Adapting to Water Scarcity in the Israeli-Palestinian Conflict

An Analysis of the Influence of Conflict on Water Governance and the Implementation of Adaptation Strategies

M.Sc. Thesis

Juliane Schillinger
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List of Abbreviations

ARIJ	Applied Research Institute - Jerusalem
CIT	Contextual Interaction Theory
EQA	Environment Quality Authority
GAT	Government Assessment Tool
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GWOPA	Global Water Operators' Partnership Alliance
GWP-Med	Global Water Partnership Mediterranean
ICA	Israeli Civil Administration
IWRM	Integrated Water Resource Management
JWC	Joint Water Committee
L	litre
Mcm	Million cubic meters
MoA	Ministry of Agriculture
MoLG	Ministry of Local Government
MoPAD	Ministry of Planning and Administrative Development
MSP	multi-stakeholder platform
NGO	Non-governmental organization
NIS	New Israeli Sheqel (1 € ≈ 4.3 NIS)
NRW	non-revenue water
NWC	National Water Company
oPt	occupied Palestinian territories
ORIO	Ontwikkelingsrelevante Infrastructuurontwikkeling
PA	Palestinian Authority
PADUCO	Palestinian-Dutch Academic Cooperation Program on Water
PHG	Palestinian Hydrology Group
PLO	Palestine Liberation Front
PMU	Project Management Unit
PSI	Palestinian Standards Institute
PWA	Palestinian Water Authority
RWU	Regional Water Utility
UFW	unaccounted-for water
UN DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNDP/PAPP	UNDP Programme of Assistance to the Palestinian People
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WHO	World Health Organisation
WSRC	Water Sector Regulatory Council
WSSA	Water Supply and Sewerage Authority Bethlehem
WUA	Water User Association

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Summary

While there is plenty of literature on the impacts of climate change on political settings and the risk of new conflicts, little research has been conducted on how the political situation can in turn influence resource management and adaptation to climate impacts. The Middle East is particularly characterised by a history of conflicts and heightened tensions, and is expected to be one of the regions to be affected most by climate change. This research thus focuses on the impact the political context of external and internal instability in the West Bank has on the ability of the Palestinian water governance regime to implement climate adaptation strategies. Qualitative data collected from interviews with actors in the West Bank and the analysis of reports and strategic plans was analysed on the basis of the Contextual Interaction Theory (CIT).

The research finds four main processes in which the political context affects the water governance regime and climate adaptation: (i) the transition of the Palestinian water sector after the introduction of the 2014 Water Law that makes the division of mandates and responsibilities more coherent, but is hindered in its application by administrative problems; (ii) the Israeli occupation that limits most of the efforts made in the water sector to crisis management instead of sustainable development; (iii) the dependency on financial assistance and the involvement of international organisations in order to implement projects due to the weak domestic economy and difficult geopolitical status of the oPt; and (iv) the absence of a vision for climate adaptation that is shared among the important actors of the water sector and beyond and of effective coordination and integration of adaptation efforts.

With regards to the CIT framework I conclude that it is a useful tool to highlight the importance of contextual factors affecting policy processes. In order to comprehensively analyse the multitude of contextual interactions, however, it is necessary to shift the focus from the actors to the different contexts.

Keywords: Middle East; West Bank; Palestine; water governance; climate adaptation; CIT.

1 | Introduction

The Middle East is predicted to be one the regions that will be hit hardest by climate change, especially by a substantial reduction of water availability, which is already naturally low in the region (Mason et al., 2012). It also has a long history of heated tensions and violent conflicts, of which the Israeli-Palestinian conflict is one of the longest-lasting. Revolving around both parties' claims to the land between the Jordan River and the Mediterranean Sea, the access to religious sites and the control over natural resources, the relations between Israelis and Palestinians have been varying between negotiations and open combat for the past centuries. Tensions have reached a peak since Israel began their occupation of the Palestinian West Bank and Gaza strip, nowadays referred to as the occupied Palestinian territories (oPt), in 1967 (Feitelson, 2000).

While there is plenty of literature on the impacts of climate change on political settings, for instance through competition for scarce resources such as water that create potential for conflicts (Barnett and Adger, 2007; Hsiang et al., 2013; Nordås and Gleditsch, 2007), and on how unilateral adaptation strategies by one party can lead to tensions with others (Huntjens and Nachbar, 2015), little research has been conducted on how the political setting can in turn influence resource management and climate adaptation efforts. The Israeli-Palestinian conflict presents unique circumstances for water management and adaptation strategies in the oPt. Next to bilateral treaties on the allocation and management of shared transboundary water resources which are criticised to regularly favour the Israeli side (Selby, 2003; Zeitoun, 2013), Moser and Ekstrom (2010) note that internal political instability can also hinder effective climate adaptation. The overall political situation hence plays a role in the capability of the Palestinian authorities and the related governance system to react to the predicted climate change and its impact on water availability in the region.

In order to understand this role, this research analyses the impact of the political instability in the West Bank, caused by both internal and external factors, on the Palestinian water governance regime and its ability to implement adaptation strategies. The analysis is based on the Contextual Interaction Theory which allows for a breakdown of how the political setting or context affects a certain policy process, the actors involved and the relevant governance regime (Bressers and Boer, 2013). As the extreme sociopolitical environment of the Israeli-Palestinian conflict presents an exception rather than the norm of circumstances the CIT framework has been applied to, I am using an inductive approach to the framework in order to test its performance under these circumstances.

This thesis is structured as follows: First, background information on the West Bank is given, focusing both on the available water resources and the possible climate impacts and on the political situation in the oPt. The objective of the research is elaborated afterwards. Based on the objective, the conceptual background is explained, highlighting the Contextual Interaction Theory framework that was used. Subsequently, an overview of the research methods and data sources is given. The research results are subdivided into four separate sections following a division with regard to contents, and supported by two short case studies. Results and methodology are discussed afterwards. The conclusion finally rounds the thesis off, answers the research questions and gives some starting points for further research on water governance and climate adaptation in the oPt.

2 | Background on the Study Area

2.1 | Water resources in the West Bank

There are two main water resources in the study area: surface water from the Jordan River and groundwater from the Mountain Aquifer. Additionally, there is a number of wadis in the West Bank, river beds that only carry water during the rainy season in winter (PWA, 2012).

The groundwater resources from the Mountain Aquifer are the main water resource in the West Bank (Mizyed, 2009). The Aquifer consists of three smaller basins that are often addressed separately: the Eastern basin located in the West Bank only, and the Northeastern and the Western basins that underlay both the West Bank and Israel (Figure 1). All three basins have their main recharge areas within the West Bank and hence depend on the amount of rainfall received in the respective area (Froukh, 2003). As can be seen from Table 1, the Western Basin has a significantly higher recharge rate than the two other basins and hence allows for higher sustainable abstraction rates. This is mainly due to the very heterogeneous distribution of precipitation over the West Bank where the western part

