPs, agricultural census, research and statistics, rural development and livelihoods (including labour law in agriculture), sustainable agricultural production or agricultural contracts.

This new approach should be based on an integrated system of national and sectoral policies related to social assistance, production and import policies; provision of strategic primary commodities; price policies; consumer rights and protection; promoting good nutrition and a culture of balanced consumption; agricultural policies and strategies that support small farmers and provide them with supporting services and funds; and policies related to ensuring provision of basic utilities to all communities (MAS, 2017).

However, processes of legal reform are frequently controversial and highly vulnerable to political or institutional changes. This is especially the case in the Palestinian context, where the occupation and the geographic and political division between the West Bank and the Gaza Strip limit the national policy space, adversely impacting both on the revision of the legal frameworks and on their effective implementation.

Therefore, strengthening the national capacities to fully understand and carry out legal reform processes is key and special consideration should be given to the organization of participatory processes involving all key stakeholders, with a focus on smallholders and vulnerable groups (e.g. women engaged in the agricultural sector).



Palestinian farmer women and members of the Bezaria Bee Keeping Cooperative tending the bee hives.
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4. Challenges and Opportunities for the Palestinian Food System

4.1 Overall context

The situation in Palestine remains fragile and is subject to a range of political, security, and economic threats arising both from the occupation and divisions between Palestinian political factions. This creates significant constraints to policy-making and its capacity to effectively promote economic growth. As a result, the wellbeing of Palestinians is severely impaired, with the most vulnerable and structurally disadvantaged groups suffering most (UNSCO, 2016).

The Palestinian Government's space for policy development and implementation is limited, restricting its ability to deliver on its obligations as a duty bearer to its people. It has limited or no control over its borders as well as its customs revenues. It does not have its own currency nor authority to print money. It lacks access and policy prerogative over Area C. Its fiscal space is restricted.⁶⁵ It also has limited space for the development of effective local governance and local development policies. The political situation is further complicated by the internal political divide and eroded political legitimacy.⁶⁶ Thus, public sector accountability and governance effectiveness are weak.



FAO Woman from Burqa village preparing freekah.
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⁶⁵ A major part of the PA's revenue (60 percent to 70 percent) comes from the clearance revenues system, in which all taxes and revenues due at borders, seaports and by air on Palestinian goods and services are collected by the Israeli fiscal authorities on behalf of the PA in return for a 3 percent administrative charge to Israel. Structural fiscal deficit and the dependence on clearance revenue is the heaviest macroeconomic risk for Palestinian development (cf. USAID, 2017).

⁶⁶ The split between Fatah and Hamas as well as intra-Fatah rivalries has led to an increasing democratic deficit created by the deferral of parliamentary and presidential elections since 2005 and 2006, respectively, the suspension of the Palestinian Legislative Council (the Parliament) since 2007, and the subsequent consolidation of a de facto Hamas authority in Gaza.

Restrictions on economic and productive activities, including restrictions on the movement of people and goods, severely impair the Palestinian economy and its potential for growth. The ability of the private sector to function, let alone thrive and generate employment, is heavily limited by the high transaction costs for doing business⁶⁷ (UNFPA, 2016; USAID, 2017). Frequent military assaults on Gaza have crippled its economy, while the closure has prevented reconstruction and magnified the effect of shocks.

Palestinian producers have become increasingly cut off from their traditional trading partners and had to reorient trade towards the Israeli economy. Over time, Palestinian exporters have lost much of their competitive edge while Israeli products have enjoyed unhindered access to Palestinian markets (PCBS, 2011b). These, along with the overvaluation of the real exchange rate, have twisted the economic structure in favour of sectors not exposed to foreign competition.⁶⁸

As a result, the GDP growth over the last decade or so has been volatile and sluggish. With the economic stagnation comes a high unemployment rate, especially among youth and women, and high labour market informality. The economy remains highly dependent on its public sector, which in turn is highly dependent on external budgetary support, and structurally unbalanced with tradable sectors – such as agriculture – suffering most (UNSCO, 2016).

4.2. Agrifood sector issues

The analysis carried out in Section 2 reveals that the agrifood sector significantly contributes to Palestinian income, exports, food and nutrition security, and job creation. However, the sector has been operating well below its potential. Agriculture's contribution to GDP product and exports has been declining, while the absolute size of agricultural output has been fluctuating, with a discernible downward trend.

Despite sharing similar soil and climate conditions, Palestinian agricultural output and productivity have lagged behind the output and productivity of agriculture in comparable countries in the region (UNCTAD, 2015). Much of the difference in productivity is due to the impact of occupation and related restrictions to the movements of people and goods, that result in lack of access to land, water and other natural resources, to equipment and materials, and to markets both domestic and international, and severely impair construction and maintenance of infrastructure.

The current situation of the Palestinian agrifood sector has some strengths and many weaknesses. At the same time, the future can bring both opportunities and threats (Table 4.1). All need to be addressed to make the sector's contribution to wellbeing of Palestinian people (cf. sections 4.4 and 4.5 below) possible.

The most important sectoral issues faced by agrifood operators can be clustered around a few groups of issues for various stages in the value chain.

Agriculture inputs and productive resources

Palestinian agriculture relies heavily on imported inputs – fertilizers, herbicides and pesticides; seeds and seedlings; livestock feed and medicines – several of which are heavily constrained or banned (e.g. many fertilizers) under the terms of the occupation and almost all of which must pass through Israeli middlemen.

⁶⁷ In 2017 Palestine ranks 140th out of 190 countries according to the World Bank's Ease of Doing Business index (World Bank, 2017), the worst performance among Near East and North Africa region except countries where on open conflict is going on (such as Iraq, Syria and Yemen).

⁶⁸ In 2015, the share of tradable sectors had diminished to 19 percent of GDP from 36 percent in 1994, while the share of non-tradable sectors has increased to 81 percent from 64 percent in 1994 (UNSCO, 2016).

Table 4.1. SWOT Analysis of the Palestinian Agrifood Sector

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Different agro-ecological environments ▪ Available basic infrastructure ▪ Good endowment of human capital ▪ Active NGOs and civil society organizations ▪ Active international actors contributing to emergency response as well as development of agrifood sector ▪ Good experience in dealing with states of emergency and crisis management 	<ul style="list-style-type: none"> ▪ Vulnerability to natural (e.g. climate change), economic (e.g. price fluctuations) and political (e.g. Israeli occupation, conflict) risks ▪ Limits to the movement of people and goods, especially within, between and outside the Gaza Strip, Area C and the seam zone ▪ Lack of some basic (e.g. road network) as well as advanced infrastructure (e.g. cold storage, information, labs, surveillance) ▪ Scarce availability and high costs of agricultural inputs ▪ Low efficiency and profitability of agricultural production ▪ Environmentally unsustainable agricultural production practices ▪ Fragmented agrifood value chains ▪ Unbalanced power within the agrifood value chains ▪ Limited budgetary allocation to agriculture ▪ Weak accountability of the public sector ▪ Weak performance and scarce coordination among public institutions in the agrifood sector ▪ Weak capacities in policies, policy impact assessment, planning and monitoring and evaluation ▪ Inconsistent and incomplete agricultural laws and bylaws ▪ Weak statistics and information systems for agriculture and food security ▪ Weak agricultural extension service ▪ Not yet operational PACI and PADRRIF ▪ Weak R&D system for agricultural innovation ▪ Weak system of agriculture-related education
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Recognition of Palestine as non-member state at the United Nations ▪ Advocacy role by international organizations to relax constraints on Palestinian economy, especially in Gaza Strip and Area C ▪ Increasing awareness around the world and amongst members of the donor community of the significance of supporting agrifood development in Palestine ▪ Trade agreements concluded with Arab states and the EU ▪ Sympathy and support to Palestinians (Holy Land) products in international markets ▪ Potential for agro-tourism ▪ Increasing availability of technological innovations to make more sustainable agricultural practices (e.g. protected agriculture, unconventional water resources, etc.) ▪ Start of a new national planning cycle (NPA and eighteen sector strategies) 	<ul style="list-style-type: none"> ▪ Increasing adverse effects of climate change (more frequent drought spells, more extreme events) ▪ Population growth and associated increased competition for natural resources, particularly water ▪ Evolution of the international environment and related policies are not conducive to the two-state solution. ▪ Tightening of the constraints imposed by the Israeli occupation (e.g. settlements, limits to movements of people and goods, land confiscation, constraints to access of water sources) ▪ Continued political and physical division between the West Bank and Gaza

Water is a critical input for both crops and livestock, but restrictions to access have hindered economic activity, thus affecting the livelihoods of communities, deepening poverty levels and further increasing vulnerability. Overexploitation of the accessible water further depletes the aquifers and contributes to decreasing their quality.

The effects of prolonged Israeli restrictions on the access of Palestinians to water resources are exacerbated by natural conditions and climate change, which is expected to increase the severity of water scarcity through increased spells of drought.

In this situation, recycled wastewater might be a precious resource for Palestinian agriculture. However, the potential offered by reclaimed water is not being realized due in part to the lack of efficient irrigation schemes, of enabling institutional framework, capacities for monitoring and management of reclaimed water utilization in agriculture, and disincentives to private investment in agriculture. Most fundamentally, establishing wastewater treatment plants and other sanitation and reuse infrastructure faces the same restrictions by the Israeli authorities as other infrastructure.

Access to land and agricultural expansion have been severely undermined by the protracted occupation. Most land resources are located in Area C, which is sparsely populated and underutilized by the Palestinian population, mainly as a result of impediments to infrastructure and urban development. Systematic erosion of the agricultural productive base, because of settlement expansion and urban expansion (particularly in Gaza), has deprived farmers and herders of their land.

Agricultural land is also affected by land degradation due to lack of proper tending, discharge of untreated wastewater into nearby wadis and release of solid domestic and industrial waste from settlements onto Palestinian lands. This also affects the productivity of cultivated land.

Agricultural production

The production stage of Palestinian agriculture is characterized by fragmented agricultural systems (small holdings and mixed crop driven), highly variable productivity and underpinned by particular and long-set systems of traditional beliefs and practices.

Fragmented production is driven by the size of landholding and by rational risk spreading by individual farmers. The agricultural holdings are further fragmented due to inheritance, the distribution of the father's land to his children, mainly the sons before his death, and in some cases selling part of the land in order to look for another source of livelihood. This process of fragmentation is a key driver of marginalization and impoverishment of small-scale farmers (UNSCO, 2016).

