



The Aix Group's previous publications include the "Economic Road Map" (2004); "Israel and Palestine: Between Disengagement and the Economic Road Map" (2005); "Economic Dimensions of a Two-State Agreement between Israel and Palestine" (2007) with a second volume in (2010); "The Arab Peace Initiative and Israeli-Palestinian Peace: The Political Economy of a New Period" (2012); "Economics and Politics in the Israeli Palestinian Conflict" (2015) and "Economic Dimensions of an Agreement between Israel and Palestine: Summaries of Recent Studies and Lessons Learnt" (2016).

www.aix-group.org

The Aix Group was formed in 2002 by Professor Gilbert Benhayoun and a team of Israelis and Palestinians, under the auspices of the Université Paul Cézanne- Aix-Marseille III in France. It works in coordination with The Harry S. Truman Research Institute for the Advancement of Peace in Israel and DATA Center for Studies and Research in Palestine. The Aix Group, headed by its six Steering Committee members, continues publishing studies on the Israeli-Palestinian conflict as well as doing advocacy; In 2016, in collaboration with the Office of the Chief Economist, MENA Region, World Bank, the Group produced two further studies. The studies covered the following two topics:

- (1) Improving the Gazan Economy;**
- (2) Utilizing the Economic Potential of the Jordan Valley.**

The studies were prepared by two joint teams and presented in an International Conference in November 2016. Over the years the Aix Group held many assemblies with Israeli, Palestinian, and international experts; among them academics, policy makers, private sector entrepreneurs, while having also ongoing consultations with officials from national governments and international institutions.

The Aix Group has published comprehensive studies with concrete and practical ideas, hoping to provide key decision makers and the peace seeking publics within the region and internationally, with a solid basis from which to make future policy decisions. The studies presented in this book take into account, as usual in the work of the Aix Group, Palestinian, Israeli and international perspectives, ensuring that the analysis are as impartial as possible.



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The Aix Group



January 2017

Two Further Studies: **Improving the Gazan Economy and Utilizing the Economic Potential of the Jordan Valley**



Editors:
Arie Arnon
Saeb Bamyá



In collaboration with the Office of the Chief Economist, MENA Region, World Bank



The Aix Group

Two Further Studies

**Improving the Gazan Economy
and Utilizing the Economic Potential
of the Jordan Valley**

Editors:

Arie Arnon & Saeb Bamya

Israeli and Palestinian coordinators of the Aix Group

**In collaboration with the Office of the Chief Economist,
MENA Region, World Bank**

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Part I

General Introduction

Part I

General Introduction

Preface

The Aix Group is a joint Israeli-Palestinian think tank that has been working on the political economy aspects of the conflict since 2002. In this volume the Aix Group presents two additional studies prepared in 2016. The studies were prepared as part of a special project done in collaboration with the World Bank under a contract entitled: “Joint Palestinian-Israeli Research on Improving Palestinian Economic Conditions in the West Bank and Gaza.”

The papers were prepared by two joint teams of the Aix Group, including (alphabetically): Shaul Arieli, Arie Arnon, Saeb Bamyia, Adi Finkelstein, Yehuda Greenfield-Gilat, Anan Jayoussi, Saad Khatib, Karim Nashashibi, Jimmy Weinblatt and Yossi Zeira.

From November 4th to 6th, 2016, the papers were discussed at a conference at the Ambassador Hotel in Jerusalem (for a list of participants see Appendix C Part 1); the present volume presents to the public the revised papers that we discussed at the conference.

1. The Rationale of the Present Study

The research presented by the Aix Group in the papers echoes the prevalent understanding that the current conditions in the Palestinian economy are grave, and that although it would have been better to change the economic environment via a permanent status agreement, such a path may not be feasible in the near future. Hence, assessing changes that can be implemented in the short and medium terms, even when no permanent agreement is reached, deserves serious study.

The two subjects we researched in this project, done under a contract with the World Bank, embody just some of the troubling issues that the Palestinian economy faces. The conditions in various areas in the Palestinian occupied territory are not identical. Although the Oslo Agreement promised to deal with the West Bank and Gaza as one territory, consider the area as “a single territorial unit” and keep the conformity of the arrangements, in reality the different areas faced distinct restrictions at various times.

The diverging reality has been attributed to political developments in the Palestinian society, but is mainly due to dissimilar restrictions imposed by the Israeli authorities in different areas, reflecting its own considerations and strategy. Thus, those who follow the conflict notice that East Jerusalem, the rest of the West Bank and Gaza are facing dissimilar, even far removed, existences from each other. Even the West Bank itself is far from being uniform; the diverging realities in different localities commencing with the infamous 1995 legal distinction between areas A, B and C, and the variations do not end there.

Thus, studying the two subjects covered in this project -- improving the Gazan economy via changes in its current economic circumstances, and utilizing the economic potential of the Jordan Valley under the present conditions -- we will be able to identify the concrete restrictions in the different areas, their history and the motivation in introducing those “status quos.” But more important, the studies outline sets of policy measures that are both feasible and effective in improving life in the Palestinian Territory rather soon. These measures should also be consistent with the permanent status agreement of a “Two State” agreement that we, in the Aix Group, advocate.

The Aix Group considers a permanent status agreement based on the “Two State” formula as the only possible one. In previous stages of our work we outlined the detailed contours of the economics and politics of such an agreement; recently we published summaries of these works that can be found on our site.¹ These summaries represent the essential elements of the permanent agreement between Israel and Palestine: the type of borders between the two sovereign states; the arrangements in Jerusalem which will become the capital of the two states; the resolution of the crucial issue concerning the Palestinian refugees of 1948; the Territorial Link between the two populated centers of the future state in Gaza and the West Bank, and more.

The research project deals with issues concerning the two geographically separated regions of the Palestinian economy and surveys the main obstacles that also appear, sometimes in different forms, elsewhere in the economy. The short-term policy measures recommended are consistent with the longer-term modifications; they will increase Palestinian capacities as well as control, and pave the path toward more changes that will be part of a permanent status arrangement. Moreover, the outcome of the research project will be more than just the identification of policy measures. The process by which the study is undertaken -- with Palestinian participants from the West Bank and

1. See <http://aix-group.org> and <http://aix-group.org/index.php/category/summaries/>.

Gaza and elsewhere, with Israeli participants and with well-informed international experts – enable considerations of different points of view throughout. As such it will prepare the ground for advocating for the required policy changes among the various stakeholders and hopefully will have a real impact. The abysmal split between the two sides over the last fifteen years, and the lack of serious discussions where the existence of two legitimate claims are considered, made such joint thinking projects too rare. Hence, the process we went through will preserve and strengthen cooperation between those, on both sides of the divide, who understand that “two” live between the River and the Sea, maintain a balanced and inclusive perspective and seek win-win outcomes. The advocacy and implementation of the challenging recommendations emerging from the thinking process will benefit from the experience and record of the Aix Group in such endeavors and the expertise, reputation and convening power of the World Bank.

2. Aix Group’s General Approach

In 2003, the Aix Group agreed on a basic concept which remains central in our discussions to this day. We came to the conclusion that one of the errors committed by the two sides in 1993, when the Oslo process started, and since then, had been to base the peace process on “gradualism.” Gradualism takes the form of an incremental approach, moving one step at a time with no agreement on, or even a serious discussion of, the end result. The right way forward, in our opinion, was to adopt what we have termed a “**reverse engineering**” approach (see the “Economic Road Map,” 2004). In “reverse engineering,” the sides first agree on where they want to go, i.e. on the contours of a permanent agreement, and then decide how to reach that end.

A feasible agreement on two states will have to address tough issues, among them the difficult “trio” of borders, Jerusalem and refugees. It will also have to deal with the question of “pre-emption” and the long-term impact of creating “facts on the ground.” A positive conclusion that addresses the minimum and necessary requirements of the two sides will most probably look like the following:

- The borders between the two states will be drawn so that they will have contiguity; the land will be divided 77 percent to 23 percent based on the 1967 borders, allowing for agreed-upon and limited swaps of land along the “Green Line;” arrangements satisfying contiguity between Gaza and the West Bank will guarantee the free flow of people and goods within both Israel and Palestine so that travel between Gaza and the West Bank will not entail crossing a border.
- Jerusalem will be the capital of both Israel and Palestine. Two options for Jerusalem’s borders can be considered:
 - a. An “open” Jerusalem, necessitating the creation of borders around Jerusalem, or the part of the city that remains “open;”
 - b. A border that will bisect Jerusalem.
- A just and fair solution to the 1948 refugee problem will address both the individual claims and the collective considerations of the two sides and provide a way to reconcile the two. It is the goal that the Palestinian refugees will be able to choose a permanent place of residency, and that the implementation of these decisions will be agreed to by, and subject to the sovereignty of, all the countries that will be affected, including Palestine and Israel. Programs for the refugees will address resettlement/repatriation, or what we sometimes describe as relocation, as well as rehabilitation. A substantial compensation scheme for the refugees will be agreed upon. The process will end the status of refugeehood and turn all refugees into citizens, with the agreement and cooperation of the refugees themselves.

We suggest that the economic aspect of the new agreement include several key principles. First, it is imperative to agree that the sovereign authority of each party, within internationally recognized borders, includes the right to conduct internal and external economic affairs, including the operation and administration of that party’s economic borders, autonomously but in cooperation with one another. Second, economic relations shall be guided by the concepts of cooperation in both trade and labor, as well as in infrastructure, R & D, etc. Thus the parties can establish the rules and arrangements which will regulate the trade in goods and services, and the flows of labor and investment.

3. The “Status Quo:” A Misleading Concept

The project reexamines the current conditions in the Palestinian Territory and focuses on the links between politics and economics and between a permanent agreement in the Israeli-Palestinian conflict and interim arrangements. However, the project intentionally does not concentrate on permanent status economic issues – like the trade borders between the two sides or the difficult issues concerning the refugees and Jerusalem which the Aix Group covered extensively in the past -- but instead focuses on whether reforming the interim arrangements is feasible. Thus, it asks whether there is a path forward which while bypassing a permanent agreement can still positively reform the current interim arrangements.

The project reviews the characteristics of the current social and economic reality in several areas, conditions known in the common jargon as the “Status Quo” [SQ]. We would like to illuminate that in reality there is more than one SQ and the conditions are shifting and fluid and not at all fixed; hence, the term is misleading. There are variations of the SQ on the Palestinian side, characterizing different regions and changing over time. The formative role of the *de jure* current economic regime, outlined in the Paris Protocol signed in 1994, in shaping the Status Quos [SQs] is clear. However, the differing and changing SQs are shaped not less by specific political forces. Thus, we call attention to the complex relations between politics and economics which is generally true elsewhere as well, but is very significant in the transient Israeli-Palestinian case, in particular. Moreover, in the context of the Israeli-Palestinian conflict, the desire to separate politics from economics is usually a sign that one side prefers to address only economic issues while the other prefers to prioritize political ones. The stronger party has its priority ruling. This explains, to some degree at least, what we have seen in the diversification of interim economic regimes, i.e. different SQs over the last twenty years in the West Bank, East Jerusalem and Gaza.

In the two papers presented at the conference, on Gaza and the Jordan Valley, the rise of different SQs is studied and explained; the papers outline the diversity of the current socio-economic conditions, and how the variations between geographic regions grew over time. Thus, the diversification calls for an explanation of the roles of the uniform elements, like the Paris Protocol, in molding what is known as the SQ, and the specific elements that brought about the various socio-economic conditions.

The Gazan circumstances were already different from those of the West Bank in 1994 (and also before), but the divergence intensified in 2005 with Israel’s unilateral decision to implement the “disengagement” in Gaza, and with the internal political changes in Palestinian politics in 2006 and 2007 that brought Hamas to effective power there. These political changes, along with a series of violent clashes with Israel, dramatically transformed the SQ in Gaza. Despite the well-known differences between the two areas they remain part and parcel of any long term arrangements, as well as any attempts to transform the SQ.

4. The Economic and Political Complementarities between the West Bank (including East Jerusalem) and Gaza

The “Two State” formula in all its more serious versions always presumed that the Palestinian state would be established in the area occupied by Israel in 1967. The Oslo agreements -- both the DoP of September 1993, the Paris Protocol of April 1994, and the Oslo II agreement of September 1995 -- presumed the integrity of the West Bank and Gaza. In the later agreement, in Article XI entitled “Land,” the government of Israel and the PLO agreed in the opening section:²

1. The two sides view the West Bank and the Gaza Strip as a single territorial unit, the integrity and status of which will be preserved during the interim period.

Twenty years later, unfortunately, we are still, legally, living under the “interim period” regime. The area referred to in the above clause and in the other agreements has no contiguity, of course; since 1949 Gaza has been separated from the West Bank by the State of Israel. However, economic considerations show the significance and advantages of bringing together the West Bank and Gaza. The economic complementarities they have, and the clear advantages to the Palestinian economy from the creation of economic links between them are clear. Socially, culturally, and politically, the populations in the West Bank and Gaza belong to one nation; living further away from each other, they still belong to the same people as do Palestinians living elsewhere. They have similar desires and they share political perspectives. Integrating the Palestinian economy and utilizing its advantages is feasible even under the interim period. The Oslo agreements, in fact, accepted the need for and advantages in linking the West Bank and Gaza and specified its technical implementation in the short run. It was not conditional on a permanent agreement as we will argue in the following papers.

The West Bank, with an area of 5,800 sq. km, is the bigger geography; Gaza is much smaller and has only 365 sq. km. In 2014, the population in the West Bank was 2.8 million and in Gaza 1.8 million. One basic characteristic that demonstrates the economic complementarity is obvious: The West Bank has no access to international water, while Gaza does. Currently both areas’ land borders are controlled by Israel.

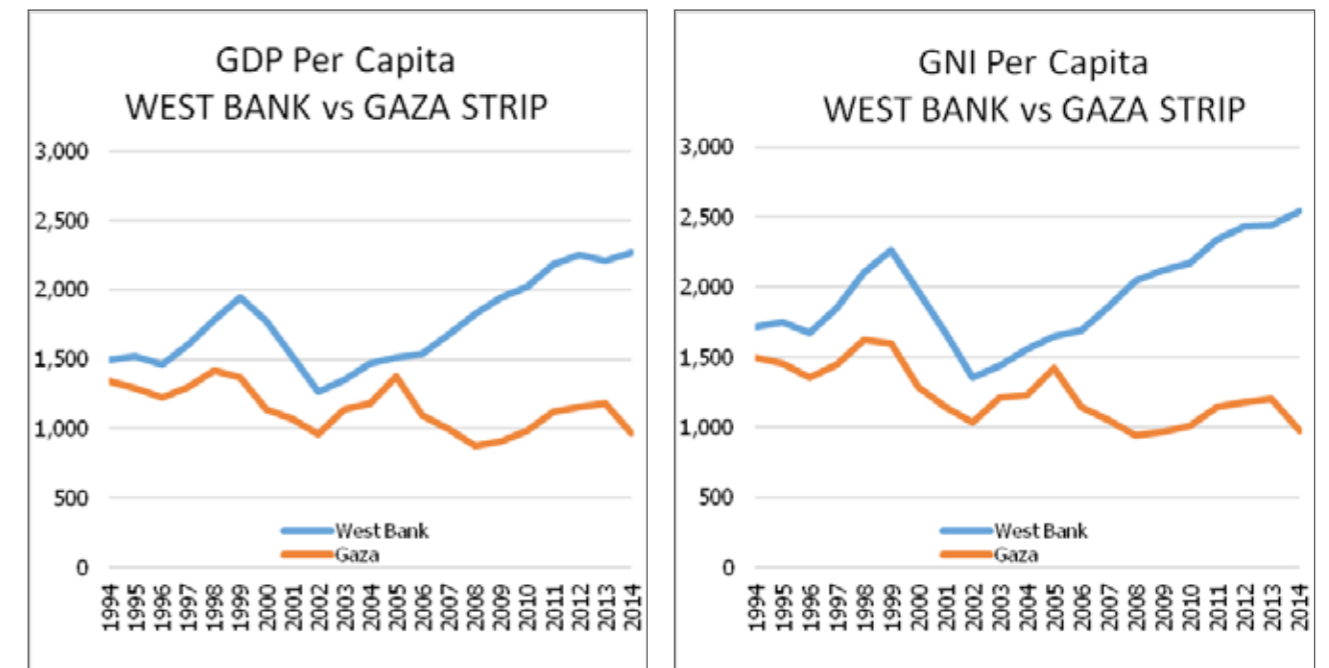
Economically, the combined economies of the West Bank and Gaza enlarges the economic market significantly, which contributes to a better division of labor with potential advantages of specialization. Historically, Gaza had a strong agricultural base and supplied agricultural products to the West Bank. Other sectors, such as furniture, were also developed in Gaza. The diversification of climate, with what can be described as “seasonal complementarity,” provides another advantage to the combined, integrated economy.

From 1994 to 2014 the GDP and GNI of the West Bank grew by 190.5 percent and 183.4 percent respectively, and those of Gaza by 55.4 percent and 40.3 percent. The standards of living in Gaza were historically lower than those in the West Bank. Measured by the GNI ratio, for example, in 1994 the ratio of GNI in the West Bank relative to Gaza was 1.14, in 2006 it was 1.15 and in 2014 we have seen a GNI ratio of 2.6. The story of the distinct changes in Gaza and in the West Bank over the last twenty years is clearly seen in the charts of GDPPC and GNIPC: Gaza’s domestic production was always lower (per capita) than that of the West Bank; the second Intifada caused a collapse in standards of living, both measured in GDPPC and GNIPC. In Gaza the GDP and GNI converged, since no laborers continued to work in the Israeli economy. In 2005 the gap between the

two areas’ GDPPC was small; however, during the next ten years the gap between the areas increased dramatically. Gaza is poorer today than it was twenty years ago, and the economic crisis in Gaza is more severe than that in the West Bank.

Per Capita GDP and GNI, by Region for the Years 1994-2014

In constant (2004) Prices of \$US– PCBS.



2. Israeli Palestinian Interim Agreement on the West Bank and the Gaza Strip Washington, D.C., September 28, 1995; The Government of the State of Israel and the Palestine Liberation Organization (hereinafter “the PLO”), the representative of the Palestinian people; ARTICLE XI.

Appendix A

The Paris Protocol Preamble
PROTOCOL ON ECONOMIC RELATIONS
*between the Government of the State of Israel and the P.L.O.,
representing the Palestinian people*
Paris, April 29th, 1994

PREAMBLE

The two parties view the economic domain as one of the cornerstone in their mutual relations with a view to enhance their interest in the achievement of a just, lasting and comprehensive peace. Both parties shall cooperate in this field in order to establish a sound economic base for these relations, which will be governed in various economic spheres by the principles of mutual respect of each other's economic interests, reciprocity, equity and fairness.

This protocol lays the groundwork for strengthening the economic base of the Palestinian side and for exercising its right of economic decision making in accordance with its own development plan and priorities. The two parties recognize each other's economic ties with other markets and the need to create a better economic environment for their peoples and individuals.

Appendix B

*Israeli Palestinian Interim Agreement on the West Bank
and the Gaza Strip Washington, D.C., September 28, 1995*

The Government of the State of Israel and the Palestine Liberation Organization (hereinafter “the PLO”), the representative of the Palestinian people.

ARTICLE XI

Land

1. The two sides view the West Bank and the Gaza Strip as a single territorial unit, the integrity and status of which will be preserved during the interim period.
2. The two sides agree that West Bank and Gaza Strip territory, except for issues that will be negotiated in the permanent status negotiations, will come under the jurisdiction of the Palestinian Council in a phased manner, to be completed within 18 months from the date of the inauguration of the Council, as specified below:
 - a. Land in populated areas (Areas A and B), including government and Al Waqf land, will come under the jurisdiction of the Council during the first phase of redeployment;
 - b. All civil powers and responsibilities, including planning and zoning, in Areas A and B, set out in Annex III, will be transferred to and assumed by the Council during the first phase of redeployment.
 - c. In Area C, during the first phase of redeployment, Israel will transfer to the Council civil powers and responsibilities not relating to territory, as set out in Annex III.
 - d. The further redeployments of Israeli military forces to specified military locations will be gradually implemented in accordance with the DOP in three phases, each to take place after an interval of six months, after the inauguration of the Council, to be completed within 18 months from the date of the inauguration of the Council.
 - e. During the further redeployment phases to be completed within 18 months from the inauguration of the Council, powers and responsibilities relating to territory will be transferred gradually to Palestinian jurisdiction that will cover West Bank and Gaza territories, except for the issues that will be negotiated in the permanent status negotiations.
 - f. The specified military locations referred to in Article X, paragraph 2 above will be determined in the further redeployment phases, within the specified time-frame ending not

later than 18 months from the date of the inauguration of the Council, and will be negotiated in the permanent status negotiations.

3. For the purpose of this Agreement and until the completion of the first phase of the further redeployments:
 - a. “Area A” means the populated areas delineated by a red line and shaded in brown on attached map No. 1;
 - b. “Area B” means the populated areas delineated by a red line and shaded in yellow on attached map No. 1, and the built-up area of the hamlets listed in Appendix 6 to Annex I; and
 - c. “Area C” means areas of the West Bank outside Areas A and B, which, except for the issues that will be negotiated in the permanent status negotiations, will be gradually transferred to Palestinian jurisdiction in accordance with this Agreement.

Appendix C

*Participants in Aix Group’s Conference
November, 4-6, 2016, Ambassador Hotel, Jerusalem*

Israelis	Internationals	Palestinians
Dan Catarivas Manufacturers Association of Israel – MAI & Aix Group	Dr. Shanta Devarajan Chief Economist, MENA, World Bank	Mr. Samir Hulileh CEO – Padico & Former Cabinet Secretary
Prof. Ori Heffetz Hebrew University of Jerusalem	Dr. Marina Wes Country Director, West Bank and Gaza, World Bank	Dr. Samir Hazboun, DATA and Steering Committee, Aix Group.
Advocate, Tamar Hacker Aix Group	Prof. Gilbert Benhayoun Chairman, Aix Group	Mr. Youssef Habesch IFC – World Bank Group
Prof. Avi Ben Bassat Hebrew University, Jerusalem	Dr. Heliodoro Temprano Arroyo Head of Unit, Neighbourhood countries – Macro financial Assistance, The EC	Dr. Samir Abu Zneid Researcher
	Mr. Pierre Cochard French Consul General, Jerusalem.	Mr. Sami Abu Dayyeh CEO- Net Tours
	Ms. Nur Nasser Eddin Economist, West Bank and Gaza	Dr. Nader Khateeb Eco Peace
	Mr. Abdalwahab Khatib Economist, West Bank and Gaza	
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<i>Aix Group's Teams of Israeli and Palestinian Researchers Writing Jointly the Studies</i>		
Prof. Arie Arnon Israeli coordinator		Mr. Saeb Banya Palestinian coordinator
Prof. Joseph Zeira Hebrew University of Jerusalem & Steering Committee Aix Group		Dr. Karim Nashashibi Former IMF representative to Palestine & Aix Group
Prof. Jimmy Weinblatt Former Rector BGU & Former President Sapir College		Dr. Saad Khateeb CORE & Aix Group
Mr. Yehuda Greenfield-Gilat Hebrew University of Jerusalem		GE*
Dr. Shaul Arieli Former IDF Colonel, Independent Researcher		Prof. Anan Jayyousi Aix Group Researcher Water and Agriculture Expert
Ms. Adi Finkelstein Hebrew University of Jerusalem		

* In writing we had important inputs from an Economist from Gaza (GE); for obvious reasons we use this pseudonym.

Part II

Gaza: From Humanitarian Crisis and Economic Decline to Economic Development

Part II

Gaza: From Humanitarian Crisis and Economic Decline to Economic Development

Executive Summary

According to recent UN reports, Gaza is facing a humanitarian crisis and if the current trend continues, by 2020 Gaza will not be fit for living. This paper tries to outline some required measures that can improve things in Gaza in order to avoid this impending catastrophe. Following the 2014 war, there have been significant efforts for the reconstruction of Gaza, but that is clearly not enough. Gaza has suffered from a deteriorating economy for more than 20 years, and over the past 10 years it has deteriorated even more rapidly. GDP per capita has declined in the last 2 decades and GDP per worker has declined by even more. This means that productivity in Gaza is falling, so that its ability to grow and to feed itself becomes an increasingly distant prospect over time.

The paper begins with an attempt to explain why the Gazan economy has failed to grow. We identify 4 main reasons. The first and most significant is the Israeli siege, closing off Gaza to mobility of both goods and people. This increases transaction costs significantly and that reduces productivity and deters investment. The second reason is the deterioration of the infrastructure in Gaza, mainly of energy, roads, water and sewage. The third reason is the high military and political risks in Gaza that also deter investments. The fourth reason is governance, as Gaza is ruled de-facto by a Hamas government, which is in opposition to the Palestinian Authority government and which controls most of the public and external funds. This sharing of power does not work well and it creates additional difficulties, including obstacles to the supply of energy and to trade flows to and from Gaza.

This analysis and these conclusions guide this paper to put forward proposals to improve the economic situation in Gaza by tackling the two main problems of insufficient infrastructure and restricted mobility. The paper also makes some suggestions on how to improve governance. In the area of infrastructure, the paper suggests a list of measures to advance the 3 areas of electricity, water and sewage. These measures include laying additional electrical power lines from Israel to Gaza and laying a gas pipeline from Ashkelon to Gaza. In the area of water, we propose an initial increase in imports of water from Israel in order to reduce the pumping of water from the Gaza Aquifer, which is critically overused. In addition, energy imports can help build desalination plants in Gaza and improve the treatment of sewage in order to reuse the water in agriculture. In the area of enabling trade, our first proposal is to gradually reduce the “Dual Use” list, which significantly limits imports of goods to Gaza, on the basis that these goods can be used for military activity as well. The current list, which includes all fertilizers and pesticides, and many industrial and construction inputs, significantly harms investment in industry and in agriculture in Gaza. We show that the list is exaggerated and serious negotiations between the Palestinians and Israel can reduce it significantly and improve the economy in Gaza. Another proposal the paper makes is reopening the safe passage to convoys between Gaza and the West Bank. It suggests opening more passages to goods in addition to Kerem Shalom. We also advocate deepening the fishing port in Gaza, later opening a Sea Lane from Gaza to Cyprus, and in

the longer term gradually building a deep-sea port in Gaza. Finally, our proposals include rebuilding and operating the airport in Dahaniya. In the area of governance, we acknowledge the difficulties in overcoming the deep disputes between the PA and the de-facto Hamas government in Gaza, but we also point at the progress already done at bridging these gaps. We show that the financial aspects of these gaps are not significant, while the benefits of reconciliation are large.

At the outset, the proposals we raise have the potential to increase security risks to Israel, but we show in the document that there are ways to control and reduce these risks. First, most of these changes have been implemented in the past with satisfactory security arrangements, which were part of the Oslo process agreements. In most cases, we can restore these arrangements. In some cases, like the airport, there is a need to adjust security arrangements to the new situation in Gaza. It is also important to keep in mind three important points. The first is that even the harshest siege did not guarantee security. Even during the strictest imposition of the siege, the military arm of Hamas was able to produce rockets and explosives and to dig tunnels. The second point is that after the war of 2014 Israel released many of the restrictions, especially on the imports of construction materials, for the reconstruction project, and it found satisfactory security arrangements for it. The third point is that security is achieved not only by military means, but also by reducing the motivation of the other side to fight against you. The situation of increasing poverty and declining standards of living creates a hotbed for anger and despair, which might lead, sooner or later, to more rounds of violence.

The paper then turns to analyze the potential political implications of increasing mobility to Gaza and mainly asks whether it might strengthen Hamas or weaken it. We estimate that it will weaken Hamas for three main reasons. First, an improvement in economic conditions reduces anger and hostility, which reduces support to radical movements. Second, opening Gaza will make its residents less dependent on Hamas, as it will open alternatives. Third, achieving openness and economic improvement through an agreement with Israel will increase the support to those who champion negotiations rather than to those who oppose them.

In summary, this paper calls three relevant parties to help the Gaza population get out of their terrible economic and humanitarian crisis. The first is Israel, who controls Gaza from the land, the air and the sea. We call on Israel to supply more energy and more water to Gaza, at least in the short term, to relax the “Dual Use” list, open the safe passage and allow the building of the port and the airport. We believe that the risks from such measures are smaller than the risk from a starving, vengeful and desperate neighbor. The second address of this paper is the Palestinians. A major improvement in governance is required. The separation between the PA and Hamas, between the West Bank and Gaza, proved to be damaging to both. Finally, our paper also addresses the international community, which has an important role in saving Gaza. It should participate in financing infrastructure projects and institution building, and in monitoring and solving security problems. Mainly, it should help in putting pressure on all sides to move ahead in implementing these recommendations. The international community has always been involved in Gaza, in bad times as in good times, so they share responsibility for the current debacle. After so many years of suffering and deterioration, the people of Gaza and their Israeli neighbors deserve a new start.

1. Introduction

According to recent UN reports, Gaza is facing a humanitarian crisis³. They warn that if the current trend does not change, by 2020 Gaza will not be fit for living. This is a very dire prediction and this paper tries to outline some required measures to improve things in Gaza in order to avoid this impending catastrophe. Following the 2014 war in Gaza, there have been significant efforts for the reconstruction of much that was destroyed, but that is clearly not enough. Gaza suffers from a deteriorating economy: GDP per capita has declined in the last two decades and GDP per worker has declined even more. This means that productivity in Gaza is falling quite rapidly and its ability to feed itself becomes an increasingly distant prospect over time.

This paper begins with an attempt to explain why the Gazan economy is in such poor shape. We identify four main reasons. The first and most significant is the Israeli siege, closing off Gaza to mobility of both goods and people. This raises transaction costs significantly and that reduces productivity and deters investment. The second reason is the deterioration of the infrastructure in Gaza, mainly of energy, roads, water and sewage. The third reason is the high military and political risks in Gaza that deter investments. The fourth reason is governance, as Gaza is ruled de-facto by a Hamas government, which is in opposition to the Palestinian Authority government, which controls most of the public and external funds. This sharing of power does not work well and it creates additional difficulties.

Following this analysis, we put forward proposals to improve the economic situation in Gaza by tackling the two main problems of insufficient infrastructure and restricted mobility. We suggest a list of measures to advance these two issues gradually and carefully. These measures include laying additional electrical power lines from Israel to Gaza and laying a gas pipeline from Ashkelon to Gaza. In the area of water, we propose an initial increase in imports of water from Israel in order to reduce the pumping of water from the Gaza Aquifer, which is critically overused. In addition, energy imports can help build desalination plants in Gaza and improve the treatment of sewage in order to reuse the water in agriculture. In the area of trade, we raise the need to gradually reduce the “Dual Use” list, which significantly harms investment in industry and in agriculture. We then propose reopening the safe passage to convoys between Gaza and the West Bank, deepening the fishing port in Gaza, gradually building a deep-sea port in Gaza, and rebuilding and operating the airport in Dahaniya.

At the outset, these proposals have the potential to increase security risks to Israel, but we show in the document that there are ways to control these risks. First, most of these changes have been implemented in the past with satisfactory security arrangements, which were part of the Oslo process agreements. In most cases, we can restore these arrangements. In some cases, like the airport, there is a need to adjust security arrangements to the new situation in Gaza. It is also important to keep in mind that even the strictest siege did not guarantee security. Even during the full siege, the military arm of Hamas was able to make rockets and explosives and dig tunnels.

We then turn to analyze the potential political implications of increasing mobility to Gaza and mainly ask whether it might strengthen Hamas or weaken it. We estimate that it will weaken Hamas for three main reasons. First, an improvement in economic conditions reduces anger and hostility. Second, opening Gaza will make its residents less dependent on Hamas. Third, achieving openness and economic improvement through an agreement with Israel will increase the support to those who champion negotiations rather than to those who oppose them.

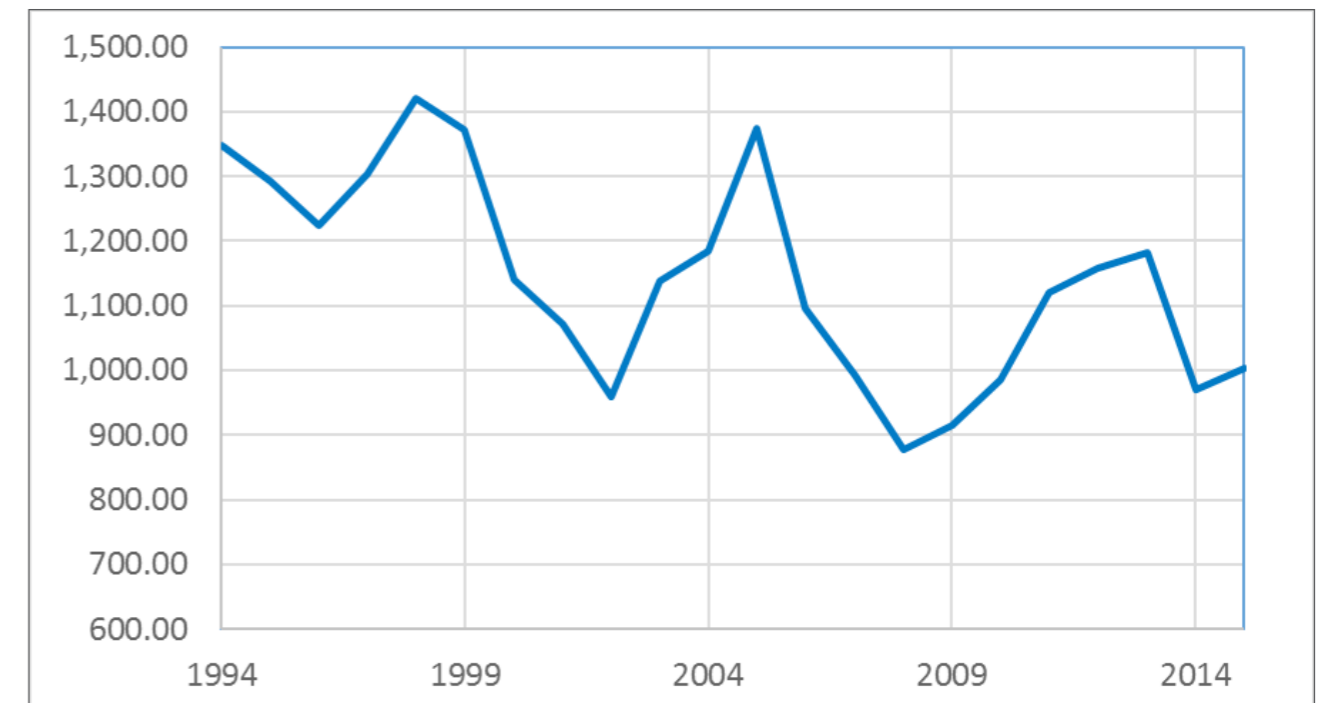
The paper is constructed as follows. Sections 2 and 3 describe the economic decline of Gaza, going from the macro to the micro. Sections 4 to 6 describe the main causes for this economic decline, with

Section 4 focusing on the blockade, Section 5 on insufficient infrastructure and Section 6 on problems in governance. Section 7 describes the effort of reconstruction, and the sections which follow analyze the required measures to begin economic development beyond reconstruction. Section 8 focuses on measures to develop infrastructure and Section 9 focuses on measures required to promote trade. Section 10 discusses the security concerns raised by these measures, while Section 11 discusses the political concerns. Section 12 provides a summary and the Appendix contains extensions.