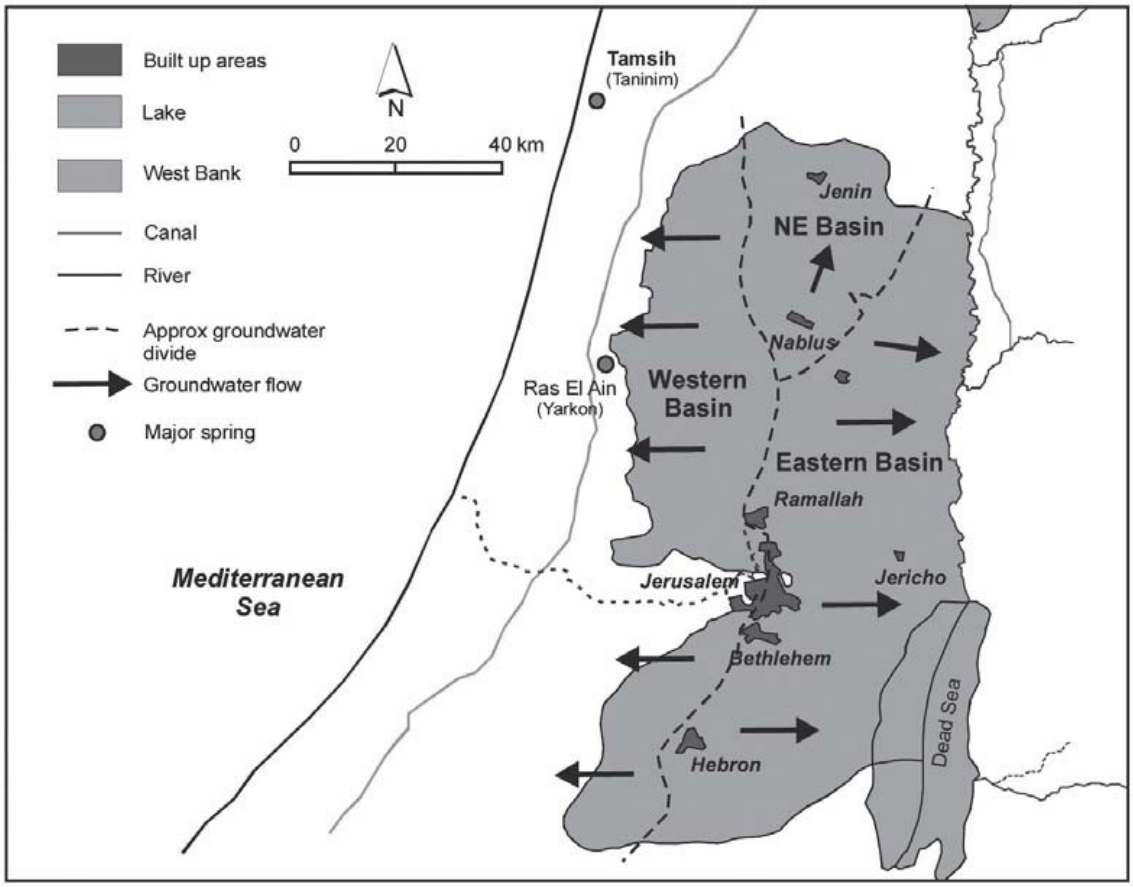

Figure 1. The Mountain Aquifer's basins within the West Bank. Source: Aliewi and Assaf (2007).

Table 1. Annual recharge of the Mountain Aquifer's basins. Source: Froukh (2003).

Basin	Recharge inside West Bank Mcm yr^{-1}	Recharge outside West Bank Mcm yr^{-1}
Eastern	172	0
Northeastern	123	35
Western	329	37
Total	624	72

adjacent to Israel receives approximately two to five times as much rainfall as the eastern part at the slopes of the Jordan valley (see Figure A1 in the appendix). Recharge is usually concentrated on the winter months December, January and February when precipitation is highest and thus exceeds evapotranspiration losses from ground and vegetation (Mizyed, 2009).

The distinct geology of the region, comprising mostly of limestone, but intersected by less permeable and soluble material, leads to an additional distinction into two separated layers or zones, the Upper Aquifer and the Lower Aquifer, schematised for the western side of the West Bank in Figure 2 (Hughes et al., 2008). With regards to the Western basin, MacDonald et al. (2009) note that Upper Aquifer is more prone to contamination due to its location close to the surface in areas that are more densely inhabited than the mountainous recharge area. They also calculate that the potential to develop new water resources is greater and economically more viable for the Lower Aquifer.

The water available to the West Bank from the Jordan River is highly limited. Four other riparians, namely Syria, Lebanon, Jordan and Israel, are located upstream of the West Bank, having an impact on the quality and quantity of the river runoff that reaches the West Bank. Jordan, Israel and Palestine make up most of the Lower Jordan River Basin (LJRB) which is the part of the basin that drains into the Jordan River and its tributary on the Jordanian side, the Yarmouk River, downstream of Lake Tiberias (Venot et al., 2008). In the early 1950s, approximately 1,285 Mcm reached the Dead Sea per year, 605 Mcm coming from Lake Tiberias and 465 Mcm from the Yarmouk River. Since then, a sharp increase in water abstraction through new diversion schemes has decreased the runoff into the Dead Sea by around 80 % to 275 Mcm per year at the start of the 2000s. Major diversion schemes are the Israeli National Water Carrier (NWC) for which 440 Mcm are pumped out of Lake Tiberias directly, and abstractions of around 200 Mcm each by Syria (Yarmouk River only) and Jordan (Courcier et al., 2005).

Usage of the Jordan River water is further restricted by its quality downstream of Lake Tiberias. Anthropogenic influences such as the discharge of sewage into the river have

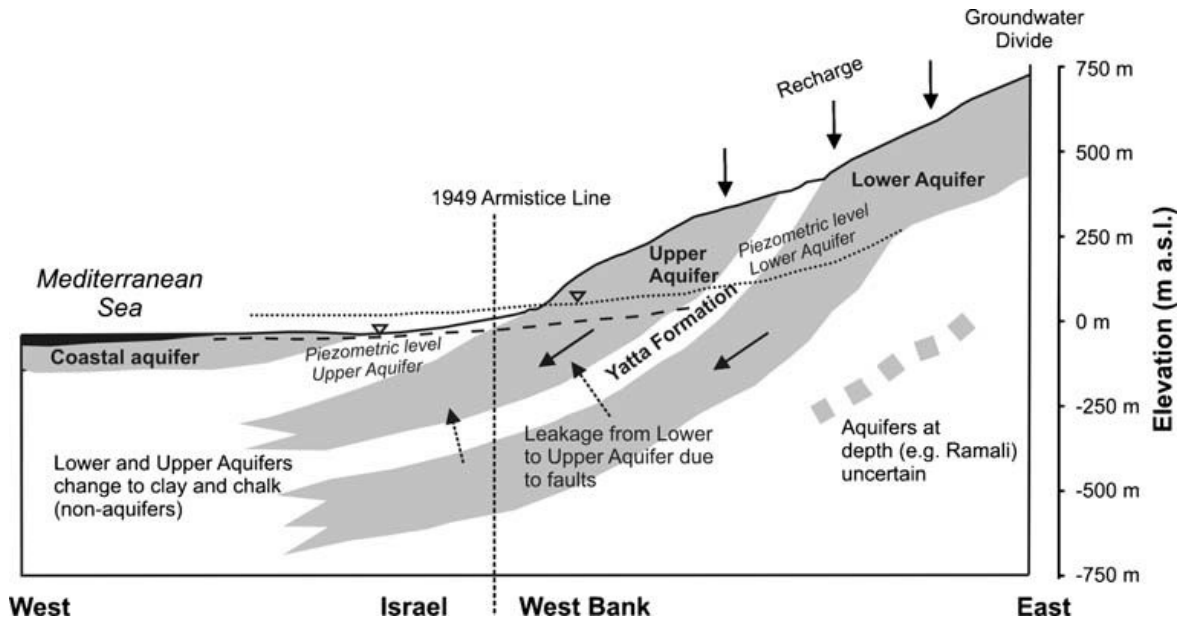

Figure 2. Schematic cross section of the Western Aquifer. Source: MacDonald et al. (2009).

deteriorated the water quality over the past decades (Hillel et al., 2015). With a great part of the river discharge stems from the adjacent groundwater aquifers where the solution of limestone leads to brackish water, the salinity level in the Jordan River is also elevated (Farber et al., 2004).

The third source of water in the West Bank are so called 'non-conventional water resources.' The two most popular non-conventional alternatives in the Middle East are the desalination of saltwater or brackish water and the reuse of treated wastewater. Other options include water harvesting and reallocation schemes with which water is transferred from a conventional source, e.g. a groundwater well, to another region (Djuma et al., 2016). Small rainwater harvesting systems on the household level are a traditional source of water in the West Bank (Nazer et al., 2008). The main problem with non-conventional resources on the larger scale are the higher costs of their development, compared to conventional water resources (groundwater and surface water) and the more complex operation schemes (Wolf, 1995). Both in the region and worldwide, Israel is one of the leading countries with regards to the development of non-conventional resources as well as to research in the field (Djuma et al., 2016).

2.2 | Predicted climate impacts

Overlapping climate simulations for the Mediterranean and the MENA region (Middle East and North Africa) suggest a number of impacts that climate change will have on the West Bank over the 21st century. Exact values are subject to a number of uncertainties, however, predictions agree on the following overall trends: (i) an increase in temperature that lies above the global average; (ii) an overall decrease in precipitation, but an increase in extreme rainfall events in winter; (iii) a more pronounced seasonality with warmer, drier summers (Mason et al., 2011; Mason et al., 2012; Sowers et al., 2011). It is not yet possible to simulate how and where exactly the decrease in precipitation will affect the West Bank most as climate models are not able to depict the high spatial variability of precipitation in the West Bank (Mason et al., 2012).