The small scale of the agricultural holdings and the weak organization of producers result in low bargaining power with input suppliers and produce buyers; high unit costs of extension and training; and insufficient scale and planning to participate in markets beyond the local and informal sectors.

Productivity is highly variable, depending on the agro-climatic zone and farmers' access to resources, skills and scale of production. Much of the productivity differences may be attributed to the impact of occupation on Palestinian agriculture, which suffers as a result of a lack of access to fertilizers and water and the destruction and disrepair of agricultural and water-related infrastructure.

Palestinian agriculture is also negatively impacted by small-scale inefficiency (lack of economies of scale) emanating from the fragmentation of the land and communities and by severe marketing

difficulties. Furthermore, the micro and small scale of most holdings prevent the use of land as collateral to access formal credit, which in turn impacts agricultural practices.

Beliefs and socio-cultural practices also affect agricultural production through, for example, limited autonomy and unequal access to assets for women and also for young people, skepticism in some areas about formal registration of cooperatives and farms as businesses due to long-held beliefs that agriculture is not a business but a traditional means to subsistence, and reluctance to borrow from banks due to religious concerns about interest. The same beliefs and socio-cultural practices can impair the operation of farmer associations that are generally weak.



Agrifood processing and packaging

The processing and packing segment is either dominated by large, sometimes export-oriented companies operating subscale (dairy, poultry, herbs and vegetables) or processing and packaging occurs minimally - if at all - at the local level.

Neither of these models currently accommodates small-scale suppliers well. Efforts to include more small-scale producers have been generally hampered by high costs to conduct training, quality assurance, and traceability across such a fragmented supply base. For example, most sheep and goat meat, destined for domestic consumption, is slaughtered by small-scale, local butchers.

This poses a serious problem of value added creation and distribution among the various actors, stemming out from a poor inclusion of the farmers, especially smaller farmers and women, in the value chains, fragmentation between different stages along the value chains, and unbalanced power between actors within the value chains.

Agrifood markets

Constraints on trade deprive the agriculture sector of low-cost inputs and markets for its products. Perishable agricultural produce with a short shelf life has been disproportionately impacted by the restrictions, which involve, for example, the unloading and reloading of products on trucks at checkpoints.

Palestinian farmers are also faced with high competition from settlements production and the fluctuation of prices. Products of farmers, herders, and fishermen are often not competitive in local and international markets. Israel's restrictions on the movement of farmers, services and agricultural trade entail additional transaction costs (twice as much as those borne by their Israeli counterparts) and time-related costs (four times the amount of time of Israeli counterparts). These factors are compounded by the larger and more efficient Israeli farms, relying on more conducive support services, institutions and regulations as well as some public subsidization, making the lower labour cost the only significant competitive advantage for Palestinian farmers.

The domestic Palestinian marketplace is comprised of fragmented retail supply at shops and stalls (hardly any supermarkets) and wholesale markets without professionally run wholesale businesses at their core. Traditional marketing strategies and fragmented trade chains reduce the profit margins for farmers and increase retail prices.

There are only a few Palestinian exporters, with the small export market primarily controlled by the major packinghouses – mostly targeting Israel, Western Europe and, increasingly, the Arab Gulf countries.



Dura Coop success story.
©FAO/Marco Longari

Enabling environment for agrifood activities

The agrifood sector suffers from inadequate services and little to no access to finance for both farmers and intermediary businesses due to failures on both the demand and supply side of the financial services market. On the other hand, it features relatively good road infrastructure.

Despite the growing level of institutional support provided by the Palestinian Government and civil society actors, the availability and accessibility of agricultural services including extension, veterinary and marketing services is insufficient, limiting the potential for farmers, especially small-scale farmers and female-headed households to gain their livelihood from agriculture.

The MoA offers agricultural services through its different units and branches. However, the MoA has limited financial resources, and the capacity of its staff to deliver services is limited. The absence of services that enable and empower key groups often impairs the ability of potential drivers of change to pursue their interests while contributing to the dynamism of the sector.

Production technologies have improved in recent years. Yet, there is a need to expand the use of efficient irrigation and water conservation and harvesting technologies. Despite improvements, production technologies still lag behind those in competing countries' – primarily Israeli's – firms.

Lack of access to finance is a salient constraint on Palestinian agriculture. Access to credit is compromised by the impact of the ongoing occupation and an unfavorable political environment. Additional constraints are related to the small size of the typical agricultural production unit, the lack of acceptable collateral for commercial loans and the high level of risk associated with agricultural production, emanating from occupation-related restrictions, weather and/or price fluctuations.

The investment climate is not conducive to enable agricultural cooperatives' to access capital and their lack of assets makes them unable to meet banks' requirements for finance. A Palestinian agricultural lending institution – the Palestinian Agricultural Credit Institution (PACI) – was recently established by the Palestinian Government to assist farmers in accessing credit, but it is still far from being fully operational.

Palestinian farmers have limited opportunities to enroll in agricultural insurance schemes to help them in cases where their crops are destroyed due to harsh climate conditions. The Palestinian Disaster Risk Reduction and Insurance Fund (PADRRIF) was recently established within the MoA to support farmers under disaster conditions, but it is not yet clear how effective this fund can be in achieving its stated objectives.

There is limited awareness on standards prevailing in key export markets, including Israel, EU and neighboring Arab countries and even less capacity to comply with those standards. This contributes to low productivity, poor quality of products and high post-harvest losses, thus perpetuating poverty among farmers.

In conclusion, there is room for Government action to provide public goods such as advanced infrastructure (e.g. cool chains), education and training, R&D, knowledge and information, basic services (e.g. water), public health (e.g. veterinary services), financial services (insurance and credit), as well as laws and regulations setting the rules of the game for private actors.

Organization of the agrifood value chains

Collective action by farmers and herders is weak. Weak coordination limits the access of individual farmers and herders to credit, to wholesale purchases of inputs and wholesale sales of produce, further marginalizing small-scale farmers by limiting their ability to compete in local and international markets.

Apart from a few success stories, there is a long-standing history of farmers' organizations that were not established or have not functioned for commercial purposes.

Cooperatives succeeded where there are economies of scale downstream the value chain, for example at the processing and marketing stage (e.g. strawberries in Gaza, dates in West Bank). They can also help balance the bargaining power of intermediaries along the value chain.

There is also need to create intermediate bodies, democratically organized to represent all actors in a given sub-sector value chain. This will give voice to those who really know the problems and the possible solutions, and will increase the incentive to the Government to be accountable, more effective and more efficient in delivering on its obligations as a duty bearer to agrifood actors.

4.3. Food and nutrition security issues

In a protracted crisis context such as Palestine, characterized by pervasive risks in the form of both shocks and stressors, it is not surprising that food insecurity is still very high, with more than one quarter of the population classified as food insecure (FAO-WFP, 2016).

In the Gaza Strip, nearly ten years of blockade, the closure of illegal tunnels with Egypt in 2013 and recurrent conflicts have resulted in the exacerbation of the gradual process of de-development, which has been on-going since the imposition of the blockade, leading to increasing food assistance dependency.

In the West Bank, physical obstacles including the barrier and checkpoints, together with administrative obstacles including permit requirements and the designation of closed military areas, continue to impede Palestinians' access to services and resources.

In both cases, food insecurity is determined primarily by the lack/loss of an individual's labour entitlement that prevents access to food. This is particularly severe for the most vulnerable groups gaining their livelihood through this entitlement, which include the youth, women and the disabled.

A second determinant of food insecurity is related to the lack/loss of the so-called own production entitlement, that is those people who earned their livelihood by directly producing a significant share of the food they consume and for some reason can no longer produce this food. This is the case of other vulnerable groups such as Bedouins and herders living in area C, people living in the seam zone, farmers whose farm is in the buffer zone in the Gaza Strip and more generally all farmers, herders and fishermen who are suffering from the lack of access to productive resources.

On the other hand, any household that has a reasonably unrestricted access to productive resources (land, home gardens) can use farming as a coping strategy in case of need, that is they can compensate the reduction in their labour opportunities (labour entitlement) and the reduced availability of food with direct production of foodstuffs (production entitlement) that can either directly be consumed or sold taking advantage of higher food prices.

From the nutrition viewpoint, the most important issue is the reported double burden of malnutrition – i.e. the coexistence of underweight and overweight especially among children. Despite the causes for being overweight and obese do not depend exclusively on a too caloric diet, there are no doubts that the issue of a better balanced diet, and therefore, access to food is key to address the issue.

However, addressing this issue calls for broader lifestyle changes. Indeed, socio-demographic factors (age, sex, educational level, and marital status) play a major role. Cultural norms and restrictions such as the lack of sex-segregated facilities for physical activity are key to making healthier life styles possible for women.



FAO Arouri Halhoul Cooperative producing Lebneh.
©FAO/Marco Longari

4.4. Problem analysis

The analysis above has been participatory discussed and validated by those involved in the stakeholder analysis (Annex 1), developing a problem tree for the Palestinian food system that is the agrifood sector as well as the food consumption of Palestinian households (Annex 2).

There is a wide consensus among stakeholders that any discussion of Palestinian development must start by recognizing that there are three sets of root causes, namely: (i) the Israeli occupation, (ii) the functioning of Palestinian governance, and (iii) other causes that do not (or only partially) depend on the first two and compound with them (e.g. economic cycle, demographic dynamics, socio-cultural factors, poverty and inequality, and environmental shocks and stressors).

The largest and most visible constraint on Palestinian development is the occupation (UNSCO, 2016). The occupation impacts the movement of people and goods, fragments the territory geographically and socio-politically, stunts economic growth, and restricts Palestinian use of critical resources such as land, water and minerals. With the very same instruments, it hinders policymaking, governance and service delivery by the Palestinian Authority.

At the same time, it should be acknowledged that other problems derive from the actual way the Palestinian Government operates. The limited fiscal space has a profound impact also at sector level, determining a small budget allocation to the sector. A second source of problem is represented by the institutional set-up that is generally far from being effective and efficient in supporting the operation of the agrifood sector and its modernization. Additionally, low public sector accountability and weak governance effectiveness, partly stems from the other two causes.