2. The Macroeconomic Situation

The past 20 years since the Oslo agreement have been very volatile, in Palestine in general and in Gaza especially. Both the West Bank and Gaza have experienced the devastating Second Intifada and many other clashes. Both have experienced increasing barriers to mobility which have caused significant economic losses, but Gaza has suffered much more. This is reflected in its distressing economic performance. Figure 1 presents GDP (Gross Domestic Product) per capita in Gaza over the years 1994 – 2015. The units are in thousands of US dollars in 2004 prices.

Figure 1: GDP per Capita in Gaza in 2004 US dollars, 1994-2015

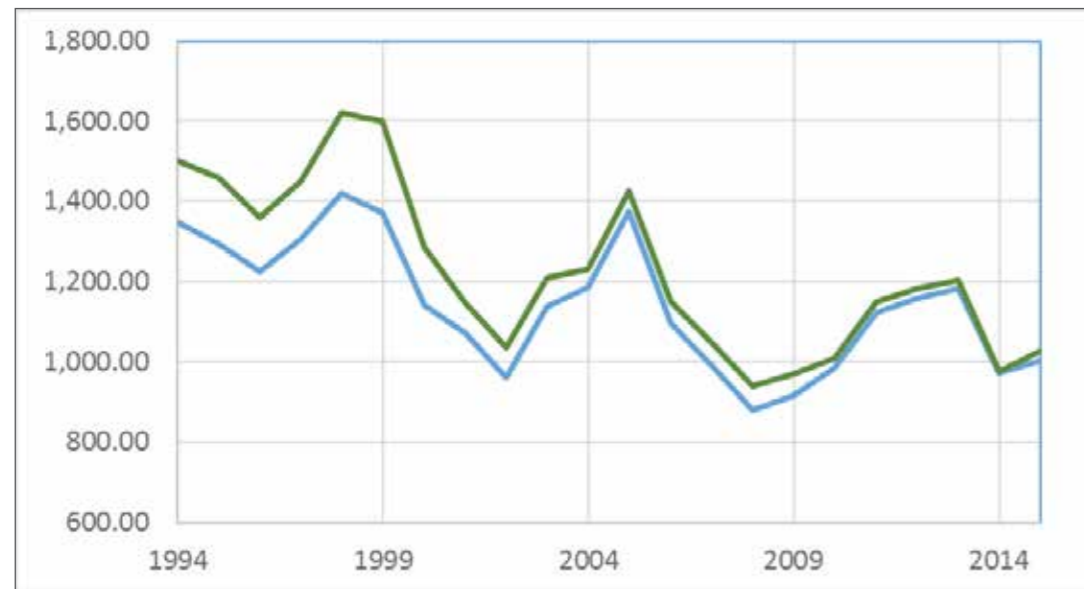


Source: PCBS National Accounts Statistics

The first thing to note in Figure 1 is the low level of output in Gaza, which is on average 1,200 dollars in 2004 prices in this period. Compared to Israel’s GDP per capita of around 20,000 dollars in 2004, it is lower by a factor of 17. Compared to Jordan’s GDP per capita of around 4,200 dollars in 2004, it is lower by a factor of 3.5. To make things worse, Figure 1 clearly shows that over the last twenty years output per capita declined from 1,300 to 1,000 dollars. It also fluctuated significantly due to three significant adverse shocks. The first one was the Second Intifada, during which GDP per capita fell by a third. From 2002 through 2006 there was some recovery, but after the Hamas takeover of Gaza in 2006-2007 and the military incursions by Israel which followed, output per capita fell again by a third. From 2008 to 2013 Gaza experienced some boom, called by many the ‘tunnel economy.’ Then in the war of 2014, GDP per capita collapsed again.

3. We use the term Gaza for the Gaza Strip throughout.

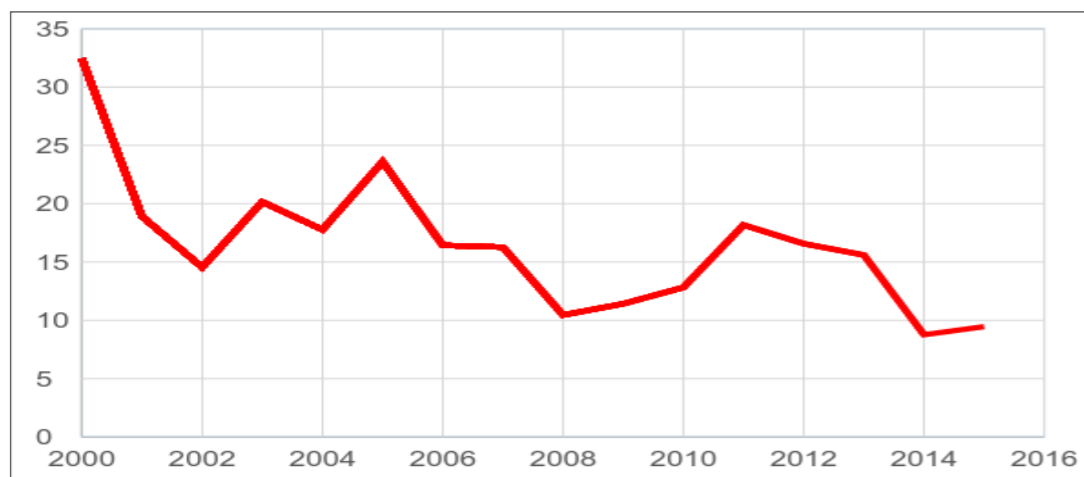
Figure 2: GDP and GNI per Capita in Gaza in 1994-2015



Source: PCBS National Accounts

Note that Gaza income includes not only GDP, but also labor income of workers in Israel, and remittances from Palestinians who work abroad (mainly in the Gulf countries). Figure 2 presents both GDP per capita the GNI (Gross National Income) per capita, over the years 1994 – 2015. The blue curve plots GDP per capita while the green curve plots GNI per capita. The green line is higher than the blue, due to additional sources of income. The figure shows that GNI declined even more than output. The main reason is that the number of Gaza workers employed in Israel has declined since the 1990s due to frequent closures and to competing foreign workers from other countries. As Figure 2 shows, the dynamics of income and output do not differ much and fit the general trend of decline. Actually, disposable income of Palestinians is higher than GNI, due to budget support from donor countries and to spending by organizations like UNRWA. While these donations stabilized income and employment to some extent, they are also a testimony for the problem of low productivity in Gaza.

Figure 3: GDP per Worker in Gaza in 2004 US dollars: 2000-2015



Source: PCBS National Accounts and Labor Force Survey

Figure 3 describes output per worker, also called ‘labor productivity,’ over the years 2000-2015. Labor productivity is an important indicator of the production potential of the economy. Figure 3 shows that over the years 2000-2015 labor productivity fell by half, by more than GDP per capita. Note that the levels of GDP per worker are more than ten times higher than GDP per capita. This is due to the low rate of employment in Gaza. There are two main explanations for the low rate of employment in Gaza. One is the high share of children in the population, and the second is the high rate of unemployment. Thus, Figures 1 and 3 indicate that economic development in Gaza requires more jobs, namely greater demand for goods, particularly exports.

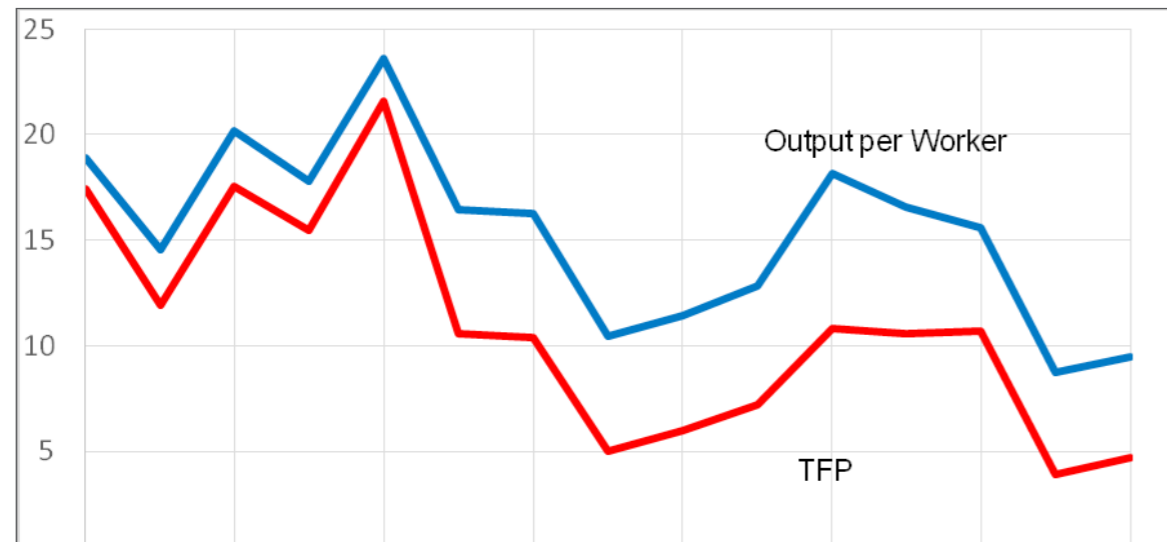
Figure 3 also demonstrates the devastating effect of the siege on Gaza. Between the years 2005 and 2008 labor productivity fell from 24,000 dollars to 10,000. This dramatic decline is due mainly to the closing of Gaza. The Aix Group paper on Palestinian development (2015) shows how barriers to mobility have reduced productivity both in Gaza and in the West Bank. Etkes and Zimring (2015) reach a similar conclusion through additional mechanisms. Their analysis shows that the blockade hurt the manufacturing sector most and as a result, many workers shifted from high productivity manufacturing jobs to low productivity services jobs. They find that between 2006 and 2009 employment fell by 33 percent in the manufacturing sector, while the services sector experienced an increase of 24 percent.

One way to broaden our understanding of the economic effect of a siege is to examine another case in a very different geographical area, namely Cuba. The US sanctions on Cuba also had a severe effect on its economic growth. Between 1959 and 1990 GDP per capita in Cuba grew at a very low average rate of 1.1 percent annually. Part of it was due to support from the USSR. In the years 1990 – 1994, when this support disappeared and did not counter the sanctions, GDP per capita in Cuba fell by 40 percent.

Note that labor productivity reflects two variables, one is the Capital-Labor ratio, which tells us how capital intensive the economy is, and the second is Total Factor Productivity (TFP), which reflects the level of technology, of human capital and the efficiency of infrastructure and institutions.⁴ Figure 4 presents GDP per worker in Gaza by the blue curve and TFP by the red curve. In order to calculate productivity, we need data on capital, which is not available from the PCBS. We estimate the quantities of capital from data on investment by using the perpetual inventory method.

4. We measure total factor productivity here under the assumption that it is labor augmented. Namely, we assume TFP affect production through productivity of workers. Technically, we assume that the production function is $Y=F(K, AL)$, where Y is output, K is stock of capital, L is labor input and A is labor augmented total factor productivity.

Figure 4: Output per Worker and Labor Augmented TFP in Gaza: 2000-2015



Source: PCBS National Accounts and Labor Force Survey

Figure 4 shows that total factor productivity declined by much more than labor productivity during the three years (2006 – 2008) of the siege. TFP fell from 20 to 5, which is a quarter of its previous level. We should be careful with these results, as the data on capital in Gaza is a very rough estimate. Regardless, Figure 3, Figure 4 and other studies show that barriers to mobility reduce productivity significantly. Hence, increasing openness to trade between Gaza and the outer world, especially the West Bank and Israel, is vital for any economic improvement.

Although the siege is the main explanation for the economic decline of Gaza, there are additional factors that contribute to it. One is the dismal state of infrastructure in Gaza, mainly of electricity, water and transportation. For example, Gaza suffers electricity power outages of 8-16 hours per day. Another potential cause for the economic decline is poor governance. In the sections ahead, we discuss each of these issues separately: the blockade, infrastructure and governance.

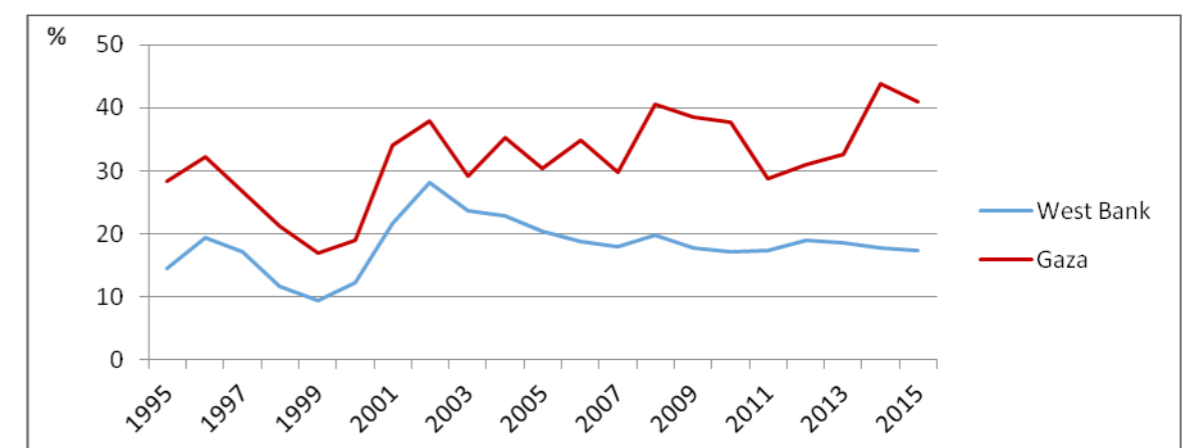
3. The Socio-Economic Situation

This section adds some microeconomic analysis to the macroeconomic section that highlights Gaza’s economic decline.

3.1. Unemployment

Gaza faces a severe unemployment problem, particularly among the youth. As Figure 5 shows, unemployment in Gaza has always been higher than in the West Bank. In both regions unemployment increased during the Second Intifada; in the West Bank it has declined since then, but in Gaza it has remained high. The unemployment rate in Gaza reached 41 percent in 2015. Unemployment among the young in Gaza (aged 15-29) is especially high and in 2015 it reached 57.6 percent. Unemployment among women is currently 65.3 percent.

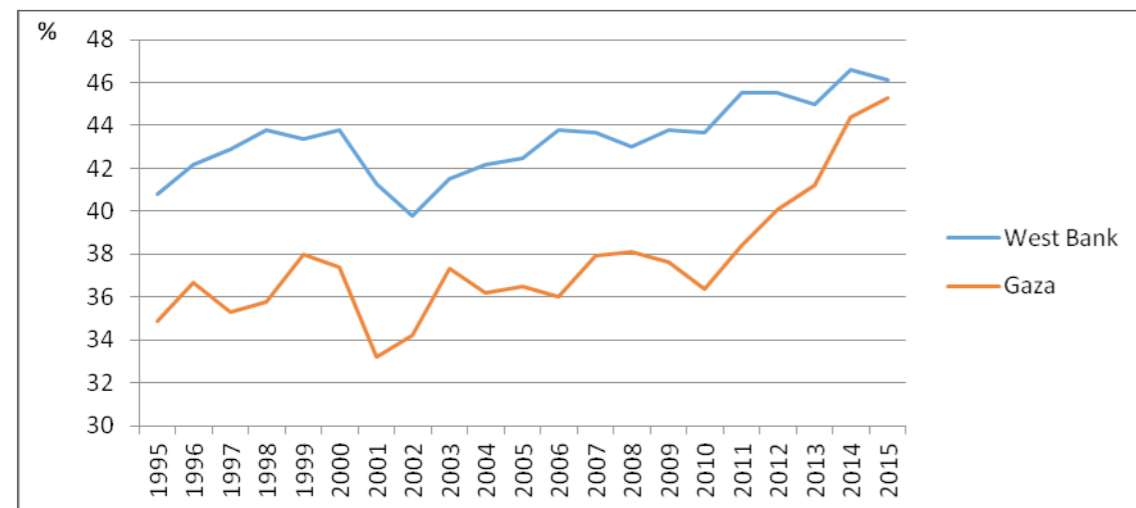
Figure 5: Unemployment Rate in Gaza and in the West Bank



Source: PCBS Labor Force Survey

There are several explanations for the high unemployment rate in Gaza. The major one is the significant reduction of trade after 2005. As a result, aggregate demand decreased sharply and according to standard economic analysis, it reduced employment. The second explanation is the damage created by military confrontations between Israel and Gaza in 2006, in 2008, in 2012 and in 2014. These confrontations have destroyed much capital, including factories, irrigation systems and infrastructure. The PA’s Detailed Needs Assessment (DNA, 2015) estimated the total damages caused by the 2014 war in Gaza to \$1.4 billion, which is equivalent to 41 percent of Gaza’s GDP.

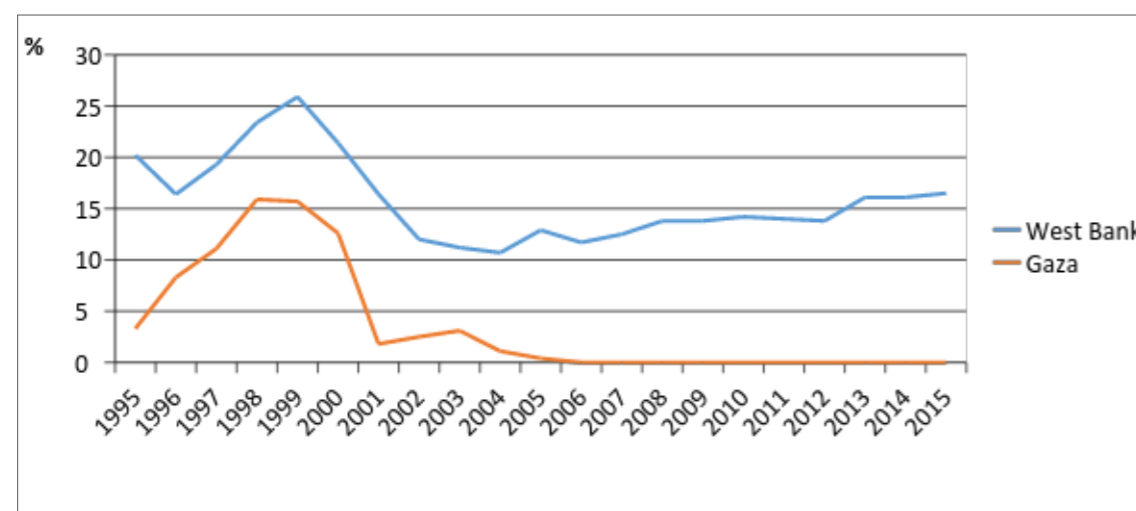
Figure 6: Participation Rate in Gaza and in the West Bank



Source: PCBS Labor Force Survey

Another explanation for the high unemployment rate is the high population growth in Gaza of 3.5 percent annually. Its economy needs to generate 17,000 new jobs every year just to absorb the new entrants into the labor force. Any decline of the annual real economic growth rate below 3 percent, increases the unemployment rate. As shown above, there was no growth in Gaza since 2005, yet population grew by 39.5 percent with 350,000 additional workers joining the labor force. In addition to the demographic increase in the labor supply, there has been a secular trend of rising labor participation rates in both Gaza and the West Bank, as shown in Figure 6. The rise in Gaza has been quite dramatic from 35 percent in 1995 to 45 percent in 2015. The entry of new populations to the labor market, especially women, is a positive development, but it also indicates a reaction to lower household incomes following the loss of jobs in Israel and in Israeli settlements after 2005, as indicated in Figure 7.

Figure 7: Share of Workers Employed in Israel and in the Settlements



Source: PCBS Labor Force Survey

3.2. The Construction Sector

Gaza’s construction sector is labor intensive. Its decline in recent years is another contributor to the high unemployment rate in Gaza. The share of employment in the sector has dropped from 13-20 percent in the 1990s to 4.4 percent in 2015. This decline was caused mainly by the restrictions on imports of construction materials into Gaza. However, since 2015 there has been an increase in employment in construction due to the reconstruction project after the 2014 war, and the removal of restrictions on the entry of construction materials. However, this increase is not sustainable, and high unemployment trends are expected to continue.

3.3. Agriculture

Agricultural employment has a secular trend of decline in most countries, including Israel, Jordan, the West Bank and Gaza, due to technological change. However, in Gaza, employment in agriculture declined by much more than this trend. The agricultural sector in Gaza is quite sophisticated, where half of cultivated land was dedicated to high-end fruit and vegetable production. While accounting for only 11 percent of Palestinian cultivated land, it was contributing 30 percent of total agricultural value added.⁵ It has been export oriented, with 12 farms receiving full EU certification, whereas the West Bank had only three. However, it is highly dependent on imported inputs such as fertilizers and pesticides, which are currently restricted by the “Dual Use” list. Restrictions on these inputs and on exports to Israel and the West Bank have ruined most farms and significantly reduced agricultural employment. Furthermore, because agricultural exports are perishable, transportation and processing cannot suffer delays and interruptions. Buyers in Israel, the West Bank and foreign markets expect reliable and timely supplies. As a result of the decade-long blockade, most of Gaza’s potential customers turned to other suppliers and that had a crippling effect on agriculture in Gaza.

The successive wars and their direct damage to water systems, restrictions on land close to the border and on fishing zones also hurt the agriculture in Gaza. Almost 46 percent of agricultural land in Gaza is inaccessible or unusable due to destruction of land during successive wars and by the “security buffer zone” along Gaza’s northern and eastern borders with Israel. Restrictions on imports of fertilizers, pesticides and iron rods for greenhouses due to the “Dual Use” list have reduced crop yields and that reduces the sector as well. The number of farmers declined from 100,000 in 2005 to 18,000 in 2016.⁶ The share of employment in agriculture in Gaza dropped from 16.3 percent in 2000 to 6.4 percent in the fourth quarter of 2015. By contrast, agricultural employment in the West Bank declined by much less, from 13.1 percent in 2000 to 9.8 percent in 2015.

The fishing sector in Gaza suffers from reduced access to international waters, from 12 nautical miles in 2005 to 3 nautical miles in 2007.⁷ According to the Oslo Accords, the fishing zone should have been 20 nautical miles. In 2014, the designated fishing zone was extended from 3 nautical miles to 6. In April 2016, it was expanded by another 3 nautical miles, but it was cancelled 2 months later. The frequent changes in regulation increase uncertainty, which contributes to the decline in investment in Gaza.

5. See Beyond Aid: A Palestinian Private Sector Initiative for Investment, Growth and Employment, The Portland Trust November 2013, p. 22.

6. Eldar, Shlomi, “Gaza Agriculture on the Brink of Collapse,” Al Monitor, 21.10.2016.

7. DNA, Aug, 2015

3.4. Poverty and Aid Dependence

In August 2014, PCBS (Palestinian Central Bureau of Statistics) reported a 39 percent poverty rate in Gaza, with 21.1 percent who live in “deep poverty.”⁸ It also reported that the level of food insecurity was at 57 percent and the aid dependence rate was even higher, at 80 percent. It is reasonable to assume that the 2014 war further increased the number of poor and homeless. UNRWA’s latest emergency appeal reports that 72 percent of Gaza’s population are registered refugees, out of which 830,000 Palestinian refugees are dependent on food assistance, a large increase from 100,000 in 2000. UNRWA also reported that 65,000 people are still displaced, approximately 70 percent of them refugees.⁹ But beyond the dramatic picture of deterioration painted by the economic statistical indicators, there has been a sharp decline in welfare, with much higher levels of misery and despair among the Gaza population, particularly among the poor. Inhabitants of Gaza suffer from continuous power cuts, deterioration in housing and in health services, inability to travel to Egypt or abroad through Israel for education and training, and the scarcity and high cost of drinkable water. All these have contributed to a sharp decline in the quality of life and a widening gap between the rich and the poor, and between Gaza and the West Bank.

3.5. Decline of the Health System

The health system is unable to meet the growing needs of the population in Gaza. There are fewer permits to cross Erez and Rafah for medical purposes. During the first half of 2016, only 748 patients crossed to Egypt for health care, while before the July 2013 closure, 40,000 people were crossing Rafah for health-related issues.¹⁰ The blockade also reduces imports of pharmaceuticals, which increases the demand for exits for health care. In addition, the divided governance in Gaza is hurting the health sector, since 40 percent of the Ministry of Health employees, including doctors and nurses, have not been receiving their full salaries since May 2014. According to OCHA, partial payment of salaries reduces working hours and increases strikes and staff shortage.¹¹

4. Gaza under Blockade

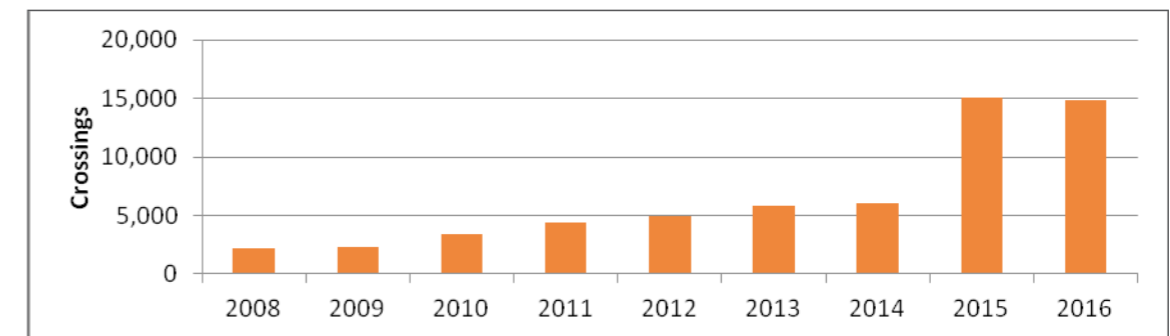
The overall macroeconomic analysis of Gaza has led us to focus on the blockade on Gaza, since it is the main reason for its poor economic performance. This section describes in more detail the blockade and its direct effects on the economy of Gaza.

4.1. Limitations on Movement of People

After a period of relatively free movement of labor between Gaza, the West Bank and Israel in the 1970’s and 1980’s, the 1990’s saw a gradual decrease in movement from Gaza to Israel. Beginning in 1991, Gaza labor was required to obtain exit permits. During the 1990’s, the number of closures on Gaza increased significantly. With the outbreak of the Second Intifada, the number of permits declined dramatically and the Erez Crossing shut down frequently. In the first year of the intifada, the crossing was closed to Palestinians 72 percent of the time. The number of workers exiting daily dropped from 26,000 in the summer of 2000 to less than 900 in 2001.

After Hamas took control of Gaza in June 2007, Israel imposed a full closure on Gaza and allowed exit only for humanitarian reasons. Since then, Israel has relaxed some of these restrictions, although on occasion it also reversed the relaxation. After the 2014 war, Israel extended the permits to cross Erez to students who wish to study abroad and to traders who have regular contacts with the West Bank and Israel. In addition, Israel enabled some family reunions between the West Bank and Gaza, as well as visits of elderly men to Al-Aqsa Mosque (COGAT, 2015). However, the numbers are still just a small fraction of the numbers of exits at Erez in 2000, according to GISHA. Figure 8 presents the annual number of exits through Erez in the years 2008 - 2016. Note that 15,000 in 2016, which is the highest monthly average of people crossing through Erez since 2006, is still far lower than the number of people who crossed Erez monthly before 2000, which was around 500,000. In the second half of 2016, Israel cancelled or revoked many permits to traders and businesspersons, without explanations.

Figure 8: Average Monthly Crossings through Erez



Source: OCHA Crossings Activities Database

At the other end of Gaza, Rafah could have been a complementary solution to the restrictions on Erez by enabling exit to Egypt. However, since mid-2013, after the overthrow of President Morsi, the Rafah crossing has been effectively closed, except for a small number of humanitarian cases. In 2015, Rafah was open for a total of 25 days for exiting Gaza and for 32 days for entering Gaza. From January to July 2016, Rafah was open was only 14 days, as shown by Figure 9. Currently, mobility through the two crossings is very limited and thousands of people are on the waiting lists at both.

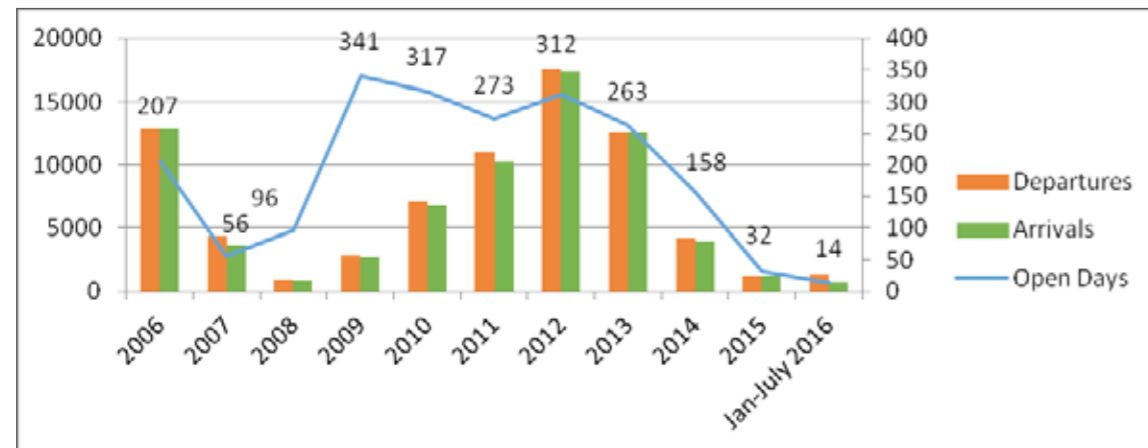
8. PCBS (2014), ‘On the Eve of International Population Day’, Press Release, 10 July 2014, available at http://www.pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_IntPopD2014E.pdf.

9. OCHA, Internally Displaced Persons, April 2016.

10. World Health Organization monthly report, June, 2016

11. Robert Piper in an article published in Al-Quds Newspaper, <http://www.ochaopt.org/content/humanitarian-impact-divided-government>

Figure 9: Annual Crossing of People through Rafah

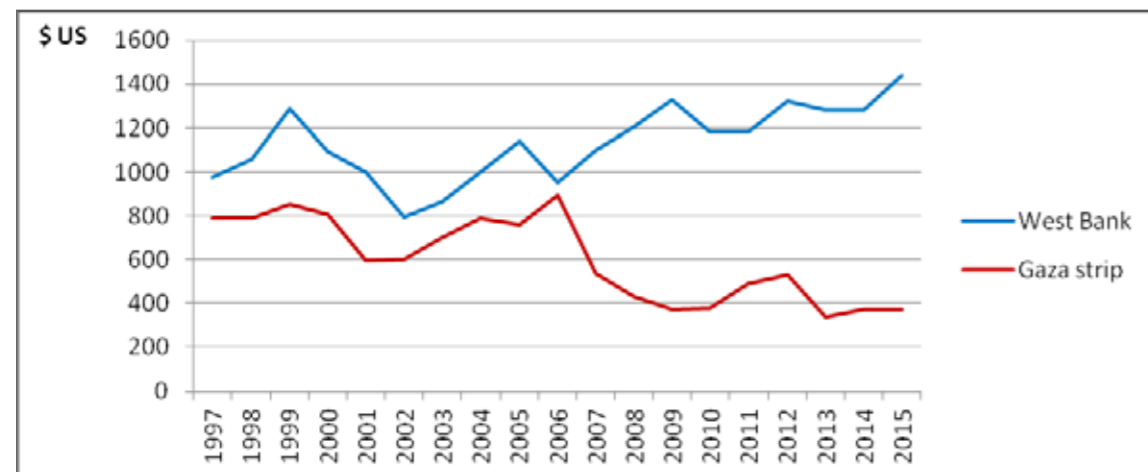


Source: OCHA Crossings Activities Database

4.2. Restrictions on Imports

During the blockade on Gaza the Israeli military authorities enabled entry of basic goods required for minimum consumption, but these were meager quantities and the amount of imports declined continuously. Figure 10 presents the real value of imports to Gaza per capita, and to the West Bank for comparison. While imports per capita to the West Bank increased modestly over time, imports per capita to Gaza through the Israeli border have been reduced by half since 2006.