Based on these predictions, several climate impacts on the regional water resources can be expected. According to Feitelson et al. (2012), the capacity and recharge rates of aquifers and surface water bodies are the most crucial aspects to the water availability in semi-arid and arid climate. With surface water playing a minor role in the West Bank, the focus is hence on the groundwater resources. While, once again, models are not detailed enough to allow for the exact prediction of future recharge rates (Feitelson et al., 2012), there is overall agreement that groundwater recharge will decline as a result of the decrease in precipitation (Mason et al., 2011; Mason et al., 2012; Sowers et al., 2011). Additional pressure on the aquifers will be exerted by crops and vegetation. The predicted increase in temperature is expected to translate into an increase in evapotranspiration from plants which means that both crops and natural vegetation will consume a higher amount of soil water. In the case of crops, this can entail an increase in irrigation in order to catch up with the plants' higher water demand. As most irrigation water still stems from the aquifers, the increased plant water demand is satisfied from additional groundwater abstractions (Mason et al., 2011).

The agriculture sector is particularly vulnerable to climate impacts. From the 1990s up until today, rain-fed agriculture constitutes approximately 95 % of all farm land in the West Bank and around two-thirds of the total agricultural production (Isaac and Gasteyer, 1997; Mizyed,

2009). Many farmers thus still rely on the prevailing precipitation patterns in order to ensure their productivity and are hence prone to changes in the variability of rainfall over the year (Feitelson et al., 2012).

The relevance of all climate impacts, however, has to be seen in the context of the socio-economic and geopolitical conditions (Feitelson et al., 2012). A differentiated view on the current and future development of the overall region is thus important when analysing the vulnerability to climate change and the ability to adapt to the predicted decrease in water availability in the West Bank.

2.3 | Israeli-Palestinian conflict situation

The control over and the right to live in the region between the Jordan River and the Mediterranean has been disputed between Jews and Arabs for centuries. Relatively recently, in the first half of the 20th century, the West Bank was part of the British mandate over Palestine. When the British withdrew from the region after the Second World War, Jordan took over the West Bank in 1948 (Wolf and Ross, 1992). Less than 20 years later, however, Israel used its military strength to establish itself as a hegemonic power in the region after the Six-Day War in 1967 in which it conquered both the West Bank from Jordan and the Golan Heights from Syria, thereby also getting in control of most of the water resources in the Jordan basin (Feitelson, 2000).

With the Israeli occupation as an outcome of the Six-Day War, the West Bank was henceforth put under the authority of the Israeli Military Government and the construction of Israeli settlements begun (Weinthal and Marei, 2002). Growing discontent within the Palestinian society, as a result of increasing unemployment and anger at the Israeli expansion politics and humiliating treatment of local communities, eventually led to the first extensive uprising of the Palestinian civil society in the late 1980s. The so called First Intifada was mostly characterised by protests and strikes throughout the oPt as well as mass riots that included throwing stones and Molotov cocktails, and aimed for the Israeli retreat from the Palestinian territories and the reinstatement of the borders from 1967. Although several years of violence from both sides prevailed in the oPt, they eventually gave way to the belief that a political, not a military solution had to be found (Grinberg, 2013).

1992 thus saw the onset of the Oslo peace process with negotiations between the Israeli government and the Palestine Liberation Front (PLO), at this point based in Tunisia, as the representative of the Palestinian people. The Declaration of Principles on Interim Self-Government (also known as ‘Oslo I’), signed in 1993, focused on economic and technological development cooperation between the parties (Aggestam and Sundell-Eklund, 2013). It also granted the Palestinian authorities the establishment of a Palestinian Water Authority (PWA), but did not include details on its function or authority (Weinthal and Marei, 2002).

The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip (‘Oslo II’), signed by the Israeli government and the PLO in September 1995, was widely presented as a “breakthrough” in the peace process (Selby, 2005, p. 2). The Oslo II Accords were intended to cover a period of five years during which further negotiations could take place, thus including many interim solutions, but deferring final decisions on many important issues

such as the allocation and joint management of the water resources to the permanent agreement that was supposed to follow up (Shamir et al., 2009; Weinthal and Marei, 2002).

However, when the interim period of five years ended, no successful permanent status negotiations had taken place (Shamir et al., 2009). The Camp David summit, organised by the US government in July 2000, was the most prominent attempt to still reach a permanent agreement between Israelis and Palestinians, yet the negotiations failed for several reasons. Considered as the one factor that ultimately caused the breakdown of the summit is the Israeli demand of an 'end of conflict' clause that would disallow any future claim to negotiate the issues that had initially been deferred to the final status talks in the Oslo II agreement (Hammami and Tamari, 2001).

Shortly after the unsuccessful Camp David summit, the violent suppression of Palestinian demonstrations during a visit of leading Israeli politician Ariel Sharon in September 2000 sparked an uprising that ultimately led to the Second Intifada which brought violent conflict to both the oPt and Israel for the next years (Hammami and Tamari, 2001). The onset of the Second Intifada is also considered the final collapse of the Oslo process (Selby, 2005).

With the signing of the Oslo II Accords in 1995, the West Bank was divided into three administrative areas that are, due to the failure of final status negotiations, still effective (see Figure 3): Area A (ca. 18 % of the total West Bank area) covers all Palestinian cities in the West Bank and is mainly governed by the Palestinian Authoritiy (PA) that had been established. Area B (ca. 22 %) contains mainly rural areas and is jointly administrated by Israelis and Palestinians. While the former are in control of all security matters, the PA is in charge of the civil administration. Area C (ca. 60 %) is completely controlled by Israeli

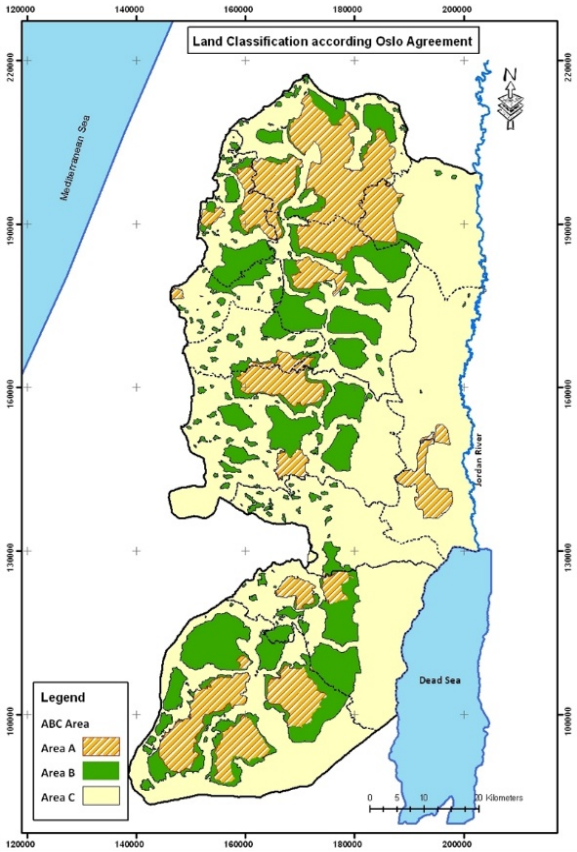

Figure 3. The West Bank divided into Area A, B and C after the Oslo II Accords. Source: PHG (http://www.phg.org/maps.asp?map=7, 02-04-2016).

authorities and used for Israeli settlements, with the PA only in charge of providing basic services to the Palestinian communities in Area C. Although this division was supposed to be temporary, as mentioned before, the separation between the three areas still exists and affects the development of Palestinian infrastructure in the West Bank (B'Tselem, 2013).

In 2002, Israel began the construction of a “physical barrier separating Israel and the West Bank” (B'Tselem, 2011) with the aim to protect Israel from Palestinian terrorists. This West Bank Barrier follows the border as agreed on in 1949 in some parts, but also deviates significantly in many areas. The area between border and barrier, also called ‘Seam Zone’, contains a large share of the Palestinian agriculture and water infrastructure. Palestinians living within the Seam Zone were largely required to move east of the barrier by the Israeli administration (Arsenault and Green, 2007). By now, large parts of the barrier are finished, taking the form of a concrete wall (Figure 4), while other segments remain wire fences for the time being. Next to the barrier along the border between West Bank and Israel, additional segments are planned to be constructed near some Israeli settlements (Figure 5).

The Israeli development of a road system in Area C which facilitates travel between the settlements, but can only be used by Israelis, has also led to a system of movement restrictions for Palestinians that fragmented the West Bank further (Handel, 2014). In addition, numerous checkpoints further control the mobility of Palestinians. Although the number of these checkpoints has been increased over the past few years, the inhabitants of many Palestinian villages still have to travel significantly longer distances to reach the next city than they used to have prior to the occupation. In 2012, a total of 540 “obstacles” impeded the movement in the West Bank, including both checkpoints and other constructions like roadblocks and trenches (Longo et al., 2014, p. 1007). Rural areas that are mainly used for agriculture are particularly constrained by the movement restrictions (OCHA-OPT, 2012).