Other problems arise from a set of other causes that only partially depend on the occupation and on the Palestinian governance (e.g. domestic economic cycle, demographic dynamics, socio-cultural factors, poverty and inequality) or do not depend on them (e.g. environmental shocks and stressors, international economic cycle). These problems have negative effects per se but can also compound with the occupation and Palestinian governance issues developing a synergetic negative impact.



Flock of sheep grazing.
©FAO/Marco Longari

The final consequences are fourfold, namely:

- unsatisfactory food consumption in terms of quality, safety and nutritional value among Palestinian households, that can manifest itself as:
 - malnutrition, meaning unsatisfactory health status (e.g., lack of micro-nutrients, overweight, obesity, etc.) as a result of an unbalanced diet (double burden);
 - high level of food wastes and losses, as a result of inadequate food utilization practices as well as inefficient processing and marketing;⁶⁹
- low competitiveness of farms and firms within the agrifood value chains that largely depend on:
 - sub-optimal farm/firm management due to inadequate access to natural resources and energy, inadequate skills, low level of investment, poor risk management, inadequate information;
 - market fragmentation depending on high transaction costs, lack of information, low level of investment, poor risk management;
 - unbalanced power within the value chains, both vertically (i.e. between different stages in the same value chain) and horizontally (i.e. inequality within the same stage of a given value chain);
- socio-economic exclusion, especially of youth, female and small-scale producers:
 - unbalanced power within the value chains depending on the causes discussed above;
 - low youth and female employability which depends on labour demand-supply mismatch, inadequate skills, non-conducive habits and behavior (e.g. early marriage and child-bearing);
- environmentally unsustainable practices within the agrifood value chains, primarily though not exclusively at agricultural production level, that depend primarily on:
 - sub-optimal farm/firm management whose determinants have already been listed above,
 - environmental and natural resource degradation, depending on lack of awareness of the issues, low level of investment, inadequate or unequal access to natural resources and energy, overexploitation of natural resources and environmental pollution.

While the third group of causes – i.e. the ones other than occupation and Palestinian governance – can only partially be prevented and need to be managed. The stakeholders maintain that all the problems above cannot be addressed if the other two root causes are not tackled. Although acknowledging that the occupation plays a key role – partially determining also the unsatisfactory Palestinian governance – and therefore requires specific attention, improving Palestinian governance can produce some significant beneficial effects even if the occupation issue is not completely solved.

4.5. Opportunities for the agrifood sector

The agrifood sector remains a strategic pillar of the Palestinian economy, with unparalleled potential for sustainable and quicker recovery. Much may be done, even under current conditions, to reverse or at least arrest the decline of the sector.

Indeed, despite the challenges faced by the Palestinian agrifood sector, there are some opportunities that can be seized to improve profitability, make the value chains more inclusive and the production practices more environmentally sustainable. These are (Technoserve and Oxfam, 2011):

- increased sales to domestic consumers – through import substitution, domestic value chain rationalization, and market growth potential;
- increased export sales – achieved by diversifying export market channels, aggregating farmers for efficiencies of training, supply, and market access, and targeting new and more accessible growth markets;

⁶⁹ High level of food losses along the value chain depends primarily on the low quality and safety of agrifood products, that in turn the lack of quality assurance systems, weak post-harvest processing, storage and packaging capacities, restrictions to the movement of people and goods, ineffective extension and educational systems, lack of public investment.

- increased marketplace efficiencies in both domestic and export market access that see more margin captured by small producers – by introducing standards, grading and traceability (among other) practices, organizing farmers into aggregated groups for input and output market access, and helping firms collaborate via development of industry membership based organizations.

For sustained recovery, it is also important to increase investment to rebuild agricultural infrastructure, establish and strengthen farmers' associations (consortia, cooperatives) and normalize production and transportation costs. In addition, special targeted efforts are needed to support smallholder farmers in such areas as veterinary services, packaging, cold storage, transportation and marketing. Ideally, such interventions should be part of a comprehensive overhaul of policies and legislation governing and influencing agricultural production, processing and trading.

There is also an urgent need to make the two recently established financial institutions– i.e. PACI and PADRRIF – fully operational to share the risks inherent in the sector, provide credit and insurance to farmers, support marketing and post-harvest services and fund and guarantee investment in agricultural and water-related infrastructure.

Considering the pool of already available technical innovations, the limited access to key natural resources, and the impact of climate change, it is imperative that any opportunity for reducing the ecological footprint of agricultural practices – such as the use of unconventional water resources, protected agriculture, improved rainfed farming – is pursued.

Given its critical importance, efforts should be exerted to ensure that Palestinians have unhampered access to the land currently designated as Area C. Without access to Area C, sustainable recovery in the Palestinian agricultural sector is not conceivable, nor is it possible to build a robust economy capable of underpinning a viable Palestinian State.



A Palestinian farmer using an FAO sponsored water purification system to recycle water coming from nearby households to irrigate plants, crops and fields.
©FAO/Marco Longari

5. Towards a Theory of Change

5.1. Justification

The development of Palestine remains constrained by the occupation, and the resulting restrictions on the movement of goods and people and access to natural resources, and recurrent conflict, especially in the Gaza Strip. This makes the country highly vulnerable to both regional and global downturns. The international community has a long-standing commitment to helping Palestinians relax these constraints and make the country more resilient.

FAO can contribute to the socio-economic development and wellbeing of the Palestinian people through actions in the specific fields of its mandate, namely food and nutrition security and sustainable development of food systems. The FAO CPF is the strategic document that streamlines such a contribution.

The development of the food system, including the agricultural sector which is one of the most strategically important and resilient productive sectors of the Palestinian economy, can contribute to inclusive economic development through economic growth, employment, especially of women and youth, and reduced inequalities.

Improving access to, enhancing management of, and increasing investment in key renewable natural resources such as land, water, and fishery throughout Palestine, and specifically in the most critical areas, is fundamental to promoting more sustainable use of natural resources and improving livelihoods, especially those of increasingly marginalized communities.

Emergency and development interventions focusing on agricultural production and food consumption with specific reference to the most vulnerable groups throughout the country and specifically in the most vulnerable areas such as Area C and Gaza Strip can significantly contribute to achieving food and nutrition security and strengthening resilience to man-made and natural risks.

All the above contributes to underpinning the state building process and preserving the longer-term viability of a Palestinian statehood.

The CPF is therefore a key tool to guiding FAO's contribution to the implementation of the Agenda 2030 for Sustainable Development with specific reference to Sustainable Development Goal 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture".

Furthermore, it significantly contributes to almost all of the Sustainable Development Goals, namely:



5.2. FAO's role

All stakeholders that met during the analysis – i.e. the Palestinian Government, international agencies, donors, NGOs, CSOs, and the business community (cf. Annex 1) – acknowledged that FAO can play a leading role both in development and humanitarian interventions in the following fields:

- agrifood value chain development in all main subsectors starting with the production of crops, livestock and fish;
- sustainable management of renewable natural resources, primarily water and land,
- food and nutrition security, including food safety; and
- climate change, including both adaptation and mitigation measures.

This role will be played in close coordination with the Palestinian Government as well as non-State actors working in the fields above. Particularly important is the collaboration with the MoA, which leads on the achievement of SDG 2 – Zero hunger at the governmental level.⁷⁰

The stakeholders also stressed that, with reference to the above fields, FAO has a comparative advantage in the following intervention modalities and should keep strengthening them:

- playing an advocacy role globally (e.g. facilitate Palestinian engagement in international platforms, treaties and agreements) as well as locally (e.g. everyday facilitation role creating opportunities for dialogue and trying to enhance it, overcome barriers that prevent smoother operations of socio-economic agents);
- facilitating the creation of effective coordination mechanisms (e.g. help build intermediate bodies, dialogue platforms, etc.);
- assisting the development of an enabling institutional environment that builds on international experience (e.g. assist the MoA to develop/reform legal frameworks and providing services);
- supporting the promotion of the adoption of innovative solutions that foster sustainable development from the environmental, social and economic viewpoint; and
- contributing to humanitarian interventions that aim to build resilience in a protracted crisis context where human-made or natural risks – both as shocks and stressors – are pervasive.

As a result, FAO should provide assistance and interact with its partners through three different, but complementary types of action that, adopting a programmatic approach, aim to bridge the humanitarian and development divide:

- policy dialogue at different levels: at the overall level, FAO will contribute with its technical expertise to the necessary coordination between the humanitarian and developmental interventions and between political and developmental actions as required in the context of complex and protracted crisis. Specifically, FAO will contribute to the coordination and dialogues within the Humanitarian Country Team as well as to the UN strategic priorities identified in the UNDAF 2018-2022 to “Supporting the Palestinian Path to Statehood” promoting dialogue to reverse the fragmentation of the Palestinian territories and to “Supporting Equal Access to Accountable, Effective and Responsible Democratic Governance for All Palestinians” contributing to the dialogue in the areas falling within the FAO mandate. Continued policy dialogue will also be taken at the more operational level through regular bilateral and multilateral interaction with relevant partners and stakeholders and through the participation in formal structures and procedures, such as UN, Government, donor and humanitarian coordination fora;
- development interventions and partnership: the CPF will be aligned with the development priority areas set by the National Policy Agenda 2017-2022 on “Economic independence” as well as sector strategies, primarily the National Agriculture Sector Strategy 2017-2022, and act as a catalyst of coordination of donors’ interventions either directly, e.g. multi-donor projects,

⁷⁰ FAO, in partnership with EU, promotes a comprehensive approach to food and nutrition security to ensure coordination and interaction among actors for the achievement of SDG2 through the so-called Food and Nutrition Security Impact, Resilience, Sustainability and Transformation (FIRST) initiative. This is done facilitating policy dialogue within the newly established SDG2 Committee led by the MoA and supporting the formulation of the National Food and Nutrition Security Policy.

or indirectly, being actively engaged in policy dialogue platforms between donors and national stakeholders. FAO interventions will thus contribute to, and in some cases will be an enabler for, the development of partnerships with Palestinian NGOs as well as between the public and private sector stakeholders, to implement activities that aim to build the future Palestinian economy, creating job opportunities, and improving the business environment. Specifically, in the broader areas of agriculture, food and nutrition security (including food safety), natural resources and climate change, the intention is to continue providing technical assistance and advice and support capacity development to implement value chain development interventions targeting private sector actors (mainly small and medium scale farmers and agribusinesses) either directly or through partnerships with local actors;

- direct emergency and resilience-building interventions: relieving the crisis of people, especially the most vulnerable groups, hit by human-made or natural shocks in the specific areas of agricultural production, fishery and food and nutrition security through interventions coordinated by the Food Security Sector within the Humanitarian Response Plan framework. While this is the primary purpose, interventions will be designed from the very beginning to enhance resilience and foster development, that is bridging across the usual relief / rehabilitation / reconstruction and development, in close coordination with other humanitarian actors (e.g. Government, international agencies, donors, NGOs, CSOs) and engaging the private sector as best practices of early response prove to be more effective.