Figure 10: Real Imports per Capita



Source: PCBS National Accounts

One of the main causes for the decline of imports to Gaza is the “Dual Use” list for Gaza. This is a list of items that can be used for armed actions in addition to their civilian use. The list for the territories is quite long, and there is an additional list, of 61 items, which applies for Gaza only.¹² It includes major inputs for agriculture such as fertilizers, pesticides and tractors, inputs for fishing such as wood

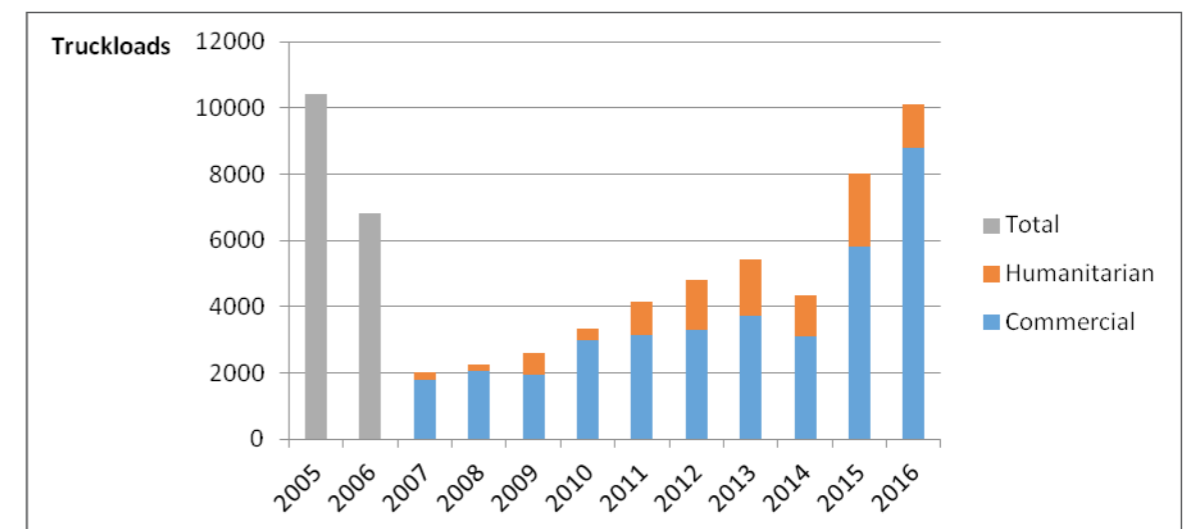
12. GoI, Ministry of Foreign Affairs, 2015 update

planks thicker than 1cm and broader than 5cm, and inputs for industry and construction, such as iron and steel, cranes and more. This harms Gaza’s major export sectors, including furniture, agriculture, fabric and garments, which face difficulties in importing their inputs.

The decline in imports after 2006 is evident from Figure 11, which presents the monthly average number of trucks that enter Gaza each year. The figure shows that there is some increase in the numbers of entering trucks since 2015, especially of commercial imports¹³. Note, however, that this import data only reflects crossings from Israel. Actual imports were substantially higher during the tunnel period (2009-13) when large imports came from Egypt, but this data is not available.

Nevertheless, with a rapidly growing population, the needs for imports are greater and catching up with the 2005 level of activity (of 10,400 trucks per month on average) is no longer sufficient. Projecting from the number of incoming trucks in 2005 to 2016, taking into account an annual population growth of 3.5 percent, would require 14,000 trucks per month in 2016, against the actual number of 9,950 on average in 2016.

Figure 11: Incoming Trucks (monthly average)



Source: OCHA Crossings Activities Database

One way to estimate the harsh effect of the blockade on Gaza is to examine the economic rise of the Gazan economy during the period of illegal tunnel trade, which developed and thrived between Gaza and Egypt during the years 2009 – 2013. The tunnels enabled Gaza to increase its imports significantly during that period. According to Sedeka and Kaufman (2015), these alternative routes

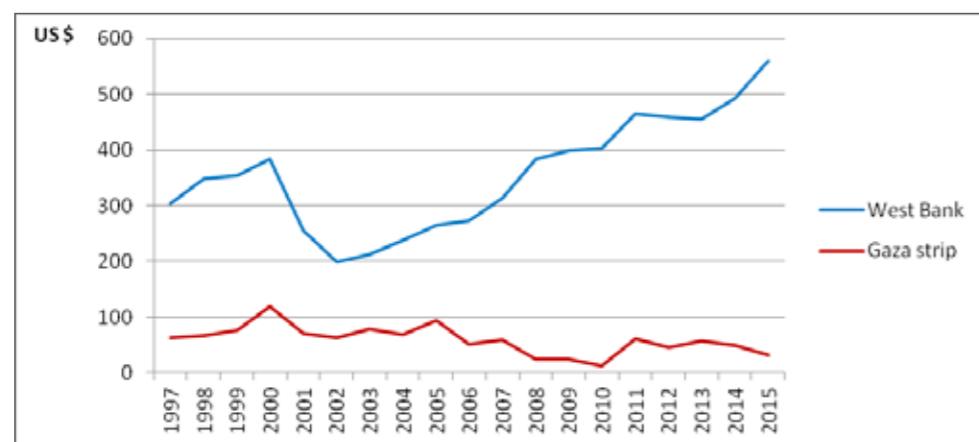
... served as [a] key counterbalance to mounting access and movement restrictions [by Israel]. Smuggling of anything from cars, fuel and farm animals to cigarettes and weapons, the tunnels provided a lucrative source of income for Hamas who taxed the commodities passing through. At the height of the tunnel industry, there were about 1,500 underground routes of supply between Gaza and Egypt.

13. Unfortunately, data since 2000 is unavailable except for 2005.

The imports of construction materials to Gaza through the tunnels were three times larger than construction imports via official Israeli crossings.¹⁴ The tunnels helped to raise real income in Gaza substantially between 2008 and 2013, as shown in the Figures in Section 2. This was not only due to free access to inputs, but also because of the much lower prices of smuggled goods from Egypt, particularly fuel.

4.3. Restrictions on Exports

Figure 12: Real Exports per Capita from Gaza and the West Bank



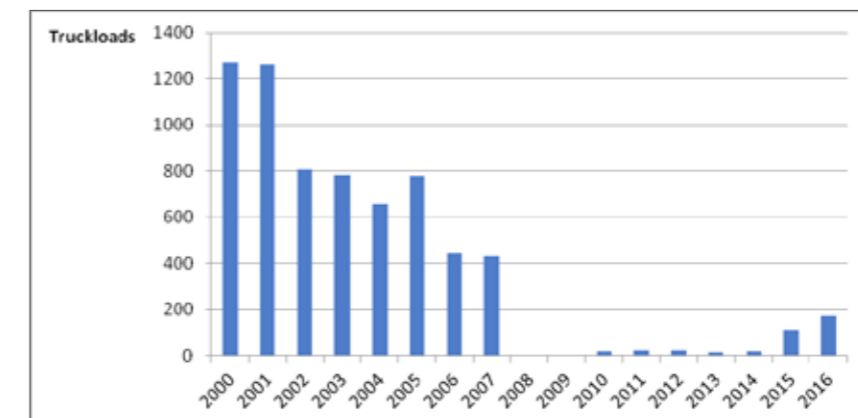
Source: PCBS National Accounts

Gaza is a small economy and hence it depends crucially on trade with others, particularly with the West Bank, with Israel and with the Arab countries. Note that Jordan, which is much larger, exports 40 percent of its GDP. Gaza should have much higher exports relative to GDP, especially if it had a port, or could use sea lanes. Exports are also crucial for creating new employment for 17,000 new entrants to the job market every year.¹⁵ However, the Israeli direct restrictions on exports and the indirect restrictions on imported inputs left exports in Gaza extremely small, reaching only 3.2 percent of GDP in 2015. In 2000, exports accounted for 10.5 percent of GDP with 15,255 trucks exiting Gaza annually. This declined to 6.8 percent of GDP in 2005, with 9,319 trucks. The siege further reduced exports to virtually none in 2008 and 2009, as shown in Figure 12. There was a small recovery in 2015 and 2016 to about 1,400 exiting trucks annually, yet they are only 17 percent of their level in 2005. This sharp decline in exports resulted in a high trade deficit, which makes Gaza dependent on foreign aid.

14. OCHA Humanitarian Bulletin, Monthly Report, June 2013.

15. In 2016, 2nd quarter, the labor force in Gaza numbered 488,100 (PCBS, labor force survey); ILO the situation of workers in the occupied Arab territories, Geneva, 2016

Figure 13: Number of Trucks Exiting Gaza (Monthly Average)



Source: OCHA Crossings Activities Database

5. Gaza Degraded Infrastructure

Since 1967, there was very little development in Gaza’s infrastructure. At the same time Gaza’s population increased from 350,000 in 1967 to 1.2 million in 2000 and to 2 million in 2016. Hence, infrastructure facilities on a per capita basis declined sharply. While in 2000 there was enough electricity to meet demand and water was drinkable, by 2016, demand for electricity is twice the available supply and 95 percent of water from the Coastal Aquifer is unsafe to drink. The degradation in water quality, sanitation facilities, availability of power, deterioration in the road network and other public services has been so acute that, according to the UN, “Gaza could become uninhabitable if current economic trends persist.”¹⁶ Clearly, all three crises in electricity, water and sanitation are related. Any improvement in water requires vast desalination of water, which requires more electricity. Likewise, improvements in sanitation critically depend on additional supplies of electricity

During the 38 years of direct Israeli military occupation of Gaza (1967-2005), there was hardly any Israeli investment in infrastructure.¹⁷ There was no expansion of the road network, no improvement in water facilities and no development of sanitation facilities. Electricity was imported from Israel. Even though Gaza faces the sea, there was no attempt to develop a port. The provision of many of the services and utilities by Israel has created strong dependency and inhibited serious development.¹⁸ With the onset of the Oslo process in 1993, the Palestinian Authority (PA), together with financing from donor countries and Israeli approval, resolved to provide Gaza with the most basic infrastructure facilities. It started planning a deep-sea port, an airport and major improvements in water supply and sanitation facilities. The Gaza International Airport in Dahaniya opened in November 1998. Heavy equipment for the port was shipped through Egyptian ports and its construction began in July 2000. However, the Second Intifada interrupted both projects and their installations were destroyed by Israel during the conflict. Other infrastructure projects in water supply and water sanitation stopped with the intensification of the conflict and due to lack of financing. The Gaza Power Plant (GPP) in Southern Gaza, which started operations in 2001 with a planned full capacity of 140 MW, was

16. UNCTAD report September 1, 2015.

17. After the August 2005 disengagement, Israel continued to control Gaza’s borders (except for the border with Egypt), air space and sea coastline.

18. “A second (Israeli) decision, though less formal, was to deter investments in Gaza and in the Palestinian territory in general, in order to support purchase of Israeli goods” in Economics and Politics in the Israeli Palestinian Conflict Arnon and Bamyia editors, p. 190 Aix Group 2015.

the only infrastructure project built during the Oslo period, which survived the Israeli repression. Nevertheless, it was repeatedly damaged by Israeli strikes in 2006 and in other clashes since then.

5.1. Electricity

The demand for electricity in Gaza is estimated at 450 Megawatts (MW) in 2016, when the economy is extremely weak. The estimated demand for the year 2020 under normal conditions is 850 MW. The current supply is 200 MW, of which 60 MW are produced by GPP, 120 MW are purchased from the Israeli Electric Company (IEC) and 22 MW are purchased from Egypt.¹⁹

Until 2006, when the GPP was producing 90-100 MW annually, it met the demand for electricity in Gaza almost fully with annual additional purchases of 120 MW from the IEC. However, Israel's bombing in June 2006, following IDF soldier Gilad Shalit's abduction, destroyed much of the power station. It was eventually repaired, but shortages of fuel and poor maintenance of the transmission lines and grid further reduced capacity. The deterioration of distribution lines and the damage from successive military clashes led to losses of about 30 percent of electricity through distribution, compared with 3 percent in Israel.²⁰ In addition, the PA shifted some of the EU support from financing fuel for the GPP to PA salary payments. This policy, which was an attempt to delegate some fuel financing to Gaza, failed. Due to insufficient finance, capacity utilization fell to 60 MW and caused long power outages.²¹

In 2014, the PA announced that the Gaza Electricity Distribution Company (GEDC), which collects electricity bills from consumers in Gaza, should finance the fuel for the GPP. So far this company, which behaves like a state enterprise, has low collection rates, little enforcement against non-payment of bills, and high rates of electricity losses in its network. Nevertheless, the PA gave it large discounts, between 60 to 70 percent, on its excise tax (Blo) on fuel for the power plant, to encourage electricity production. By contrast, the Hamas government did not subsidize the GEDC, as was done by the PA to West Bank electricity distribution companies. This was partly due to the sharp decline in revenues that Hamas experienced after the end of the tunnels economy, and partly for political reasons, to shift payment responsibility to the PA. As a result, purchases of fuel for the power plant fell significantly from 12 million liters per month in 2005 to 7 million liters per month during the first half of 2016, which was still much less than it was in 2005. Bill collection rates are low, which reduces purchase of fuel, and Hamas's government did not assume responsibility for ensuring full time electricity supply to the population.

Electricity in Gaza now runs 8 hours on and 8 hours off. Such prolonged electricity outages cause major economic losses. According to the World Bank, 88 percent of businesses in Gaza reported in 2014 that the lack of electricity is a serious obstacle that causes them losses of 22 percent of their production.²² Electricity outages also hurt investment in human capital by hampering education and health facilities. Note that electricity costs in Gaza are the highest in the region at 0.71 NIS per

19. The GPP is formally known as the Gaza Electricity Generating Station. It is a private sector investment made by the Khoury family through their construction firm (CCC).

20. The World Bank: Payment for Electricity Services, appendix L pp. 115-16, 2014; West Bank and Gaza Energy Sector Review 2007.

21. The EU and other donors were purchasing fuel directly from an Israeli company (Dor Alon) between mid-2006 until the end of 2009. After 2006 Israel also imposed a limit on purchases of fuel from Israel to 2.2 million liters per week covering only 63% of the 90 MW power plant limited capacity under grid transmissions constraints. Since November 2009 the PA took responsibility for providing the plant with fuel but its contribution declined from 50 million NIS per month to 30 million NIS per month for lack of resources, causing sustained power cuts (see GISHA: The Gaza Strip Electricity System May, 2010. Mohammad Abu Baker, Petroleum Authority, Ministry of Finance, Ramallah, Palestine).

22. World Bank, West Bank and Gaza Investment Climate Assessment, 2014.

kWh.²³ Adding the costs of interruptions due to power outages, and the higher costs of generating electricity by small and inefficient units, most economic activities become unprofitable. The energy crisis further exacerbates Gaza's water crisis since pumping water and treating wastewater depend critically on a steady power supply.

In a positive development on September 13, 2016, the PA and Israel agreed to resolve the issue of Palestinian debt to IEC of 2 billion NIS. Part of the agreement is that the PA would take responsibility for the power lines from IEC to control the electricity flow to Palestinian cities including Gaza. This can also speed up the IEC plan to extend another 161 KV line to Gaza to provide additional 100 MW.

Clearly, a supply of natural gas can significantly improve electricity generation. It would make electricity much cheaper to produce and more competitive than electricity bought from the IEC. Gaza has a natural gas field offshore, 'Gaza Marine,' discovered in 1999, with estimated reserves of 35 billion cubic meters (1 trillion cubic feet, TCF). It can provide a cheap source of energy to Gaza and the West Bank for about fifteen years.²⁴ So far, nothing has been done to exploit the field. Gaza Marine is essentially a private sector venture, owned by Shell/British Gas (57 percent), CCC (27.5 percent) and the Palestinian Investment Fund (PIF) (17.5 percent).

5.2. The Water Crisis

Palestinians in Gaza are mostly reliant on groundwater pumped from the Coastal Aquifer. The annual recharge of groundwater in Gaza is 55-60 million cubic meters (MCM). This is a small amount, as Gaza is a dry area. The amount of extracted water in 2015 was 200 MCM, which is three times greater than the annual recharge. The groundwater resources in Gaza are contained in a shallow sandy aquifer, extending eastward to Israel and southward to Egypt, which extract some water from this aquifer as well. There are more than 5000 water wells, most of them for agricultural purposes with an average depth of 40-70 meters (PWA, 2012). Since extraction far exceeds natural recharge, it has depleted the aquifer. Groundwater depletion in the coastal aquifer has two major adverse effects: seawater invasion to large parts of the inland aquifer and upward leakage from the saline water underneath. As a result, the groundwater salinity has increased significantly to unacceptable limits, where more than 90% of the pumped water exceeds the WHO drinking limit (250mg/l) of chloride concentration. It is currently in the range of 200-1000 mg/l and increasing. PWA expects the groundwater quality of the coastal aquifer to be impossible to use by 2020 if no action is taken to reduce pumping. Moreover, groundwater pollution by nitrates is already widespread in Gaza. The majority of the wells which are used for household water consumption contain more nitrates than the WHO-recommended drinking limit (50 mg/l). The damages to the water distribution infrastructure also add to the water crisis due to large leakages (37 percent) of municipal water.

The water crisis affects the poor disproportionately as the current price of fresh water, obtained by private vendors from brackish water desalination, is very high, at 16 NIS per cubic meter, while the price in Gaza and Israel for municipal water is around 2 NIS. The high price is a result of the short supply of fresh water. There is one seawater desalination plant in Gaza, at Deir el Balah, but it is small and produces only 0.35 MCM annually. Recently, UNICEF constructed a seawater desalination plant in the Khan Younes -Rafah area. It has started producing desalinated safe and clean water in November 2016 at an annual rate of 2.2 MCM to a population of 75,000 through the municipal water distribution system. The plant plans to double capacity to 4.5 MCM in 2017 and to reach an annual capacity 7.3 MCM, with 250,000 beneficiaries, in 2018. The competitiveness of the plant will

23. See World Bank: "Payments for Electricity Services" June 2014.

24. Part of the Noa gas field offshore from Ashkelon is located in Palestinian waters.

depend on the purchase agreement with the municipality and the price charged for electricity. Note that while 12 percent of the energy required for the first phase will be from a solar panel field, the remaining energy will come from diesel-fueled generators, with a substantial cost and pollution. This only underscores how strongly related are the energy crisis and the water crisis.

5.3. Problems of Sanitation

Development of sanitation services in Gaza is a big challenge due to the very high population density of 4,353 people per square kilometer. At present, there are 23 localities in Gaza with sewer systems while the remaining two localities do not have any sewers (PWA, 2014). The collected wastewater from the 15 localities connected to the sewage network system are pumped to 5 wastewater treatment plants (WWTPs) with an average 72 percent coverage. The annual generated wastewater is 42.25 MCM. Treatment of wastewater not only solves sanitary needs, but can also supply reused water to agriculture.

Of the 5 treatment facilities, 3 are in poor condition and need to be replaced. A plant that is currently under construction is the Beit Lahia sewage treatment plant (NGEST). It was virtually completed in 2016, but still not operating due to the lack of power connection. A dedicated 6 KV line is required to connect the plant to the Israeli grid and provide electricity on a sustainable basis. Recently Israel approved the line, but the connecting infrastructure on the Palestinian side has to be completed. Due to this lack of electricity, over 90 million liters of raw sewage flow to the sea daily and pollute Israel's coastal waters²⁵.

5.4. The Role of the Private Sector

The large infrastructure projects discussed above will all require substantial financing, as well as a reform of governance, unification of the legal system and regulatory framework. Over the last few years, the Palestinian private sector began to share these efforts. It has articulated a master plan for Gaza development which goes well beyond reconstruction to provide Gaza with the infrastructure underpinnings necessary for its sustainable development.²⁶ Two Palestinian conglomerates, PADICO and CCC have been at the forefront of this effort together with the Portland Trust, the Bank of Palestine and the PALTEL group²⁷.

They also envisage developing tourism, housing, IT and digital entrepreneurship, agriculture and manufacturing. Teams have already been deployed in Gaza to work out some of the implementation details. These companies will work in partnership with the Palestinian Investment Fund and the Gaza private sector. This private/public partnership should be supported by COGAT and major donor countries. Such countries are expected to contribute to the financing of various projects, but also to the buildup of institutions. Improved institutions are vital to strengthen governance and provide a unified legal and regulatory framework²⁸ which would be essential for the financial sustainability of the expected investments and development plans.

25. UNSCO Report to the AHLC, New York September 23 2013, p. 14 para. 44.

26. Global Palestine, Connected Gaza: A Spatial Vision for Gaza Governorates, CCC and The Portland Trust, April 2016

27. Largest landline and cell phone operator in Palestine,

28. Both the legal system and the regulatory mechanism are made up of a patch work of Ottoman, Egyptian and Palestinian laws.

6. Governance: Separation and Consolidation

6.1. Separation and Dual Governance

Palestinians have always viewed Gaza and the West Bank as a single Palestinian territory. Aside from the strong complementarities integrating the two economies, there are close social, cultural and family ties between the two areas. The Palestinians hailed the Israeli unilateral withdrawal from Gaza in August 2005 as a major victory for Gaza's resistance against the occupation and it contributed to Hamas winning the January 2006 elections. Following the election, Mr. Ismail Haniyeh, a major Hamas leader, became prime minister. The power sharing between the PA and Hamas was boycotted by the international community, which enforced a crippling financial siege on the Palestinian government and the banking system as detailed by Nashashibi (2007).²⁹ While funding from donors to the PA went to the presidency in Ramallah, the sanctions and the Israeli siege were clearly targeted against Gaza. This resulted in rising tensions between Fatah and Hamas, a power struggle, and eventually, a take-over of Gaza by Hamas' military wing in June 2007.

Since then, Hamas has established a new government administration, called the "de facto government" (DFG), which runs the civil administration in Gaza, the legislative process and security. It hired 22,000 civilian employees and 17,800 security personnel, including a police force.³⁰ Following the take-over by Hamas, the PA ordered its 62,000 employees in Gaza to stop working with the DFG, but it continued to pay their salaries.³¹ While some of the civilian employees, particularly teachers and hospital staff, retained their positions, most PA personnel became unemployed. This encouraged some PA employees to travel abroad or to obtain jobs with the private sector, mostly in services, thereby benefiting from two sources of income.

Note also, that relative to the PA, the DFG faces severe financial constraints. It has to pay its 40,000 employees about 2 billion NIS annually, but cannot pay them fully, especially after losing tax revenues due to the closure of the tunnels to Egypt in mid-2013.³² As a result, it pays its employees partially and sporadically. The average payment for the DFG employees has been 40-50 percent of their salaries. The DFG sources of revenue are quite limited. It levies some income tax on a few financial institutions and on gas stations, and it taxes containers coming from the Israeli crossing point (Karam Abu Salem/Kerem Shalom). The latter constitutes double taxation, since the PA already taxes imports (directly or through Israel). The people of Gaza strongly resent this double taxation.

Thus, there are two parallel governments in Gaza. One sits in Ramallah and negotiates the reform agenda and project implementation, including reconstruction, with the donor community and with Israel. The second government is in Gaza, which has a functioning administration on the ground and it provides government services and security. However, it has no contact with most of the international community, Israel and the PA, and it is excluded from most decision making on projects. At the same time, a small PA staff coordinates with Israel, with DFG approval, the movement of imports, of exports and the movement of people to and from Gaza. This tenuous *modus operandi* has worked so far because reconstruction and specific project implementations did not upset the power balance between the two governments or their sources of revenue. However, any substantive change in trade relations that will require opening Rafah, reopening additional crossing points with Israel, or establishing a Sea Lane to

29. Karim Nashashibi in OCHA Special Focus: Palestinian Finance under Siege: Economic Decline and Institutional Degradation. July 2007.

30. But excluding the military wing of Hamas, the Qassam brigades

31. 2,969 civil servants joined the Hamas government and were taken out of the PA payroll. See Securing Gaza DCAF, Geneva 2015

32. In October 2014 Qatar transferred \$1200 for each of the 42,000 unpaid employees of the Hamas government for a total of \$50.4 million

Cyprus would raise major issues of security, administration and governance, which must be resolved through consensus between the two parties. One reason is that such changes will require agreements with Israel on security and control. Another reason is that any such change, which creates new sources of income, will require a new sharing of these economic benefits. A third reason is that most changes in electricity, water and sanitation will require a well-functioning payments mechanism, which also requires better governance. Finally, external financing, which will be essential for the implementation of major projects, will require some institution building and a unified legal, budgetary and regulatory reform framework.

6.2. The Building Blocks of Consolidation

As explained above, the split and ill-functioning governance in Gaza severely hurts the population of Gaza and is part of the reason for its economic decline. As a result, both parties worked long and hard to reach consolidation and, in fact, officials from the two parties have reached a broad consensus on shared governance in areas such as border security, project implementation and sharing of costs and benefits. These understandings were laid out in the comprehensive Cairo Agreement of May 4, 2011, and the following Al-Shati' Declaration in Gaza on April 23, 2014. The Al Shati' Declaration led to the formation of a Government of National Consensus (GNC) on June 2, 2014 of 18 technocratic ministers. However, the Consensus Government failed in establishing its authority in Gaza.

One of the main achievements of the Cairo agreement was the decision to merge the two administrations in Gaza and to establish an Administrative Commission to merge the two workforces and their payrolls. One of the reasons this process stalled was the argument over the scope of this merge, as the PA is worried that the cost of the additional DFG staff would be 40 million dollars on a monthly basis. This would have been a heavy burden for the PA, which already had a \$1.2 billion budget deficit in 2015 and additional \$500 million unfinanced gap due to the decline in external budget support. Clearly, the merge requires a full personnel audit on the ground, which will include the registration of employees in both administrations and a precise determination of employment needs. The audit started and was then interrupted, but there is sufficient data to outline the magnitude of the problem, which we do here.

By the end of 2015, there were 25,490 permanent PA civil servants in Gaza and 33,200 PA security employees.³³ Their salaries were 2.94 billion NIS, which is 19 percent of the PA 2015 budget. Hamas has about 22,000 civilian employees and 17,800 security personnel. Their salaries were 1.96 billion NIS or 57 percent of the Hamas budget of 3.45 billion NIS.

Merging the DFG and PA administrations in Gaza raises the following question: what would be an appropriate level of consolidated civil service for Gaza? To reach a rough estimate we assume that the PA civil service employment of 28,400 in Gaza in 2007 was appropriate. Extrapolation to 2016, given an annual population growth of 3.5 percent, yields 39,000 employees. We estimate that additional measures surrounding infrastructure development and trade expansion might require an additional 3,500 employees, which sums to 42,500. Currently, the two civil administrations have a combined body of 47,500 employees. Hence, the number of civil administration redundancies would be around 5,000.

On the security side, we should add to the 17,800 DFG employees the border security force (presidential guard) and additional police from PA Gaza personnel in the order of magnitude of 13,000 employees. Thus, the number of redundancies in the security apparatus may be around 20,000. If we add the 5,000 civil redundancies, we get a merger cost of around \$320 million if all the redundancies are paid

their full salary.³⁴ Note that this annual cost should decline over time with retirements and deaths. It is an upper bound since pensions are lower than full salaries. A partial estimate by the Swiss Resident Representative office in the West Bank found that merging the DFG security personnel into the PA payroll would cost \$255 million, which is not far from our estimate.³⁵ The actual cost will be even lower if the PA conducts the required personnel audit. Arrangements for early retirement for some and lump sum payments for others will further reduce the cost.

33. Ministry of Finance payroll department and DCAF. This is an upper estimate since some of the employees on the payroll may have left the country or may be deceased.

34. At an average salary of NIS 4100 per month.

35. Securing Gaza, DCAF 2016, p 42.

6.3. Financial Accounting

A common claim in discussions on Gaza is that the PA spends 40 percent of its budget on Gaza (Nashashibi 2015).³⁶ A careful accounting with budget execution data for 2013 and 2015 reveals that this share is lower, at 33 percent. Furthermore, if we take into account the PA clearance revenues from imports to Gaza and Gaza's share in the external budget support to the PA, the net support to Gaza is only 15 percent of the PA budget, or 4 percent of Palestinian GDP. This is not a large support, especially considering the standard principle in public finance of cross subsidization from rich to poor regions. Table 1 presents these calculations:

Table 1: PA Expenditure and Revenues of Gaza in 2013 and 2015 in Millions of NIS

Item	2013	Percent of Budget	2015	Percent of Budget
Total cash expenditure	11,335		13,386	
Salaries	2906	41.9	2940	43.0
Civilians	1250			
Military	1656			
Transfers	377	13.3	456	13.6
Prisoners	35			
Vulnerable families	188			
Social allowances	154			
Development	35	5.2	276	40.2
Electricity ³⁷	480	63.2	744 ³⁸	63.6
Water	40			
Health	192		240	
Subsidies ³⁹			300	
Item	2013	Percent of Budget	2015	Percent of Budget
Total	4,030	34.0	4,956	33.5
Total Gaza Revenue	2,271		2,868	
Clearance revenue ⁴⁰	305		1,438	
Budget support ⁴¹	1,966		1,430	
Gaza resource deficit Percent of GDP	1,7593.9	15.5	2,088	15.6
In US dollars	487		537	

In the year 2005, "clearance" tax receipts from Gaza (on imports, VAT and excises) amounted to 28% of total Palestinian tax receipts remitted to the PA, through the clearance mechanism.⁴² This was

36. Karim Nashashibi: "Palestinian Public Finance under Crisis Management: Restoring Fiscal Sustainability" UNDP March 2015.

37. Electricity spending on Gaza measured as a share of Net Lending

38. Includes water charges

39. In 2015 the Council of Ministers approved reductions in the excise duties (Blo) imposed on fuel destined to the GEGC by 40 to 60 percent

40. Shares of clearance revenues collected by the PA on Gaza imports: 5 percent in 2013; 18 percent in 2015

41. Shares of Budget Support received by the PA which should be apportioned to Gaza, in line with Gaza shares in the Palestinian population: 40 percent in 2013 and 41 percent in 2015, including \$ 100 million from the US held up by Congress and expected to be disbursed in 2016/17

42. Under the Paris Protocol tax receipts from custom duties, VAT and excises levied by Israel on Palestinian imports (I invoices) are netted out against tax receipts on Palestinian exports to Israel (p invoices) under a clearance mechanism held monthly. This is the main source of Palestinian revenues.

somewhat lower than Gaza's GDP share in the Palestinian economy at that time, 31 percent. With the expansion of the tunnel trade with Egypt during 2009-13, imports from Israel declined sharply, reducing clearance revenue from Gaza to 5% of total clearance revenue. Following the closure of the tunnels in mid- 2013, Israel became the main source of imports, which increased the share of clearance revenues on Gaza's imports substantially⁴³. Custom duties and excise taxes are fully remitted to the PA and so are most VAT revenues.⁴⁴ The Palestinian Ministry of Finance in Ramallah complained to the GoI that it was not getting most VAT invoices from Gaza importers because of its inability to follow up on these imports due to the absence of PA staff and lack of any enforcement power. While this revenue leakage emanated from only one part of imports, it was nevertheless a substantial revenue leakage to the benefit of the Israeli Treasury. GoI responded to this complaint, after two years of petitioning and meetings, by transferring in March and April 2016 \$115 million to cover VAT receipts collected on imports to Gaza in addition to fees charged by GoI to handle Palestinian imports⁴⁵.

Taking these factors into account, but excluding the recent transfer from GoI, we estimate that Gaza's share of clearance revenue remitted to the PA increased to 18 percent in 2015, which is 1.4 billion NIS. Reconstruction and some import easing increased clearance revenues even further in 2016. If economic recovery takes place, with higher income and higher imports, the revenues from Gaza will further increase.⁴⁶ A potential merge of the two administrations can significantly reduce the net transfer from the PA to Gaza. Note that the PA paid \$754 million to PA non-working employees with growing dissatisfaction by donor countries. The DFG budget for salaries in 2014 was \$509 million.⁴⁷ In other words, if a civil service and security consolidation between the two governments occurs, the resource gap would disappear.

7. Gaza's Reconstruction: Plan and Implementation

This section briefly examines the reconstruction of Gaza that began after the ceasefire in July 2014. Although this paper goes beyond reconstruction, to suggest ways to promote economic development it is important to examine how the reconstruction has succeeded so far since many of the projects this paper proposes might face similar problems and obstacles as the reconstruction.

A large conference in Cairo in October 2014 launched the reconstruction of Gaza. Donor countries pledged \$5.4 billion to the Palestinian Authority, of which \$3.5 billion was for the reconstruction project. In August 2015 the Palestinian Ministerial Committee for the Reconstruction of Gaza published a Detailed Needs Assessment (DNA). The Assessment was followed up by the Prime Minister's office in Ramallah and the results are summarized in Appendix B.

The guidelines for the reconstruction are in the Gaza Reconstruction Mechanism (GRM), which is a provisional cooperation agreement between the PA and Israel. The UN brokered the GRM and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has been playing an important role in its implementation. The GRM has sponsored 3 plans for small scale construction: the Shelter Repair Stream (129,886 beneficiaries), the Residential Stream (17,303 beneficiaries),

43. Clearance revenue is not broken down between the West Bank and Gaza except for specific years for which some analysis was done.

44. Over half of Gaza's imports are made up of petroleum products, fuel for the GPP, electricity and water. VAT on all these products is levied at source and remitted to the PA. In addition, "preferred traders" in Gaza, who import major commodities (e.g. cement, steel, pharmaceuticals, automobiles), remit their invoices to the PA. Financial services also remit their VAT to the PA.