Figure 4. Segment of the West Bank Barrier behind the campus of Al Quds University. Own photo, taken November 2015.

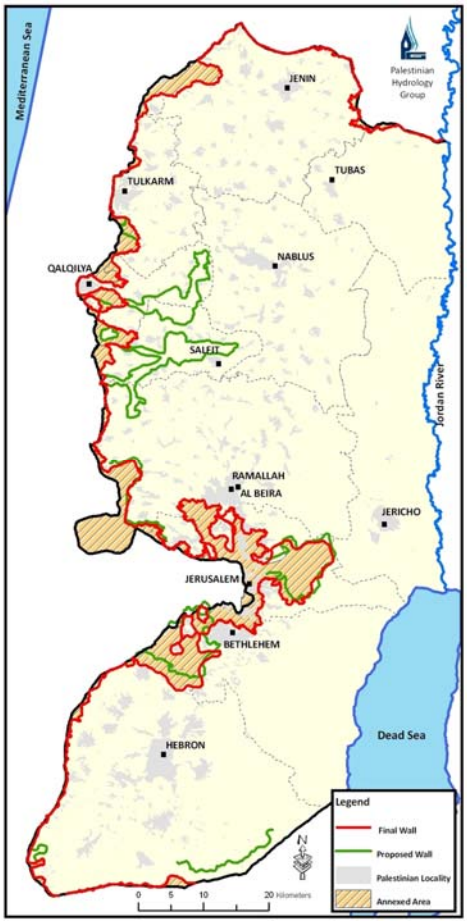

Figure 5. The route of the West Bank Barrier in 2008 (red: constructed, green: planned). Source: PHG (http://www.phg.org/maps.asp?map=7, 24-03-2016).

2.4 | Conflicts within the Palestinian people

Internally, politics in the oPt are highly affected by the conflict between the two dominant parties Fatah and Hamas, which is due to their “irreconcilable ideological and policy differences” (Cavatorta and Elgie, 2009, p. 24) dating back all the way to the First Intifada in the 1980s. Differences between the parties relate especially to possible solutions to the conflict with Israel where Fatah takes a more moderate position, recognising Israel’s right of existence and striving for a solution in negotiations. More militant Hamas campaigns instead aim both politically and militarily for the withdrawal of Israel from Palestinian territories at the least, and the destruction of the Israeli state at the most (Sirriyeh, 2011). Subsequently, while Fatah was involved in the Oslo peace process and provided the staff for institutions such as the Palestinian Authority (PA), Hamas boycotted the negotiations with Israel (Cavatorta and Elgie, 2009).

Fatah kept its members in all political offices, including President Mahmud Abbas, in the subsequent years. At the same time, however, Hamas gained popularity amongst the Palestinians thanks to its open resistance against the Israeli occupation and the support of social welfare and education projects within the oPt, leading to a landslide victory for Hamas in the parliamentary elections in 2006. Although Abbas stayed in office as his term was not over yet, Hamas now had the majority in the legislative (Sirriyeh, 2011). Significant ideological differences as well as international pressure on Fatah not to cooperate with

Hamas which is listed as terror organisation by all major international institutions, eventually led to Abbas dismissing the Hamas legislative and prime minister. As a reaction, Hamas for the first time took up arms on a domestic level and took sole control of the Gaza strip. This move started what, by some sources, is referred as “nothing short of civil war […] between Fatah and Hamas” (Milton-Edwards, 2007, p. 301), further deepening the split between both parties as well as between West Bank and Gaza strip and, according to Cavatorta and Elgie (2009), preventing effective governance in the oPt for years to come and presenting a major obstacle to any future joint planning (Khamaisi, 2010).

In addition to the split between Fatah and Hamas, Elgindy (2016) points out a very general dissatisfaction up to the point of frustration of the Palestinian people with regards to their own leadership. He quotes a poll from October 2015 according to which almost two-thirds of Palestinians want President Abbas to resign. At the same time however, the majority people seems to be unwilling to elect an Islamist Hamas, with the result that Fatah and Abbas remain undisputedly in power due to the lack of a third influential party. Dissatisfaction with the Fatah government stems from factors such as the weak economy and related high unemployment, especially amongst the youth, an increasingly authoritarian rule with lacking accountability mechanisms, and concerns about corruption within the PA. The lack of process in the negotiations with Israel, and thus the persisting occupation, further adds to the anger and leaves many Palestinians without a perspective for their personal or national future.

There have not been Palestinian elections since 2006. With the split between West Bank and Gaza leaving the Palestinian parliament dysfunctional, there is currently no legislative power, making it impossible to pass new laws. Instead, Abbas can issue presidential decrees, thereby effectively introducing new laws, without being accountable to an elected parliament (Elgindy, 2016).

2.5 | Water management in the West Bank

Shortly after the beginning of the occupation of the West Bank, the Israeli administration

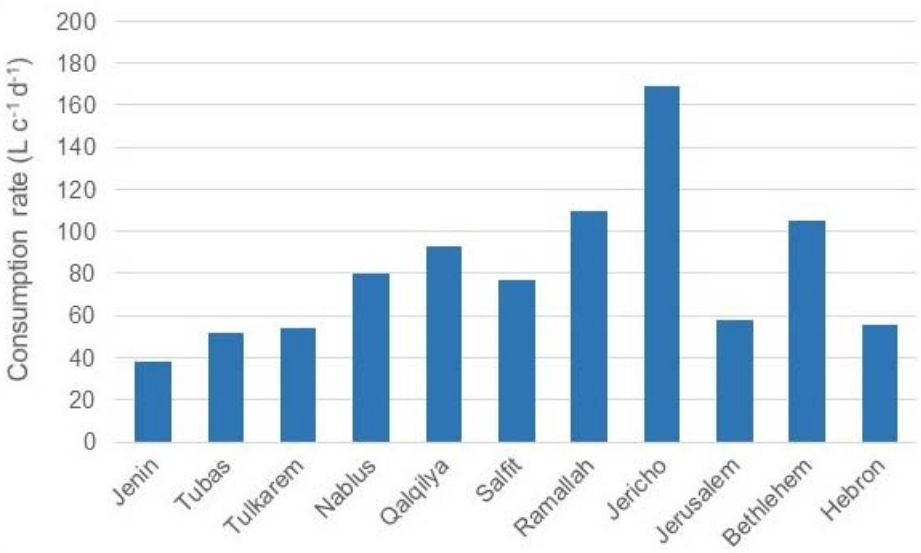

Figure 6. Daily consumption rate per capita in each governorate in the West Bank. Values in L per capita and day. Source: modified from PWA (2012).

started the construction of an extensive water supply network in the West Bank in order to connect the new settlements to the broader national network. While Palestinian communities were connected to this network as well, supply lines feeding these communities were much smaller than the ones leading to Israeli settlements, providing less water to the Palestinians (Selby, 2005).

Nowadays, the water availability per capita and day for the Palestinian population varies greatly throughout the West Bank, depending on the water resources locally available and the connection to the Israeli supply network. In 2011, each Palestinian in the West Bank consumed on average 73 L per day. An additional 30 L per capita and day was supplied, yet lost on the way to the consumer due to leakage and alike (PWA, 2012). Figure 6 shows an overview of the water available for consumption per governorate, i.e. administrative district, in the West Bank. Figure A2 in the Appendix gives additional information on the source of water per governorate, ranging from 96 % local production in Tulkarem to 96 % imports from Israel in Salfit. Next to the quantity of water, the reliability of the water supply is a problem as well. Many Palestinian communities only receive water for a certain time span once or twice per week. As a result, private rooftop tanks used to store water for several days are one of the characteristic images of the West Bank (Figure 7).

The Annual Status Report of the Palestinian Water Authority mentions five wastewater treatment plants in operation or in the final stages of construction for the year 2011, with several others planned. Yet the wastewater sector and the sewage infrastructure in the West Bank are severely underdeveloped, especially in rural areas (PWA, 2012).

In order to ensure bilateral cooperation between Israelis and Palestinians for the development of the water resources in the West Bank, the Joint Water Committee (JWC) was established as one outcome of the Oslo peace process. The JWC coordinates measures for the further development of the groundwater reserves and all other issues related to water and waste water treatment by seeking a consensus within the committee on

Figure 7. Rooftop water tanks in the village of Abu Dis. Own photo, taken October 2015.

the measures in question. Israeli and Palestinians are represented in the JWC in equal number. However, critics accuse the JWC of sustaining the power asymmetries between the two parties since the projects proposed by the Israeli side are usually accepted, while almost all proposals by the Palestinians have been vetoed by Israel since the JWC started working (Rouyer, 1999; The World Bank, 2009; Zeitoun, 2013).