A Palestinian farmer tending a home vegetable garden in the backyard of his house.
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5.3. Principles

CPF development⁷¹ is based on a set of established principles including:

- a) Effective participation through dialogue/consultations with government representatives, national stakeholders (NGOs, CSOs, business community), and international partners ensuring that FAO's support to the country is the result of an inclusive and coordinated corporate effort aiming to identify the country needs and priorities and leading to country ownership;
- b) Full alignment and harmonization of interventions to the Palestinian National Development Plan (2017-2022) both in its overall component (National Policy Agenda, NPA) and sector components (national strategies, primarily the National Agriculture Sector Strategy, NASS)⁷² as well as to the UN Development Assistance Framework (UNDAF), the UN 2030 Agenda for Sustainable Development and the FAO's Global Strategic Framework to ensure that FAO's assistance to Palestine is relevant, coherent and focused, and the results feasible to achieve given FAO's delivery capacity and resource mobilization potential;
- c) Mainstream gender equality and women's empowerment with emphasis on UN Security Resolution 1325⁷³ to ensure women's equal and full participation as active agents of peace, economic recovery, social cohesion and political legitimacy;
- d) Mainstream sustainable development complying with the FAO's environmental and social standards (FAO, 2015c) to effectively manage environmental and social risks and deliver expected outcomes for each intervention while mitigating potential negative environmental or social impacts.



Palestinian farmers and FAO Project beneficiaries tending their backyard garden.
©FAO/Marco Longari

⁷¹ Though the formal CPF will not include a Country Profile, an analysis of the country context is required as an internal background document. As such, this document is an integral part of the process of CPF development and the principles adopted to develop the CPF apply to the Context Analysis as well.

⁷² The National Development Plan 2017-2022 (NPD) consists of two key components. The first component is the National Policy Agenda (NPA), which represents a high-level policy document that sets out the national vision, priorities and policies. The second component is the 18 national sector strategies, along with three cross-sector strategies. The most important policy frameworks to consider for CPF are the NPA (GoSP, 2016) and the NASS (MoA, 2016a). Other sector strategies, such as the one on health and social protection as well as and the three cross-cutting strategies on gender equality, environment and youth will be also considered insofar they are relevant to the CPF contents.

⁷³ The UN Security Council Resolution 1325 of 31st October 2010, on women, peace and security, stresses the importance of women's equal and full participation in the prevention and resolution of conflicts, peace-building and peacekeeping. It calls on member states to ensure women's equal participation and full involvement in all efforts for the maintenance and promotion of peace and security, and urges all actors to increase the participation of women and incorporate gender perspective in all areas of peace building.

In implementing the CPF, FAO is committed to the three core humanitarian principles.⁷⁴ They represent an application of the human rights based approach (HRBA) as a concrete development modality in intervention design, monitoring and reporting. These principles are:

- a) Humanity: human suffering must be addressed wherever it is found, with particular attention to the most vulnerable in the population, such as children, women, the displaced and the elderly;
- b) Neutrality: agencies must not take sides in the hostilities or in controversies based on political, racial, religious or ideological identity (non-partisanship/ independence);
- c) Impartiality: interventions are delivered to all those who are suffering; the guiding principle is only their need and the corresponding right. Human rights are the basis and the framework for an assessment of needs.

In addition to the above humanitarian principles, there are some programming principles that should be taken into account that include:

- a) Do no harm: as some interventions can become part of the dynamics of the conflict, humanitarian and development organizations must strive to "do no harm" or to minimize the harm they may be inadvertently doing simply by being present and providing assistance. This is especially relevant for state-building in situations of fragility and conflict (OECD, 2010) as observed in the Palestinian context;
- b) Accountability: international agencies shall hold themselves accountable to both the affected populations (that is their needs for assistance and protection are met, with dignity, cf. IASC, 2012) and the donors (that is assistance is provided for the proposed purpose). Coordination among organizations is thus a key part of this principle. At the same time, effective results-based management (focus on outcome achievements) and high transparency in the operations are crucial.

5.4. Rationale

The problem analysis (cf. section 4.4) shows that there is a common understanding among all relevant actors of what the issues at stake are, although there is a different emphasis put by each of them on different issues and how to address them. The involved stakeholders – the Palestinian Government, donors, NGOs, CSOs, business community – agree that interventions should be characterized by:

- market-orientation: in the current Palestinian context, there is huge room for an increased role of private operators as actors of change within the economy: this calls for substantial improvements of competitiveness and efficiency of farms and firms within the agrifood value chains;
- inclusiveness: in a context featuring many types of exclusions (economic, social, etc.) "leaving no-one behind", primarily the most vulnerable groups (women, youth, etc.), should be a strategic objective;
- sustainability: in a context of limited, and often overexploited, natural resources, environmental sustainability is a pre-requisite of any intervention as well as for ensuring socio-economic sustainability (medium-long term viability) of activities;
- resilience-building: in a fragile and protracted crisis context, any intervention must include a resilience-building component (even in emergency, not only relief and rehabilitation, but also investment to increase resilience).

Notwithstanding the common ground of understanding above, the stakeholder analysis acknowledged two tensions that need to be addressed and composed, namely:

- a) humanitarian vs. development interventions, and
- b) private vs. public actors (and goods/services produced thereby).

⁷⁴ These principles, listed in UN General Assembly Resolution 46/182 of 19th December 1991 on "Strengthening of the coordination of humanitarian emergency assistance of the United Nations" (UN, 1991), aim at ensuring the integrity and non-politicized nature of UN Agencies' work.

However, all stakeholders eventually agree that both poles of each dyad are needed:

- a) There is a continuum rather than an opposition between the two typologies of intervention. It is not an either-or choice, but rather a matter of composition (more or less emphasis on the former or the latter), depending on the specific nature of the targeted actor (cf. section 5.5), that are the characteristics of the actor, the structural features of the subsector he/she belongs to, and the context within which it operates, primarily the nature and magnitude of risks it faces;
- b) Despite the emphasis on the private operators as actors of change, the provision of public goods and services cannot be ignored. By and large, there is a key role to be played by the public sector to create an "enabling environment" for private action. The public bodies should intervene to:
 - establish the rules that define the space for private operators, e.g. ensuring the rule of law, issuing legal frameworks and ensuring their enforcement, setting a structure of incentive which is conducive to the NPA and sector objectives, ensuring that all stakeholders have an effective voice and play their own role in the society/economy, etc., and
 - provide those goods/services that private operators are not willing/able to produce (i.e. overcoming market failures and incompleteness), such as guarantee the access to basic assets including knowledge for the excluded and to reliable/unbiased information for all, provide some forms of R&D, invest in key infrastructure, provide agriculture insurance/credit, etc.

5.5. Approach

The adopted approach is to favor transformative dynamics. Operationally, this translates into how to foster the already operating dynamics towards wellbeing enhancing outcomes. It is therefore necessary to identify what are the on-going structural changes in Palestine.

Any economy undertakes the following structural economic transformations with economic growth: (i) agricultural sector decreases in terms of GDP and employment, while increasing land and labour productivity, and (ii) household members increase their own food intakes achieving satiety and improving diet variety, though sometimes there could be problems of malnutrition (e.g., lack of micro-nutrients, overweight, obesity, etc.).

With reference to this, Palestine shows some similarities – decreasing share of the agricultural sector in the national economy, some improvements in households' food security⁷⁵ – but features also some peculiarities such as the stagnating, and in some cases even deteriorating, agricultural productivity (UNCTAD, 2015). Moreover, we cannot look at agriculture only as a production activity but we need to keep in mind the specificity of Palestinian environment (i.e. risky environment plenty of shocks and stressors) that qualifies farming and food self-consumption as a key coping strategy in case of need.

The next two subsections illustrate the transformative dynamics operating in Palestine at farm and household levels and which evolution paths are considered positive and thus favored by FAO's interventions and which others are negative and as such will be prevented by FAO's interventions.

⁷⁵ Although these achievements are largely dependent on aid and remain highly vulnerable to political and economic downturns (FAO-WFP, 2016).

5.5.1. Production units

Farm classification

A number of farm typologies have been offered in the literature to help manage small farmer diversity (Berdegué and Escobar, 2002; Vorley, 2002; World Bank, 2007; Fan et al., 2013; Hazell, 2013).⁷⁶ Key elements in these typologies are the characteristics of the region in which farmers live (especially its agricultural potential and access to markets), and the characteristics of the farm household themselves (assets, business orientation and acumen, and degree of diversification into off-farm sources of income).

A similar multiple-criteria approach can be adopted in proposing a classification of farms suitable to the specific conditions of Palestine. The proposed classification is based on two main groups of characteristics, namely:

- a) Access to production resources and assets (conditional to the specific agroecology where the farm operates):
 - land: e.g. farm size;
 - livestock: e.g. number of heads;
 - water: e.g. rainfed vs. irrigated;
 - technology: e.g. open field vs. protected;
- b) Market orientation:
 - output mix: e.g. cash crop vs. staple crop;
 - self-consumption: e.g. low vs. medium;
 - inclusion in the value chain: e.g. participating vs. non-participating.