45. World Bank Report to the AHLC, September 19, 2016, pp 7-8.

46. In 2005 Gaza contributed 31 percent of Palestinian GDP and 29 percent of PNA revenues. See Karim Nashashibi, "Palestinian Public Finance under Crisis Management: Restoring Fiscal Sustainability," UNDP, 2015.

47. Al Monitor: The Pulse of the Middle East, March 16, 2015; Securing Gaza, DCAF, 2016, p. 41

and the Finishing Stream (11,569 beneficiaries). In addition, there is the Projects Stream that deals with large-scale construction. The GRM has registered 1,073 private contractors and factories, of which 484 are currently active.⁴⁸ Another institution active in the reconstruction is the United Nations Relief and Works Agency (UNRWA), which has historically provided funding and shelter to refugee families in Gaza. UNRWA was responsible for distributing \$151 million to over 66,300 Palestine refugee families for private reconstruction. UNRWA estimates that there is still a significant funding gap of approximately \$68.2 million for these refugee families.

During the last two years, the GRM has facilitated shipment of over 1.53 million tons of construction material into Gaza. This material would have been sufficient for the reconstruction of more than half of the 19,000 housing units destroyed or severely damaged during the conflict. However, only 22 percent of this material went to repair damaged homes. 25 percent went to other projects sponsored by international aid agencies, and over 50 percent went to reconstruction of roads. This means that reconstruction is moving ahead but at a rate that falls well below expectations. Only 16 percent of the total Gaza recovery needs have been addressed.⁴⁹ Marina Wes, World Bank Country Director for the West Bank and Gaza has observed.

Over 70,000 people are suffering from prolonged internal displacement. Only 10.7 percent of the 11,000 housing units that were totally destroyed in the war have been rebuilt to date, and about 50 percent of partially and severely damaged houses still need to be repaired. The situation in Gaza is of great concern and the conditions required for post-reconstruction sustainable economic growth are not being put in place.⁵⁰

We can add that 50 percent of the funding for housing units which were totally destroyed in the last war is still unavailable (5,500 houses), 60,000 damaged housing units are still not fully renovated and water and electricity infrastructure, which was inadequate even before the 2014 war, requires significant rehabilitation. However, there are some successes. Restoration of health facilities is ongoing with full funding and the restoration of the education system is completed. This is due to the funding pledged directly to UNRWA. Finally, despite the compensations to many businesses for their losses, they are slowly returning to full capacity, mainly in sectors hit by the “Dual Use” list. Overall, 80 percent of factories returned to operate to some extent.⁵¹ Nevertheless, the reconstruction effort has been lagging well below expectations. The reasons for the slow rate of reconstruction are as follows:

- a) Restrictions on Imports to Gaza under the GRM and “Dual Use:” The removal of Israeli restrictions on import of construction materials to Gaza since 2015 is not complete. Imports of cement and other construction materials like steel re-bars suffer interruptions, as in April and May 2016.⁵² Even when they are allowed, their imports incur substantial delays under the GRM. In addition, some “Dual Use” items which are crucial for the reconstruction plan require special permission from the Israeli authorities and, even if allowed, their supply is not provided in a timely manner. Gaza’s electricity and water shortages also delay construction. Israeli restrictions on mobility of people, especially from the business community, also contribute to the delay in reconstruction. Additionally, Israel slowed down the financing flows to construction by occasional withholding of tax transfers, which is used as an economic sanction. In January 2015, Israel suspended PA tax revenues for 3 months, after the PA had

48. See the GRM website: <http://grm.report/#/>.

49. World Bank AHLC report September 19, 2016, p. 27

50. World Bank press release September 15, 2016

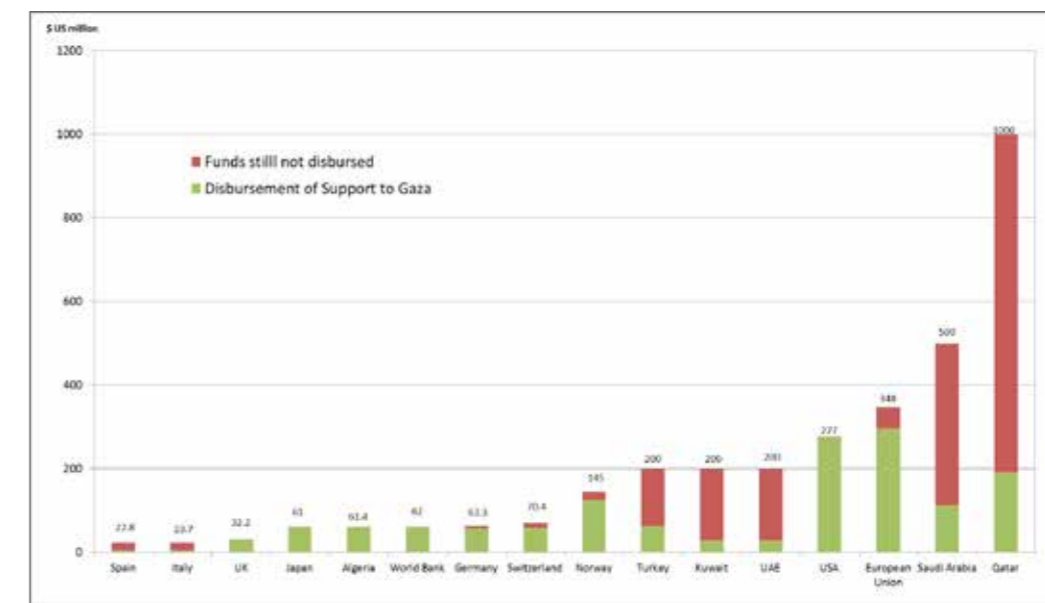
51. GISHA, “Two years later: The long road to reconstruction and recovery”, <http://gisha.org/publication/5462>

52. UN, OCHA “Gaza: two years after” August 2016

started the process of joining the International Criminal Court.

- b) Slow Disbursement from the Donor Countries: Funding has slowed down significantly. In August 2015, a year after the end of the 2014 war, only 35 percent of the announced pledges were disbursed (1,229 million dollars). By March 2016, disbursement reached only 40 percent of the announced pledges and by July 2016 it reached only 46 percent. This means a disbursement of 1.59 billion dollars instead of the 2.92 billion dollars expected so far. The slowdown in disbursement is mainly due to delays by the largest donors, who are still far from reaching their promised support. These donors are Qatar, Saudi Arabia, United Arab Emirates, Kuwait and Turkey (see figure 14 below). In addition, much of the funding so far has reached UNRWA, while the remaining was sufficient for only 15.8 percent of the overall recovery needs, as assessed in the DNA.

Figure 14: Pledges and Disbursement Status



Source: World Bank, “Economic Monitoring Report to the Ad Hoc Liaison Committee,” September 2016

- c) The Hamas-PA Dispute: The PA’s inability to coordinate the reconstruction efforts in Gaza, due to the political rift between Hamas and Fatah, had an adverse effect on the pace of reconstruction as well.

Clearly, the reconstruction is only halfway through, which gives scope to some optimism, but it will take at least 2 more years to be completed. Nor would the reconstruction lay the basis for sustainable development and growth. Nevertheless, reconstruction is only the first step in the long process of alleviating Gaza’s poverty and underdevelopment. To achieve this, we need to improve the infrastructure drastically and to facilitate trade on a large scale, as explained above.

There are two main lessons we can learn from the experience of reconstruction so far. The first is that the population of Gaza is very resourceful and committed to improving its terrible life, and it can perform well even when financing is lagging and imports are still restricted. The second lesson is related to the GRM, which has slowed down the reconstruction effort substantially. If the gaps in housing demand (75,000 units) were to be addressed, at the current reconstruction pace it would take

11 years to build them.⁵³ Moreover, even if the GRM were to be liberalized, it would not be suited for large infrastructure projects. This security mechanism would have to be radically reformed to enable economic progress. The next 2 sections deal with the required measures to begin to achieve these goals.

8. Measures to Improve Infrastructure

In this section, we focus on 3 areas that are crucial to the humanitarian crisis: electricity, water, and treatment of sewage. We articulate the minimal infrastructure requirements which are needed to reverse the on-going deterioration and provide basic humanitarian needs. We divide our proposals to short-term and medium-term, where the short-term stands for the next 2 years, and the medium term is for an extended period of up to 5 years. Note, that investment in infrastructure is important not only for its future returns, but also for increasing demand for labor and reducing unemployment significantly at the present.

8.1. Electricity

The following actions are required in the short-term in order to alleviate the electricity crisis:

1. Lay a new 161 KV line from Israel to Gaza to provide additional 100 MW. Israel has already approved it, but it delays the implementation.
2. Construct a natural gas pipeline from Ashkelon to the GPP (31 km) to replace the use of diesel. Natural gas is a cleaner and cheaper source of energy which will reduce electricity production costs at GPP by 75 percent. The power plant can be readily converted from using industrial fuel to natural gas and operate at full capacity of 140 MW. The PIF, in association with the Quartet, is leading this project. It has already identified a pipeline route in both Israel and Gaza, and Qatar has pledged to finance a small part of it.⁵⁴ GEDC, which buys the electricity from the GPP, would be in charge of purchasing the natural gas.⁵⁵ It is therefore important that GEDC should undergo extensive restructuring to improve its economic performance.
3. Increase the capacity of the GPP from the current 60 MW to its full capacity of 140 MW by use of gas. This will increase electricity supply in Gaza by 30 percent.
4. Repair and upgrade the electricity grid to increase the load capacity of the distribution network. This requires upgrading the high voltage transmission lines, construction of feeder lines and connections to the grid, and setting up 4 to 5 step-up substations.
5. The GEDC, which will be paying for the GPP natural gas, needs to go through a significant reform in order to operate on a commercial basis with powers of enforcement. Otherwise, it will incur unsustainable financial deficits. Mainly, it should establish a sustainable payment mechanism for electricity, which should follow the one undertaken in the West Bank.⁵⁶ Financial sustainability of GEDC is critical not only to avoid electricity outages, but also to attract investors for its large projects, like the gas pipeline. This does not preclude the Gazan government from providing electricity subsidies for poor communities, but it would need sufficient revenues to finance the subsidies.

53. The World Bank; AHLC report, September 19, 2016, p. 28.

54. Gas for Gaza Initiative, Office of the Quartet, Report for the AHLC, September 19, 2016, pp 14-15. The pipeline should cost \$80 million, but so far only Qatar has pledged \$ 10 million.

55. Under its contract with the PA, the GPP does not buy its fuel, but relies on the PA or the GEDC to supply it.

56. See World Bank: West Bank Payment for Electricity Services, June 2014

6. Develop solar energy fields with photovoltaic (PV) technology. The climate of Gaza fits production of energy at low costs.⁵⁷ However, solar energy requires a lot of space for solar panel installation (1 MW requires 10 dunum of panels) to generate electricity, which limits this possibility in Gaza.

The following measures are required in the medium-term:

1. Double the capacity of the GPP to 240 MW and eventually realize the full potential of the plant of 600 MW.
2. Develop the offshore natural gas field, Gaza Marine. This field, which has reserves estimated at one trillion cubic feet (35 billion cubic meters), can provide natural gas for all of the Gaza and West Bank energy needs for about fifteen years. Since the cost of developing the gas field is high, around \$1 billion, there is a need to add a few more anchor buyers to the gas, like Jordan, to justify the investment.⁵⁸ Since the cost of building the collection and distribution facility of the field is also high, Gaza Marine should consider using the nearby facilities established in Ashkelon. Clearly, this is the preferred economic option, but it may raise political difficulties for the Palestinians since it would add yet another layer of dependency on Israel.

8.2. Water

To cover the large water deficit and improve water quality in Gaza, the following measures need to be taken in the short-run:

1. Increase water supply from Israel. Under the Oslo Agreement, the Israeli water company Mekorot was supposed to supply Gaza with 5 MCM annually (Article 40).⁵⁹ Actual deliveries fluctuated between 3 and 5 MCM. In 2014 Mekorot supplied 3.9 MCM and 4.5 MCM in 2015. This amount should increase to serve Gaza before it develops its own sources of water. In 2015, a new pipeline on the Israeli side doubled the potential capacity of water supply to 9 MCM, but it still requires some work on the Gaza side. The Israeli Water Authority claims that it is can supply 20 MCM annually, provided the piping infrastructure on the Palestinian and Israeli sides is completed.⁶⁰
2. Build several small-scale desalination plants with an annual capacity of 3-5 MCM based on reverse osmosis technology. A recent example is the seawater desalination plant built by UNICEF in the area of southern Gaza.⁶¹ A reliable supply of natural gas would greatly help the competitiveness of these plants.
3. Improve distribution facility and municipal payment systems.
4. Reduce pumping rates from the Aquifer. With the addition of water from Israel and from desalination plants, pumping from the Aquifer must be reduced and illegal wells should be closed. This would enhance the water quality from the Aquifer and reduce sea water invasion and nitrate pollution. This will require solving the sensitive issue of the abstraction rights among competing users within Gaza.

In the medium-term the main effort should focus on developing a large scale desalination plant in southern Gaza. There is a long-standing project, which is supported by the European Union, for a 55

57. A Solar Atlas has identified Gaza as being optimal for solar PV location with high annual averages of GHI. Office of the Quartet AHLC Report, September 19 2016, p. 8

58. In 2015, the PIF and Jordan agreed on a MOU for Gaza Marine to supply Jordan with Gas.

59. World Bank: Assessment of Restrictions on Palestinian Water Sector Development, April 2009, pp. 25-26

60. See Gisha: <http://gisha.org/legal/5404>

61. In partnership with the Palestinian Water Authority and the Coastal Municipalities Water Authority (CMWU). UNICEF press release June 14, 2016.

MCM seawater desalination facility.⁶² This project was authorized by COGAT in January 2016; the EIB and the Arab Gulf countries promised financing since 2012. The project can be built in 2017-18 and more than double its capacity to 129 MCM by 2019.

8.3 Wastewater Treatment

The following measures are the most urgent and need to be implemented in the short-term:

1. Establish an electricity connection of 6KV from the Israeli grid to the NGEST to enable immediate operation of this treatment plant.⁶³
2. Expand sewage coverage to 95 percent of the population from the current 72 percent.
3. Encourage and enforce reuse of wastewater from NGEST in agriculture. It will provide irrigation for thousands of dunum and reduce the stress on the Coastal Aquifer.
4. Begin construction of three new treatment plants to replace degraded current plants.
5. Try use of solid waste as a source of energy for distillation of water.

In the medium-term the PWA should follow its strategy and do the following:

1. Expand the coverage of sewage connection to treatment plants to 95 percent of the population.
2. Finish construction of 3 additional wastewater treatment plants (WWTP) that it already began to plan and build. These are the North Gaza, Central and South Khan-Yunis treatment plants with corresponding capacities of 60, 200 and 44 thousand cubic meters per day.

9. Measures to Improve Trade

We view the problem of trade as crucial, as our analysis above points to the lack of trade as the main cause for the economic decline of Gaza. We suggest a number of measures to facilitate trade. These are changes in the application of “Dual Use” lists, opening safe passage routes between Gaza and the West Bank, and opening Israel to exports from Gaza. Trade liberalization would also contribute to an improvement in the humanitarian condition by stimulating economic recovery, providing jobs and raising income. In the medium run we focus on the port and the airport projects in Gaza.

Trade relations between Gaza, the West Bank, Israel, and other countries, as well as the movement of people, are settled by the Paris Protocol (PP 1994) and by the Agreement on Movement and Access (AMA, November 2005). Yet, Gaza’s trade relations today have regressed substantially from what was stipulated in the PP and AMA, as a result of the long blockade. Gaza needs restoration of **normal** trade relations as set in these agreements.

Opening Gaza to mobility of people is not only economically beneficial, but is also a crucial humanitarian necessity. The inability to meet family, to receive health care, to travel and/or to study is unacceptable. Many of the measures proposed have already been agreed to by Israel and the international community, including required security measures.⁶⁴ What is missing is the political will to implement them. Clearly, the implementation of these measures can only be gradual in order to reduce security and political risks.

62. Palestinian Water Authority, 2014 Gaza Water Resources Status Report

63. The sense of urgency has been so acute that a US congressional committee of 14 members sent a letter to GoI, urging Israel to provide the necessary power for NGEST. Haaretz, August 5, 2016.

64. See “Some economic aspects of the reconstruction of Gaza” in *Economics and Politics in the Israel Palestinian conflict*, Arie Arnon and Saeb Bamyia editors Aix Group 2015, pp 197-204

The following measures are required to facilitate trade in the short-term:

1. As a first step, the Gaza “Dual Use” list, which has been growing over the last few years, needs to be sharply reduced, with due consideration to security concerns.⁶⁵ In Section 10, which deals with security, we supply some examples for goods that can be removed from the list either because they can be monitored in an alternative method, or because their risk is manageable.
2. Reform the GRM system to allow for timely imports of construction materials for major infrastructure projects, including for electricity generation, water desalination and laying a gas pipeline from Ashkelon.
3. After a trial period of a rise in imports under a scaled back Dual Use list, allow all inputs for manufacturing, agriculture, telecommunications and reconstruction to be imported freely.
4. The only border crossing with Israel for merchandise, Karam Abu Salem (Kerem Shalom), has reached full capacity. Facilitating trade requires opening additional border crossings, such as Beit Hanoun (Eretz), Karni and Sufa, all of which were in operation before 2006.
5. Exports of agricultural goods require cold storage facilities at crossing points and should be installed at all operating border points.
6. Begin developing a port in Gaza. As a first step, repair and deepen the fishing harbor in Gaza to allow small vessels to use it. Then, construct a floating dock in the harbor to establish a sea-lane to Cyprus for medium size vessels. The 2005 AMA also raised the possibility for Roll On and Roll Off vessels. Israel can inspect the cargos in these vessels at sea or in Cyprus.
7. Reconstruct the Gaza International Airport and set up air links with Egypt, Jordan and the Gulf countries, as during its operation in 1998-2001. However, its location is expected to be moved to northern Gaza in line with the Gaza Spatial Vision 20/50.⁶⁶ Considering that the implementation of this vision may take several years, reconstructing the old airport in its original location would be a practical short term solution.
8. Establish a safe passage between Gaza (Beit Hanoun/Erez) and the West Bank (Tarkumiyah) with “secured” bus convoys on an existing road. Israel can examine convoys at exit and follow them within Israel, as agreed in AMA. Once the safe passage operates successfully for passengers, it should be extended to trucks and sealed containers. This measure is critical for reintegrating the Palestinian population and its territory and in utilizing the large complementarities between the two areas.
9. Reopen the Rafah crossing for passenger movement to and from Egypt, with border security provided by the PA with support from the EU. This would require substantial logistical and administrative coordination between the PA and the DFG.

65. See GISHA Report: Dark Grey Lists for an analysis of “Dual Use” lists.

66. Global Palestine Connected Gaza: A Spatial Vision for Gaza Governorates, CCC. Portland Trust, April 2016.

Following is a list of measures to promote trade in the medium-term:

1. Eliminate the “Dual Use” list altogether and adopt the international standards of the Wassenaar Arrangement, which is mostly limited to sensitive material on aircraft technology, various chemicals, explosives and sensitive software.⁶⁷
2. Build a deep-water sea port. There are agreements on this project already in the Declaration of Principles (1993) and later in AMA in 2005. Construction began in 2000 after obtaining finance, but it stopped during the Second Intifada. There is a need to redesign the port location in line with the Gaza 20/50 Spatial Study.⁶⁸
3. Operate two more safe passages from Gaza to the West Bank, as agreed in AMA 2005, one passage to the center of the West Bank and one to its north.
4. A permanent Territorial Link between Gaza and the West Bank is an essential trade infrastructure integrating the two regions. It is one of the issues in the permanent status peace agreement. A study by the Aix Group (2010) recommended building the link immediately, for various reasons, but mainly because its building will take a long period and there is no territorial dispute on its location.
5. Open Rafah for trade, with EU technical and security support, as agreed in the AMA. It would allow exports to Egypt and abroad through El Arish and the Suez Canal complex. It would also allow imports of goods, provided they conform to the Customs Union envelope.⁶⁹ Under the AMA, after 3 months of training, PA officials from Kerem Shalom would be able to transfer to Rafah to collect custom duties on imports, with assistance from the EU. A live feed connection to Kerem Shalom would enable Israeli monitoring of the import of goods from Egypt.

Finally, we return to the issue of governance and the need to reach a consolidation between the PA and the DFG under the umbrella of the Consensus Government. This is crucial for the success of the measures that we propose. Building infrastructure requires efficient payment systems for electricity and water. To facilitate trade, it is important to satisfy the security conditions by Israel so they can deal directly only with the PA and not with the DFG. In order to achieve this consolidation, the following steps are required:

1. Integrate the administrations of the PA and the DFG and resolve the salary dispute between them. A good consolidation plan would help to mobilize external financing.
2. Provide border security by the PA to all crossings between Gaza and Israel and Egypt.
3. Improve the collection mechanism for electricity services.
4. Improve the municipal payment mechanism for water.
5. Unify the legal framework and establish a clear regulatory system. This is essential for enhancing the role of the private sector and stimulating its investments.

67. The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Technologies.

68. Consolidated Contractors Company and the Portland Trust: Global Palestine, Connected Gaza, April 2016, p. 162

69. Imports would have to meet Israeli standards and product specifications under the Customs Envelope of the Paris Protocol. Therefore, Gaza exports to Israel would not have a competitive advantage by including inputs, which do not meet Israeli standards.

10. Security Concerns

This section examines the security risks to Israel from our proposals and how we can reduce these risks. The recommendations of this paper are in two main areas, in infrastructure and in reducing barriers to mobility to facilitate trade.

We first note that the recommendations with respect to infrastructure do not cause security problems to Israel. The only recommendations that ‘touch’ Israel are laying additional power lines from Israel to Gaza and laying a natural gas pipe from Ashkelon to Gaza. Clearly, such projects do not constitute any security risk and COGAT has actually agreed to them. Israel would have to reform the GRM mechanism to allow for timely imports of the equipment and material necessary for the execution of these projects. However, despite the agreements, Israel delays these projects, which seems to reflect political considerations rather than security ones. The recommendations on trade are more relevant to the security worries of Israel and thus we discuss them in this section in detail. These are the recommendations on reducing the “Dual Use” list, on opening a safe passage, building a port in Gaza, and rebuilding and opening the airport in Dahania. We next discuss each recommendation and add some general comments on security.

10.1. Reduction of the “Dual Use” List

The “Dual Use” list contains many goods and materials. The main three risks it tries to tackle are construction materials, which can go to tunnel building; metallic materials, which can contribute to rocket manufacturing; and various chemicals that can be used in production of explosives and toxic warheads. The events of the last two years, since the end of the 2014 war in Gaza, have demonstrated that there are some alternatives to the “Dual Use” list. Over some periods, Israel has allowed imports of construction materials, mainly cement, to Gaza, despite its potential use in tunnel building. The UN developed a successful mechanism of monitoring the cement that enters Gaza and tracks it up to a plant level, while connecting Israel to this monitoring. The mechanism has shown that although there was some leakage of construction material, it went mainly to the black market and not necessarily to military use.⁷⁰ Similar monitoring methods can be applied to many goods and materials which are crucial for economic development of Gaza.

There are other reasons to reduce the “Dual Use” list, as many items seem to be excessive. One indication is that the “Dual Use” list keeps increasing, even during 2015, which has been a very quiet year security-wise. This might raise the fear that the list serves not only security concerns, but is also some form of economic warfare. There are many examples that show that the list is excessive. The list includes construction cranes, vehicles that are not private cars, X-ray machines, pumps operated by gas, optical equipment, electrodes, wood panels thicker than 1 cm and wider than 5 cm. Furthermore, even the claim that some of the fertilizers and pesticides can be used for production of explosives is problematic. That is true, but the same or similar explosives can be produced in the laboratories of Hamas, at a higher cost maybe. But the farmers of Gaza cannot get these necessary inputs any other way. Thus, the restriction on imports of fertilizers and pesticides costs more than it benefits. Interestingly, some of the materials in the list, like Lannate or Endosulfan (pesticides), Barium Chloride, and Castor oil, are forbidden since they might be used in manufacturing toxic materials. But in the long history of the Israeli-Palestinian conflict there were no cases of the use of chemical weapons, and there are good reasons to think that the 2 sides have strong interests not to use such weapons, so these materials are a very low risk probability. We suggest that the PA and Israel should enter serious negotiations on a reduction of the list. It is also important to bear in mind that the 10

70. Most of the black market consists of households who are far behind in the queue to reconstruction.

years of the strictest siege on Gaza have not prevented building tunnels, rockets and explosives, but the cost on civilian producers in Gaza has been crippling. Examples of materials and commodities that can be negotiated for taking off the list are prepared concrete, steel elements, asphalt, cranes, industrial forms for concrete pouring, building sealing materials, X-ray machines, pumps operated by gas, optical equipment, vehicles, electrodes, wood panels thicker than 1 cm and wider than 5 cm, which are required for furniture manufacturing, for fishing and more.

10.2. The Safe Passage

The main security risks that can arise from opening a ‘safe passage’ are three:

- Infiltration of armed people into Israel.
- Passage of arms and explosives from Gaza to the West Bank and back.
- Passage of people who pose a security risk from Gaza to the West Bank and back.

These are serious security issues, but there are a number of measures which can reduce the risks. First, the Israeli army will check the convoys at the points of entry into Israel. Second, the army will escort the convoys to avoid infiltration into the Israeli territory when passing through it. Third, instead of inefficient “back to back” methods for passing merchandise in check points, trucks should use sealed containers which can be checked by special scanning equipment that is already available.

These measures can reduce potential security risks significantly. Actually, there have been many similar agreements on safe passage in the past. The last one was AMA, the Agreement on Movement and Mobility, from November 15, 2005, following the Israeli disengagement from Gaza. Israel signed these agreements, which implied that the army authorized them as sufficiently secure. Israel often stopped implementation of these agreements after some time, but never because of a security failure of these agreements, but rather as a punishment to Palestinians on eruption of violence elsewhere. Sometimes the reasons for closing the safe passage were purely political, like retaliating against the Hamas victory in the 2006 elections.

Another demonstration that a gradual increase of mobility in and out of Gaza does not constitute a severe security threat is the recent increasing of such mobility by Israel. COGAT is working to increase the number of daily permits to leave Gaza to 1000. The work volume at the “Kerem Shalom” terminal expanded to 1000 trucks daily and COGAT is preparing to open a new commodity terminal at the “Erez” Crossing. These examples show that even the most stringent security experts in Israel agree that mobility can increase gradually and carefully.

10.3. A Seaport in Gaza

A deep-sea port in Gaza might lead to a number of security concerns to Israel. The main risk is the possibility of entry of military equipment into Gaza through the port. We note that mobility of people through the port will be marginal if there is land passage between Gaza and the West Bank. Israeli security experts have already examined this security issue and have found a number of satisfactory options to reduce these risks significantly:

1. Use a foreign port, like Cyprus, for unloading large-volume cargo-ships, inspecting the cargo and reloading it on smaller ships capable of docking at Gaza, and escorting these smaller ships until the inspected cargo has been unloaded.
2. Operate a floating checkpoint away from the shore with the capacity to disconnect transit.
3. Building a floating checkpoint on an artificial island and connect it to Gaza via a bridge, on which Israeli inspection (and disconnection, if necessary) will commence.

4. Building a port on a more secured area on the coast of Gaza.
5. A gradual development of the port in Gaza, so that it introduces sealed containers only gradually, can also reduce security risks.

10.4. Airport in Dahaniya

The Gaza International Airport at Dahaniya opened on November 24, 1998. The construction of the airport was part of the Oslo II Agreement of 1995. This shows that the Israeli defense authorities, who played a significant role in the negotiation of the agreement, were satisfied as well. More than 100,000 Palestinians passed through the airport in its 2 years of operation until it closed in October 2000, shortly after the outbreak of the Second Intifada. Again, the closing and destruction of the airport was not due to breaches of security in the airport itself, but rather a general punishment to the PA for the Second Intifada. The operation of the airport for 2 years indicates that the specific security issues received a reasonable solution at the time.

The initial security arrangements in 1998 required that all travelers go to the Rafah border crossing before boarding a plane or after landing. The Rafah border control is about 1 kilometer from the airport and it was then under full Israeli control, so Israeli border control personnel checked the passengers and their luggage. Clearly, such measures are impossible today, as Israeli personnel cannot enter Gaza or the Rafah passage any longer, since Gaza is controlled by Hamas. Hence, Israel and the PA should think of alternative ways of monitoring the operation of the airport. One possibility is to use foreign observers. Another possibility can use the fact that most of the incoming flights to Gaza are from nearby Arab countries, like Egypt, Jordan, and the Gulf countries. Israel can reach agreements with these countries on monitoring incoming passengers to Gaza and their luggage. In any case, the airport should not operate before reaching a satisfactory security arrangement, accepted by Israel.

10.5. Some General Thoughts on Security

In general, Israel’s current security policy stands on two main pillars. The first is ‘deterrence.’ It consists of sharp and immediate punishments, personal and collective, on any act of Palestinian violence. Such punishments are usually much harsher than the initial act of violence, but that is part of their logic. The second pillar of the security policy is ‘control.’ The security services, the military, the Civil Administration and the army intelligence are checking and monitoring Palestinians, their movement, their activities, their communications, etc. Control has increased much with the development of electronic surveillance. Clearly, any opening of Gaza will reduce the effectiveness of this control.

This is a good opportunity to discuss the efficiency of this policy of control and its limitations. First, control over Gaza will decrease when Gaza enjoys greater mobility, but there are also two important security benefits attached. First, improvement in the standards of living for many people, especially the young, might reduce the incentive to participate in armed activities. The second benefit to security is due to the reduction in control itself. The tight control on Palestinians in general, and on Gaza in particular, is a suffocating burden on them. The inability to join family, to see friends, to get required healthcare, to continue studies, and to move around, are provoking great anger and frustration. This anger increases the hostility on the Palestinian side and raises the probability of violence. A consideration of these issues changes the balance of the effects of opening Gaza on security.

This also reminds us of reverse engineering, which is one of the basic concepts of the AIX Group. We think that the best way to reach a permanent agreement and to implement it is to first outline the contours of the final agreement and then to derive from that the road from here to there. This holds for

economic issues and many other issues, but it should hold for security as well. If there will be a “Two State” solution, Israel will have to abandon the control policy, since it would contradict Palestinian independence. Israel’s security will depend on its ability to defend itself along its borders on the one hand, and on creating various incentives for Palestinians to avoid violence on the other hand. If this is how the end of the process looks, and if Israel really intends to reach it, it should begin to build new tenets of security policy immediately, so when it reaches the final status and needs to end excessive control, its new tools will already be in operation.

11. Political Concerns

The closing of Gaza, which began in 1991, intensified mainly after the victory of Hamas in the Palestinian elections of 2006, and it became a complete siege after Hamas took over Gaza in 2007. Hence, one can view the siege as part of the Israeli war against Hamas. This raises an immediate question, whether any lifting of the siege might constitute a benefit to Hamas and eventually even strengthen it and solidify its control over Gaza. This might pose a problem not only to Israel, but also to other powers involved which oppose Hamas and supported the siege policy, at least in its initial stages, like the US, Egypt, the EU, and the Quartet. The question is especially relevant for the Aix Group, which is committed to the “Two-State” solution, to which Hamas has been in opposition. Nevertheless, we claim in this section that our recommendations will not strengthen Hamas and might even reduce its influence.

11.1. Is the Siege Weakening Hamas at All?

It is not a secret that although formally Israel announced that it supports the “Two State” solution, the main factions in the government oppose this solution and continuously try to derail it. This becomes clearer when examining the positions of the main parties in the coalition, the Likud and the national-religious party. As a result, the attitude of the Israeli government toward Hamas is quite mixed. On the one hand, it views Hamas as a harsh enemy, due to its support of armed struggle and its refusal to recognize Israel. On the other hand, this Israeli government benefits from Hamas, as it justifies its refusal to make progress in the peace process. This leads to a dual treatment of Hamas, where Israel attacks Hamas often, but also complies with it in many ways. Thus, Israel targeted prominent Hamas leaders in 2004, but in 2005 it left Gaza unilaterally, without an agreement with the PA. This was a move that strengthened Hamas significantly and contributed to its success in the 2006 elections. Similarly, Israel often fights against Hamas, but also negotiates with Hamas through Egypt, and thus accepts its control over Gaza. This dual treatment is also part of the current Israeli policy to divide and weaken the Palestinians. In the same logic, the siege on Gaza might not be only a punishment on Hamas, but a way to solidify its control over Gaza as well. It is easier to control a closed territory than an open one, where people can move in and out.

The continued fighting in Gaza since 2005 has revealed that there is significant support for Hamas in Gaza. This support is the result of a number of factors. The first is the high percentage of refugees in Gaza who have been mired in an unsettled status since 1949 and 1967. The second reason is that Gaza is densely populated but has fewer sources of income than the West Bank, so it is much poorer. Poverty and hopelessness tend to breed anger and violence. Third, Gaza has suffered much from the siege, economically, socially and even mentally. Fourth, the population in Gaza is more traditional and religious, which also increases support for Hamas. It is, therefore, clear that significant economic improvement in Gaza, due to its opening to mobility, will reduce support for Hamas. Furthermore, such improvements will reduce support for Hamas also because they will occur through agreements with Israel. One of the main explanations for the success of Hamas in the 2006 elections was the failure

of the PLO to end the occupation by diplomatic means. Hence, if there are signs that negotiations can work and lead to improvements, it will reduce support for Hamas.