3 | Research Objective

My main objective with this research is to understand how the Israeli-Palestinian conflict at large and political uncertainties in the West Bank affect the Palestinian ability to adapt to the probable decrease in water availability. In order to reach this understanding, I am going to focus on what the political situation implies for the water governance system in the West Bank and its capacity to allow for the implementation of adaptation measures. I believe that it is crucial to take the special circumstances into account when recommendations on adaptation strategies are provided for conflict regions. While I am not making any detailed recommendations myself, I would like to contribute to painting an extensive picture of the situation in the West Bank in order to make sociopolitically sustainable solutions to adapting to water scarcity possible.

My research is part of the project “Re-thinking the Water Governance Systems to Cope with Water Scarcity” within the Palestinian-Dutch Academic Cooperation Program on Water (PADUCO). This project aims to enhance the effectiveness of the Palestinian water governance system with regards to coping with water scarcity. Discovering how the Israeli-Palestinian conflict influences this governance system and its effectiveness is hence a valuable contribution to reflecting the unique circumstances of the West Bank within the project and its assessment tools.

On the conceptual level, my research aims to test the suitability of the Contextual Interaction Theory (CIT) as a framework for the analysis of contextual interaction in conflict situations. Better comprehension of how conceptual theories can be used in order to reflect the importance of extreme circumstances for the water governance regime and to analyse possible impacts of these circumstances can contribute to similar studies in other areas of the world.

As my research is going to be relatively specific to the Palestinian case, I hope that together with such similar research from other conflict areas, similarities and differences can be analysed in the future.

4 | Conceptual Theory

4.1 Epistemology and objectivity in the research

This research attempts to identify relations between the political instability in the West Bank and the performance of the Palestinian water governance regime as well as the implementation of climate adaptation strategies. I am doing this by inductively approaching the Contextual Interaction Theory (CIT) framework that is explained in detail below, thus

testing how well the CIT can explain the socio-political consequences of a conflict situation and their impacts on water governance. I am thus using empirical information to explain causal relations, which corresponds to taking a critical realism approach in this research (Fletcher, 2016).

The collection of qualitative data for this research relies heavily on information shared by individuals in the West Bank. This information is thus subject to the perceptions and interpretations of the respective person. Possible biases introduced through the data collection will be discussed later on in Section 12.2. At the same time, the highly politicised circumstances and the multitude of perspectives on the Middle Eastern conflict also have an impact on any researcher. While I aim to remain as objective as possible, I believe it is important to be transparent about and aware that complete neutrality in this kind of research is virtually impossible.

4.2 | The Governance of Adaptation

'Governance' is a rather broad term that is used in a multitude of ways by different members of the scientific community and beyond (Castro, 2007). In this research, governance is used to describe a political process that involves interactions between all governmental and non-governmental actors in order to implement policies and pursue collective goals (Bressers and Kuks, 2003; Termeer et al., 2011). A 'governance regime' refers to the setting in which such governance processes are taking place. These regimes are characterised by certain organisation schemes such as procedures and the division of responsibilities, and by the objectives and motivations brought into the regime by different actors. The governance regime thus determines what is dealt with, in which way and what kind of institutional guidelines apply over the course of the process. However, these different characteristics are only temporary as governance regimes often change as a result of external pressures (Arts and van Tatenhove, 2004).

There is a considerable agreement in scientific literature on certain characteristics of governance regimes that are required for successful adaptive management. Termeer et al. (2011) sum up "good governance of adaptation" as legitimate in terms of accountability and transparency, effective in terms of instruments and strategies, and resilient in terms of long-term viability (p. 178). These traits are supported by the characteristics of adaptive governance that repeatedly mentioned by authors.

A great part of literature on adaptive management, in the water sector and beyond, agrees that a multi-actor setting with broad stakeholder involvement is crucial to the success of any strategy. Participation of stakeholders should happen across the boundaries of policy sectors, also referred to as 'boundary spanning' (Bressers and Boer, 2013; Jochim and May, 2010; Termeer et al., 2011), and involve the different jurisdictional levels from local to national or international (Bauer et al., 2012; Huntjens et al., 2012). Thorough coordination in both the horizontal and the vertical direction is hence of high importance. This goes together with the clear allocation of responsibilities and resources among the involved actors (Huntjens et al., 2012; Termeer et al., 2011).

Another aspect repeatedly mentioned are learning processes, mostly with regards to social or policy learning (Bressers and Boer, 2013; Huntjens et al., 2012). Huntjens et al. (2011) attributes successful policy learning to characteristics of the governance system that improve

the cooperation between stakeholders of different sectors or levels, and the information management in place. Information management refers to the joint production of knowledge and its communication between participants. It is also stressed that the flexibility to experiment with different management practices and to deal with uncertainties plays a vital role for learning processes and hence adaptive management.

4.3 | Context Interaction Theory

The Context Interaction Theory (CIT) provides a deductive explanatory framework to depict governance and policy processes in water management (O'Toole, L. J. Jr, 2004). It understands these processes as social interactions between different actors with certain characteristics that determine the overall success of a policy (Bressers and Boer, 2013). The CIT framework was developed in the Netherlands and has, so far, mostly been applied to European countries (Owens and Bressers, 2013).

Within CIT, each actor that is part of a policy process is characterized by (i) the *motives* that underlay their actions and decisions, (ii) their *cognitions*, i.e. the information that is used to make sense of a situation, and (iii) the *resources* they have at hand, correlating with the power they have in the particular situation (Bressers and Boer, 2013). While these actor characteristics are naturally influenced by the policy process itself, they are also highly affected by the external conditions of governance setting, institutional arena and alike. This process context is subdivided into three layers: specific context, structural context, and wider context (Figure 8). Moving from right to left in the figure, the context gets broader and can provide the background for the more specific layers (Bressers, 2007).

The *specific context* includes the factors specific to the case at hand, such as geography and the distinct institutional arrangement in place. These factors have an immediate impact on the actors involved in particular policy processes.

The *structural context* mostly covers the governance regime in place and its different

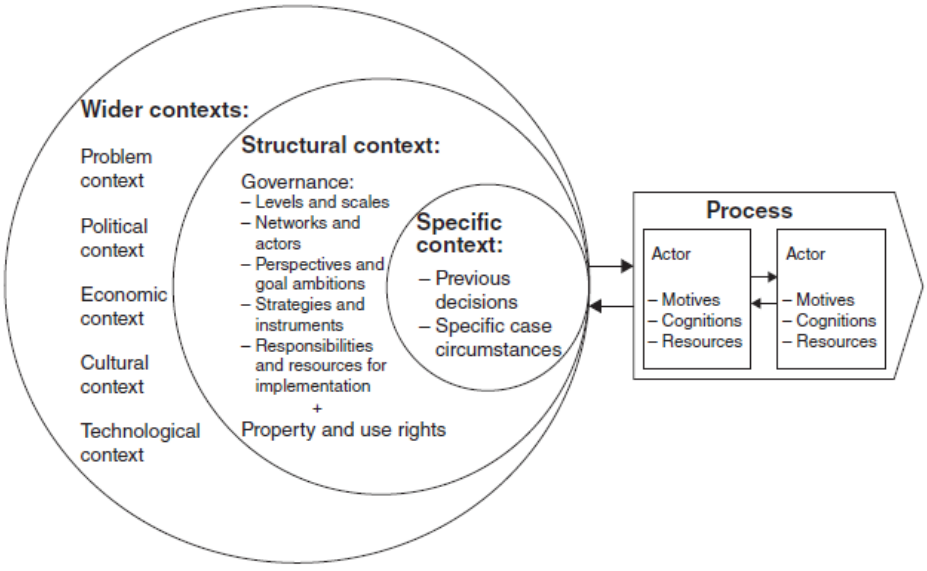

Figure 8. Layers of context that influence the actor characteristics Source: Bressers and Boer, 2013.

elements. Further explanation on these elements used to depict the regime is given below. This layer of context is usually much more stable than the specific context as governance arrangements are set on a broader level, i.e. on national level, while specific circumstances are often very local and more easily influenced by the actions of different actors throughout the policy process.

The layer of *wider contexts* finally includes a whole range of aspects that can influence the governance regime in general or individual actors in their decisions. It contains factors that are not specifically related to the policy processes at question, but rather the general circumstances such as the overall political system in the respective society, the socio-economic conditions, the cultural background and the technological advancement. These contexts are characterized by their stability over longer time periods and are mostly unaffected by individual processes in more specific settings. At the same time, they affect actors in a more general way than the more specific layers, shaping the values they act upon (Bressers and Boer, 2013).