According to the classification above, we can identify five typologies (Table 5.1):

- a) Non-farms: in this category, can be grouped as all those holdings that are not even marginally economically viable. These holdings are micro land plots usually used directly by the owner for hobby farming and seldom leased out. Their role in household food consumption or income generation is trivial, though they can play a little role as a buffer in dire times (very low resilience);
- b) Marginal farms: this category includes subsistence-oriented small farms often, but not necessarily marginalized for a variety of reasons that are hard to change, such as suffering severe limitation to access productive resources because of poverty, socio-cultural factors, severe impact of occupation. Many of the same factors also prevent them from becoming transition farms. The share of self-consumed output is quite high and farming is only one of the household income sources (pluriactivity) because the reduced size of the assets, primarily land and water, controlled by the household is not enough to gain a livelihood. At the same time agriculture is by necessity part of the household livelihood strategy given the limited alternative options it has access to. Farming is also a key tool to ensure household resilience to shocks, although it is not enough to make it not vulnerable to shocks (low resilience);
- c) Transition farms: this category includes small-medium size farms that in some instances already have or might soon have favorable off-farm opportunities. The most favorable ones could potentially successfully link to the value chain if proper investments in skills and technology will be made and/or key constraints will be relaxed (i.e. access to productive resources, credit, insurance). The level of technology to which the transition farms have access is more developed than in the case of marginal farms (traditional) although not up to date because of lack of investment capacity and/or lack of economies of scale due to the limited holding size. Farming income is an important share of total household income as it is the level of self-consumption of agricultural output. Farming is a key tool to ensure household resilience to shocks: usually these households are able to absorb shocks of small-medium size, though they are not resilient to major shocks;

⁷⁶ For a brief review of these classifications, refer to Annex 3.

- d) Commercial farms: this group of farms includes medium-large farmers, mostly full-time, although sometimes they might be part-time, that are already successfully linked to value chains (or could link if given a little help). These farms show good productivity performances thanks to the adoption of updated technology and access to important agricultural assets, primarily water. The farmers have access either individually or collectively (e.g. cooperative) to important services such as market information and sometimes packaging and logistics. The agricultural output is generally marketed (i.e. the level of self-consumption is negligible vis-à-vis the output value). The level of resilience of these farms to shocks is quite high;
- e) Agricultural companies: this group includes only a few very large farms, sometimes part of a broader company operating also in non-agricultural sectors. They are purely commercial-oriented, and engage in specialized high profit agricultural production. Their business already is, or might soon be, export-oriented. The resilience level of these companies is high.

Table 5.1. Farm typologies for Palestine

	Non-farms	Marginal farms	Transition farms	Commercial farms	Agricultural companies
Size	Micro	Small	Medium	Large	Very large
Access to productive resources	Very poor	Poor	Intermediate	Good	Very good
Technology	Traditional	Traditional	Intermediate	Modern	Modern
Self-consumption rate	Low	High	Medium	Low	N.A.
Share of non-farm to total income	Very high	High	Medium	Low	N.A.
Involvement in the value chain	Negligible	Low	Medium	High	Very high
Economic viability	Negligible	Low	Medium	High	Very high
Resilience to shocks/stressors	Very low	Low	Medium	Medium-high	High

As shown in Table 5.1, the combination of these characteristics determines the livelihood and resilience outcome of each farm type: moving from non-farms towards agricultural companies both economic viability and resilience to shocks and stressors increase.

Farm transformative dynamics

The two extreme cases, that are non-farms and agricultural companies, are not of primary importance for FAO interventions either because they have negligible economic importance⁷⁷ or because they are already able to play their own economic role and are resilient enough to shocks and stresses, respectively.⁷⁸

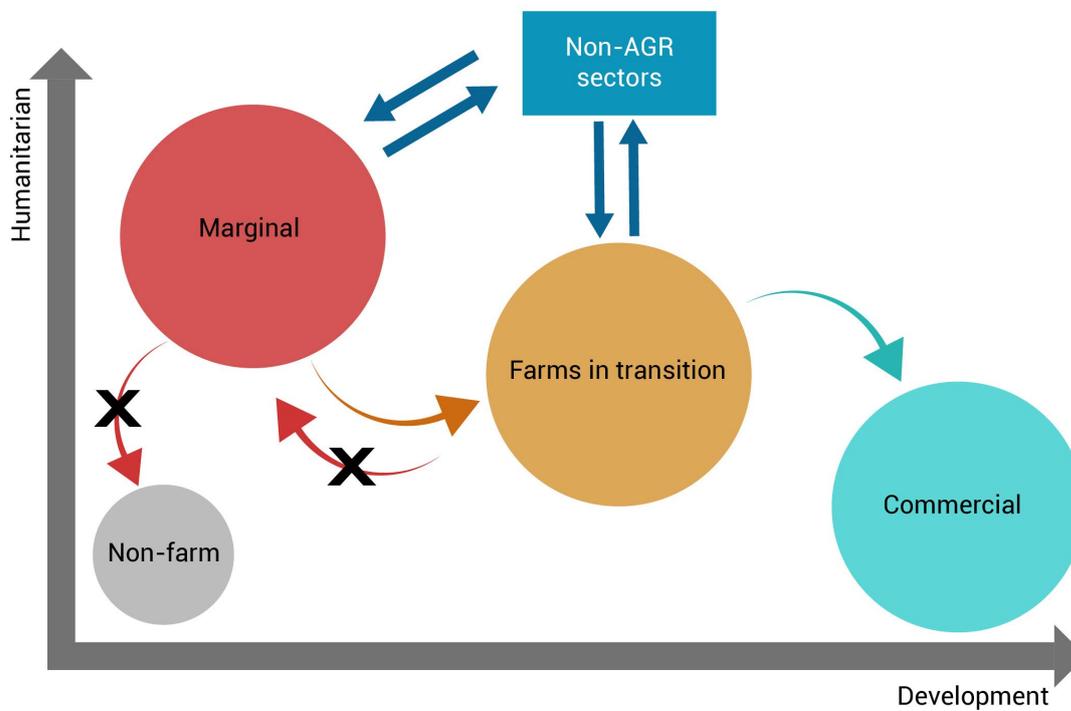
Nevertheless, specific attention will be devoted to the latter whenever they can act as “enabler of inclusive growth” within the value chain, for example acting as a pull factor for the participation of transition farms in the value chain or their transformation into true commercial farms.

⁷⁷ Those non-farms realities that are associated to low levels of food and nutrition security are addressed under the household related efforts.

⁷⁸ This does not mean, however, that some cross-cutting interventions aimed at creating an enabling environment such as market information system or access to credit and insurance will not prove to be useful for these groups as well.

The different nature of the three intermediate groups, which constitute the bulk of Palestinian agriculture, implies that different interventions may be relevant for each group. In each case interventions constitute a blend, though with a different balance, of humanitarian and development actions (cf. the two axes in Figure 5.1).

Figure 5.1. Positive and negative farm dynamics in Palestine



Marginal farmers are predominantly poor and will mostly need some form of production subsidy and social protection, often in the form of safety nets, food subsidies, or cash transfers. Interventions that help improve the productivity of their farms (e.g. better technologies and natural resource management practices) can make important contributions to their own food security and perhaps provide some cash income. These interventions may in many cases prove more cost effective and more sustainable than some forms of social protection that exclusively support the consumption of goods and services and will improve household resilience to food insecurity. But subsistence farmers have limited ability to pay for modern inputs or access to credit, so intermediate technologies that require few purchased inputs may be needed, or inputs will need to be heavily subsidized. Marginal farmers are typically the most exposed and vulnerable to climate risks, and in addition to safety nets, they need help developing resilient farming systems.

Transition farmers need help developing appropriate skills and assets to succeed in the non-farm economy, including in many cases assistance in developing small businesses. This can be especially important for women and other disempowered groups who have little experience working off-farm. The transition to the non-farm economy may also be facilitated by securing land and water rights and developing efficient land markets so that people can more easily dispose of their farms. Since many transition farmers seem likely to continue to work as part time farmers, they can also benefit from improved technologies and natural resource management practices that improve their on-farm productivity.

Commercially-oriented farms need support as farm businesses. They need access to improved technologies and natural resource management practices, modern inputs, credit and other financial services, markets, and secure access to land and water. Much of this assistance will need to be geared towards high value production, and provided on a commercial basis. Some of these farmers might also need support to acquire the knowledge and skills necessary to

become successful business entrepreneurs in today's value chains either individually or through some forms of association (e.g. co-operatives, consortia, vertical integration with processing or marketing firms). Managing market and climate risk is a challenge for many commercial farms, and in addition to insurance and access to safety nets, they need to develop resilient farming systems.

In summary, the objective of CPF interventions is pursuing a wellbeing-enhancing dynamic (i.e. upgrading from marginal to transition and commercial farms, cf. Figure 5.1) while slowing down or blocking possible negative dynamics (i.e. the regression from transition to marginal farms or from marginal farms to non-farms, cf. Figure 5.1).

5.5.2. Households

Household classification by food and nutrition security status

The most important source of information for analyzing the food and nutrition security status of Palestinian households is the Socio-Economic and Food Security (SEFSec) survey. According to the last SEFSec (FAO-WFP, 2016), food and nutrition insecurity remains high, with more than one quarter of the population – 27 percent or 1.6 million people – food insecure. The food insecure households are evenly divided between the severely food insecure and moderately food insecure (approximately 13 percent each), while the marginally food secure accounts for another 15 percent and the remaining 58 percent of households are food secure.

The profiling analysis indicates a similar pattern between the West Bank and the Gaza Strip, although socio-economic and food security indicators are consistently worse in the latter region. Food insecure households have more family members than the food secure families, indicating a much higher economic dependency ratio, a lower income (approximately 50 percent less than food secure households), higher incidence of insufficient dietary intake (quantitative indicator) as well as poor or borderline food consumption score (qualitative indicator). Unemployment of household heads is also a more likely condition for food insecure households than for food secure households.



A Palestinian farmer woman tending the garden in the backyard of her home.
©FAO/Marco Longari

Food security status is largely dominated by its access dimension - specifically by labour entitlement, which represents the most important determinant of food access. Data indicates that the more food insecure a given household is, the more problematic is its labour status, generally featuring increased labour informality and precariousness. Furthermore, the presence of disability, elderly and chronic illness within the household is correlated with higher levels of food insecurity.

The households indicating the greatest share of food insecurity are those that have limited income opportunities other than assistance (either from international organizations or social assistance). Vice versa, the households that have access to Israeli jobs or insurance and those whose major source of income comes from international organizations jobs are those that indicate an improved food security performance. Obtaining a livelihood from the primary sector (agriculture, animal husbandry and fishery) is usually associated with relatively worse performance in terms of food security.

Gender inequalities are observed in the incidence of food insecurity among Palestinian households. Almost one fourth of male-headed households are food insecure, compared to one third of female-headed households, a difference that is relatively stable across time.

Restrictions have a significant impact on food security status and show the same pattern in both West Bank and Gaza Strip although restrictions to the freedom of movements in the two regions are different. By and large, the less (more) the limitations to the freedom of movements and access the more the likelihood of being food secure (insecure).