11.2. The Consensus Government

The second reason why we think that Hamas will not benefit from adopting our recommendations is our insistence that the ‘Palestinian Consensus Government’ will be in charge of their implementation. This government of technocrats was the result of a series of practical understandings reached by Fatah and Hamas. It started to function in May 2014 and it still functioning, despite the many obstacles it faces. The consensus government has not succeeded in extending its control over Gaza, but it made some progress, especially in the area of reconstruction. Hence, there is room for optimism. Once this Government begins to operate in Gaza and control its crossing points, it may reduce Hamas’ influence since it will take some control from Hamas, gradually but persistently. Of course, the success of the ‘Consensus Government’ requires great efforts from the Palestinian side, as we have described in our discussion on governance in Section 6 above.

11.3. The Current Situation

Hamas has been in crisis in recent years. Its relationships with Egypt are the worst they have ever been, due to the war between Egypt and the extremist Islamic organizations in Sinai, and the conflict between the Egyptian army and the Moslem Brotherhood. It lost the active support of Turkey following the recent agreement between Turkey and Israel. The Arab world is currently torn over the civil conflicts in Syria, Yemen and Libya, so less attention is given to the Palestinian issue in general and to Hamas in particular. As a result, Hamas is in a weak position already. Once Gaza enjoys greater mobility, it will open the door for the local population to turn to other political forces.

11.4. The Failure of the Siege Policy

Finally, we cannot ignore the wider implications of our detailed proposals, which is a gradual removal of the siege on Gaza. That is a big step, but we think it is required. We recommend gradual and measured steps, but they are part of a wider understanding that the siege policy is harming economic development so badly that it has to end. The reason why we recommend it is our strong conviction that the siege policy has failed completely to provide security and quiet to Israel, and mainly to the south of Israel. The number of wars and military confrontations since 2006 is a vivid testimony to this failure. The only periods of quiet have been periods in which the two sides, Israel and Hamas, reached some quiet understandings on lowering the flames. This is what is needed, and a gradual removal of the siege can help in stabilizing such understandings significantly.

12. Summary

This paper tries to find ways to help the Gaza population get out of an economic and humanitarian crisis. Our analysis leads us to focus on two main areas: improving the infrastructure and facilitating trade by reducing barriers to mobility. This raises a question - to whom do we direct our recommendations. Our main address is, of course, Israel. It controls Gaza from the land (except for the border with Egypt), from the air and from the sea, so that Gaza continues to be under *de facto* occupation. Most of our recommendations involve Israel. We expect it to supply more energy and more water to Gaza, at least in the short-term, while Gaza develops its own production capabilities. Israel should agree to relax the “Dual Use” list, open the safe passage and allow the building of the port and the airport. We believe that Israel should agree to these changes because its gains will significantly exceed the risks involved. Having a starving neighbor is having a vengeful, desperate neighbor. This will continue, and might even exacerbate, the cycles of violence Israel and Gaza have experienced so far. Improving the situation in Gaza can reduce hostility and reduce violence significantly, if not completely.

In addition to Israel, we also address this paper to the Palestinians. A major improvement in governance is required. The separation between PA and Hamas, between the West Bank and Gaza, proved to be damaging to both. It is true that part of the blame for that lies on Israel, but some blame lies on the Palestinian side as well. The responsibility for reaching consolidation of the two administrations in Gaza and for joining forces under the Consensus Government is on the Palestinian side. We are not in a position to enter the internal Palestinian debate on how to solve the problems faced by the ‘Consensus Government.’ We can only say that the basic elements of the agreement between the two movements exist and there is a need to gather the required political will to implement these elements. All we can say is that the stakes are very high and require extensive efforts.

Finally, our paper also addresses the international community, which has an important role in saving Gaza. It should participate in financing infrastructure projects and institution building, and it should help in monitoring and solving security problems. Mainly, it should help in putting pressure on all sides to move ahead in implementing these recommendations. The international community has always been involved in Gaza, in bad times as in good times. They share responsibility for the current debacle and thus they should contribute to the efforts to end it. After so many years of suffering and deterioration, the people of Gaza deserve a new start.

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Appendix A

The State of Infrastructure in Gaza

a. Energy

A reliable, consistent and adequate supply of energy is a necessary condition for any economic development. It is essential for water supply, sanitation and medical facilities, education, as well as all economic activities, particularly manufacturing, agriculture, construction and services. It is also essential for the daily household subsistence and quality of life.

As mentioned above, the only infrastructure project which survived the Intifada repression and four wars was the Gaza Electricity Power Plant (GPP). A pioneering and visionary private investment by the Khoury family, through their construction firm (CCC), it was designed to produce 140 MW and could easily expand to 200 MW. The turbines were initially designed to operate on industrial diesel fuel, with the expectation that they would soon be converted to natural gas, a much cheaper source of energy which was expected to be developed through the Gaza Marine project, in parallel to the GPP. However, with the failure of Camp David and the outburst of the Intifada these expectations did not materialize.

As mentioned above, the other major potential source energy was natural gas which was discovered off-shore from Gaza by BP (now Shell/ British Gas) in 1999. Its size is estimated at 1 trillion cubic feet, the smallest of the fields discovered in the east Mediterranean Sea⁷¹. Nevertheless, it can provide cheaper energy to Gaza and the West Bank for 10-15 years. In addition, part of the Noa field offshore from Ashkelon is located in Palestinian waters⁷².

b. Electricity

Today, the main source of energy in Gaza is electricity, 60 percent of which is imported from Israel. Demand for electricity in Gaza in 2016 is estimated at 450 MW and expected to reach 850 MW by 2020⁷³ under recovery conditions. Electricity supply by mid-2016 originates from three sources: imports from IEC of 120 MW, imports from Egypt of 22 MW and domestic electricity generation by GPP of 60 MW. Up until 2005 GPP generated 90 MW of electricity. It could not reach its full capacity of 140 MW because of poor maintenance and inadequate high voltage transmission lines and sub stations. Beginning in 2007, Israel imposed a limit on the amount of industrial fuel it allowed into Gaza (2.2 million liters per week), which reduced GPP capacity utilization. In addition, the electricity grid infrastructure deteriorated due to the Israeli siege and the cumulative impact of damages sustained through bombing during four consecutive wars.⁷⁴ Consequently, capacity utilization fell to about half

71. Israel's Leviathan field is estimated at 22 tcf; Egypt's Zohr field at 25 tcf and Cyprus Aphrodite field at 5 tcf.

72. Noble Energy owns 47 percent of the Noa license and Delek owns the rest.

73. Assuming a compound 10 percent annual growth rate from a very low base in 2016.

74. The World Bank: West Bank and Gaza Energy Sector Review 2007; Payment for electricity services, June 2014

its potential (60-70 MW). Two other issues also adversely affected the GPP:

Because the GPP relies on imported industrial diesel fuel to generate electricity, the cost of domestic electricity at NIS 0.506 per kwh was substantially higher than electricity imported from Israel and generated with natural gas (NIS 0.33 per kwh)⁷⁵. The Gaza Electricity Distribution Company (GEDC) which buys electricity from GPP and other suppliers had to set its electricity tariff in line with Israel and the West Bank, which was below the purchase price from GPP. Paradoxically, the higher capacity utilization of GPP the higher the losses sustained at the GEDC, and the lower its ability purchase fuel for GPP.

There is no payment mechanism in Gaza for GPP fuel which would ensure a steady and consistent supply of fuel to operate at maximum available capacity. The PA (or the GEDC) is bound under contract to provide GPP with the required fuel and pay GPP \$2.5 million per month for capital expenses, regardless of capacity utilization. Moreover, due to large electricity losses in the network, losses from electricity purchased at GPP and a high nonpayment of bills rate, the electricity distribution company (GEDC) is confronted with operating deficits which it is unable to finance⁷⁶, nor is Hamas able to generate the resources necessary to subsidize GEDC and cover its deficits, as is the case with the electricity distribution companies in the West Bank (DISCOs).

Between 2006 and 2009 the EU was paying for the GPP fuel needs. Subsequently, in November 2009, and in the context of cutbacks in EU support, the PA elected to receive these funds as budget support and take responsibility for shipping fuel to the GPP. However, because of shortages of funds and other priorities, the PA was unable to finance a monthly fuel bill of NIS 49 million⁷⁷. As a result, payment for fuel for GPP has reverted to an ad-hoc operation depending on the availability of funds. Occasionally, Qatar or some European countries would directly finance fuel shipments for GPP, but the payment burden has fallen mostly on GEDC. When it has the necessary funding, GEDC periodically transfers cash to the PA Petroleum Products Department which orders fuel shipments from Israeli refiners⁷⁸. Following the 2014 war, the PA, through successive Council of Ministers decisions, reduced the excise tax (blo) on the fuel shipped. In January 2016, the subsidy was 70 percent, declining to 50 percent in April 2016, which amounts to 28 percent of the fuel cost.⁷⁹ Nevertheless, GEDC has not been able to finance such purchases consistently, resulting in turbine shutdowns at GPP and drops in capacity utilization as happened in August 2016⁸⁰. Looking back at GEDC performance, it is clear that it has been behaving as a state enterprise, with low bill collection rates, little progress in rehabilitating the transmission grid and low accountability. A rehabilitation of the electricity sector and the introduction of natural gas as a feed stock would require a major reform of GEDC for it to operate on a commercial basis with an effective payment system for fuel/gas and enforcement authority for bill collection from consumers.

Total electricity supply in Gaza at 202 MW, is only 44 percent of demand. Electricity losses through the grid are estimated at 30 percent. This high rate of electricity loss is compounded by high levels of

75. Ministry of National Economy Report on Energy Costs 2011

76. The default rate of bill payment is about 30 percent partly due to the collapse of the Gaza economy. In 1998- 2000, the average default rate was 17% percent

77. See Gisha, The Gaza Strip's Electricity System, 2010.

78. GEDC is owned by Gaza municipalities (50 percent) and by the PA Energy Authority (50 percent). The Board is dominated by Hamas through its representation of municipalities and the local Energy Authority.

79. Under this system 63 million liters were delivered to GPP in 2014; 81 million in 2015 and during the first four months of 2016, 23 million liters. In January 2016 the subsidy amounted to NIS 14 million; NIS 10 million in February; NIS 8 million in March and NIS 4 million in April. Ministry of Finance, Department of Petroleum Products.

80. GPP has 4 turbines each capable of generating 30 MW.

electricity theft and non-payment of bills, estimated at 29 percent. As a result, the GEDC, which pays for the fuel for the GPP, is periodically unable to purchase the necessary fuel from the PA as explained above, further reducing availability of electricity. This has resulted in severe rationing of electricity by daily cycles of 8 hours on and 8 hours off as well as inconsistent supply of electricity.

The supply gap in electricity exacerbates the water crisis. Pumping water from existing wells, pumping wastewater from treatment plants and operating vital water desalination units are all adversely affected by power outages and electricity shortage.

In Gaza, the total groundwater abstracted volume in 2011 for municipal uses was about 92.8 Mm³ in addition to approximately 86 Mm³/y for agriculture in addition to 4.2 Mm³/y supplied by Mekorot and 2.8 Mm³/y from the groundwater small scaled salination plants, bringing the total supplied volume to about 185.8 Mm³/y. This means that the total recharge (55-60 Mm³/y) is only one third of the total abstractions.

The only surface water resource in Gaza is Wadi Gaza which originates at the eastern upstream where Israel is trapping the natural flow. This action dries the wadi, except in very wet years, making the use of any remaining surface water resources is very limited. The annual average flow of this wadi is about 20 Mm³/y.

c. Nitrate pollution of groundwater resources

The population across Gaza is very dense, and they discharge very large amounts of pollutants (organic matter, nitrogen, etc.). While around 70 percent of the urban area is served by wastewater collection systems, many people are still using cesspits or septic tanks for discharging their raw wastewater. This will negatively impact groundwater pollution as a result of the wastewater leakage through the highly permeable unsaturated sandy zone. Due to the scarcity of water resources (natural scarcity and inequitable sharing of water rights between Palestinians and Israelis), the Palestinian government has already started to focus on the development of non-conventional water resources. These resources include:

d. Seawater Desalination

There is only one sea water desalination plant located in the middle area of Gaza (Deir El Balah) with capacity of 2000 m³/day (0.35 Mm³/year) by using two beach wells since 2014. UNICEF has recently constructed a desalination plant with a capacity of 2.2 MCM, with additional phases stretching to 2018 to produce 7.3 MCM. A large sea water desalination plant with a capacity of 50 Mm³/year, as a first phase, is scheduled to be constructed by 2017 and to be located in the central part of Gaza. It is expected to be enlarged to a capacity of 129 Mm³/year by 2035. The desalinated water will be mixed with abstracted groundwater and distributed to the consumers through the distribution facilities.

e. Desalination of brackish groundwater

There are about 100 water vendors selling drinking water produced through brackish water desalination plants with a capacity of 20-40 m³/day and operated for 4-6 hours/day, with total supplied quantities of 2.8 Mm³/year in Gaza. However, the actual groundwater abstraction by these plants is about 4.8 Mm³/year (PWA, 2012).

More than 80 percent of the Gazan people use this water for fulfilling their drinking and cooking water

needs. The remaining 20 percent use in-house reverse osmosis units for desalination. In addition, there are 8 groundwater desalination plants operated by the CMWU in the southern parts of Gaza (Khan Younis- Deir Al Balah and Rafah) whose water is distributed through the domestic distribution networks, which is mixed with wellwater (with a total capacity of 1 Mm³/year) (PWA, 2012).

f. Reuse of treated wastewater

This resource is already under development in Gaza (with a scheduled production capacity of 10 Mm³/year) in North Gaza. Further developments should be undertaken in Gaza; this potential resource could be relatively large (see chapter 17.4), but its development raises some important issues that are yet to be resolved.

Appendix B

Gaza's Reconstruction Needs and Current Status of Recovery by Sector

	Detailed Needs Assessment by the PA (August 2015)	Status of Gaza Recovery Plan (November 2016)
Realization of Donors' Pledges	Total pledges announced at the Cairo Conference amounted to \$5.4 billion to the State of Palestine, of which \$3.5 billion is intended to support Gaza. The financial support is to be provided over a period of three years (2014-2017): disbursement of donor pledges will be expedited by the effective and sustained administration of the NCG in Gaza and the lifting of the siege on Gaza by Israel.	2015 saw a slowdown in disbursement of pledges made at the Cairo conference- as a result many of the planned projects were delayed. By July 2016, only 46 percent of the total pledges to support Gaza were received. Out of the total sum of disbursements (\$1.6 billion so far) about 38 percent (\$612 million) was directed to Gaza's reconstruction.
Housing	171,000 housing units across Gaza were demolished in 2014- over 60 percent of Gaza's housing stock. The cost of repair and reconstruction of the affected housing units is approximately \$780 million.	36 percent of the funding is still required. Out of the 11,000 units of housing totally destroyed, 5,668 units are currently under construction or completed. Out of the 160,000 partially damaged units, 100,000 are completely or partially repaired. 95 percent of the rubble was removed and 47 percent of the ERW has been cleared.

Electricity	<p>Right after the war, electricity was supplied for 2 hours every day.</p> <p>Damage to the energy sector is estimated at \$58 million</p>	<p>85 percent of the works by the PA to stabilize the electricity supply and to rehabilitate the high voltage network were completed. This helped returning to the pre-war schedule of (8 hours on/ 12 hours off)</p> <p>This is still not enough as the pre-war situation already saw a continued shortage of electricity.</p>
Detailed Needs Assessment by the PA (August 2015)		Status of Gaza Recovery Plan (November 2016)
Water	<p>All 1.8 million people in Gaza suffered limited or reduced access to water, which is ongoing.</p> <p>Increased prices for desalinated, privately sold water (NIS 16 per CM) consumed by most households has further reduced access to drinking water for poor and vulnerable families exacerbating the consumption gap between poor and rich families.</p> <p>Damage to the water and sanitation sector is estimated at approximately \$33 million</p>	<p>The reconstruction of water infrastructure successfully completed the emergency phase and has move on to the reconstruction phase - leading to a 80 percent completion of tasks.</p>
Health	<p>During the war, nearly half of all health facilities were unable to provide services due to damage or danger, leaving functioning facilities overwhelmed by increased demand and inadequate resources. Two specialized hospitals were closed by damage or destruction, including the only medical rehabilitation hospital and one of three pediatric hospitals, reducing access to health care for the newly injured and pediatric patients.</p> <p>Damage to infrastructure and assets in the health sector is currently estimated at \$24 million</p>	<p>During 2015 the sector spent \$13.8 million. The planned interventions that are in process include repair of hospitals, clinics, supply of fuel and medical equipment. 39 percent of the planned projects have been accomplished, The entire required funding had been secured. Kuwait Fund agreed to fund a new maternaty building at AL SHIFA hospital.</p>

	Detailed Needs Assessment by the PA (August 2015)	Status of Gaza Recovery Plan (November 2016)
Education	<p>Some 547 education establishments, from kindergarten to university level, suffered damage (with 21 totally destroyed).</p> <p>Damage to infrastructure and assets in the education sector are currently estimated at \$35 million.</p>	<p>The number of education facilities which have been completely repaired has been growing with 100 percent of UNRWA schools, 96 percent of the PA's schools and private schools, 66 percent of kindergartens and 64 percent of higher education institutions.</p>
Businesses	<p>Over 5,420 productive sector facilities were affected, with greatest impact amongst the smallest business owners.</p> <p>Agricultural losses were steep, as was widespread destruction of cultivated land, greenhouses, livestock and poultry farms, water wells, irrigation networks and other productive assets.</p> <p>Fishermen lost equipment and were denied access to the sea during and after the war.</p> <p>The productive sector suffered \$418 million in damage, with the highest amount of damage in agriculture (\$266 million). The damage and losses to the non-agricultural productive sectors are estimated at \$292 million</p>	<p>62 percent of businesses have been paid for their registered losses. In the agriculture sector which suffered the most, 16.4 percent of required funding was used for implementing reconstruction in 2015. About 80 percent of the factories that were damaged resumed operations to some degree.</p> <p>In the food and furniture industries, factory owners were able to import new production lines to replace the ones destroyed during the hostilities, while other sectors, such as the construction, engineering and steel industries, have had much more difficulty obtaining Israel's approval to import replacement production lines and parts.</p>
Governance	<p>local government sector suffered damages in roads, public facilities, equipment and solid waste totaling \$88 million</p>	<p>In 2015 24 percent of planned projects were completed.</p>

Source: Palestinian Prime Minister's Office, National Office for the reconstruction of Gaza, *Summary Report for the Reconstruction of the Southern Governorates*, November 2016.

Part III

The Jordan Valley:
Current Reality and Future Prospects

Part III

The Jordan Valley: Current Reality and Future Prospects

Executive Summary

1. Introduction

The research presented by the Aix Group in this paper echoes the prevalent understanding that the current conditions in the Palestinian economy are grave, and that although it would have been better to change the economic environment via a permanent status agreement, such a path may not be feasible in the near future. Hence, assessing changes that can be implemented in the short and medium terms, even when no permanent agreement is reached, deserves serious study.

The Aix Group considers a permanent status agreement based on the “Two State” formula as the only possible one. The research surveys the main obstacles that also appear, sometimes in different forms, elsewhere in the economy. The short-term policy measures recommended are consistent with the longer-term modifications; they will increase Palestinian capacities as well as control, and pave the path toward more changes that will prepare the ground for advocating for the required policy changes among the various stakeholders which can hopefully have a real impact.

One area where change has the potential to significantly improve social and economic conditions in the West Bank is the Jordan Valley. The Jordan Valley, and more broadly the Palestinian economy in the West Bank, East Jerusalem and Gaza as a whole, is suffering from severe underdevelopment involving low levels of economic growth, high unemployment, a very low level of productive investments, inadequate social services and low standards of living. There is no doubt that the political situation, specifically the occupation, has to be considered as an important factor in generating these undesirable conditions. The Jordan Valley on its eastern bank (in the Kingdom of Jordan) is a prosperous agricultural area; the Palestinian Jordan Valley offers even greater variety and opportunity both in agriculture and beyond. Specifically, the Jordan Valley has the potential to attract much tourism, and could become a pole of economic activity in other areas, as well. This will be an important contribution to the Palestinian economy and to its society. The economic potential of the Jordan Valley is part of the overall economic capacity of the Palestinian economy; it should be exploited fully in all its dimensions: agriculture, natural resources, tourism, light industry, services, housing and more. This principled position should be respected by all stakeholders and implemented as soon as possible.

2. Present Economic and Social Conditions

The paper starts with a description of the economic and social conditions in the Jordan Valley. According to the PCBS, during mid-2016, the Palestinian population of the Jordan Valley is estimated to be about 54,000 people. According to the 1995 Interim Agreement, about 85.5 percent of the overall Jordan Valley area, which adds up to approximately 1,378,000 dunum, are part of Area C. In the past 5 decades, and even more effectively after the Interim Agreement, Israel has denied Palestinian access to more than 75 percent of the Jordan Valley areas by declaring broad areas as “military zones,” “nature reserves” or “State Lands” (see maps in the paper). By doing so, Israel continually denies Palestinians from utilizing these lands. Only 42,000 dunum out of the 163,000 dunum available (27 percent) are cultivated by Palestinians, while extensive cultivation has been carried out by the JV’s settlements. The Palestinian cultivated land is mostly in the Jericho area where the main crops are dates, citrus, vegetables and medical herbs.

Water resources are scarce in the region and are additionally negatively affected by the Israeli military measures, both of which have contributed to the under-development of the JV overall. This under-development is manifested in limited rural development and poor economic growth, occasioning an increase in poverty, poor health and sanitation conditions and physical and environmental deterioration. This is the consequence of many challenges and obstacles including inequitable distribution of water resources, destruction of vital water infrastructure, lack of wastewater management and high water losses.

The main natural resource in the JV in addition to land and water seems to be the Dead Sea. So far two countries, Israel and Jordan, extract minerals from this salt-lake. Palestine, having a shore on the Dead Sea, has claims on its natural resources, but is currently not benefiting from them. The extraction of minerals from the Dead Sea has created severe environmental and geological problems. This calls for significant cooperation between the three involved parties, Palestine, Jordan and Israel, to cope with the challenges and agree on a common future policy. Nevertheless, the Dead Sea as a natural resource would not only be a source of minerals mining, but also an attractive point for the tourism industry.

Currently the tourist sector is far below its potential. Internal tourism uses holiday houses, so that income related to hospitality is low. In addition, there is a lack of high quality services and facilities for tourists, like a proper market for the selling of typical local products (cheese, dates, etc); and the handicraft sector is not developed. There is still a narrow vision of tourism, without connections to the different key attractions or with other sectors (for instance agriculture, handicrafts, etc.).

Industrial and manufacturing activities are underutilized and not modernized; they can be classified in two main sectors: the first concerns agriculture and food processing (e.g. date factories, dairy products, meat processing factories, etc.). The second is manufacturing, such as basic mechanic firms, light steel and iron industry.

Social Services including education and health are weak, mainly due to the region’s small and widely dispersed villages. Local schools in most villages are only of an elementary level (6 years of schooling), which means that pupils going into higher classes are obliged to commute (mostly on foot) to schools in other villages. Similarly, health services are noticeably dismal. It is true that nearly all villages have public clinics, but in most cases those clinics are grossly deficient in medical staff and supplies.

3. Proposed Policies

The paper shows that the economic potential of the JV is mainly in the fields of agriculture, tourism, natural resources and light industry. The realization of this potential, or at least part of it, requires the implementation of a number of measures such as enabling the use of arable land in Areas B and C to Palestinian farmers and allotting the needed amounts of water and energy for production and consumption. Moreover, restrictions on land use (see the set of maps describing the restrictions in the paper) and on the mobility of people and merchandise that prevent the efficient production of goods and services ought to be removed. Such policies call for regional planning and for cooperation between the Israeli government that is, at present, in control of most of the area, and the Palestinian Authority.

To change the dismal conditions mentioned above, a set of concrete policies are proposed. These policies are based on the long term developmental vision for the Palestinian side of the Jordan Valley and incorporates protection of the environmental and cultural resources of the Valley through sustainable economic development. The implementation of integrated policies should address the needs of the population. The development of the Jordan Valley and its transformation into a significant income generating region can be realized in the short term with measures consistent with a long term strategy. This requires the adoption of appropriate policies by both the Israeli and Palestinian authorities, specifically regarding Area C, to be implemented immediately in the JV, even before a political agreement is achieved and the formulation of a permanent status agreement is finalized. A Jordan Valley Authority (JVA) responsible for development should be created and should implement the new measures.

Concerning land and planning, the overriding tenets in the new policy should annul the restrictions currently in place concerning land usage. A dominant principle should emphasize the attempt to densify and thicken existing localities rather than building brand new ones. The rationale of this principle is that most Palestinian cities were developed and built without a general comprehensive plan, thus lacking the urban planning strategies that characterize modern cities. Another significant policy factor concerning the land is the preservation of agricultural tradition as a major factor in the design of the Palestinian space.

The new policy will require the utilization of about 40,000 additional dunum in the short and medium terms, and the other 60,000 dunum that are under the control of the settlements and the security zone areas to be utilized in the medium and long terms. That will include, in addition to land reclamation activities, the supply of adequate amounts of water, the investment of appropriate capital in modern equipment, the use of updated production technologies and the availability of human resources.

In addition, agriculture should adopt advanced technologies that require capital investments and can support farmers to at least acceptable standards of living.

For water, the new policy would allow Palestinians to use their rights over natural water resources so that water shortages will not prevent development. The Palestinian administration should be fully entitled to plan and implement all necessary water and wastewater facilities (wells, storage tanks, water and wastewater networks, wastewater treatment plants, etc.).

For tourism, the overarching policy is to develop an integrated strategy that links together heritage policies with urban planning, the educational sectors, economic and social policies and tourist strategies instead of viewing them all as single sites. Development should strive to enhance tourist activities and raise the awareness of the local community toward the importance of the local heritage.

For industry, and from a strategic point of view and taking into consideration the agricultural nature of the Jordan Valley, the region's industrial development should concentrate on food processing and other industries related to agriculture. In addition, the Dead Sea would provide opportunities for many industries based on Dead Sea mineral extraction.

4. Specific Recommendations and Actions

Based on the above analysis and proposed policies, the paper also provides a detailed set of recommendations for the short and medium terms that will create the basis for the transformation of the Jordan Valley into a prosperous region of Palestine when a permanent status agreement is reached. The main and most important recommendations are:

Land: The new Israeli policy should allow more land usages for Palestinians in Area C, taking into account not only micro-development of villages and other localities, but the necessary macro considerations of housing, infrastructure and large scale development, including agriculture. These new allocations will involve changes in the "military zones" maps and the designation of "State Lands" for the usage by the Palestinian population. The JVA will carry the responsibility of land planning and development controlled by the Palestinians. The planning efforts must be gradually removed from the Civil Administration's control and delivered to Palestinian control, eventually paving the way to a harmonized planning strategy and land control by Palestinians in the Jordan Valley.

The JVA will be responsible for the promotion of regional master plans which address areas A, B and C jointly with a fast-track promotion of local master plans which align with the general development vision of the JV.

Water: Rehabilitation of the existing water infrastructure and water resources including springs rehabilitation and utilization of the Al-Fashkha spring, in addition to the development of a regional water conveyance system along the Jordan Valley from north to south to allow for better management of available resources.

Agriculture: Utilization and reclamation of available irrigable land of some 90,000 dunum, part of which is state land that is currently used by settlers, for irrigation purposes together with support of agricultural reuse of treated wastewater and the use of modern and efficient irrigation technologies.

Tourism: Development of an Integrated Management Plan for Cultural and Natural Heritage Resources and the rehabilitation of landmarks feature. Ability of the Palestinians to access - and movement between - different sites ought to be enhanced.

The Dead Sea: Utilization of the Dead Sea's unique characteristics through the establishment of Palestinian companies for minerals production.

Industry: Establishing agro-industrial zones for both agricultural production and the complementary production facilities such as packing, packaging, grading and cooling facilities. Open access for agro-industrial products to the Israeli market.

Trade: Allowing the movement of goods from the JV to Israeli ports and airport with facilitated movement in containers or utilizing tractor-trailer exchange mechanisms to reduce damage to goods resulting from back to back. This will be enhanced by allowing container movement through the Karamah (Allenby) Bridge, completing the rehabilitation and re-opening of the Damia/Adam Bridge for Palestinian trade with and through Jordan and the establishing of a

bonded area near the Karamah Bridge, with the responsibility for customs clearance being handed over to Palestinian customs.

Education, Health and Other Services: In general, develop the comprehensive health needs master plan for the JV and further develop the education needs master plan. For other services, it is necessary to provide permits for renewable energy (solar) projects in Area “C” of the JV, in addition to providing permits for water and solid and liquid waste for residential communities.

Part III

THE JORDAN VALLEY: CURRENT REALITY AND FUTURE PROSPECTS

1. Current Socio-Economic State of Affairs in the JV

The economic potential of the JV is part of the overall economic capacity of the Palestinian economy; it should be exploited fully in all its dimensions: agriculture, natural resources, tourism, light industry, services, housing and more. This principled position should be respected by all stakeholders and implemented as soon as possible. However, since 1967 and up until the present, the reality is far from meeting this principle. The policies and general approach that led to the current unfortunate state of affairs should be changed. Clearly, security arguments should not be used indiscriminately to justify the hampering of economic activity by Palestinians in the JV.

Transforming the JV into an income generating region can be realized in the short term with measures consistent with a long term strategy. This requires the adoption of appropriate policies by both the Palestinian and Israeli governments, mostly regarding Area C, to be implemented immediately, until a political agreement is achieved and the formulation of a permanent status contract finalized.

In the following, we provide a brief description of the Jordan Valley, its geography and physical features. We will also describe and analyze the present socio-economic conditions with a special focus on population and living conditions, on land, water, energy, natural resources, economic activity (mostly in agriculture and tourism) and social services (mainly in education and health).

1.1. The JV Geography

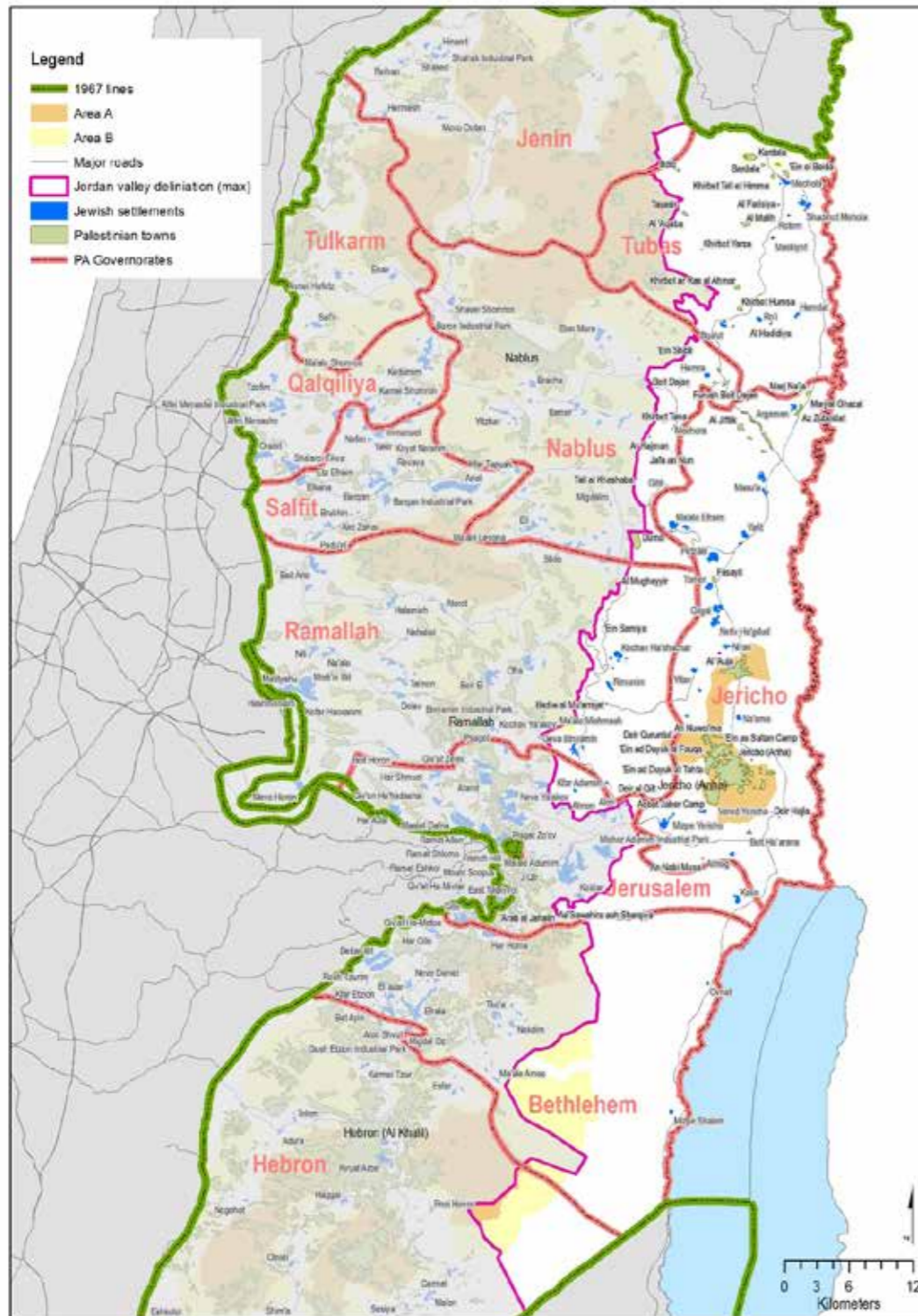
This study refers to the Jordan Valley as the area of the West Bank in Palestine bound by the 1967 border to the north and south, by the Jordan River and the Dead Sea to the east, and by the eastern slopes of the West Bank mountain ridge to the west.