These different layers of context shape the setting in which policy processes take place and actors interact with each other. They hence have an influence on the process outcomes and on whether or not a certain policy can be implemented successfully.

As the central interest of this thesis lies on the structural context of the Palestinian water governance regime and the influence of the wider political context of Israeli occupation and internal instability on it, the remainder of this section will delve into the scheme that is used to systematically depict the multiplicity of the different aspects of governance in the CIT framework.

Bressers and Kuks (2003) distinguish between five different elements of governance that can be used to describe certain patterns and compare governance regimes in different settings. Simplified, these elements deal with the questions Where? Who? What? How? and With what?

Levels and Scales refers to the multi-level character of governance. It includes both the spatial and the administrative levels that are relevant to the policy process, as well as their interactions, interdependencies and power relations.

Actors and Networks focuses on the multi-actor character of governance and the policy arena in which processes take place. All stakeholders, governmental and non-governmental, play a role in this element. Of particular interest are the position of each actor relative to the others and the interactions between all actors and within certain groups or networks.

Problem Perspectives and Goal Ambitions refers to the multifaceted character of governance. It maps the different realities of stakeholders and the perceived problems and their causes, and links those to the goals pursued by the different actors. Values of particular individuals or the society as a whole play a vital role here, especially when they are perceived to be at stake.

Strategies and Instruments focuses on the multi-instrumental character of governance. It depicts the different instruments that are used to implement a certain strategy, and their characteristics, such as the flexibility to switch between several instruments, the timing that is necessary for each instrument, and the expected outcomes. The distribution of arising costs and benefits is another central topic.

Responsibilities and Resources finally deals with the multi-resource-based character of governance and the authorities and mandates of the actors involved in the policy process.

Each of these governance elements is described by the means of four qualities. The *extent* of an element expresses its completeness, for instance whether all relevant actors are included in a multi-actor setting. The element's *coherence* informs about the linkages and interdependencies within the element, and whether different factors strengthen or weaken each other. While different parties for example do not necessarily have the same goals, their individual goals might reinforce each other and create incentives for cooperation. Governance regimes of high extent generally require a certain level of coherence in order to function. Additionally, elements show a certain degree of *flexibility* that refers to the liberty to re-assess regime settings within the process, for example to up- or downscale processes or to include new actors. Lastly, the *intensity* expresses the possibilities to change the setting if necessary or desired and to bring forward management reforms within the system (Bressers and Boer, 2013).

Additionally, it has to be noted that there are always interactions between the different governance elements that lead to a certain dynamic within the regime. Changes mostly originate from external factors (the wider context) that influence a certain aspect of the governance regime. Comparable to the ripple effect, this influence then propagates through the governance regime, leading to changes in other areas of the regime due to interactions between the elements and feedback effects. (Bressers and Kuks, 2003).

These elements and qualities of governance can be linked to the different requirements of adaptive management that were mentioned above. The CIT framework can thus be used for their assessment. Bressers and Boer (2013) themselves point out the importance of flexibility and intensity for adaptive governance. These two elements mainly account for monitoring and evaluation processes and, related to that, social learning. Other characteristics of adaptive governance mostly relate to the coherence of actors and networks, responsibilities and resources, and problem perspectives and goal ambitions. These aspects hence appear to play a particularly important role for the implementation of adaptation measures and will therefore be accounted for accordingly in the research.

The extent of the CIT that includes both the layers of context and the particular actors involved in the respective policy processes also allows for a more comprehensive look on the political context's impacts beyond the water governance regime. While the framework will mainly be used to get an overview of the different elements of the water governance regime that play a role for the implementation of adaptation strategies in the West Bank, and to systematically map the impacts the wider political context has on these elements, a broader discussion on the basis of the CIT will also highlight other ways in which the political situation affects certain actors and specific cases.

It is an objective of this research to analyse how the CIT performs in a study region that is characterised by more extreme political conditions than the European governance systems it was initially drafted for. I am therefore taking an inductive approach to the CIT, relating the empirical evidence obtained from data collection back to the framework in order to test whether all parts of the CIT are indeed applicable to the situation in the West Bank and if there are aspects that cannot be fit within the framework.

5 | Methods

5.1 | Research questions

This research is guided by the following overarching research question:

How does the political context of external and internal instability in the West Bank influence the ability of the Palestinian water governance regime to implement strategies to adapt to a decrease in water availability?

In order to systematically address this question, the topic is divided into three parts, expressed by the sub-questions below. Answering each sub-question will lead to a coherent picture on how the two main aspects of the prevailing political situation in the West Bank, namely the Israeli Occupation and political processes within the Palestinian society, affect water governance and how this impact takes form in the implementation of adaptation strategies and projects.

- *How does the Israeli occupation affect the different aspects of the water governance regime that are necessary to implement adaptation strategies in the West Bank?*
- *How is the water governance regime's ability to advance adaptive strategies in the West Bank influenced by internal political processes?*
- *How does the influence of the political situation become visible in the choice and implementation of adaptation strategies in the West Bank?*

5.2 | Governance Assessment Tool

The Governance Assessment Tool (GAT) by Browne et al. (2015) includes a set of analytical questions that can be used to map the different elements and qualities of a governance regime as outlined in the CIT framework. It was developed in the context of the EU project "Benefit of Governance in Drought Adaptation" (DROP) to "systematically assess a governance context in a specific domain concerning a specific issue" (Browne et al., 2015, p. 4), mapping how supportive or restrictive the governance regime is towards the implementation of certain actions such as drought adaptation. The focus of the GAT is hence not on the evaluation of certain actors within the policy process, but on the governance regime and overall context that frames the process.

The scheme and set of analytical questions (Table A1 in the Appendix) that make up the

	Extent	Coherence	Flexibility	Intensity
Levels and Scales				
Actors and Networks				
Problem Perceptions and Goal Ambitions				
Strategies and Instruments				
Responsibilities and Resources				

Figure 9. GAT matrix that is used to visualise results. Source: Browne et al. (2015).

core of the GAT are used as a guideline in this research to map the influence the political context has on the Palestinian water governance regime and the implementation of adaptation actions. Additionally, I will use GAT matrices to visualise the influence of different aspects of the political context on the water governance regime in order to give a quick overview of the prevailing impacts. Each matrix consists of cells for each element and quality of governance (Figure 9) and gives colour-coded information on the way the water governance regime is impacted. Green indicates a supportive effect, yellow indicates a neutral effect and red indicates a restrictive effect (Browne et al., 2015). Unaffected cells are left blank. Additional information can be given by arrows that indicate a change within the governance system over time.

As the GAT was primarily used to assess governance regimes in Europe and mainly focuses on the relation between governance and policy process, less on the relation between wider context and governance, this research also aims at testing whether it is feasible to use the GAT outside of its initial scope of application but on a broader scale.

5.3 | Data sources

Data collection took place during my stay at Al Quds University in the West Bank from October to December 2015. There are two main sources of information: interviews with relevant stakeholders and report analyses.

The interviews aimed at gaining first-hand information about how the interviewee and their organisation are affected by the political situation and the impact it has on their work in the water sector or for climate adaptation. Interviews were semi-structured and, as mentioned above, loosely based on the GAT analytical questions. This format was chosen in order to allow for some flexibility with regards to individual stories while at the same time covering the basic aspects of the CIT. As many aspects of the research topic are politically disputed and potentially include criticism on Israeli and Palestinian organisations and colleagues, all information data is treated anonymously and only linked to the organisation the respective interviewee works for. A list of all interviews is given in Table 2. Note that the exact date of each interview is omitted as well in order to prevent backtracking, especially in smaller organisations and departments. The table also includes the code that is used to refer to information given in each interview later on.

Ten out of the eleven interviews were conducted face-to-face and were either recorded on tape or by notes, the PWA/TPAT interview had to be carried out over the course of several emails. All conversations could be held in English, a translator was not necessary. Contacts to the different interviewees were either made by fellow researchers at Al Quds University according to a stakeholder analysis for the Palestinian water sector and climate adaptation or by previously interviewed people.

In addition to the interviews, several reports and strategic papers with relevance to the water sector or climate adaptation were analysed with the aim to collection information on the official positions of governmental agencies and to fill gaps from the interviews. Table 3 lists the reports, including both governmental and NGO publications.

Finally, some information was also obtained from my personal observations over the course of the field work, and from personal conversations with colleagues at Al Quds University and with locals.

Table 2. Interviews that were conducted over the course of the data collection period.