Household transformative dynamics

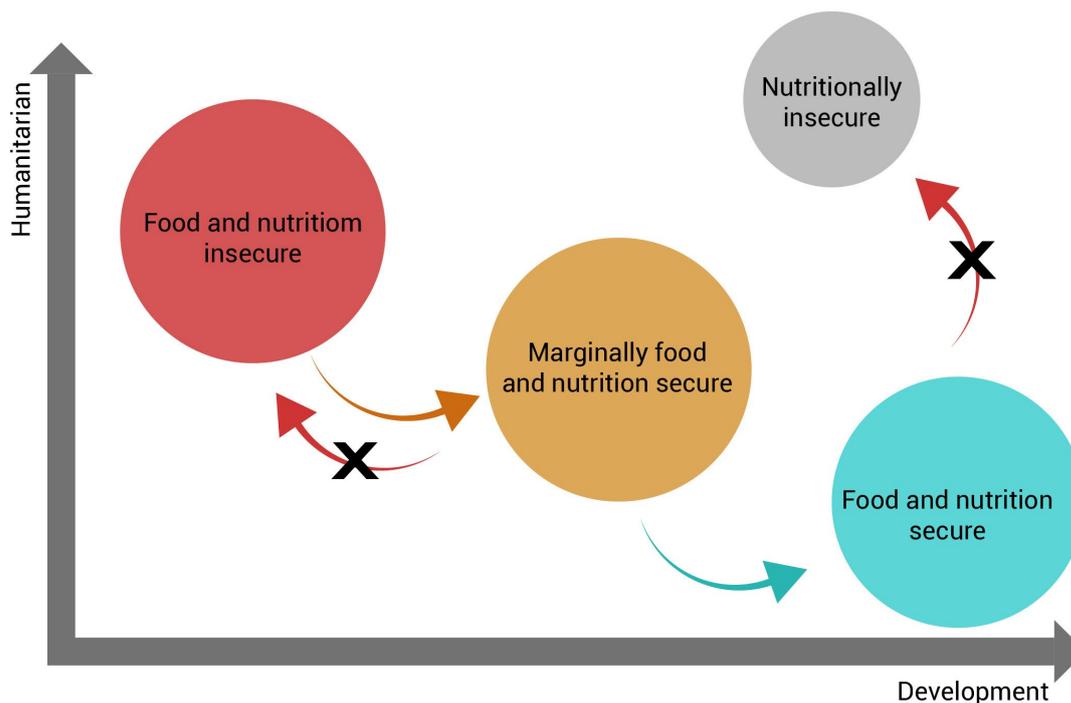
Despite these difficulties and their high vulnerability to natural and human-made shocks, Palestinians have witnessed a slightly positive dynamic over the last decades, largely dependent on aid flows, with food and nutrition security improving in relatively peaceful periods and a regression of food security status especially in periods and areas of conflict.

Conflict, occupation and weak economic growth are the most important determinants of household dynamics with reference to food and nutrition security primarily via the access dimension and to a lesser extent via the availability dimension. Considering the profiling of food insecure households, specific assistance interventions are required to help these households to gain a livelihood.

However, there is no doubt that the most important avenue to guarantee food security is the reduction of unemployment and job precariousness. At the same time, interventions on food education and awareness are key to ensuring better balanced diets and reducing the incidence of malnutrition, which are serious problems that do not only effect worse-off households.

In summary, also in the case of households the objective of CPF interventions is pursuing a wellbeing-enhancing dynamic (i.e. upgrading from food and nutrition insecure to marginally and food and nutrition secure status, cf. Figure 5.2) while slowing down or preventing possible negative dynamics (i.e. the regression from marginally secure to food and nutrition insecure status and preventing a too much caloric and nutritionally unbalanced diet for the food and nutritionally secure households, cf. Figure 5.2).

Figure 5.2. Positive and negative household FNS dynamics in Palestine



5.6. Expected results

The highest level expected result of CPF interventions (impact level) is to contribute to improving the wellbeing of the Palestinian people. Of course, this impact does not depend only on the CPF⁷⁹, being also the result of many other causal relationships (shown in Figure 5.3 as “Other links”).

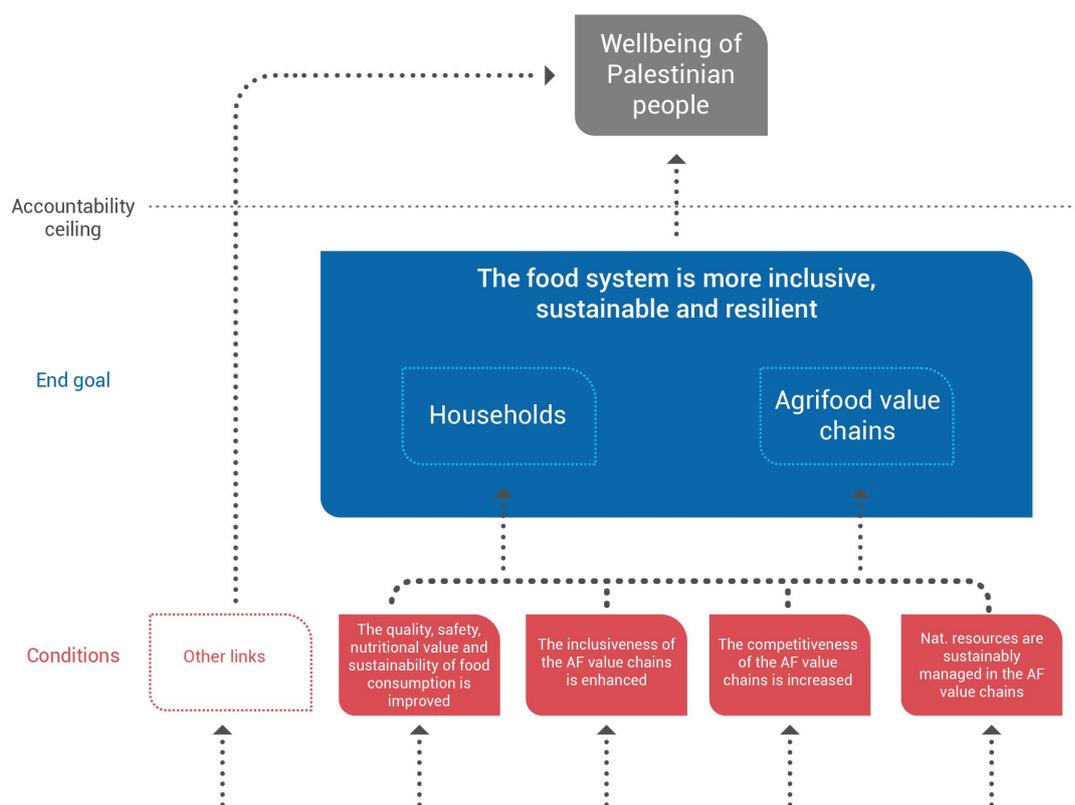
Therefore, CPF interventions are fully accountable only for the specific outcomes they can generate, which in turn contribute to the impact-level result. As a result of CPF interventions the wellbeing of the Palestinian people will be enhanced because:

- a) households will sustainably consume safer and higher quality food thus being more food and nutrition secure,
- b) farms and firms along the agrifood value chains will become more competitive,
- c) the food system will be more inclusive, and
- d) the food system will be more environmentally sustainable.

In summary, the overall objective of CPF interventions is to make the Palestinian food system more inclusive, sustainable and resilient, thus contributing to the wellbeing of the Palestinian people.

⁷⁹ Using the terminology of the Theory of Change (cf. section 5.7) this result is beyond the “accountability ceiling”, depending also on the contribution of other causal pathways.

Figure 5.3. CPF expected results on the food system and people's wellbeing



5.7. Theory of change

5.7.1. Methodological remarks

A Theory of Change (ToC) is a representation of how and why a complex change process will succeed under specific circumstances (Funnell and Rogers, 2011; Taplin and Clark, 2012; Vogel 2012).

ToC is both a process and a product. It should be seen as an on-going process of discussion-based analysis and learning that produces powerful insights to support intervention design, strategy, implementation, evaluation and impact assessment, communicated through diagrams and narratives which are updated at regular intervals.

In developing a ToC, people articulate their long-term goals and identify the conditions they believe have to unfold for those goals to be met. These conditions are modeled as desired outcomes, arranged in a causal framework. Therefore, the ToC describes the types of interventions that bring about the outcomes depicted in the outcomes framework map. Each intervention is tied to an outcome in the causal framework, revealing the complex web of activities required to bring about change.

ToC thinking is used in a number of different ways, ranging from exploring high-level change processes, to explaining the internal logic of an intervention, to hypothesizing cause and effect links between important changes. In very general terms, differences can be observed between (Vogel 2012): (i) country, sector and/or policy archetypal ToC, (ii) implementing agencies' ToC, and (iii) causal maps for evaluators.

The ToC developed to inform the CPF formulation belongs to the first type that includes high-level mapping of drivers, key contextual or issue conditions, examples of archetypal sequences and pathways of change that might be informed by evidence and learning from multiple sources.

Usually, ToC is considered to encompass a discussion of the following elements:

- context for the initiative, including social, political and environmental conditions, the current state of the problem the interventions are seeking to influence and other actors able to influence change;
- long-term change that the initiative seeks to support and for whose ultimate benefit;
- process/sequence of change anticipated to lead to the desired long-term outcome;
- assumptions about how these changes might happen, as a check on whether the activities and outputs are appropriate for influencing change in the desired direction in this context;
- diagram and narrative summary that captures the outcomes of the discussion.

The context analysis has been carried out in sections 2 to 4. A diagram mapping the tentative ToC implied by the CPF is reported in Annex 4. The next sections focus on the CPF change logic, the existing conditions that are critical to the validity of the ToC (assumptions) and on the basis of which, if CPF activities (interventions) will be implemented, can then determine a sequence of short- and medium-term changes ultimately leading to the envisioned long-term change.

5.7.2. Change logic

The ToC underpinning the CPF is that by supporting Palestinian efforts in the areas of agriculture and agrifood value chains, food and nutrition security, natural resource management and climate change adaptation and mitigation, progress will be made against national planning targets for more effective agricultural and food and nutrition security policy-making, stronger human rights protection, enhanced income generation and improved livelihoods with clear synergies among the engagements.

At the same time, the contributions of the CPF will be reinforced by joining other international development partners as well as Palestinian actors, whereby short-term effects can lead to medium and long-term results.