The overall area of Jordan Valley (JV) is about 1,600,000 dunum in size, including the northern edge of the Dead Sea. The area of the JV constitutes close to 30 percent of the overall West Bank area (about 5,652,000 dunum).⁸¹ Some publications refer to the JV as the area that stretches from the northern end of the Dead Sea up to the northern edge of the Tubas Governorate. In this constellation, the JV's area ranges between 870,000 and 1,000,000 dunum.

Nearly 87 percent of the Jordan Valley falls into Area C, which under the Oslo II accords, signed in 1995, is under full Israeli military and administrative control; about 5 percent-6 percent is Area A and the rest Area B. The Jordan Valley is distributed over five Governorates (Tubas, Jericho, Nablus, Ramallah and Al-Bireh, and Jerusalem), 2 out of the 5 Governorates (Tubas and Jericho) cover more than 91 percent of the Jordan Valley.

81. See: The Baker Institute, (2010) p.8. In this document we use dunam and dunum for 1000 sq. meters.

Map 1: The Jordan Valley area including the northern part of the Dead Sea



Sources of Maps 1-4: OCHA, ECF, Anan Jayyousi, Yehuda Greenfield-Gilat; Compiled by Dan Rothem for the Aix Group.

The western slopes of the JV are steep with drastic drops in elevations over short distances. This is apparent in the middle part of the Jordan Valley where the drop in elevation exceeds 500 m over a distance of 9 km. In the northern part of the Jordan Valley, the drop is almost 375 m and occurs over a distance of 10 km. In the very south, this drop becomes 100 m over a distance of 8 km. The long-term average annual rainfall for the Jordan Valley is low and varies spatially. In the very northern part of the Jordan Valley the average annual rainfall is 350 mm and drops down to an average annual value of 100 mm. The evaporation for the Jordan Valley has an increasing trend as we move eastwardly. The JV is an arid area; the area in proximity to the Dead Sea is hyper-arid and occupies 12 percent from total area.⁸²

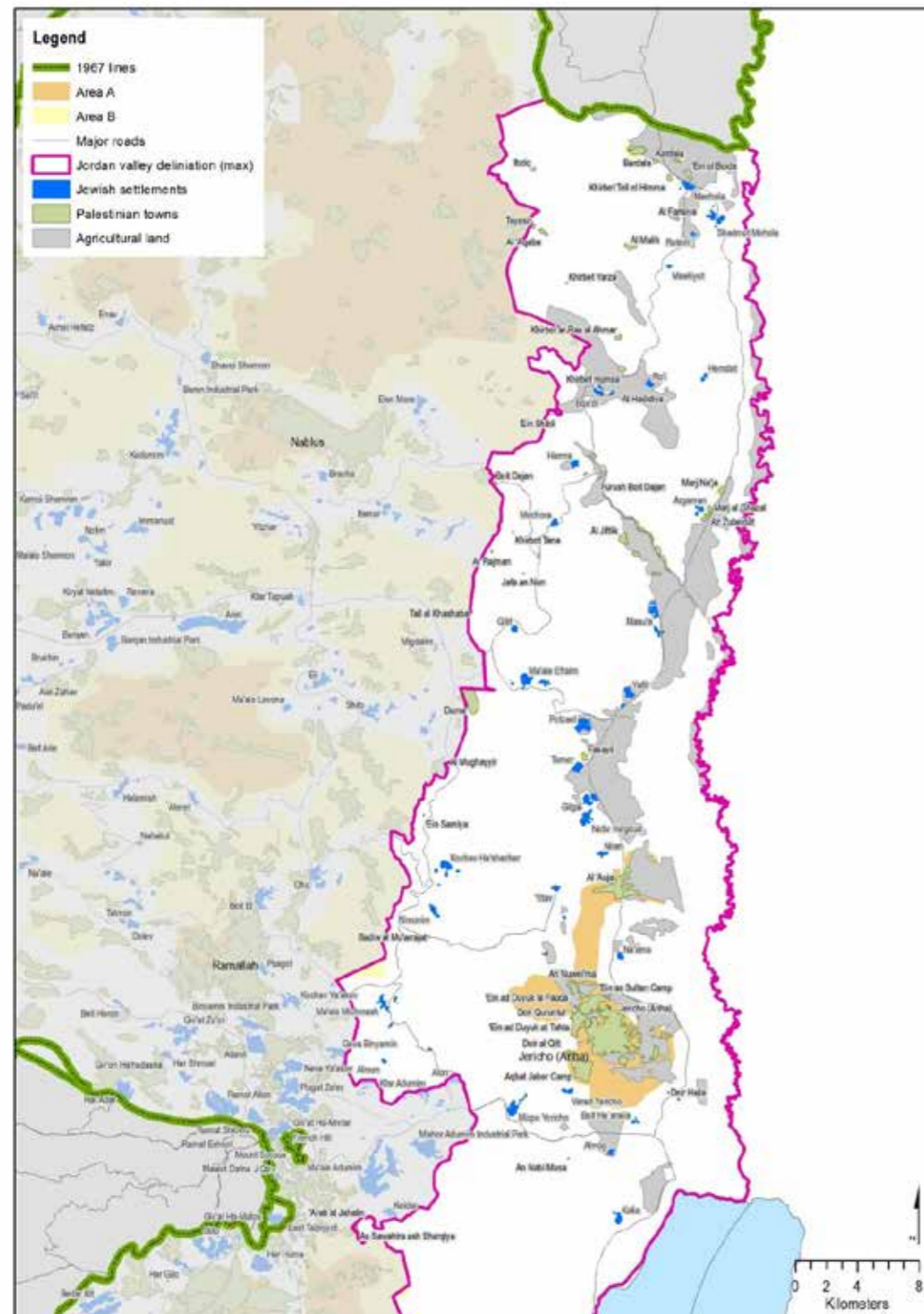
Table 1: Summary of aridity classifications for the northern part of the JV

Description	Estimated Area (dunam)	Percentage from Total Area
Semiarid	10,000	1%
Arid	870,000	87%
Hyper-arid	120,000	12%
Total	1,000,000	100%

The Jordan Valley is an important area for the future Palestinian state, given its cultural, economic and geographic value, especially considering that the area holds the largest land reserve for development. The cultivated land in the Jordan Valley is estimated around 152,000 dunam, partially cultivated by settlements.

82. An area is considered arid when rainfall with respect to potential evapotranspiration is between 5 percent and 20 percent while it is a hyper-arid when this percentage drops below 5 percent.

Map 2: Agriculture lands in the Jordan Valley



Sources of Maps 1-4: OCHA, ECF, Anan Jayyousi, Yehuda Greenfield-Gilat; Compiled by Dan Rothem for the Aix Group.

1.2. Population and Living Conditions

According to the PCBS, during mid-2016, the Palestinian population of the JV (Jericho and Al Aghwar Governorates) is estimated to be 53,562 people, being 1.8 percent of the total West Bank population estimated by the PCBS as 2,935,368 mid-2016.⁸³ Approximately half of the JV population (28,434) resides in the urban area of Jericho (23,220) and Al Jiftlik (4,701). Refugee camps contain about 13,000 people and the rural villages of the valley contain about 12,000 Palestinians.⁸⁴ The eastern part of the Tubas Governorate which holds some of the JV population (12,000 people) add the total population of the JV to about 65,000 - about 2.2 percent of the overall Palestinian population in the West Bank. The number of Bedouin Palestinians living in the Jordan Valley is estimated at around 15,000.⁸⁵ There are also about 9,400 Israeli settlers living in approximately 40 settlements in the Jordan Valley.

The population lives in 25 communities that are distributed within 3 Governorates. Those are the Governorates of Jericho, Nablus and Tubas. The 2007 PCBS census further identified a young population in the JV, with a 39.4 percent below 15 years of age and 50.6 percent in the age group 15-64. Life expectancy is around 65 years in the Jordan Valley, in comparison with 71.8 years for the whole of the West Bank.

The living conditions in the Jordan Valley have deteriorated as a consequence of decreasing income levels and severe setbacks in the quality of vital services available to local inhabitants. Dwellings are heavily crowded and occupants suffer from inappropriate hygiene. This is a direct result of the very strict restrictions imposed on construction activities, especially outside the boundaries of the existing Palestinian town and villages. The amount and quality of water available for drinking and house use are unsatisfactory. The poverty levels are well in excess of 60 percent, mainly due to severe restrictions imposed on access to land and not enough water resources (on which we elaborate below).

1.3. Settler Population in the JV

According to the Israeli Central Bureau of Statistics, the Jewish population of the JV in 2015 was 8,126 people in 24 settlements (not including what are known as “illegal outposts,” which increased the number of settlers to around 9,400). The Jewish population of the JV is 2.2 percent of the overall settler population in the West Bank (362,900 - not including East Jerusalem) and constitutes about 13 percent of the region’s general population.

The settlements in the JV and northern Dead Sea are among the first settlements built by Israel in the post-1967 era. The settlement Mehola was established in the northern JV in 1968 along with Kalya. Since 1968, Israel has built additional settlements (24 main localities), most of them along Roads 458, 80 and 90, following the logic of plans such as the 1967 “Alon Plan” dedicated to create “defensible borders” along the Jordan Valley region.

83. See MA’AN Development Center (2010), p.28.

84. See: http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/jerich.htm

85. See: MA’AN Development Center (2010), p.28.

6 See Oxfam (2012).

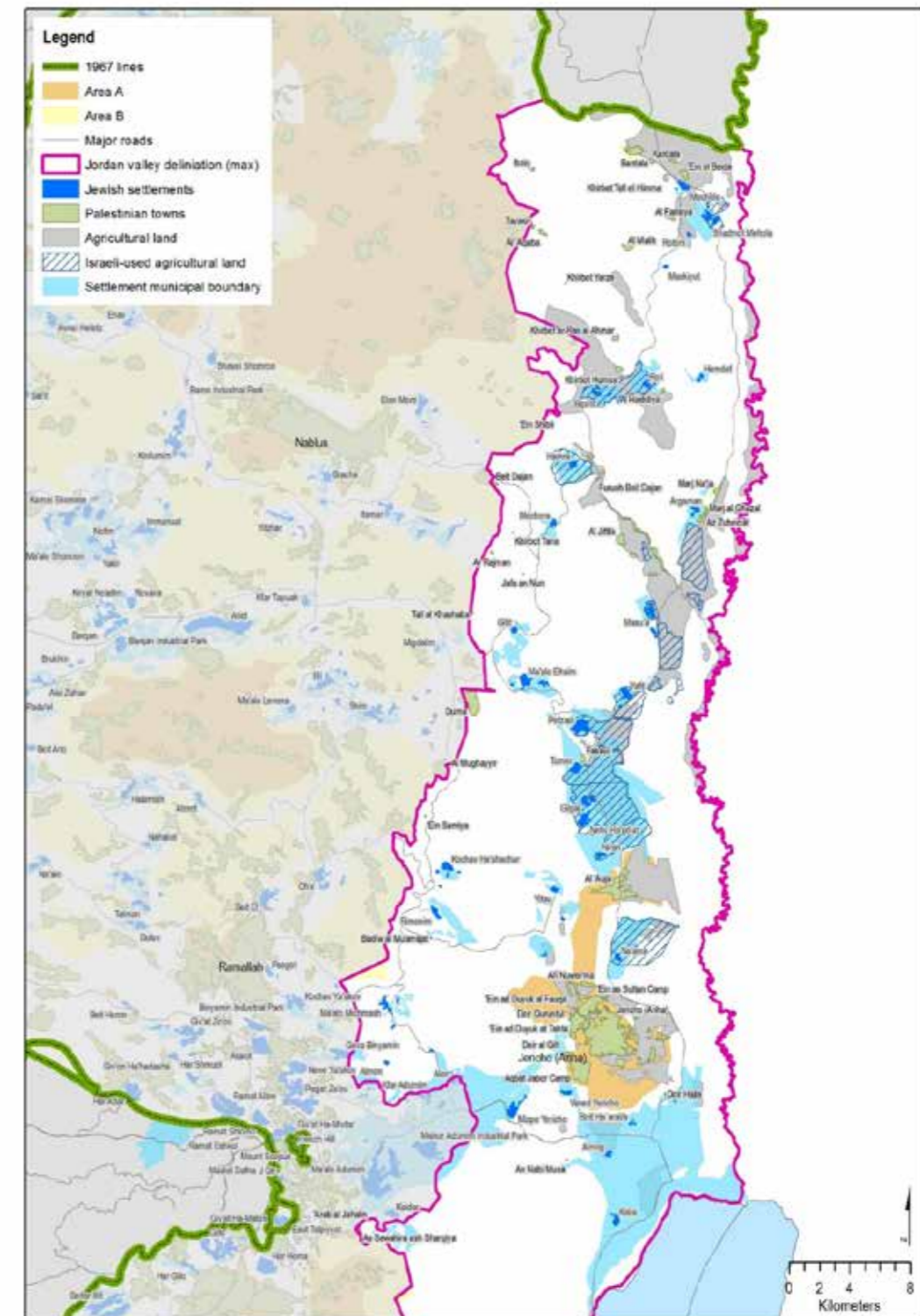
1.4. Land in the Jordan Valley

According to the 1995 Interim Agreement, about 85.5 percent of the overall Jordan Valley area, which adds up to approximately 1,378,000 dunum, are part of Area C, providing for Israeli control over the civil and security affairs of the area. Area C of the JV contains the territories of settlers' regional councils Biqat Hayarden and Megilot, part of the jurisdiction area of Binyamin County (including the settlements Mitzpe Yeriho, Rimonim and Cohav Hashahar), and part of the municipal territory of the city Ma'aleh Adumim. The rest of the area includes some Area A enclaves which are under full Palestinian control (such as the Jericho area) and some Area B locations which are under Palestinian civil control and Israeli security control.

According to B'Tselem's report, as of 2011, Israel has allocated only 6,661 dunum for the settlement housing, which stands for about 0.4 percent of the Jordan Valley territory. Nevertheless, the state has allocated significant territories for agriculture and future development activity around the settlements.

In the past five decades, and even more effectively after the interim agreement (1995), Israel has denied Palestinian access to more than 75 percent of the Jordan Valley areas by declaring broad areas as "military zones," "nature reserves" or "State Lands." By doing so, Israel continually denies Palestinians from utilizing these lands, which mostly are included within the jurisdiction of the Jordan Valley's Israeli regional council. The 2005 Israel State Comptroller report indicates⁸⁶ that despite the military law since 1967 which aimed only to secure the Jordanian status of such lands, Israel has used the "State Lands" declaration method in order to appropriate vast new lands privately owned by Palestinians and redirect their usage to Israeli entities.

Map 3: Israeli Settlements' municipal boundaries and agriculture lands under cultivation of Israeli settlements



Sources of Maps 1-4: OCHA, ECF, Anan Jayyousi, Yehuda Greenfield-Gilat; Compiled by Dan Rothem for the Aix Group.

86. State of Israel (2005), See also: <http://old.mevaker.gov.il/serve/showHtml.asp?bookid=433&id=184&frompage=236&contentid=8069&parent-cid=8046&bctype=1&startpage=14&direction=1&sw=1280&hw=730&cn=%E2.%20%E0%E3%EE%E5%FA%20%E9-%E4%E5%E3%E9%ED>

1.4a “Military Needs” and “Order 151 Zone”

In the first decade after the 1967 war, the state of Israel used military directives to expropriate land under the argument that these actions had a military-security role. The major territorial segment seized under such reasoning took place just after 1967 when the State of Israel issued what is known as “Order 151 (closed border zone)” covering 237,000 dunum (14.7 percent) of the Jordan Valley, along the Jordan River. Tens of thousands of these “Order 151 territories” were later transferred for cultivation to Jewish settlements in the region. According to the Kerem Navot organization and Ha’aretz, Jewish settlements currently cultivate about 9,000 dunum of Order 151 areas, of which 5,000 dunum are private Palestinian lands.⁸⁷ In addition to “Order 151 territories,” Israel has declared since late 1970’s, about 297,000 dunum as “Military Training Areas” in the Jordan Valley (18.4 percent of the JV area) adding the closed military areas in the JV to 33 percent of the total area. After the Israeli supreme court “Elon Moreh” ruling in 1979, which ruled that Seizure for Military Needs contradicts international law and cannot be used to establish settlements on that land, Israel stopped using this method for expropriating land, but still continued to exercise the practice of declaring areas as “closed military zones.” According to the 2011 B’tselem Report, at that time the overall territory declared as “closed military zones” added up to 736,000 dunum, about 45.7 percent of the JV area.

In accordance with what Israel described as military needs, Israel also declared 26 areas in the JV as “nature preserves,” covering more than 318,000 dunum (20 percent) of the Jordan Valley. 15 sites (200,000 dunum) are located in areas which were also declared as military zones.

1.4b. “State Lands”

The JV area does contain about 220,000 dunum that were officially recognized as “state land” during the Jordanian rule over the JV. Currently, “state lands” in the JV reach about 860,000 dunum which add up to about 53.4 percent of the JV’s area. As mentioned, about a quarter -220,000 dunum- are historic waqf state lands reaching back to the Ottoman Empire; the rest are Israeli-declared state lands, mostly between the years 1980-1993. The “State Land” declaration mechanism provided Israel with the ability to allocate the land as it saw fit, usually as a common practice for expanding settler agricultural activities in the area and limiting Palestinian access and mobility. For more about the mechanism of “State Lands” declaration, see B’tselem, Bimkom, Zartal and Eldar (2004).

1.5. Land Mines

Since 1967, Israel has planted hundreds of thousands of land mines in the Jordan Valley along the border with Jordan in preparation for a future clash. These minefields are spread over 33,000 dunum and are concentrated in 64 sites east of Road 90. The Jordanian side of the border has also suffered from a landmine problem, although the Jordanians have cleared most of their minefields so far, enabling the development of agricultural activity along the border.⁸⁸

87. See: “Settler Agriculture in the Area Closed by Order 151” in Kerem Navot (2015), p. 33; <http://www.keremnavot.org/a-locked-garden>

88. During 2011, the Israeli Knesset approved the establishment of a national mine clearance authority. The INMAA is currently involved of clearing over 120,000 mines planted in 1,000 dunam of the Jordan Valley, but the designation of these lands is yet to be seen.

Table 2: Summary of areas denied of Palestinian access in the Jordan Valley (sources, Betzelem, Kerem Navot, Survior corps)

Area denied from Palestinian usage in the JV	Dunum	% of JV area
Municipal Area of Settlements	191,143	11.8%
“State Lands”	861,397	53.4%
Closed Military Zones	736,000	45.7%
Nature reserves	317,890	20%
Minefields	33,000	2%
Areas blocked by security fence	2,500	0.15%
Total (subtracting overlapping areas)⁸⁹	1,266,000	78.5%

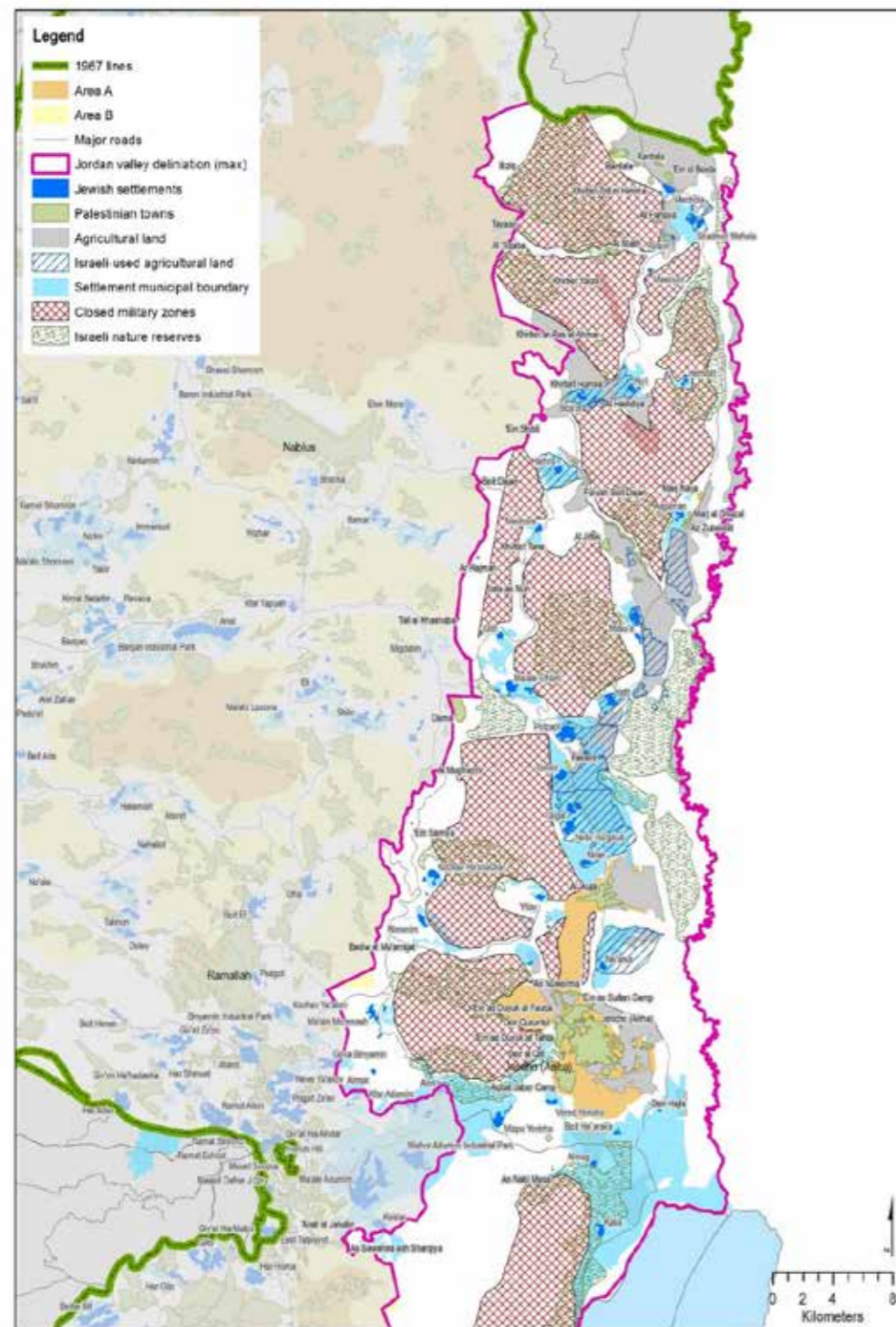
The overall territory allocated to the different Israeli municipalities in the JV adds up to 191,143 dunum, which stand for 11.8 percent of the territory. According to the B’tselem report, the overall territory under the jurisdiction of Israeli regional councils Biqat Hyarden, Megilot and Mateh Binyamin, plus the territory of local council Ma’aleh Efrayim, plus the municipal territory of the city Ma’aleh Adumin add up to 1,465,730 dunum which constitutes 90.1 percent of the JV and northern Dead Sea area.

Table 3: The built territory and jurisdiction territory of Israel settlements in the JV (Source- B’tselem 2011)

	Built area of Settlements in the JV	Municipal Territory of Settlements in the JV	Territory under the jurisdiction of Israeli regional councils Biqat Hyarden, Megilot, and Mateh Binyamin, plus the territory of local council Ma’aleh Efrayim, plus the municipal territory of the city Ma’aleh Adumin
In dunum	6,661	191,143	1,465,730
% of overall JV and NDS territory	0.41%	11.8%	90.1%
% of overall WB Territory	0.12%	3.4%	90.1%

89. See Map 4

Map 4: Compilation of Municipal Area of Settlements, cultivated lands, nature preserves and Closed Military Zones in the Jordan Valley



Maps 1-4: OCHA, ECF, Anan Jayyousi, Yehuda Greenfield-Gilat; Compiled by Dan Rothem for the Aix Group.

1.6. Development and Housing Impediments in the Jordan Valley

The combination of military zones, settlement, local and regional municipalities and Israeli-declared nature reserves does not only exclude Palestinian activity from almost 80 percent of the Jordan Valley area, but also has resulted in the utter segmentation of the area which is usually considered to be one territorial unit. The Israeli mechanism of structuring space not only creates diverse communities living apart from each other with fragile connections between them, but also facilitates a serious inhibitor to any Palestinian development effort in any of the Jordan Valley territory.

The situation on the ground dramatically contradicts both the Palestinian vision regarding the Jordan Valley, as well as the ability to generate positive change in utilizing the potential of the area. First, the JV is considered the “bread basket” of the future Palestinian state, meaning that the area is planned to be massively utilized as a source of agriculture as well as for other sources of economic growth. The current state of the land in the area denies any implementation of such a vision.

Second, and perhaps more importantly, the overall economic situation in the West Bank is heavily affected by current Israeli policies of land segmentation, poor access opportunities and lack of proper planning. As a result, essential economic sectors such as development housing and construction are dramatically inhibited, preventing a real “game changer” opportunity to impact the PA’s economy. The ability, therefore, to change the course of the Palestinian economy is very much dependent on the Palestinian ability to enhance development of the construction, tourism and agriculture sectors. In return, these sectors are heavily dependent on the Israeli policies of land use, movement restrictions and planning and development. In this logic, the key to fulfilling the Palestinian vision for the Jordan Valley, as well as boosting the Palestinian economy, lies in a dramatic change of the current development, planning and construction sectors- both in the JV and the West Bank, overall.

According to the 1995 interim agreement of the Oslo Process, the civil and security authority in Area A is granted to the Palestinians as well as the civil authorities in Area B. As a result, the planning, development and construction authorities in these areas are fully managed by the local and central Palestinian governmental authorities. According to the PCBS, the overall number of structures in the West Bank was 456,000 in 2010, but the amount of inhabited units was only 215,000. The Palestinian estimation of unit shortage by 2020 is about 300,000.⁹⁰

This situation relates to Areas A-B which are a small portion of the Jordan Valley’s overall territory, but hold almost 50 percent of the JV’s population. According to the World Bank reports, the municipal lands in Areas A-B throughout the West Bank (including the Jericho area) are almost fully exploited, while the privately owned land has become extremely expensive due to strong demand.⁹¹ Since the Palestinian planning lacked central navigation and strategy developments for many years, the result of the land utilization is currently much less efficient than desired.

90. Palestinian National Authority (2010), Ministry of Public Works and Housing, “Strategic Plan for Developing the Housing Sector in Palestine, Ramallah; Ministry of Public Works and Housing Publications.” January 2010, pp. 12-13; http://www.lacs.ps/documentsShow.aspx?ATT_ID=4778

91. World Bank (2009), p.25

1.7. Water in the JV

Palestine is among the countries with the scarcest renewable water resources per capita due to both natural and artificial constraints, amounting to around 70 cubic meters per capita per year for all purposes. This is far below the per capita water resources available in other countries in the Middle East and the world. At present, water demand exceeds the available water supply. The gap between water supply and water demand is growing due to population growth, a higher standard of living and the need to expand irrigated agriculture and industrialization.

Water supply and demand management along with access to water resources as well as wastewater treatment and reuse in the Jordan Valley were, and still are, negatively affected by the Israeli military measures; these have shaped the under-development of Palestine ever since. This practice has resulted in limited rural development and poor, if not negative, economic growth, resulting in an increase in poverty, poor health and sanitation conditions and physical and environmental deterioration.

At present, and mainly due to political constraints and population growth, water needs exceed the available water supply. The gap between the water supply and water needs is growing, emphasizing the need for the adoption of the integrated water resources management approach and the mobilization of any additional conventional and non-conventional water resources, thus helping to solve part of the existing problems of the water sector.

Since the start of the occupation in 1967, Israel has sought to control the Jordan Valley through a series of policies and actions. In fact, the past years of Israeli occupation policies, including increased water consumption by settlements, has reduced the Palestinian access to water resources. Civil Administration rules place additional constraints on Area C water planning and investment. Moreover, when combined with security, movement and access (M&A) restrictions and other Israeli interventions in the Jordan Valley, the application of these rules has presented a formidable, often unsurmountable, constraint for Palestinians to get water projects implemented. For example, the Civil Administration requirements on effluent quality and connection of settlements have prevented the implementation of many wastewater treatment plants from moving forward. Finally, water resources are not currently efficiently used in the Jordan Valley and scarce resources are being wasted. High rates of physical losses in conveyance and network supply systems reduce by one-third the water resources available for use, and wastewater reuse in agriculture is currently not utilized.

The main water resources in the Jordan Valley are groundwater, surface water, purchased water and cisterns. These different sources are described below.

1.8. Groundwater Sources

Groundwater is the main source of water in the Jordan Valley. The eastern aquifer system underlies the Jordan Valley. Currently, well water in the Jordan Valley is only available from the eastern aquifer system and access to ground water is tightly regulated by the Israeli Civil Administration. Few new wells have been authorized since 1967. Well water is used primarily to satisfy domestic and urban demand. Several springs from the eastern aquifer system provides some water to for domestic use, but is mainly used for agriculture.

Based on the data collected, Table 4 shows the total groundwater sources in the Jordan Valley available for Palestinians and divided according to its use (PWA, 2014).

Table 4: Groundwater Sources in the Jordan Valley

Type of Use	Groundwater Wells (Mcm/year)	Groundwater Springs (Mcm/year)	Total (Mcm/year)
Agriculture	7.946	17.105	25.051
Municipal	0.331	1.491	1.822
Total (Mcm/year)	8.277	18.596	26.873

Concerning the Israeli settlements in the Jordan Valley, data shows that some 9600 settlers lived in the Jordan Valley during the year 2015 (FoEME, 2015). These settlers consumed about 562,000 cubic meters per year for domestic purposes and some 47.7 MCM/year for agricultural purposes to irrigate about 50,000 dunum. This means that the average Israeli settler has almost 10 times more available water than the average Palestinian living in the area.

1.9. Surface Water Sources

Surface water in the Jordan Valley consists mainly of the Jordan River along with its tributaries and wadi floods in high rainfall years.

Wadis

Surface water flow in wadis is referred to as surface runoff, which depends mainly on quantities and duration of rainfall during the wet season. It was found that surface runoff occurs when rainfall exceeds 50 mm in one day or 70 mm in two consecutive days. The wadis in the Jordan Valley, eastern wadis, flow from the central mountain towards the Jordan Valley and contribute to the recharge of shallow aquifers and the Jordan River. Different studies on surface water show that some 13 Mcm/year could be utilized from surface flood water in major wadis flowing east by the construction of storage dams in these wadis (MOPIC, 1998). At present, the only utilized wadi is the Auja wadi through the newly constructed earth dam by the Ministry of Agriculture. The wadi can store a quantity of some 0.75 Mcm/year.

The Jordan River System

The Jordan River flows from north to south from an elevation of 2200 m above mean sea level at Mount Hermon to about 415 m below mean sea level at the Dead Sea. The Jordan River passes a straight distance of about 140 km with a river length of about 350 km due to its tortuous path. As collected from different studies, the natural flow of the river in the absence of extraction is estimated at 1300 -1800 MCM/year at the entrance to the Dead Sea.

The Palestinians in the West Bank had used and developed the water resources in the Jordan River Basin pre-1967. This improves their rights to the Jordan River resources, according to the International Water Law, as being the first party to use and develop the water resources (prior use). At present, however, Palestinians are not allowed to utilize any of their rights in the Jordan River. Most of the Jordan River riparians consume water to fulfill their needs from the basin, and the small quantity that reaches the West Bank is of bad quality and can neither be used for domestic purposes nor for irrigated agriculture. In addition, agricultural return flows and mismanagement of untreated wastewater by the Israeli settlements in the Jordan Valley are the main sources of pollution to the Lower Jordan River.

Cisterns

Based on the data collected from the different sources, it is estimated that the total volume of cisterns is about 0.36 MCM/year of which some 0.23 MCM/year goes for agricultural purposes and the remaining 0.13 MCM/year goes for domestic uses (PWA, 2012).

Purchased Water Sources

This source is based on purchasing water from the Israelis through the Israeli company Mekorot. The estimated purchased water for the year 2014 was 0.36 MCM/year for domestic uses which forms 1/8 of the supply for municipal uses in the Jordan Valley and 4 MCM/year in Tubas for agricultural purposes. Neither the number of wells nor the total abstraction of the Israeli wells within the West Bank is known for sure to the Palestinians.

Water Desalination

Desalination of brackish water to achieve acceptable levels of drinking water quality is an important option that is still not implemented in the Jordan Valley. The potential for such an option is growing, however, due to the increase in salinity levels in some of the existing wells in the area. In addition, saline springs such as Al-Fashkha and Al-Malih can be used partially or fully to desalinate enough quantities of water.

Treated Wastewater Reuse

Tubas and Jericho are the two Governorates in the West Bank with the lowest connection rate to a wastewater collection system. Approximately 83 percent of the population of the Jordan Valley is not connected to a wastewater collection system; the newly established Jericho wastewater treatment plant is the only plant available in the Valley.

1.10. Current Water Supply

Based on the data available, water supply has been divided into two categories. Those are a municipal water supply and an industrial water supply. In addition to the domestic supply, the municipal supply includes commercial, industrial, public and tourism water supplies, while the industrial supply is the agricultural water supply.

Municipal and Industrial Water Supply

Estimates of water supply and water consumption rates are based on data provided by responsible authorities, including the Palestinian Water Authority (PWA), the Ministry of Agriculture (MoA) and the West Bank Water Department (WBWD).

Urban and domestic uses consist of household, public, industrial, and commercial consumption. The current water supply database does not distinguish among the three categories. As mentioned above, water supply in the Jordan Valley is derived from the groundwater aquifer systems, a series of springs that emanate from the aquifers, and minor amounts of surface runoff in addition to purchased water and cisterns.