Date	Organisation / Department	Code
October 2015	Palestinian Water Authority / Research and Development Department	PWA/RaD
October 2015	Palestinian Water Authority / Water Resources Development Department	PWA/WRD
November 2015	Ministry of Agriculture / Agricultural Water and Irrigation Department	MoA/AWI
November 2015	EcoPeace	EP
November 2015	Palestinian Water Authority / Emergency Capacity Building Project: Technical, Planning and Advisory Team in the Water and Sanitation Sector	PWA/TPAT
December 2015	West Bank Water Department / Water Quality Department	WBWD
December 2015	Water Supply and Sewerage Authority Bethlehem	WSSA
December 2015	Applied Research Institute – Jerusalem	ARIJ
December 2015	Environment Quality Authority	EQA
December 2015	Gesellschaft für Internationale Zusammenarbeit / Water Programme	GIZ
December 2015	Palestinian Hydrology Group	PHG

Table 3. Reports and strategic papers that were analysed in the data collection period.

Title	Publishing Institution	Year
Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority	UNDP/PAPP, EQA	2010
Palestinian National Plan 2011-2013: Agriculture Sector Strategy	MoPAD	2011
Palestinian National Plan 2011-2013: Environment Sector Strategy	MoPAD	2011
Palestinian National Plan 2011-2013: Water and Wastewater Sector Strategy	MoPAD	2011
National Water and Wastewater Policy and Strategy for Palestine	PWA	2013
Transboundary Water Resources Strategy	PWA	2013
National Development Plan 2014-16: State Building to Sovereignty	MoPAD	2014
Water Governance in Palestine: Sector Reform to Include Private Sector Participation	GWP-Med	2015
Regional NGO Master Plan for Sustainable Development in the Jordan Valley	EcoPeace , Royal HaskoningDHV	2015

5.4 | Organisation of results

The following sections will present the empirical qualitative data that was gathered through interviews and the analysis of relevant reports and policy papers. Information is grouped into four different sections that highlight the four recurrent issues that were brought up by interviewees and in reports over the course of the data collection:

- *The Palestinian Water Sector in Transition*, dealing with the structure of the water sector and the changes that were brought about by the new Water Law in 2014;

- *Crisis Management under Occupation*, dealing with the implications of the Israeli occupation of the West Bank on the work of the Palestinian water sector;
- *Donor Dependency and the Involvement of International Organisations*, dealing with the reasons for and the effects of the participation of international organisations in the Palestinian water sector;
- The question of a *United Vision of Climate Adaptation*, dealing with how the different actors in and around the water sector do or do not collaborate in order to implement adaptation strategies.

These four issues constitute the main fields that are affected by the political situation in the West Bank and, in turn, affect the water governance regime. In order to map these interactions, the CIT framework and the GAT are applied to each issue below. As relations between wider context and governance regime differ from issue to issue, primarily organising the results by empirical evidence instead of in line with the conceptual framework also provides an opportunity to test how the different types of interrelations fit within the CIT framework and whether there are certain pieces of empirical information that cannot be assigned a spot within the framework. Results within one section are thus organised according to different aspects of the issue, preceded by a short introduction that gives an overview of the most important aspects and locates them within the GAT.

In addition and in order to highlight the different ways in which the influence of the political situation becomes visible in the implementation of adaptation projects, two small case studies are presented: a government project to desalinate the Dead Sea springs and a NGO project to rehabilitate ancient wells throughout the West Bank.

6 | The Palestinian Water Sector in Transition

In June 2014, Palestinian president Mahmoud Abbas issued a presidential decree in relation to the existing water law that is commonly referred to as the '2014 Water Law'. The Water Law is part of a bigger reform process that is aiming to restructure the water sector in order to clarify the mandates and responsibilities of the different actors involved with water management. It also promotes inclusion of the private sector both as service providers and as investors. The improvements to the organisation of the water sector that are aimed for in the 2014 Water Law are indicated by arrows within the GAT scheme in Figure 10.

The application of the Water Law and the realisation of its objectives are, however, negatively affected by some factors in relation to the current structure of the water sector and the geographical fragmentation of the oPt in general that complicate the restructuring of existing institutions and the introduction of new agencies on the national level. Nevertheless, there is broad agreement on the need for improvements among the different stakeholders. These effects are depicted as colours in the respective cells within the scheme in Figure 10.

6.1 | Initial status of the water sector

The reform process to restructure the Palestinian water sector was started in 2009. At this point, the sector was organised on four different levels: decision-making, regulation, development and supply, and service provision (PWA, 2013a).

The formulation of laws and regulations for the water sector was the task of the National Water Council, established in the Water Law of 2002 and headed by the Palestinian President. Regulations would then have to be submitted to the Prime Minister for approval. This council, however, has never met. In 2003, the new Palestinian Basis Law rearranged the relations between public institutions, putting most of them, including the Palestinian Water Authority (PWA), under the jurisdiction of the Council of Ministers. As the Water Law effective before 2014 had never been revised to reflect the changes brought about by the Basis Law, the PWA was still unable to issue any laws itself, thereby limiting its possibilities to manage the water sector (PWA, 2013a).

The PWA was established in 1995 as regulatory and, up until 2002, decision-making institution (GWP-Med, 2015). With the aforementioned limitations on decision-making, the PWA mainly resumed its regulatory function, overseeing the allocation of water quantities

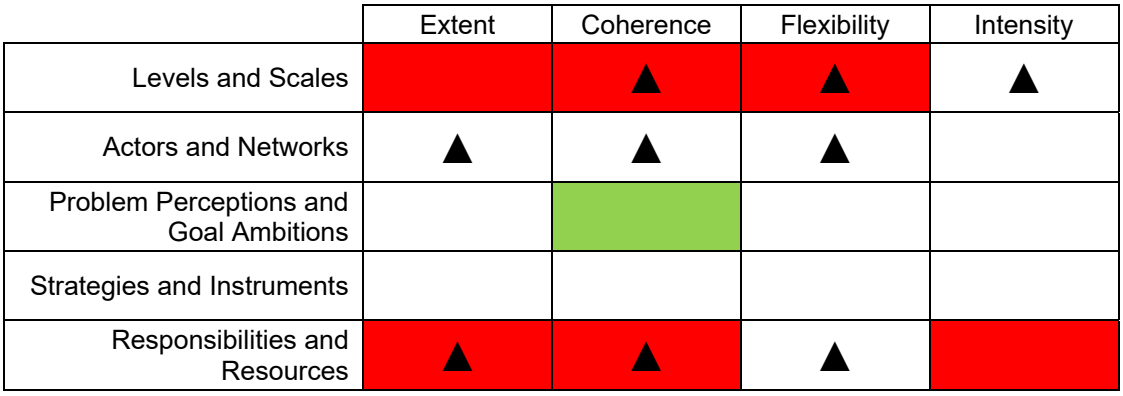

Figure 10. The changes to the Palestinian water sector with the 2014 Water Law (arrows) and different factors influencing the transition (colours) within the GAT scheme.

and infrastructure development projects within the Palestinian water sector (PWA, 2013a).

The West Bank Water Department (WBWD) was in charge of the development of the water resources in the West Bank and the bulk water supply to the service providers. While the overall management and allocation of resources was still in the hands of the PWA, the WBWD would assume all functions related to operation and maintenance in the field (WBWD, Dec 2015). The financial standing of the WBWD has suffered from high rates of 'unaccounted-for water' (UFW), which is water that is either produced, but does not arrive at the consumer's tap due to leakages and theft, and 'non-revenue water' (NRW), which is supplied, but not billed, for example in the case of mosques and refugee camps. As a result, the WBWD has been highly indebted prior to the sector reform process (PWA, 2013a).

Service provision to the Palestinian people was done by a variety of water supply utilities throughout the oPt that differed in structure and mandate area. In the West Bank, four different types of service providers were active, some of them public utilities, others private companies: regional utilities, joint service councils, municipal water departments, and village councils (GWP-Med, 2015).

Figure 11 shows the structure of the Palestinian water sector and the relations between its main institutions in the wake of the sector reform process. Note that the National Water Council is not included in the schematic as it did not serve any practical function anymore. Project Management Units (PMU) were put in place for particular, usually donor-financed, infrastructure development projects in order to facilitate and supervise their implementation (PWA, 2013a).