Through the above, FAO will contribute to improving the resilience of Palestinian households to food and nutrition insecurity and will make the Palestinian food system more resilient, increasing the efficiency and competitiveness of farms and firms, making the agrifood value chains more inclusive, and making agrifood production practices more sustainable.

5.7.3. Assumptions

Assumptions and preconditions are both conditions that are necessary for the success of interventions. The former are conditions that are already in place⁸⁰ while the latter need to be brought about.

Assumptions for the CPF ToC at the moment of writing are the following:

A1 – Palestinian Government's path to statehood is still the overall political horizon framing the policy context over the next years;

A2 – Security conditions are conducive to core governance functions, particularly in relation to the Gaza Strip and Area C;

⁸⁰ Not only do the assumptions already exist but they will also not be problematic to maintain. Operationalizing the ToC implies considering revising them and allowing for contingency plans.

A3 – Overall Palestinian priorities are outlined in a comprehensive, nationally-owned development plan and sector plans providing a basis for alignment;⁸¹

A4 – The Palestinian Government is committed to working on a common development and reform agenda⁸² which is conducive to developing the agricultural sector;

A5 – Farmers, herders, fishermen and other agri-business actors are willing to be engaged in CPF interventions;

A6 – Donors provide sufficient support including through trust fund tools and joint programs, with which interventions be implemented meaningfully.

5.7.4. Interventions

Interventions are any kind of activities (a single program or coordinated initiative) that bring about the outcomes depicted in the outcomes framework map. FAO, with specific reference to agriculture, agrifood chains, food and nutrition security, natural resources and climate change, will contribute to:

- enhance donor coordination and alignment;
- develop policy frameworks and assist the policy reform process;
- build capacity at institutional as well as individual level based on local needs and participatory planning;
- facilitate the creation of effective coordination mechanisms among economic actors within the value chains (e.g. help organizing actors along the value chain, building intermediate bodies, dialogue platforms, etc.);
- play an advocacy role globally as well as locally on specific issues such as restrictions on the movements of people and goods, and water and land rights;
- promote the adoption of innovative technical solutions that increase farming and food processing productivity, competitiveness, resilience and sustainability;
- remove the barriers to access to credit and insurance thus improving risk management and private investments in agrifood value chains;
- improve agrifood market intelligence and promote effective quality and safety assurance system;
- improve the capacities of the public and private sector to provide better quality services;
- improve effectiveness of humanitarian response with specific reference to household food security and rural livelihoods capacity.

5.7.5. Short-term changes

Interventions will make the achievement of the following short-term results possible:

- improved and more coherent policy frameworks for the agrifood sector through enhanced policy dialogue;
- improved households' social and economic access to and utilization of food thanks to better social assistance, income opportunities, education and communication campaigns;
- increased productivity and improved employment opportunities in agrifood value chains especially for the youth and female, because of farm and firms – especially SMEs – enhanced investment and risk management capacity, introduction of market-oriented production, post-harvest handling and processing systems, as well as advocacy on movement and access restrictions;
- more balanced structure of agrifood value chains thanks to better organization and improved access to value chains by small scale farmers and cooperatives;

⁸¹ The NPA and the sector strategies are in the final stage of development by the Palestinian Government, and once adopted will no longer be an assumption.

⁸² While serious political and security constraints exist – including the intra-Palestinian divide and political rivalry - this does not prevent development engagements from aiming at state building, strengthening of independent checks and balances mechanisms and improving governance both at global and sector level.

- higher quality and safety standards for agrifood products thanks to a more effective quality assurance system, improved capacity to deliver by the public sector and higher public investment leading to more effective extension and vocational education;
- improved resilience to shocks and stressors of farmers, primarily small-medium ones, thanks to the adoption of climate-smart agricultural practices, improved access to credit and insurance, and better access to market information;
- improved access to and better management of natural resource base thanks to better capacities, more efficient technologies, and more sustainable agricultural practices.

5.7.6. Medium-term changes

The short-term results will make the achievement of the following medium-term outcomes possible:

- more capable and accountable duty bearers that better adhere to their obligations according to human rights and good governance standards both at overall and sector level;
- households better nourished and able to absorb and adapt to shocks and stressors thus becoming more resilient to food and nutrition insecurity thanks to improved livelihoods, better employment opportunities in agrifood value chains and more diversified income sources;
- reduced market fragmentation and better access of farms and firms to both local and international agrifood markets thanks to lower transaction costs, better risk management, higher private and public investment and more effective access to market information;
- increased production and productivity by farmers and firms – especially SMEs – in agrifood value chains because of better management practices and access to market as a result of better investment and risk management capacity, introduction of market-oriented production, post-harvest handling and processing systems, as well as advocacy on movement and access restrictions;
- more inclusive agrifood chains because of a more balanced structure (i.e. less market power) both horizontally and vertically and better employment opportunities especially for the most vulnerable groups, including youth and women;
- local communities better able to sustain their livelihoods in Area C through improved access to basic services and infrastructure, thus providing the basis for maintaining Palestinian presence in Area C;
- lower level of food loss and waste because of safer and better quality agrifood products thanks to a more effective quality assurance system, better infrastructure and post-harvest handling systems, and increased awareness among consumers;
- lower levels of environmental and natural resource degradation because of more efficient farming and food processing practices, better skilled and more aware operators.

5.7.7. Long-term changes

Increased wellbeing of the Palestinian people through a more inclusive, sustainable and resilient food system (better household food consumption, more competitive farms and firms, more inclusive value chains, and more sustainable production and consumption practices).

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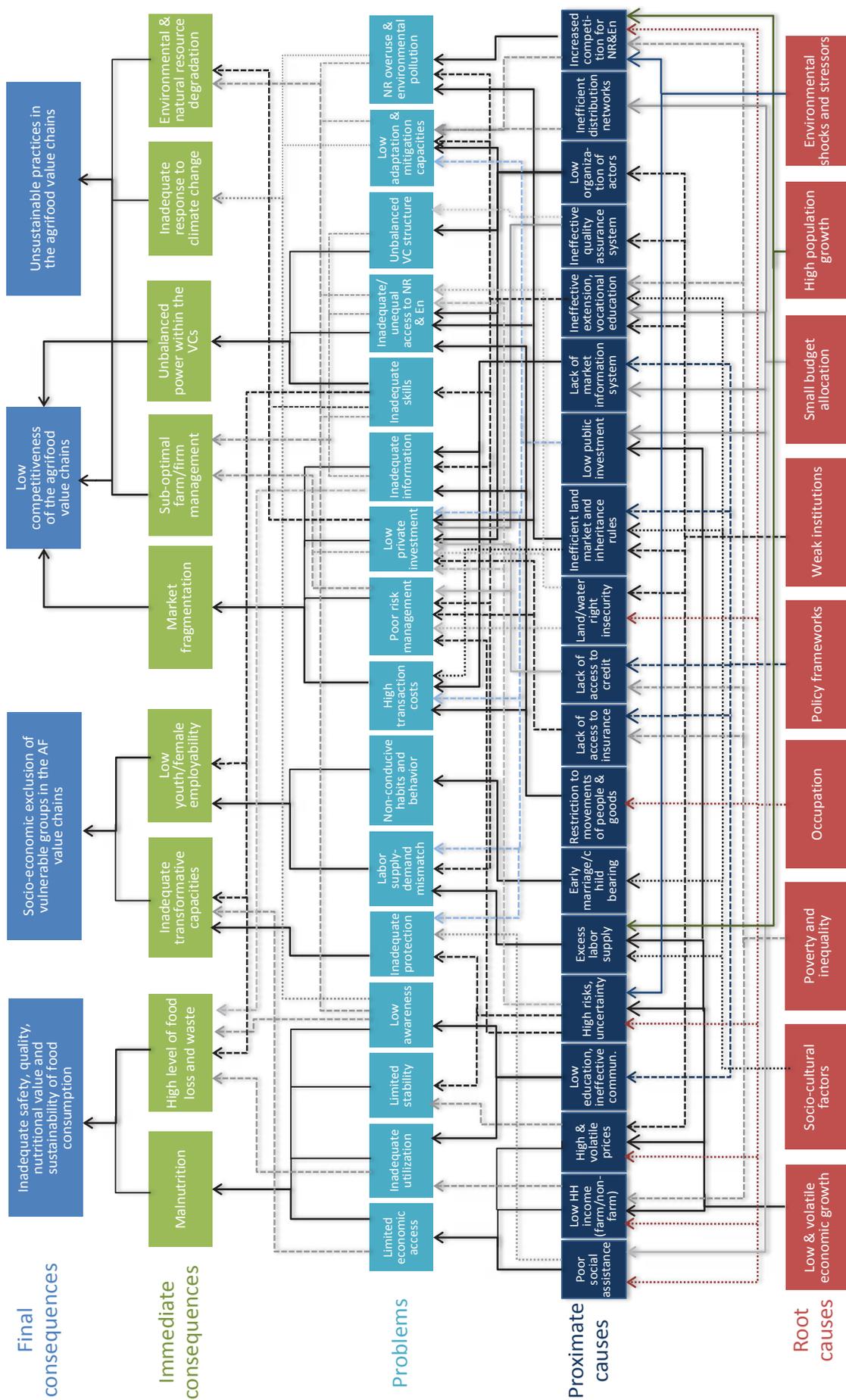
Annex 1 – List of stakeholders consulted to prepare the CA