Based on the available data, the average per capita water supply in the Jordan Valley is 162 l/c/day with 6 unserved communities in the Jordan Valley. The difference between the supplied and consumed water is significant. This difference, termed “loss,” is composed of physical losses (such as leakage from transmission and distribution pipelines), meter losses (water that is actually delivered to the consumer but which is not registered because of a faulty water meter), and water that is delivered to unregistered connections that are not metered. Losses from the domestic and urban supply systems are significant. The average UFW in the Jordan Valley is 25 percent. This means that the average per capita water consumption is 122 l/c/day, not including losses, which is still a high value compared to other areas in the West Bank (PWA, 2014).

Finally, it should be mentioned that these supply rates are high compared to other areas in the West Bank, although it is much less than the Israeli municipal water supply of some 300 l/c/day.

Water Facilities

The Jordan Valley can be classified as an area with no proper water or wastewater facilities. This is true because:

1. No storage facilities exist in the area except for the newly constructed earth fill dam on Wadi Auja. For that, surface runoff is not utilized properly. Different studies mention some 13 MCM/year of water that can be utilized through the construction of proper harvesting facilities.
2. No treatment plants exist in the Jordan Valley except for the newly established plant in Jericho. Most of the generated wastewater is dumped in cesspits or discharged into open channels and natural wadis. It should also be mentioned that wastewater flows untreated from outside the Jordan Valley to the Jordan Valley through wadis and natural channels.
3. No desalination plants exist in the Jordan Valley despite the fact that some groundwater wells start to read high salinity values.
4. No real conveyance system exists in the Jordan Valley which would allow for better water management on the JV level. Also, no national carrier exists like the East Ghor Canal in Jordan or the national carrier in Israel.

Water Quality

Based on the data available at PWA, a partial analysis including only chloride and nitrate content is possible. The data available is the chloride and nitrate content for the period 2005 to 2014 for selected representative wells. In the Jordan Valley, many wells show a gradual increase in nitrate concentrations over time, which is due to the significant agricultural activities in the area. Meanwhile, the nitrate concentration shows a general increase in the Jordan Valley area from 2007 to 2014. For chloride, it was observed from the annual records (2005-2014) that none of the wells located in the Jordan Valley exceed the acceptable limit. However, there is a gentle increasing trend in chloride concentration in some wells.

1.11. Challenges Related to Water

1. **Inequitable distribution and Israeli Control of West Bank Water Resources:** The West Bank groundwater resources are controlled by the Israeli authorities, which abstract approximately 85 percent of the groundwater for their own purposes, including for the settlements on the West Bank. Meanwhile the Jordan River surface water resources are diverted fully by Israel and Jordan, without anything being allocated to the Palestinians. On the other hand, Israel transfers and sells about 50 MCM per year of water from Israel to the West Bank.
2. **Destruction of vital water infrastructure:** Conflicts between Israel and Palestine in the West Bank have caused damages and partial or full destruction of the existing Palestinian water infrastructure, including Palestinian wells and pipelines, and the closing off of water supply networks.
1. **Inadequate infrastructure development capacities:** In those cases where the Palestinians have full control over their infrastructure, the Palestinian Water Authority is often faced with the lack of local infrastructure development capacities, which slows down construction and repair works.
2. **Lack of wastewater management:** The wastewater collection and treatment facilities in the West Bank are not advanced. Only a small portion of the Palestinian wastewater is treated and reused. On the other hand, various new treatment plants are currently under construction in the West Bank, providing new opportunities to embark on larger scale reuse of wastewater for agricultural purposes.
3. **Lack of fund management capacities:** Palestine depends largely on external international funding for its infrastructure investments. These funds are sometimes put on hold due to changing political positions by the donor organizations. Furthermore, these funds depend on particular donor development policies, which might deviate from Palestinian national policies. All of this limits Palestinian freedom in terms of money allocation and funds management.
4. **Water losses:** Many of the water supply systems in Palestine are old and have high rates of un-accounted for water. This includes both physical water losses as well as water supply that is not paid for.
5. **Information Shortage:** There is a lack of hydrological monitoring capacity in Palestine, reducing the possibility to fully understand the behavior and to manage the groundwater resources.
6. **Lack of IWRM:** The Palestinian Authority does not have adequate means and capacities to implement Fully Integrated Water Resources Management principles, leading to sub-optimal management of the water resources.

1.12. Electricity

Electric power supply in the Jordan Valley differs from the rest of Palestine: In the Jordan Valley it has two different sources, the first is Israeli and is not currently stable, due to insufficient capacity of the facilities. The second is from inter-connection with Jordan: Palestine and Jordan have connected the Palestinian power grid to the Jordanian grid with a 33kV transmission line through the King Abdullah Bridge, with a capacity of 20MW. A transformer sub-station is built in the south of Jericho City and connected to the existing network. The other Palestinian communities get their electricity from JDECO (Jerusalem District Electricity Company) or from the Israeli company.

1.13. The Dead Sea

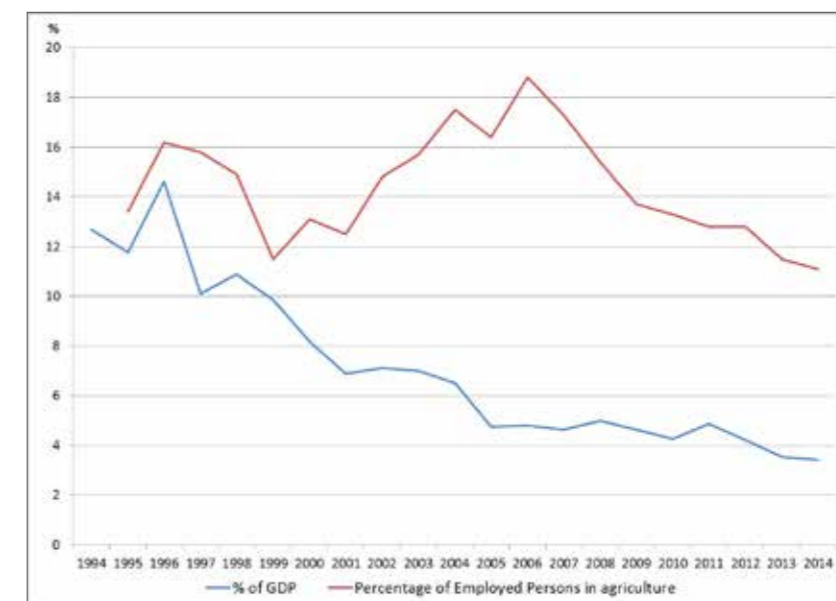
The main natural resource in the JV in addition to land and water seems to be the Dead Sea. So far two countries, Israel and Jordan, extract minerals from this salt-lake. Palestine, having a shore on the Dead Sea, has claims on its natural resources, but is currently not benefiting from these resources. The extraction of minerals from the Dead Sea has created severe environmental and geological problems. This calls for significant cooperation between the three involved parties, Palestine, Jordan and Israel, to cope with the challenges and agree on a common future policy. Nevertheless, the Dead Sea as a natural resource would not only be a source of minerals mining, but also an attractive point for the tourism industry.

2. Consequences for Economic Performance

2.1. Agriculture

The West Bank's agriculture sector, an important source of living for the Palestinians for many years, has been continuously diminishing during the past twenty years. Figure 1 reveals the ongoing trend downwards of the sector's share of GDP which declined from 12.7 percent in 1994 to 3.4 percent in 2014. The employment-share of the sector, on the other hand, had increased during the years of Intifada but has been shrinking since 2007. A possible explanation for these changes is the mobility of workers to higher value added sectors, specifically, services which have increased their share in employment from 22.7 percent in 1994 to 28.5 percent in 2014.

Figure 1: Share of the Agriculture Sector in GDP and in Employment

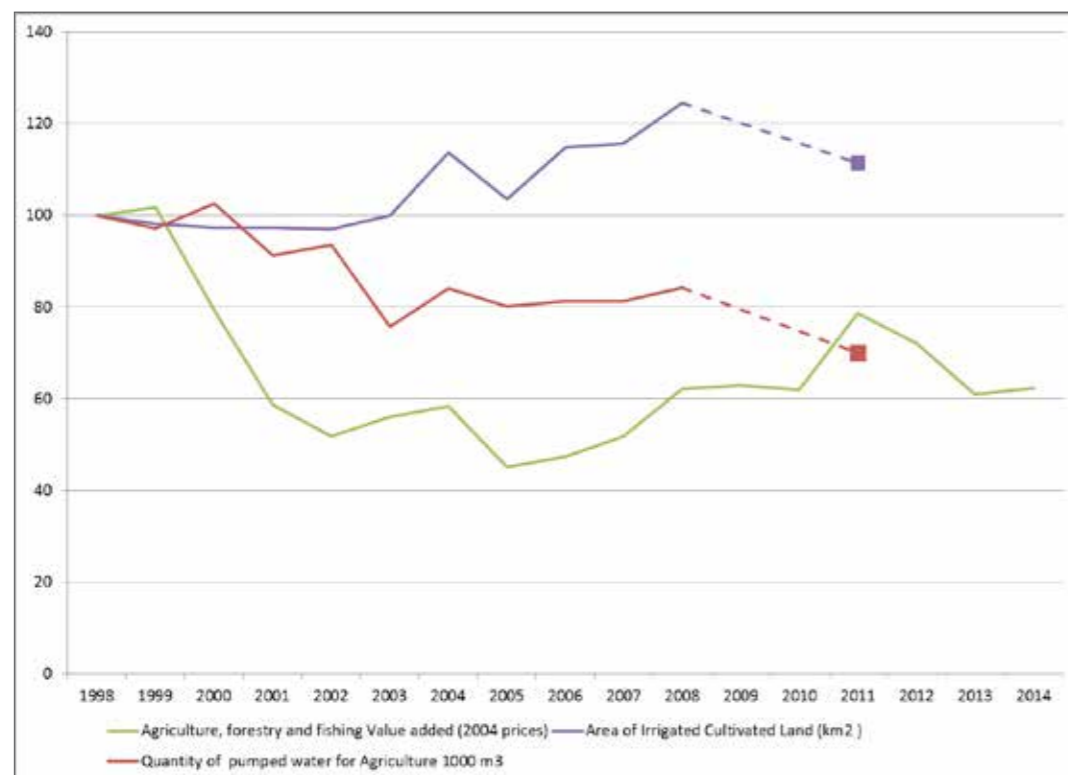


Source: PCBS National Accounts and Labor Force Survey.

In order to shed light on the decline in shares of agriculture and understand if it is the result of relatively higher growth in other sectors or an inherent problem in the West Bank’s agriculture, we focus on agriculture production during the years 1998-2011, the years for which data is available. As shown in Figure 2, the value added by the agriculture sector in the West Bank has declined by nearly 40 percent during the first decade of the analyzed period, while some improvement and higher value added is evident in 2011. Nevertheless, the current estimates of 2014 are again very similar to those of 2008, emphasizing the sector’s inability to restore its income in real values back to the original levels of 1998, not to mention the option of improving even more.

In an attempt to find explanations to that barrier, we looked at the area of cultivated land in the West Bank and the area of irrigated cultivated land. The former has been constant during those years according to the PCBS statistics, while the latter have expanded and replaced some of the rain-fed areas in the West Bank. The reason for this is climate change and droughts which pushed the farmers to substitute their rain-fed crops with irrigated crops. Yet, while irrigated land areas have increased, quantities of water pumped from wells in the West Bank have decreased by about 30 percent. We do not have accurate data on the reasons for this decline; nevertheless, it can be assumed that a few factors have been involved in this process: substitution of underground water with other sources of water such as desalination plants and imported water from Israel. It might also be due to increased efficiency in water usage by farmers. Another factor is the increasing Israeli restrictions on pumping from wells by Palestinians, which lead to acute water shortages for farmers and result in the dismal situation of diminishing value added and the loss of this important source of income for the Palestinians.

Figure 2: Changes in Agriculture Value Added, Area of Irrigated Land and Water Quantities Pumped from Wells (Index, 1998=100)



Source: PCBS Agriculture Survey.

The overall area of Jordan Valley (JV) is about 1,638,000 dunum, including the northern edge of the Dead Sea. The Israeli mapping of the region is slightly different, measuring the area as 1,611,723 dunum, including the northern edge of the Dead Sea. The area of the JV constitutes 28-29 percent of the overall West Bank area (5,652,000 according to the Baker Institute report, from 2010). The majority of the northern part is open area (80.5 percent), as is the southern part of the JV, along the shores of the Dead Sea.

Table 5: Land Use and Area in the Jordan Valley

Land Use Class	Estimated Area (dunum)	Percentage from Total Area
High value agricultural areas	152,000	15.2%
Medium value agricultural areas	8,000	0.8%
Low value agricultural areas	8,000	0.8%
Open area (Natural pasture/ grass, Wadis, uncultivated)	748,000	74.8%
Built-up areas	31,000	3.1%
Palestinian communities	6,000	0.6%
Forests	1,000	0.1%
Undefined	31,000	3.1%
Settlements	15,000	1.5%
Total	1,000,000	100%

The total cultivated area ranges between 152,000-168,000 dunum, while the actual Palestinian cultivated area is 61,508 productive dunum only, due to extensive cultivation carried out by the JV’s settlements’ agriculture activity. The Palestinian cultivated land is mostly in the Jericho area and the main crops are dates, citrus, vegetables and medical herbs.

The Jordan Valley has been considered the bread basket of Palestine since ancient history due to its location in the largest open land in Palestine, its water resources, especially springs and surface water, its fertile soil and its warm climate.

Farming in the Jordan Valley can be characterized by three main tenure types (Jordan Valley Master Plan, 2014). The first is the sharecropping system, which involves several tenant families. Annual profits are then split 50–50 between the tenants and the landowner. The second system is constituted by owner-operated farms. According to the Jericho Farmers Union, this group of farms includes small plots of land (between 10 and 15 dunum) that in rare cases reach a larger extension (60 dunum) and are mostly distributed inside the city. Often these farms develop a non-specialized agriculture with a rather low productivity. Fragments of non-irrigated land are used for sheep and goat raising.

A third group of farms are operated by their owners who use seasonal or long term workers hired on cash wages. The majority of these farms produce fruits and vegetables.

In addition to the previous categories, there are big farms in the Jordan Valley that use large-size plots of land: The Mashrua AlAlami project and the Al-Junedi. While milk and sheep and goat meat production is widespread, cows are raised only by these larger farms. They are very important in the production of milk and dairy products. All agriculture production is highly mechanized, with the partial exception of the owner-operated system. Production varies between vegetables, fruits, crops, dates and livestock. The production of vegetables (tomatoes, cucumbers, aubergines, peppers and greens) and fruits (bananas, grapes, oranges and mandarins) typical of this region has shown a diminishing trend in last few years due to a declining supply of water and to problems of salinity of the soil. On the other hand, the production of dates, localized mostly in the southern and eastern areas of the Jordan Valley, is gaining in importance. It is a high quality product and very outward market-oriented.

Vegetables constitute 67 percent of the total irrigated areas. Fruit trees form about 26.5 percent (mainly olives), while field crops constitute 6.5 percent. Nearly 97.3 percent of the fruit trees are cultivated under rain-fed conditions, with the remainder being irrigated. Although irrigated fruit trees occupy limited areas, they contribute approximately 37 percent to the total fruit tree production (PCBS, 2010).

During the period 1967 through 2005, a mix of economic and political considerations shaped Palestinian agricultural practices. In irrigated agriculture, economic issues forced Palestinians to shift from fruit trees to high cash value crops such as vegetables.

In rain-fed farming, Palestinians shifted from field crops to olives because income generated from field crops is low. Olives do not require a great deal of work, and the planting of olives indicates that the land is cultivated, which protects it from Israeli assaults. As a result, Palestinian farming has moved away from agricultural food security. Palestine has not been self-sufficient in producing field crops and livestock, mainly red meat and milk, for a long while.

In the Jordan Valley, the total irrigable area is about 163,000 dunum, while the total irrigated area is 61,500 productive dunum.⁹² The main crops are citrus, vegetables, dates and medical herbs. The Jericho Governorate is considered the productive core of Palestine with respect to vegetables and fruits, with specialized and high quality products that have attractive potential on the international markets. According to the PCBS, the total area of plant production in the Jericho Governorate in the agricultural year 2012/2013 was 49,272 dunum. Irrigated agriculture largely dominates Jericho's sector, forming almost 100percent of the cultivated area in 2012. According to the PCBS's 2010 Agricultural Census, Jericho and the AlAghwar Governorate represent 20.7 percent of the total area cultivated with vegetables in the Palestinian Territory (PCBS, 2011).

Agriculture is diffused in the area and it mostly depends on old irrigation systems. These are often poorly managed and maintained because of a scarcity of funds and because of political and other impediments to improving the infrastructure. Farmers own few dunum, and the quantity of irrigation water is not enough to optimize productivity. Residents of the Jordan Valley face difficult living conditions: limited access to water resources; movement restrictions (residence, farming and grazing activities); limits in the expansion of the agricultural sector; policies that destroy agricultural activity; confiscation of fertile land and control of Palestinian access to natural reserves and resources.

92. Production dunum means the actual dunum irrigated, so if a dunum is used to grow two crops per season then it is counted twice while the actual area represents the area without considering the number of cropping seasons.

The total production of livestock in the Jericho Governorate during the agricultural year 2013/2014 reached 1,711 tons of meat (red and white), 5,945 tons of milk, 2 million eggs and 13 tons of honey (PCBS, 2015). The contributions of different sectors to the total livestock production value of the Jericho Governorate were as follows: 57.24 percent meat, 39.14 percent dairy, 1.4 percent eggs, 1.08 percent honey and 1.13 percent in the 'other livestock' category.

The main types of livestock production are:

1. Cattle
2. Sheep and Goats
3. Poultry
4. Beehives

Compared to the year 1997/1998, there was a decrease of approximately 11.8 percent in total production value of meat (red), an increase of 14.6 percent on the total production value of milk, and an increase of 98.2 percent on the total egg production value. Additionally, there was an 86.7 percent decrease in the production value of honey.

2.1a. Agriculture and Employment

Putting more land under irrigation requires the use of resources in addition to water, especially labor. Based on available land use maps, the additional land that could be put under irrigation in the JV is about 120,000 dunum. The labor requirements per irrigated dunum range from (30-480) man-hours per season based on current practices. The average labor requirement per dunum for all representative crops per season is 152 man-hours. If the laborer works 8 hours a day, then labor requirement per dunum is $(152 / 8 = 19 \text{ man-days})$ per season. The total man-days generated by including the additional irrigable land tends to be 2.28 million days. Dividing this figure by 260 working man-days per year, it can be concluded that about 8,770 agricultural jobs can be generated on full time basis [based on our own calculations].

2.1b. Agriculture and Income

Putting more land under irrigation generates more income to farmers. The additional land that could be put under irrigation is 120,000 dunum. The data available shows income generated per dunum for various irrigated crops ranges from 860-33,760 NIS per season. Average income generated per dunum of all representative crops per season is 6,097 NIS [based on data collected from Ministry of Agriculture]. If the 120,000 additional dunum were put under irrigation, the total additional generated income would be about 730 million NIS, which is equivalent to approximately \$200 million. Dividing this number by the number of jobs created indicates that the one month is worth about 6,937 NIS which seems to be very profitable compared to other incomes in Palestine.

2.2. Tourism

The tourism sector is one of the more important economic activities in the Jordan Valley, especially in Jericho. The area is endowed with a large number of archeological and touristic sites (see Appendix A). The entire Jordan Valley is a unique region that attracts visitors from around the world. It has unique geographical and environmental characteristics that cannot be found anywhere else. Tourism relies on attractions in the fields of religion, archeology, history and ecology with numerous sites provided in the Jordan Valley.

New tourist facilities have developed in recent years in Jericho as it hosts a small number of hotels, resorts, and guesthouses (sometimes run by religious institutions), even if international guided groups usually stay in Jericho only for one day. There are some tourist-oriented restaurants and few tourist businesses such as low quality souvenir shops. Palestine generally is rich in landscape and wildlife. However, the challenges to develop tourism in the Jordan Valley include the lack of a clear national tourism development strategy; a lack of resources (both financial and human) to manage, develop and promote Palestinian destinations. In addition, insufficient data to conduct reliable planning, a run-down tourism infrastructure and limited diversification in tourism offerings also form major challenges to developing the tourism sector.

Currently the tourist sector is far below its potential. Internal tourism uses holiday houses, so that income related to hospitality is low. In addition, there is a lack of high quality services and facilities for tourists, like a proper market for the selling of typical local products (cheese, dates, etc); and the handicraft sector is not developed. There is still a narrow vision of tourism, without connections to the different key attractions and with other sectors (for instance agriculture, handicrafts, etc.).

Different kinds of tourism could be developed (a combination of health, leisure, sport/adventure, ecological, agricultural, cultural and religious tourism). The key attractions should be interconnected and sites outside the city (e.g. the oasis, the Al Auja springs, Wadi el Qelt, the Dead Sea, etc) should be included. Didactic and educational tourism could be developed surrounding the area's natural resources, which should be considered a fundamental part of its tourist attractions (including new forms of eco-tourism such as bird watching, etc.).

Tourism had started to increase since 1994 until the sharp crisis of the Second Intifada in 2000. However, in recent years, it has recovered. Tourism in Palestine has seen something of a turnaround over the last 5 years and currently tourism accounts for around 14 percent of GDP (Ministry of Tourism and Antiquities (MOTA), Visitor Information Unpublished Data, 2013). The potential for tourism in the JV can be projected by the 3.5 million visits to tourist sites in Palestine between January and August 2012. Tourists originate from a wide array of countries: Palestinians residing in Israel made up the largest number of inbound visitors with 35 percent, followed by 12 percent from Russia, 5 percent each from the United States, Italy and Poland, and 3 percent each from Germany and Indonesia, all of whom are interested in the area's historical and biblical sites. Key tourist attractions include archaeological sites (Tel esSultan and Hisham's Palace are the most visited).

MOTA (Ministry of Tourism and Antiques) is working at renewing its tourism law. The basic law of 1968 with its modifications and instructions will have to adapt to current challenges and needs. At the level of the tourism professions, the law will identify the variety of accommodations and agents, restaurants and other facilities. It will also indicate a general structure for the public-private joint leading council that will carry responsibilities in marketing and development.

A new hotel classification system is underway and is expected to have all hotels in Palestine classified between 1-5 stars. An ad-hoc joint committee was established for this purpose. Other initiatives are also underway on the level of tourism signage, tourism education and the rehabilitation of sites. Additionally, the enforcement of law and order is a main concern of almost all levels of society and, as such, impacts all economic sectors too.

2.3 Industry

Industrial and manufacturing activities can be classified in two main sectors: the first concerns agriculture and food processing (e.g. date factories, dairy products, meat processing factories, etc.). The industrial activities in the city are composed of small and medium workshops and factories and professional workshops (carpentries, blacksmiths, etc.). The second is manufacturing, such as basic mechanic firms, light steel and iron industry. The larger enterprises having 30 to 60 employees, such as the iron factory producing construction iron bars and the meat processing factory, are located inside Jericho. The mineral water production premises, like the Jericho Natural Water Company, are located outside of the city.

There are five Governorates that are involved in the JV (namely Tubas, Jericho, Nablus, Ramallah and Al-Bireh, and Jerusalem). Officially, there are no industrial facilities in Tubas Governorate. As for Jericho, the following are the key existing industrial activities: aluminum windows and doors, bricks, clothes, iron products, meat processing, metal windows and doors, plastic packing materials, tiles, tannery and wooden furniture.

Analyzing the situation in the city of Jericho, which is a hub for transportation and industrial activities, the commercial and service enterprises represent more than half of the total enterprises (regular farms excluded). Jericho differs in some ways from the rest of the communities in the JV, but is similar when it comes to having small grocery stores and basic service enterprises. However, the Jericho area also includes enterprises related to tourism. According to Jericho's Chamber of Commerce, there are almost 600 registered economic enterprises in Jericho, of which 460 were listed as members of the Chamber of Commerce in 2011.

2.4. Social Services

2.4a. Education

Education services are weak, due to small and widely dispersed villages. Local schools in most villages are only of an elementary level (6 years of schooling), which means that pupils going into higher classes are obliged to commute (mostly on foot) to schools in other villages.

The Jericho Governorate has just one educational directorate, with the governmental sector having the biggest share of schools there (approximately 67.7 percent of the total number of educational institutes). The directorate of Jericho is responsible of all schools in the governorate, both state and private, having the control of professional certificates and the adaptation of school facilities.

In the JV, there are 33 schools, 16 of which are located in the municipality of Jericho and 3 in the camps (2 in Aqbet Jaber, 1 in Ein Al Sultan); the others are in the villages like Al Auja, Fasayel and Zubeydat. There are 5 schools which are administered by UNRWA, of which one is for females only. The private sector also has 5 schools, all of which are coeducational. Most of the private schools are run by Christian associations and orders.

Among the students in the Jericho Governorate, 49.8 percent attend governmental schools, while 14.7 percent attend private schools and 35.5 percent UNRWA run schools. There is no significant difference between the participation of females and males in the educational system; males constitute 48.9 percent and females constitute 51.1 percent of the students (MOHE, 2012).

There are 551 nonresident students (from the camps and from the rest of the governorate) who study in Jericho. Only 2 vocational training centers are present in the region, located in Jericho in

the area of Jerusalem Street, and there is a lack of governmental technical schools (agricultural, industrial, commercial). Although there is a school for students with learning difficulties and a small center with a capacity of 30 students for persons with disabilities belonging to the municipality of Jericho, in general schools for the disabled are insufficient.

There is a shortage of classrooms in the JV, and many schools operate on a double shift system. In terms of class size, in the governmental sector the average is of 24.9 students per class, whereas in UNRWA run schools there are 34.5 students per class, and in the private sector 28.1 (MOHE, 2012). Concerning upper level education, university centers are located only in the city of Jericho: a branch of the AlQuds Open University was opened in 1997 and is currently attended by 1,000 students studying in the areas of Technology and Applied Sciences, Administrative and Economic Sciences and Education. The Independent University for Military Science was founded in 2007 and accounts for some 1,000 students.

2.4b. Health Services

Similarly, health services are noticeably dismal. It is true that nearly all villages have public clinics, but in most cases those clinics are grossly deficient in medical staff and supplies. According to PCBS reports, in 2010 there were 1 hospital and 19 health care centers in the Jericho Governorate, with 58 percent of these being run by the governmental sector. Specifically, there are, a primary health care center, a YMCA (center for women, pregnancy and babies up to 3 years old) and a 54-patient hospital which are located in the city center of Jericho (PC 2011 and interview with Directorate of Health).

There are 3 public clinics of primary level located in the region: 1 in Nw'eima, 1 in Ein Dyuk IlFouqa and 1 in Ein Duyuk Tahta. There are 5 other district clinics of secondary level are located in the surrounding villages. Some 4,000-4,500 persons per month use the health facilities in Jericho. There are private health care facilities present in the region: 1 clinic, 3 medical centers (Jericho Medical Center, Al Eslah Center, Medicare) and several relief agencies, of which 4 are run by NGOs and 4 run by UNRWA. However, most of the health care facilities, especially for specialized or high level services, are located in Jericho City, or even outside the Governorate (in Ramallah), which means great difficulties for the people from distant villages in reaching health facilities. Subsequently, most of the villages within the JV depend on the primary health care through contributions from the Ministry of Health and Medical Relief Committee.

3. Policies That Could Change the Dismal Conditions

3.1. The Developmental Vision

The long term developmental vision for the Palestinian side of the Jordan Valley is anchored in the integration of economic sectors with a focus on sustainable development. The vision incorporates protection of the environmental and cultural resources of the Valley with sustainable economic development. The latter should focus on infrastructure, especially for agriculture and tourism. The implementation of integrated policies for the industrial sector should also address the needs of the population. A central part of meeting economic development priorities is to improve the living conditions by rehabilitating the urban centers of the JV in order to support productive and commercial activities.

Being part of the overall economic capacity of the Palestinian economy, the economic potential of the JV should be utilized fully in all of its dimensions. The JV's agriculture, natural resources, tourism,

industry, services and housing should all be integrated in order to ensure that the region takes its place as a key component of overall Palestinian economic growth and development. The policies and general approach that led to the current negative state of affairs should be changed. Clearly, security arguments should not be used indiscriminately to justify the lack of economic activities by Palestinians in the JV.

The main argument for the development of the Jordan Valley and its transformation into a significant income generating region can be realized in the short run with measures consistent with a long run strategy. This requires the adoption of appropriate policies by both the Israeli and Palestinian authorities, specifically regarding Area C, to be implemented immediately in the JV, even before a political agreement is achieved and the formulation of a permanent status agreement is finalized.

The Development Vision assumes that Palestinian agriculture in the JV has access to and use of private and public arable land, enjoys equitable distribution of water resources, proper capital investment and modern technologies. In addition, Palestinians will have a gradual access to and control of natural resources and have full control of planning and zoning (including, particularly, for developing urban areas).

3.2. Planning and Construction Sectors in the West Bank

Although the distinction between Areas A-B and C is somewhat artificial (as most Palestinians live in Area A, but their land reserves, agriculture areas and transportation networks are located in Areas B-C), one can say that in Area A, the development, construction and real estate markets are more or less independent, holding strong linkage to the Israeli economy. According to a 2009 USAID report, the Palestinian construction and development markets are constituted from approximately 350 companies in the fields of construction materials, contracting, infrastructure works and earth and water projects.⁹³ A Portland Trust report from 2012 states that the development sector constitutes 14 percent of the Palestinian GDP.⁹⁴ According to this report, the sector can generate 65,000 new jobs and a growth of \$2.8 billion by 2030, yet the challenges surrounding this sector are significant, especially in the JV:

- In order to create a sufficient number of housing units which can be afforded by Palestinians in Area A, there is a crucial need for large scale projects. These are almost unavailable in the Jordan Valley, as the area's GDP per capita is among the lowest in the West Bank.
- The sector is not regulated or coordinated by any sort of governmental entity, thus no deep familiarity with trends of supply and demand is created. Intensive activity of unregulated actors in the sector (private contractors, unregistered companies and self-construction) drains most of the development efforts and weakens the ability of registered companies to build in larger quantities. This problem also undermines the ability of the sector to recruit and train a skilled workforce and use advanced building technologies- a change that is estimated to shorten project length by up to 50 percent.
- Since most of the construction materials are imported mostly from Israel, especially concrete and steel, the cost of such materials is marked-up due to middleman agents. In the beginning of 2013, a severe shortage of cement in Israel caused an overall construction freeze in the West Bank, a fact that creates a significant increase in expenses. Overall, the situation increased construction

93. USAID (2009), p. 19.

<http://www.ppu.edu/ppuittc/sites/default/files/The%20Current%20Status%20of%20the%20Industrial%20Sector%20in%20Palestine.pdf>

94. The Portland Trust (2012), p. 49.

materials costs by 35 percent - 50 percent.⁹⁵

- The poor economic situation in the JV increases the sense of uncertainty and prevents local and international investments in prospective projects, which in return reduces the willingness of local and international financial institutions to provide credit to the sector.

3.3. Area C Development Obstacles

...Area C is key to future Palestinian economic development. The decisive negative economic impact of Israeli restrictions has been analyzed in many reports produced by the World Bank and other development agencies over the past decade... Within this setting, Area C is particularly important because it is either off limits for Palestinian economic activity, or only accessible with considerable difficulty and often at prohibitive cost. Since Area C is where the majority of the West Bank's natural resources lie, the impact of these restrictions... (A World Bank Study, Area C and the Future of the Palestinian Economy, The World Bank, October 2013 p. 2).

The Jordan Valley consists mostly of Area C. Subsequently, Israeli control over Area C has a critical impact over the residents of the JV. As the World Bank Study from 2013 indicates, although the majority of the population resides in Areas A-B, the territorial reserves for future development lay entirely in Area C. Area C also holds the potential for mining, water sources utilization, agriculture, pasture, industrial zones and tourism development. In fact, the most dominant factor impacting the Palestinian daily-life in most of the Jordan Valley is the Israeli Civil Administration in the region.

Although the efforts invested in large scale, strategic planning in the PA are present, these appear after many years in which there was not much Palestinian regional planning in the West Bank. Currently, the PA is in the midst of an effort to transform Ottoman and Jordanian master plans (known as "Regional Master plans") and rural master plans prepared by the Civil Administration during the 1990's into a modern-day, comprehensive plan known as the Palestinian "National Spatial Plan" (NSP). Yet, most of the developments in the PA were built lacking the level of strategic national strategy or any other sort of "meta guidance." As a result, the ability of the PA to promote large development projects is limited, and exposed to risks of false management, internal contradictions in planning policy, inefficiency and sometimes even corruption.

According to a "Bimkom" organization report from 2008, in the few areas where Palestinian development is still possible, the Civil Administration imposes many limitations narrowing the available development land to about 0.5 percent of the overall area.⁹⁶ According to this report, the Civil Administration is delaying the preparation of master plans to 90 percent of the villages in Area C, thus essentially preventing their development. As for 2016, the number of prepared master plans reached 108 (most of them in the Jordan Valley), about 70 were submitted to the approval process but only 3 were approved. Plus, the problem with the approved plans is that they are not aligned with the future development needs of the local population. Despite all of the above, many involved in the planning situation of Area C agree that in recent years the Civil Administration is attempting to expand cooperation with the local population and the PA.