Name	Organization	Position
Abdallah Al Farra	Alnakheel Association	Representative of the Association
Abdullah Lahlouh	Ministry of Agriculture	Deputy Minister
Adel Attalah	Ministry of Agriculture	DG of Fisheries Resources
Ahmad Al Soarny	Oxfam Italy	Programs Manager
Ahmed Al Atrash	UNHABITAT	Project Manager, Senior Urban Planner
Ahmed Al Sorany	Oxfam Italy	Programs Manager
Ala Abu Rub	Ministry of Health	Director General Policy and Planning
Alaa Eid	Oxfam GB	Economic Development Manager
Ali Khatib	WASH Sector	Sector Information Manager
Amid Al Masri	Entrepreneur	Farmer in Jordan Valley
Amid Shaker	Frush Beit Dajan Cooperative	Cooperative Manager
Amin Nawahda	Palestinian Agricultural Relief Committees (PARC)	Water and Environment Program Manager
Amjad Salah	Ministry of Agriculture	Minister Deputy Assistant for Technical Directorates
Ayman Daraghmeh	Swiss Agency for International Development	Senior Advisor
Bader Al Hawamdeh	Ministry of Agriculture	DG of Plant Protection
Basem El Ashi	Compete	Gaza Office Manager
Cindy McAlpine	Representative Office of Canada	First Secretary (Economic Growth)
Dawood Al Deek	Ministry of Social Development	Deputy Minister
Fadi Musa	Union of Agriculture Work Committees (UAWC)	Projects Coordinator
Farah Sawafta	Ministry of Agriculture	Director Water Directorate
Fayyad Jumaa	Palestinian Agriculture Cooperatives Union	Board Member – Palestinian Agricultural Cooperative Union
Hani Al Farra	Palestinian Agricultural Relief Committees (PARC)	Project and Program Coordinator
Hassan Ashqar	Ministry of Agriculture	DG Policy and Planning
Hazem Yaseen	Ministry of Agriculture	Director Fertilizers Department
Husam Tlaib	Ministry of Agriculture	DG of Forests, Range Land and Wildlife
Ibrahim Al Qadi	Ministry of National Economy	Acting Director, Consumer Protection
Imad Ghanma	Ministry of Agriculture	Director Inventory and classification of Agriculture Land Department
Iyad Adra	Ministry of Agriculture	DG Veterinary Services

Iyad Malloh	Cooperative Company for Crops Production and Marketing	Board Member – Cooperative Company for Crops Production and Marketing
Jameel About	Palestine Standard Institution (PSI)	Director Quality Control
Jesus Tome	Spanish Cooperation	Senior Programme Manager
Khalid Zreid	Ministry of Agriculture	Deputy Minister of Southern Governorates
Maha Al Masry	Rural Women Development Association	Gaza Office Coordinator
Mahmoud Fatafta	Ministry of Agriculture	Director – Livestock Directorate
Majeda Alawneh	Palestine Water Authority	Water Quality Director
Malachy Harty	Danish International Development Agency	Programme Manager, Economic development
Maram Sawalha	Ministry of Agriculture	Head of Unit – planning, Projects Preparation and Programs
Mohammad Tarawa	Ministry of National Economy	Consumer Protection-
Mohammed Ghaben	Beit Lahia Cooperative	Representative of the Cooperative
Mostafa Kahlout	Care International	Food Security Advisor
Muhammad Sawafta	OXFAM GB	Program Manager
Nabil Abu Shamala	Ministry of Agriculture	General Director of Planning Department
Nader Hrimat	ARIJ	Deputy Director General
Naela Shawar	Representative Office of Canada	Development Officer
Nareman Odeh	Ministry of Agriculture	Director of export – DG general directorate of marketing
Nida Abu Al Atta	Palestinian Agriculture Relief Committees	External Relations and Cooperation
Nizar Ayesh	Fisheries Syndicate	Representative
Nur Nasser Eddin	World Bank	Junior Economist
Omar Zayed	Palestine Water Authority	Director, Department of Hydrological Studies and Monitoring
Raed Odeh	Palestinian Agriculture Cooperatives Union	Chair of Board of Directors
Raja Khalidi	Palestine Economic Policy Research (MAS)	Senior Research Coordinator
Reema Rasheed	Economic and Social Development Center of Palestine (ESDC)	Directory Fund Raising Department
Rei Odawara	World Bank	Senior Economist
Robert Piper	UNSCO	UN Resident Coordinator
Salah Lahham	WFP	VAM Officer
Saleh Alahmad	Union of Agriculture Work Committees (UAWC)	Market Expert
Salim Jayyusi	Palestinian Standard Organization	Chair, Technical regulation Committee
Samer Titi	Ministry of Agriculture	Director, Planning, Projects and Program Preparation Department

Samir Huleileh	PADICO Holding	CEO
Samir Samara	Ministry of Agriculture	Deputy DG of Investment and Funding
Shafiq Arawi	Ministry of Agriculture	General Director of Soil and Water
Shawkat Sarsour	FAO	Consultant supporting the Agriculture Sector Strategy formulation
Subhra Bhattacharjee	UNSCO	Economist
Sufian Sultan	Ministry of Agriculture	Minister
Sulaiman Hilmi	Palestine Standard Institution (PSI)	Director, Labelling sub-division
Tahseen Al Saqqa	Ministry of Agriculture	General Director of Marketing – GS
Wijnand Marchal	Netherland Representative Office	First Secretary
Zeyad Al Shakra	UNHABITAT	Deputy Director

Annex 2 – Problem tree



Annex 3 – Literature review of small farm classifications

A number of farm typologies have been offered in the literature to help manage small farmer diversity. Key elements in these typologies are the characteristics of the region in which farmers live (especially its agricultural potential and access to markets), and the characteristics of the farm household themselves (assets, business orientation and acumen, and degree of diversification into off-farm sources of income).

Vorley (2002) distinguishes between farmers operating in three rural worlds. In rural world 1, commercial farmers are globally competitive, linked to export markets and use modern technologies; in rural world 2, farmers sell primarily in local, regional and national markets and use intermediate technologies; in rural world 3, farmers are subsistence oriented and use traditional technologies.

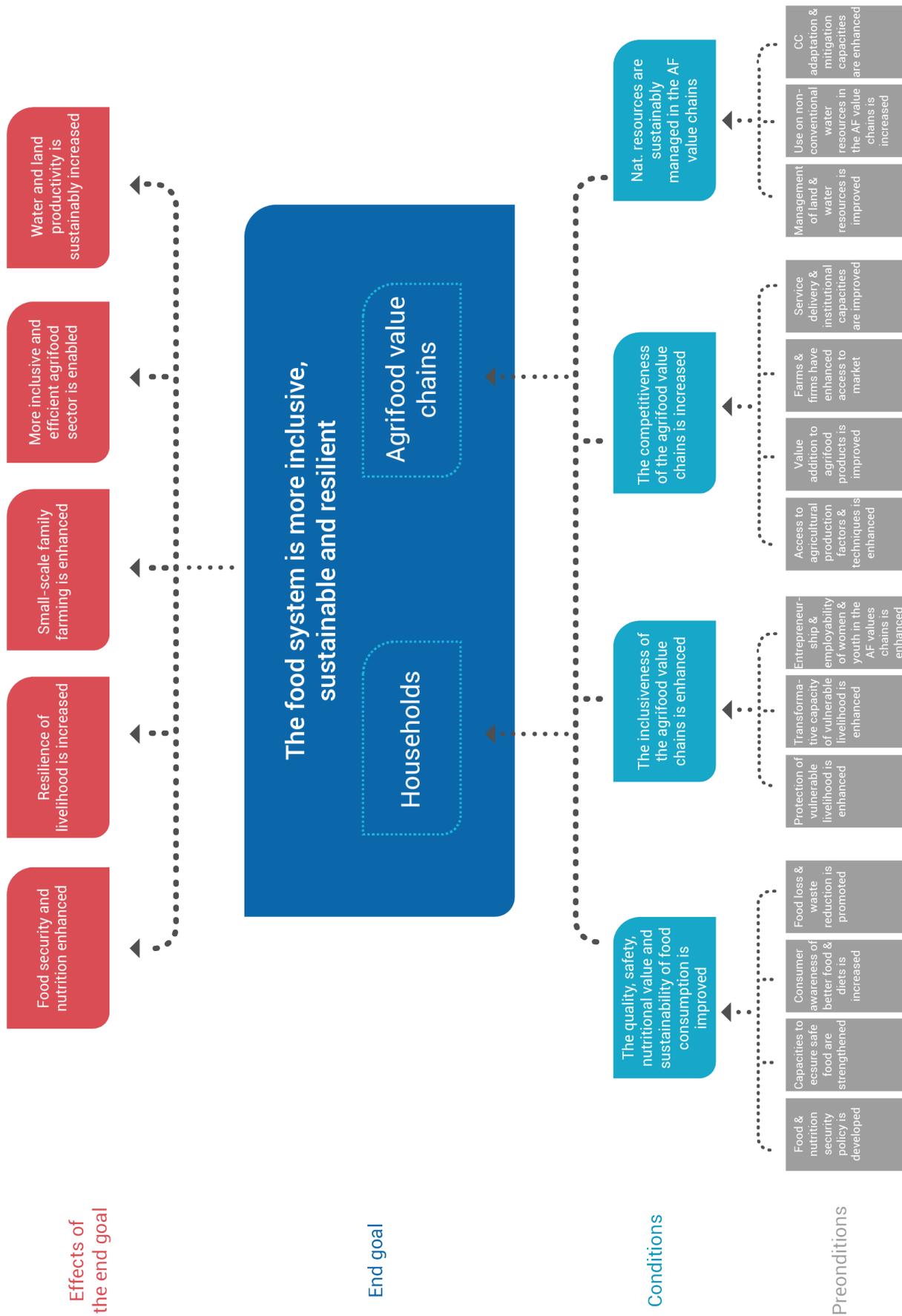
The World Bank (2008) identifies five smallholder groups: market oriented, subsistence oriented, off-farm labour oriented, migration oriented and diversified households that combine multiple income sources.

Berdegúe and Escobar (2002) identify three groups of family farms based on regional context and household assets. The first category comprises family farms with good assets (land, labour, and/or access to capital) and who are located in places with good agricultural potential and access to markets. These farmers are usually fully integrated in a market economy and make a substantial contribution to the production of food for domestic and international markets. The second category comprises family farms that have reasonable assets and agricultural potential but are constrained by being located in slow moving regional economies with limited market access. The third category comprises resource-poor farmers located in places where conditions are adverse not only for agriculture, but often for nonfarm activities. The majority of smallholders in this group are poor, subsistence oriented and may be diversified into low productivity nonfarm sources of income.

Fan et al. (2013) differentiate small farms according to their profitability within the agricultural sector (subsistence farmers without profit potential, subsistence farmers with profit potential, and commercial smallholder farmers), and the different stages of economic transformation (agriculture based, transforming, and transformed economies).

Hazell (2013) classified smallholders into three groups for the purposes of targeting small farm assistance: commercial small farmers, small farms in transition, subsistence-oriented small farms.

Annex 4 – Theory of change



Back cover photograph

Cleaning rice, Women's Cooperative, Burqa, West Bank.
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ISBN 978-92-5-130806-6



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CA0627EN/1/02.19