Despite the expanded cooperation, the status of "illegal construction" (as proclaimed by the Israeli authorities) has become most common in Area C. According the Civil Administration's data, between the years 2000-2012, the Palestinians submitted 3,750 building permits but only 211 were granted

approval.⁹⁷ Simultaneously, the number of demolition orders issued by the Civil Administration during these years was an average of about 750 annually. The overall amount of structures demolished between the years 2000-2012 was almost 3,000, and OCHA's report from 2014 indicates a record high of 145 structure demolitions occurred during August 2014.⁹⁸

The status of infrastructure and services is affected by this situation as the Civil Administration only issues building permits for schools, clinics, roads and infrastructure facilities to villages with approved master plans. Civil aid NGOs as well as the PA report long bureaucratic processes for permits, and some even proclaim that the Civil Administration is the main obstacle to the implementation of infrastructure in the Jordan Valley.⁹⁹ The infrastructure challenges also spill into Areas A-B since, in most cases, its development also requires the development of contiguous regional master plans. Unfortunately, the planning continuity is disrupted by the artificial division between Areas A, B and C.

3.4. The Role of the Jordan Valley in the NSP (Palestinian National Spatial Plan)

Since 2010, the Palestinian Authority, with assistance of the UNDP, has invested major efforts in the development of a comprehensive spatial plan for the West Bank. The Palestinian National Spatial Plan (NSP) aims to amalgamate the future Palestinian State's planning, development trajectories, infrastructure, employment policy, land preservation, urban development and housing strategies into one coordinated national-scale plan. The document has not been completed yet - and many parts are unknown to the public- due to the significant political sensitivities involved. Nevertheless, the principles of the plan can highlight the major strategies the Palestinians have chosen to adopt and delineate a clearer vision regarding the West Bank in general and the Jordan Valley in particular.

The most dominant principle derived from the NSP is the clear attempt to densify and thicken existing localities rather than building brand new ones (such as Rawabi, which faces scrutiny on many levels). The rationale of this principle is that most Palestinian cities were developed and built without a general comprehensive plan, thus lacking urban planning strategies that characterize modern cities. As an alternative to creating new cities, the NSP aspires to implement modern standards of planning to existing towns and cities while highlighting new demographic and services goals. This philosophy, nowadays common in global planning practices, is considered a more sustainable, cost-effective approach to the alternative of creating new localities. This approach also strengthens the local government involvement in the planning process, a layer of government that is considered both crucial to the process as well as a better evaluator of the projects in mind.

This approach also clarifies the role of the Jordan Valley within the general NSP: Rather than serving as a blank slate, a "tabula rasa," for vast urban sprawl, the land resources and potential of the JV must be considered in a rather more sophisticated manner. In short, the proposals of the NSP rightfully aims to keep most of the Jordan Valley vacant land as a resource for a multi-layered strategy of development, relating to agriculture, industry, tourism, employment, education and recreation.

Another significant factor in the NSP is the preservation of agricultural tradition as a major factor in the design of the Palestinian space. The meaning of this principle is that special attention will be invested in the preservation of croplands in their original zoning designation despite the attempt to establish a modern Palestinian economy. The NSP's approach implies that the agricultural landscape of the rural Palestinian space will not only continue to play a role in the overall Palestinian economy

95. Lavi (2012).

96. See: Bimkom (2008), pp. 17-18.

97. B'tselem, Israel Policy in the Jordan Valley in Northern Dead Sea (Hebrew), May 2011. p. 14. OCHA (2015), The Humanitarian Monitor for September 2015, Jerusalem; OCHA Publications.

98. http://www.ochaopt.org/documents/ocha_opt_the_humanitarian_monitor_2014_10_02_hebrew.pdf p. 10.

99. The World Bank (2009), p. 54.

but also holds cultural heritage values. This approach also determines that future populations that will reside in the Palestinian State (natural growth, homecoming refugees, etc.) will settle in the urban parts of the West Bank, based on existing cities, towns and villages.

The core of the NSP future development plan is organized around the layout of Road 60 which connects the different parts of the West Bank. In contradiction to mega-plans with a futuristic nature such as RAND Institute's "Arc" creating a main transportation artery east to Road 60 and vast new urban developments, the NSP aligns with the current reality, especially to a development corridor 10 Km wide along the road. In any case, both the NSP and the ARC relate to the Jordan Valley in the same manner- not as land reserves for construction, but as an area that will maintain values relating to agriculture, nature, tourism and industry.

Not only parts of the Jordan Valley, but also the desert's edge (the south-eastern territory of the West Bank, known today as the Judean Desert), remain -according to the NSP - a mostly non-populated area designated for agriculture, tourism and landscape preservation. This approach implies that future development in the Jordan Valley will focus its urban/housing efforts in the urban surroundings of Jericho, and perhaps Jiftlik, in the north of the JV; the rest of the JV will balance agricultural communities and croplands, combined with tourism development along the Jordan River Bank and the northwest quarter of the Dead Sea.

3.5. Policies for Agriculture

The development of Palestinian agriculture in the JV is probably the most promising economic activity in the short run. As mentioned earlier, the JV is characterized by significant areas of arable land which is in great part either unutilized or underutilized. The new policy will require the utilization of 40,000 additional dunum in the short and medium terms, and the other 60,000 dunum that are under the control of the settlements and the security zone areas to be utilized in the medium and long terms. That will include in addition to land reclamation activities, the supply of adequate amounts of water, the investment of appropriate capital in modern equipment, the use of updated production technologies and the availability of the human resources. The new policy could yield a total annual value added of \$200 million. This estimate is based on actual performance of agriculture in the JV on both the West Bank and East Bank.

Our present study shows that the fertile land in the JV is either legally owned by private Palestinians, is publicly owned or has an un-established legal ownership; in all the above cases the land belongs to national resources of the future Palestinian state and should be activated to serve its economic goals. The current restrictions which prohibit access to the private land by its owners and cultivation of the land should be lifted. The arrangements concerning state land should involve rational allocation of land according to distribution principles to be decided upon by the Palestinian Authority which should control publicly owned properties. This will require the transfer of authority to the State of Palestine, which will implement a policy of land allocation to serve the purposes of its national interest, at large, and Palestinian agricultural production.

At present, only 42,000 dunum out of the 163,000 dunum available (27 percent) in the JV are irrigated. Hence, additional irrigable land can be put under irrigation which will result in a better Palestinian agricultural sector in the future. The development of agriculture in the JV requires a significant increase in the available water resources since it is in severe shortage in the JV, as elsewhere in the Palestinian economy. The current state of technological change in the production of water, in particular desalinated water, turns the shortage from a physical to a political issue which must be addressed. Since both Israel and Palestine rely on the same sources of water, they should increase total water supply and reach an agreement on water distribution as soon as possible.

Agriculture should adopt advanced technologies that require capital investments and can support farmers with at least acceptable standards of living. Modern agriculture implies the intensive use of capital, equipment, irrigation technologies, R & D etc., to ensure abundant crops of high quality. Among other things, agriculture would provide inputs for future local food industries and also be an exportable good to neighboring counties, including Israel, thus contributing to reducing the Palestinian trade deficit. The creation of an agricultural sector that reinforces poverty should and can be avoided when modern technologies are applied.

We recommend the establishment of a "Development Agency for the Jordan Valley" [DAJV]. In the short term, all the unutilized arable land should come under its control and the Agency will adopt an optimal land use policy. The DAJV should also provide incentives to cultivate private arable land that is currently not exploited. In the longer term, state land currently used by the settlers will also have to come under the jurisdiction of the DAJV.

3.6. Water and Agriculture

The potential for economic development in the JV rests mainly on agriculture whose enhancement depends heavily on the available water resources. The National Water Strategy is designed for a fully independent Palestinian State. The vision is to allow Palestinians to recover their full rights over natural water resources according to the 1967 borders, including East Jerusalem. The Palestinian administration will be fully entitled to plan and implement all necessary water and wastewater facilities (wells, storage tanks, water and wastewater networks, wastewater treatment plants, etc.) in accordance with the Palestinians' own strategic plan. Finally, the JWC will be replaced by cooperation mechanisms that will be designed to ensure sustainable management of trans-boundary water resources by both Palestine and all neighboring countries. At present, the development of additional water sources is restricted and based on the approval of the Israelis since Palestinian water rights are still subject to the results of the final status negotiations. In this context, it is recognized that the stability of the final status agreement on water will only be assured if the Palestinians achieve their water rights, which had been acknowledged in Article 40 of Oslo Accords.

3.7. Water and Tourism

Tourism has a great potential thanks to the importance of cultural, religious and natural sites. Nevertheless, to exploit this potential in a sustainable way, a broader vision should be promoted since, even if there are diminishing trends, water availability is still higher than in other parts of the West Bank. These potentialities, if not accurately managed, can turn into threats, as pressure from big investors can generate a negative impact on the development of the JV.

The area's unrivaled features increase the growth potential of the region and its attractiveness to tourists and investors. Moreover, the Dead Sea is the lowest and most saline body of water in the world. The sea itself is abundant in minerals with therapeutic value. Many tourists seeking to heal various skin, artery, and joint ailments are attracted to the region. Overall the region has 81 tourist sites, including those of significant archeological and natural value. In addition, it is the oldest continually inhabited area in the world. The Jordan River is one of the most outstanding symbols of the "Holy Land" and is in the minds and hearts of hundreds of millions of people all over the Christian world.

The area has great potential for internal and regional tourism as well. Annually, around one million Palestinian visitors also visit the region, despite Israeli-imposed restrictions. Developing the tourism sector in the region and creating an investment strategy for the region's historical and cultural heritage, as well as its unique climate, is considered a high priority and allows for large number of investment opportunities. Tourism development would include the Dead Sea, Jordan River and

Jordan Valley slopes and mountains, as they offer a unique combination of health, leisure, sport/adventure, ecological, and religious tourism destinations in a single area. In order to revive local economic activity, including the tourism & hospitality sector, investment in the field of new hotels and resorts both in Jericho and the Dead Sea area are essential.

The overarching goal should be to develop an integrated strategy that links together heritage policies to urban planning, to the educational sectors, to economic and social policies and to tourist strategies instead of viewing them all as single sites. Development should strive to enhance tourist activities and raise the awareness of the local community toward the importance of the local heritage. Updating the regulatory framework and considering heritage not as a constraint but as a useful element that can help in directing the process of local development would also be quite beneficial. Using a wider concept of heritage which is not just concentrated on the archaeological sites but which also includes the old oasis life and other “less important” heritage sites would be valuable. An emphasis on enlarging the scale of action which considers all of the territorial elements that contribute to form local heritage is essential to success.

From a positive perspective, some of the archaeological sites are still in good condition. There are still a lot of remains of traditional buildings (mud houses), there are still portions of high value agriculture land and areas rich in biodiversity, and the oasis system is still well readable in the western part of the city of Jericho, for example. Additionally, new projects to enhance heritage and not just focusing on its conservation are being taken into account. An example would be the creation of tourist paths connecting different sites together.

The Jordan Valley is a unique region that has attracted visitors from around the world. It has unique geographical and environmental characteristics unparalleled anywhere else. The tourism industry is seen to be ideally positioned within the religious and heritage tourism markets where the numerous religious sites provide the country with a comparative advantage. Developing this sector of the market provides a solid opportunity for Palestine. There are also opportunities to develop new tourism products such as eco-tourism, cultural tourism and solidarity tourism in a market where investment is still reasonably priced.

Another important project involves the King Abdallah I Bridge, which formulates the shortest distance between Amman and Jerusalem, across the Jordan River, which needs to also be rehabilitated and open for operations for the movement of tourists, thereby facilitating tourism from Jordan and opening up the door for joint tourism marketing.

Finally, there might be a conflict between the development of tourism on the Dead Sea and possible industrial exploitation of the minerals there; such a conflict should be resolved before a strategy is adopted.

3.8. Industry

From a strategic point of view and taking into consideration the agricultural nature of the Jordan Valley, its industrial development should concentrate on food processing and other industries related to agriculture. A modern food industry based in the Jordan Valley can benefit from four promising markets: the local Palestinian market, the Israeli market, the US and European markets and the GCC and other Arab markets. In addition to establishing a profitable food industry, large-scale urban development of the Jordan Valley would enrich the local work-force by attracting a young, educated population that would enable the development of new, diversified, modern industries. Additionally, specialized product packaging is an important area that could also attract significant investment to this region.

3.9. The Dead Sea

The main natural resource in the JV seems to be the Dead Sea. So far two countries, Israel and Jordan, extract minerals from this salt-lake. Palestine, having a shore on the Dead Sea, also has claims on its natural resources. The Dead Sea would provide opportunities for many industries based on Dead Sea mineral extraction. Valuable minerals and saline elements such as phosphate, magnesium, sodium, calcium and bromide could be extracted from the Dead Sea.

However, the extraction of minerals has created severe environmental and geological problems. This calls for a significant cooperation between the three involved parties, Palestine, Jordan and Israel, to cope with the challenges and agree on a common future policy.

3.10. Trade

One of the most important areas of intervention is to place the Jordan Valley as a hub for logistics and the transportation of goods from Palestine to Jordan. One of the major projects identified by the Palestinian private sector and the Ministry of National Economy is the establishment of an import and export logistics center in the JV, with the aim of creating an improved and facilitated investment environment for business development and trade. The center would facilitate the movement of goods and reduce the cost of transportation, as well as include packaging facilities, bonded houses, refrigeration facilities and trucks that would continue the cooling chain for fresh produce and other cooled products. The center would be operated by the private sector with oversight by Palestinian customs. The Damia/Adam Bridge, which was intended to be the Palestinian commercial bridge with Jordan, has been closed by the Israeli authorities for the last 17 years under the claim that it required rehabilitation and re-construction. The bridge’s location enables it to service the central and northern West Bank and can reduce cost of transportation through and to the Jordanian markets, as well as facilitate imports of goods from Jordan to the West Bank. It is, therefore, suggested that the bridge be rehabilitated and open for business as soon as possible in order to enhance Palestinian export and import capacity.

3.11. Education, Health and Other Services

The sustainable development of the area, including healthcare and educational facilities, and the food security for residents are both highly dependent on the availability of land and water, well developed infrastructure, human resources and free movement of goods. The region’s political sensitivity and Israeli restrictions on movement and access play a major role in limiting residents’ possibilities for improving their livelihoods. Additionally, development in the sector of education and food security are crucial to the improvement of the living standards of Palestinians in the Jordan Valley and the assurance of a better future through well-established educational facilities.

Water for irrigation is a crucial resource for food production and security, thus its availability and accessibility is imperative for the local population. The Jordan Valley is classified as arid, with rainfall not exceeding 300 mm per year in the northern part and less than 150 mm in the southern part. The change in rainfall quantity and consecutive drought events witnessed over the past 5 years in the area have affected the livelihoods of the communities living across the Valley. However, the magnitude of impact varies from one place to another, especially among the marginal and Bedouin communities in the area.

4. Summary of Specific Recommendations

4.1. Land

Plans for localities in Area C, if approved, will relate only to about 20,000 dunum which are about 1.25 percent of the Jordan Valley. In other words, the mere approval of existing master plans will not suffice in creating a proper national solution for the development of the JV. Current Israeli policy must dedicate special attention to land designation for Palestinian use in Area C, taking into account not only micro-development of villages and other localities, but the necessary macro-layers of housing, infrastructure and large scale development. These designations must take into account expansion trends of Jericho and Jiftlick – the two major localities in the JV - the crucial need for water, health and education infrastructures and the crucial need for urban and infrastructural continuity between Areas A, B and C. These allocations will involve the cancellation of “Military Zones” and the designation of “State Lands” for the usage of Palestinian population. Plans include:

1. Creating the JVA, which will carry the responsibility of land planning and development controlled by the Palestinians. The planning efforts must be gradually removed from the civil administration’s control and delivered to Palestinian control, eventually paving the way to a harmonized planning strategy and land control by Palestinians in the Jordan Valley.
2. The implementation of future construction within long term development strategies of the Palestinian government.

In order to pave the road to a change in the Jordan Valley under the current circumstances, the Israeli government must enable, assist and promote the following issues:

1. Create solid foundations for the promotion of regional master plans which address Areas A, B and C, which will be gradually controlled by Palestinians and enable an overall strategic approach towards continuous development throughout the JV.
2. Fast-track promotion of local master plans which align with the general development philosophy of the JV. The local plans MUST include legal rendering of existing developments.
3. The complete removal of planning and development obstacles that prevent Palestinian development due to roads, pasture lands, military fire zones, nature preserves and more.
4. Cease the “State Land” declaration mechanism which is currently used as a political tool for the expansion of settlement activity.
5. Create a joint Israeli-PNA effort to establish a unified policy relating to the connection of Palestinian populations to essential infrastructures in accordance with the Oslo Agreements and the ongoing economic understanding between the parties.

4.2. Water

These recommended actions are presented below for both short and medium terms.

Recommendations for the short term:

1. Rehabilitation of existing agricultural wells and drilling of new wells.
2. Rehabilitation of destroyed and deteriorated vital water infrastructure which will reduce water losses, water cost and make water more available.

3. Expansion and construction of water and wastewater networks for the new population.
4. Rehabilitation and protection of springs in the Jordan Valley since spring water is a major source at present for both domestic and agricultural activities.
5. Construction of wastewater treatment plants in the main urban centers in the Valley.
6. Construction of retention dams on the main wadis to capture flood water which amounts to some 13 MCM/year.
7. Investigate the potential of using solar energy in water networks management and wastewater treatment plants.

Recommendations for the medium term:

8. Utilization of Al-fashkha Spring through brackish water desalination and the drilling of groundwater wells in the eastern slopes.
9. Construction of wastewater treatment plants and development of regional conveyance lines for treated wastewater from urban centers to potential reuse sites.
10. Construction of irrigation water networks in all irrigable areas within the Valley.
11. Development of a regional water conveyance system along the Jordan Valley from north to south to allow for better management of available resources.

4.3. Agriculture

Recommendations for the short term:

1. The reclamation of 30,000 dunum of irrigable land that is presently not irrigated due to lack of proper water resources and Israeli restrictions on access to this land. We recommend the establishment of a “Development Agency for the Jordan Valley” [DAJV]. In the short term, all the unutilized arable land should come under its control and the Agency will adopt an optimal land use policy. The DAJV should also provide incentives to cultivate private arable land that is currently not exploited.
2. Support agricultural reuse of treated effluent through many options, including blending of treated wastewater with fresh water. Crops to be irrigated by the treated effluent or blend thereof with freshwater resources shall be selected to suit the irrigation water, soil type and chemistry as well as the economics of the reuse operations.
3. Support farmers to use modern and efficient irrigation technologies. Protection of on-farm workers and of crops against pollution by wastewater shall be ensured.
4. Enhance and operate the agro-industrial park.
5. Support the establishment of farmer cooperatives.
6. Support small scale agricultural sector including livestock activities.
7. Introduce proper shifting in cropping patterns to more salt-tolerant crops with relatively low irrigation water requirements.

Recommendations for the medium term:

1. Enhance regional cropping patterns that are based on socio-economic considerations, keeping in mind other issues like water demand and water quality.
2. Introduce non-conventional agriculture and enhance new technologies.

3. Support the establishment of Jordan Valley Credit Program through the farmer cooperatives.
4. State land currently used by the settlers will have to also come under the jurisdiction of the DAJV and the State of Palestine. This is about 60,000 dunum at present.
5. Develop a regional irrigation water carrier to benefit from Palestinian water rights in the Jordan River Basin.
6. Support R&D in the agriculture sector in the Jordan Valley through the utilization of its unique characteristics and fertility.

4.4. Tourism

Recommendations for the short term:

1. Development of the Integrated Management Plan for Cultural and Natural Heritage Resources, including required infrastructure.
2. Archaeological landmarks feature rehabilitation.
3. Allow the Palestinian Ministry of Tourism and Antiquities to rehabilitate the various tourism sites in the JV, whether located in Area “B” or “C.”
4. Provide access of Palestinian tour guides and tour buses to JV archeological and tourist sites.
5. Open the JV for internal Palestinian tourism by eliminating the checkpoints on entry to the Valley.

Recommendations for the medium term:

1. Open the King Abdullah I Bridge for tourist access.
2. Allow Palestinian tourist buses and tour guides access to Jerusalem and into Israel just as Israeli tour buses and guides have access to the West Bank.
3. Allow Palestinian visitors from Gaza into the Jordan Valley for internal tourism.
4. Allow Israeli tourists into Palestinian areas.

4.5. The Dead Sea

Recommendations:

1. Utilization of the Dead Sea’s unique characteristics through the establishment of Palestinian companies for minerals production.
2. Establishment of formal tri-partite cooperation (Israel-Jordan-Palestine) to ensure the environmentally friendly exploitation of the Dead Sea.
3. There might be a conflict between the development of tourism on the Dead Sea and possible industrial exploitation of the minerals there; such a conflict should be resolved before a strategy is adopted.

4.6. Industry

Recommendations for the short and medium terms:

1. Allowing the utilization of land in the JV marked as Area “B” or “C” for expanding or establishing agro-industrial zones for both agricultural production and the complimentary production facilities such as packing, packaging, grading and cooling facilities.

2. Opening access of agro-industrial products to the Israeli market, including simplification of SPS procedures.
3. Reaching agreement between the Palestinian Standards Institute and the Standards Institute of Israel, as well as Ministries of Agriculture and Health on conformity assessment procedures for Palestinian exports to the Israeli market.
4. Provide permits for construction of industrial zones and agricultural research centers in the JV (especially Area “C”).

4.7. Trade

Recommendations for the short and medium terms:

1. Establishing a shipment consolidation and cooling facility for the export of goods from the JV through the Karamah (Allenby) Bridge to and through Jordan.
2. Allowing the movement of goods from the JV to Israeli ports and airport with facilitated movement in containers or utilizing tractor-trailer exchange mechanisms to reduce damage to goods resulting from back to back.
3. Allowing container movement through the Karamah (Allenby) Bridge and preparing the facilities for this.
4. Completing the rehabilitation of and re-opening the Damia/Adam Bridge for Palestinian trade with and through Jordan.
5. Establishing a bonded area near the Karamah Bridge with the responsibility for customs clearance being handed over to Palestinian customs as stipulated in the Paris Protocol.
6. Allowing the movement of Palestinian and Jordanian trucks through both the Damia/Adam and Karamah/Allenby bridges to deliver goods (door to door).

4.8. Education, Health and Other Services

Recommendations in the short term:

1. Eliminate movement and access restrictions within the JV.
2. Develop the comprehensive health needs master plan for the JV.
3. Develop the education needs master plan.
4. Eliminate restrictions and facilitate the construction of schools and health care facilities in the JV in Area “C.”
5. Palestinian telecommunications companies to install infrastructure in the JV in Area “C” and to extend land networks.
6. Palestinian electricity companies to extend their infrastructure and networks in Area “C.”
7. Allow for construction of housing compounds in Area “C” for Palestinian residents.

Recommendations in the medium term:

1. Provide permits for renewable energy (solar) projects in Area “C” of the JV.
2. Provide permits for water and solid and liquid waste for residential communities.

4.9. General

1. Tax and trade policies (for the JV and in general): Policy development aimed to reduce import, production and export costs, by emending commodities custom policies. These amendments of the Paris Protocol's economic arrangements between Israel and the PNA can apply to the Jordan Valley area, and will reduce construction inputs, increase competitiveness and create new trade markets for the JV's economy.
2. Palestinian regulation of the development and construction sector: Promotion of sector's regulation via export of discipline knowledge existing in Israel, and provision of incentives to sector entities undertaking regulation. Such regulation will include registration and permits issued to manufacturers and contractors, training of a skilled workforce and the creation of national standards for products and commodities.
3. Development of financing infrastructure: In the current lack of sufficient financing for large infrastructure projects, Israel and the international community can assist in creating finance alternatives to promote infrastructure (water, energy, transportation) and construction (public housing, institutions, schools, hospitals) projects. These goals can be reached by involving the Israeli banking system or enabling the larger assistance of international development banks. In addition, there is a crucial need to encourage the creation of financing alternatives to private market entrepreneurs and developers in order to enhance the creation of medium-small scale projects and the creation of a middle class.

5. Security Issues Concerning the Recommendations

Israel's security requirements can be answered, independent of the political considerations, in order to enable the creation of an economic open space which is needed for Palestinian development as outlined above.

Israel's official security view regarding changes in the JV derives from its perception of the West Bank's future and its desire to maintain the status-quo. Regarding the future of the West Bank and specifically the JV, there are three different schools of thought in the current Israeli government:

1. Objecting to the "Two State" solution, while supporting annexing the West Bank, or parts of it, to Israel in the long run after annexing parts of Area "C" in the short to medium term.
2. Talking about a permanent status agreement in which the JV will remain under Israeli sovereignty.
3. Talking about a permanent status agreement in which Israel will evacuate the settlements but will keep a long term military presence in the JV.

However, among the security advisors to the Israeli government there are many who wish to avoid any escalation in the West Bank which may lead to the collapse of the PNA and the increase of international pressure. They therefore support moves that will strengthen the Palestinian economy in the West Bank.

Thus, although many in the Israeli government will not sanction any project between Route 90 and the Jordan River (which is currently defined as a sealed off military area), many can be convinced to accept some form of economic presence (like farmworkers) in certain areas. Israeli security considerations do not prevent varied projects in Areas "A" and "B" in the JV; the map of these areas can be changed to include many fertile areas in the JV.

5.1 The Main Requirements of Israeli Security before a Permanent Status

Agreement:

Threats and Needs

Israeli security thinking considers the current threats to Israel from the east as coming from direct terror and subversion attempts to end the current relative stability. In their view, such actions present threats to the PNA in the West Bank, as well as to Israel itself.

1. Possible infiltration of terrorists in order to carry out attacks against the IDF and Israelis in the West Bank and Israel.
2. Smuggling of weapons, knowledge and intel to various organizations in the West Bank and Israel.
3. Infiltration of terrorists and the establishment of terror cells in Israel and the West Bank, belonging to extremist organizations and working against Israel and the PNA.

In order to answer such threats, the security establishment believes that Israel needs to maintain its control along the Jordan River, while upholding coordination with the Jordanians, in order to prevent the infiltrations of terrorists and weapons either by crossing the river or through Allenby border crossing. In order to accomplish the preventative strategy, they believe a special security area is needed, with changing width between the Jordan River and Route 90 on the Palestinian side of the JV, where the IDF can preserve its control and carry out operations.

This security model draws a parallel with the offer that was formulated in negotiations between Israel and the PLO concerning a permanent agreement as was mediated by the USA. The ideas discussed, proposed a regulated security area on both sides of the Jordan River in which Israeli, Jordanian and Palestinian forces will jointly operate at the first stage, while in later stage the Israeli forces will be replaced by an international force. Therefore, from a security perspective it is possible, depending on economic considerations, to develop the area of the JV as part of the Palestinian economy so that it can serve the civilian population. These measures can, in principle, include:

1. Initiating a new hotel area in the north-western side of the Dead Sea, similar to the Israeli hotel area in the southern part of the Dead Sea and the Jordanian one in the northern part. If needed, it would be possible to have a security seal around that area like other secured facilities.
2. In accordance to the economic plan, it is possible to increase the volume of plantations and cultivated lands on both sides of Route 90.
3. Like the factories in the “Aravot HaYarden” regional council, it’s possible to have an industrial zone west to Route 90 for Palestinian utilization.
4. There is no reason not to construct a water purification plant and to put down water and electrical infrastructure for all of the aforementioned projects.
5. It is also possible to expand the areas of Palestinian urban population beyond their current boundaries in Area B, mainly referring to the ones that are located a substantial distance from any other population point or vital Israeli infrastructure.
6. It’s possible, with carefully prepared security procedures, to allow, during daytime, the work of agricultural lands that are situated in the special security area. This can be done in a fashion similar to how Israeli farmers are given permits today.

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Appendix A

Cultural Virtues in the JV

Archaeological sites

As the Jordan Valley's Palestinian area has been a passageway for many civilizations, archaeological sites date back to the prehistoric era. The remains of more than 20 successive human inhabited areas were found in Jericho, the first of which is Tel es Sultan, located at the northwest of the city, and dates back 10,000 years (8000 BC) and is known as the "oldest city in the world." Remains in archeological sites are concentrated mainly in the western sector of the city of Jericho, but there are also a lot of sites distributed in the regional area of the Governorate. These sites are the result of the different eras of history, from the Pre-Pottery Neolithic to the Muslim period, through the Bronze Age, the Hyksos period, the Canaanite and the Roman periods. All the archaeological sites listed by Ministry of Tourism and Antiquities (MoTA) have been identified, from the most renowned sites (Tell es Sultan, Tell es Samarat, Hisham's Palace, Herod's Palace) to the most recent excavations. Some of the sites are in very poor condition. The existing legal buffer zones for their protection do not actually provide for good protection and enhancement of the sites. There are also problems linked to urbanization, waste disposal and inappropriate construction and existing infrastructure.

Ongoing projects to develop tourist and archeological sites are carried out by many research and development organizations including the Center for Cultural Heritage Preservation. The Center is currently working on a concept for investing in the cultural heritage assets of Jericho of June 2013. The projects in the tourist sites focus on the rehabilitation of roads and access to the sites. Additionally, biking, handicraft, hiking and other activities are encouraged through the projects in the aforementioned areas. The main objective of the projects is providing off-road vehicles and guidance to explore the unique natural landscape of Jericho and the Jordan Valley and contributing to improving the economic situation of the city through the promotion of the various sites and activities.

Jericho is considered to be the oldest continuously inhabited city in the world; it has been home to human beings for 10,000 years. During the Roman rule (63 BC-423 AD), Mark Anthony gave the city as a present to his beloved Cleopatra. After her suicide, it reverted to Augustus Caesar, who himself gave it to Herod. From this time, Jericho became a center of Christianity and continued to be an important city throughout the Byzantine period.

With the coming of Islam in the 7th century, the development of irrigated agriculture began, which earned Jericho the name "City of Palms." Main sites of interest include:

1. Ein es-Sultan, a significant water source.
2. Sugar mills, dating to the prosperous Umayyads.
3. Jericho's ancient synagogue, whose mosaic floor dates from the 5th or 6th century,
4. Tell Abu Tell es-Sultan, a mound northwest of the present city; archaeologists

believe that, in its heyday, in about 9000 BC, the city was heavily fortified and had some 2,000 inhabitants.

5. Deir Hajla, the Monastery of St. Gerasimus who, according to legend, befriended a lion.
6. The Monastery of St. John the Baptist; according to Christian tradition, John the Baptist baptized Jesus here.
7. Deir Quruntul (Mount of Temptation and its monastery), where Jesus fasted for 40 days; the monks who lived here during the 4th century slept in caves in the cliff.
8. Ein Dyuk, a farming village in an area first settled during the Roman era.
9. Khirbet al-Auja al-Tahta, a present-day village built on the remains of a Roman city built by Herod's son Archelaus.
10. Maqam Nabi Mousa (sanctuary of the Prophet Moses); according to Muslim tradition, it first became a site for pilgrims when the Crusaders barred Muslims from visiting and praying in Jerusalem.
11. Qasr Hisham (Hisham's Palace), the most magnificent architectural site in the area, was once an Umayyad winter retreat.
12. Qumran, 20 km south of Jericho; Qumran is where the Arab shepherd boy found the ancient Dead Sea Scrolls.
13. Wadi al-Qelt, a spectacular place for hiking.

Furthermore, main sites of interest in Tubas Governorate within the JV include Tell Himma. It is an ancient tell in Ein El Beida village with archeological interest and is qualified for tourism. The site was built by the Canaanite people in a Canaanite village named "Himma." Additionally, a number of ancient castles including Wadi Salman, Jebel Khimyar and Khirbet Umm Ghazal all have great potential for tourism.

Additionally, archeological and historical evidence indicates that the Bardala village in Tubas Governorate dates back as far as 1500 BC. Coffers and graves indicate different civilizations in the area. The marked tourist place in the village is Al Khader Shrine, which is the oldest building in the village, and there are also a lot of ancient graves and Bardaweel Palace (ARIJ village profile, 2007).

However, for this paper, certain site selection criteria was adopted and only a specified number of sites are included in the planning phase of this project. This is due to the large number of sites found in the JV.

Religious sites

A wide range of mosques, churches and other places of worship are present in Jericho and its surroundings. Small religious complexes are inside the city surrounding the JV. They vary from the ancient synagogue to the monasteries of St George, from the Convent of St John to the baptismal site to the early Islamic architecture of Maqam AlNabi Musa.

Mud houses

In the Jordan Valley and coastal plain stone was not available. For this reason, mud houses are the best surviving examples of mudbrick architecture in Palestine. Although such heritage doesn't have a monumental value, mud houses are still important evidence of ancient building techniques strongly related to the local geographical features. Furthermore, the mud houses and the pattern of their surrounding agricultural properties embody a structural component of the landscape of Jericho. They can be classified as: rural housing, special buildings (such as the residence of the Jordanian King, the old Hotel in the main square, villas in the oasis area) and Ottoman farms. The concentration of the three typologies varies according to the areas of the city: in particular, the special buildings and the Ottoman farms are mainly located in the oasis, where there is also the old water channel system from Ein Duyuk.

"Minor" and rural heritage

The rural environment consisting of traditional peasant houses and the traditional agricultural system of the oasis is a fundamental part of Jericho's local heritage. It represents local responses to the conditions of everyday life and includes both traditional technologies, infrastructure and intangible heritage-like skills or ways of organizing social life. Jericho's rural heritage includes a number of elements, like the old techniques of irrigation that, even though extremely interesting, are not protected.

The Sugar Mills - Tawahin Al Sukkar

In the western part of Jericho city, close to Tell es Sultan, there are the sugar mills, as sugar cane production was known in Palestine since ancient times. The remains of the aqueduct which brought water from Ein Duyuk are still visible today. In addition, there are the remains of the factory and of the machinery.