While a theoretical division between the administrative levels and the exertion of different functions was made with the 2002 Water Law, a number of obstacles prevented the sustainable development of the Palestinian water resources and led to ineffective governance within the water sector and a weak capacity to implement management strategies (MoPAD, 2011a, 2011c). Following several assessments by international

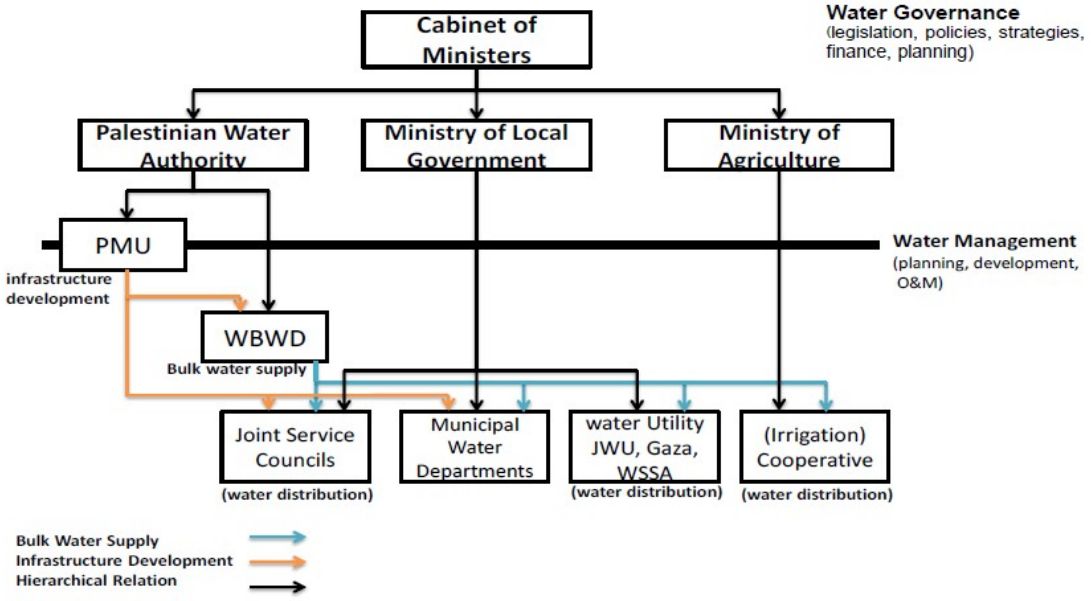

Figure 11. Structure of the Palestinian water sector prior to the 2014 Water Law. Source: GWP-Med (2015).

- Strong fragmentation in the water sector;
- Problems in the institutional arrangements, in particular unclear roles of the different actors as well as coordination problems;
- The application of the inherited laws;
- Capacity building requirements at all levels;
- Shortcomings in the enforcement of laws and policies;
- Shortage of funds and funds release in a timely manner for priority projects;
- A strong emphasis on crisis management rather than long term management;
- The sector needs to be further decentralized if PWA is to assume its determined role;
- Insufficient data and information, particularly in terms of reliability, accessibility and sharing;
- Poor coordination and low transfer of information between Ministries/ Authorities and water sector stakeholders;
- Public awareness in relation to water and wastewater related issues is limited; and
- A lack of support for PWA in negotiations with the JWC and ICA on approaches to enable the implementation of pending high priority projects.

Figure 12. List of core obstacles to be addressed in the water sector reform process. Source: PWA (2013a, p. 103).

organisations, a list of the main obstacles requiring immediate attention was compiled, including both internal factors directly related to the water sector itself and external factors. The main problems highlighted in this audit process were the highly fragmented nature of the service provision, unclear mandates and relations between institutions, financial problems within the sector due to administrative and technical deficits, and a rather centralised PWA that was tasked with too many different responsibilities while lacking the institutional structures and laws to back up its work. The whole list of core obstacles is given in Figure 12. In addition to these factors, there were several constraints related to the Israeli occupation that could not be addressed in the internal reform process (PWA, 2013b). More information on those will be given later on in Section 7.

Based on this assessment process, the sector reform itself was started with the endorsement of an “Action Plan for Reform” by the Cabinet of Ministers in December 2009, primarily aiming to clarify the mandates of the different agencies in the water sector and define and institutionalise the relationships among them and to other organisations, the civil society and the private sector in order to enhance good governance and the sustainable development of the water resources (PWA, 2013a). The 2014 Water Law was brought forward as the instrument to formalise and, eventually, implement the restructuring measures required to reach these objectives (GWP-Med, 2015).

6.2 | The 2014 Water Law

At the core of the 2014 Water Law lies a stricter separation between governance and regulation functions and the management and operation of supply services (PWA, 2013a).

The associated restructuring of the water sector takes form in the following four main institutional changes.

The *PWA* now performs ministerial functions such as setting new policies and strategies, and regulates the management of water resources (PWA, 2013a). As such it is in charge of allocating water quantities and issues abstraction licences, and is tasked with the protection of water quality and the development of new infrastructure projects. The PMUs are therefore getting further embedded within the PWA structure (GWP-Med, 2015).

The *Water Sector Regulatory Council (WSRC)* is newly introduced as regulatory body overseeing bulk water supply and the service provision of all utilities in order to ensure sufficient quality of water and wastewater services and affordable prices for consumers. This includes among other tasks the regulation of a homogeneous water tariff to be applied by all service providers (GWP-Med, 2015; PWA, 2013a). As opposed to the PWA, the WSRC is not subordinate to the Council of Ministers, but an independent entity. Figure 13 shows the WSRC's special position within the new water sector framework: on the governing level, but outside of the ministerial network.

As a result of its poor economic performance, the WBWD gets restructured into the *National Water Company (NWC)*, a publically owned company that covers both the West Bank and Gaza (GWP-Med, 2015). The NWC continues to manage the bulk water supply to service providers throughout the oPt. Additionally, it is put in charge of the management of the national water infrastructure and the development of water resources as licenced by the PWA (PWA, 2013a).

In a longer process, the different water service providers will be grouped into bigger water utilities. Starting at the governorate level, the goal is to eventually have four *Regional Water Utilities (RWU)* in the oPt – one in Gaza and three in the West Bank (North, Centre, South).

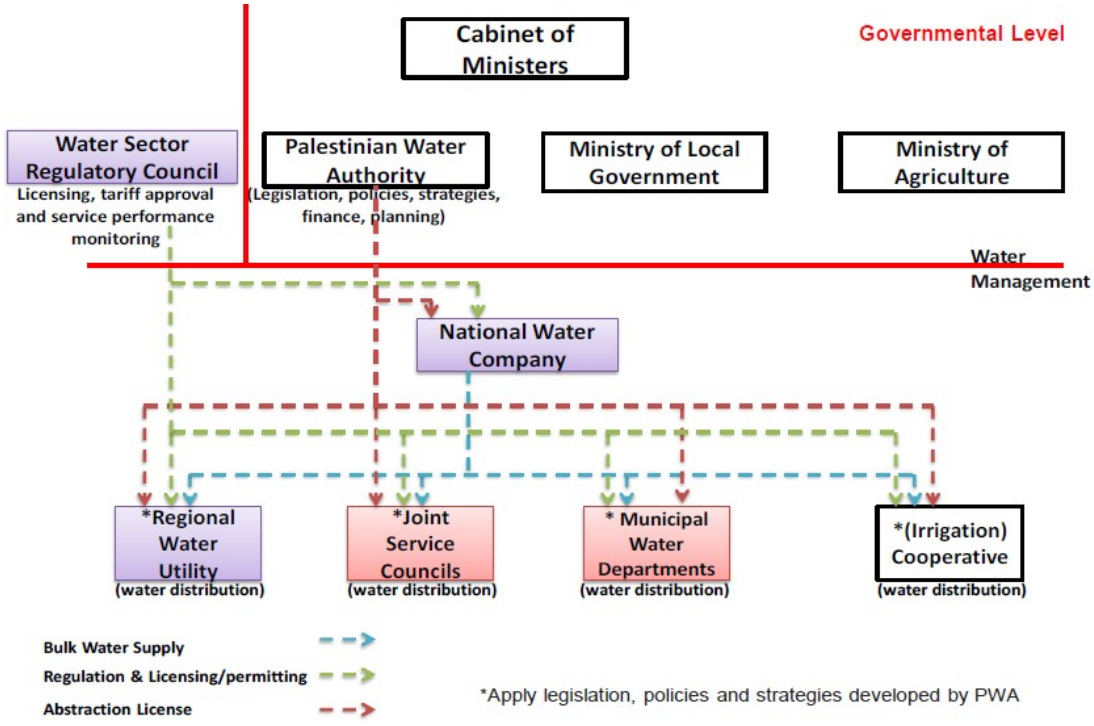

Figure 13. The restructured Palestinian water sector according to the 2014 Water Law. Source: GWP-Med (2015).

RWUs will also take over the responsibility for wastewater treatment within their mandate areas (PWA, 2013a). The Joint Service Councils and Municipal Water Departments that are still mentioned in Figure 13 will hence disappear over the course of the restructuring of the water service providers landscape. Irrigation cooperatives are also grouped into larger *Water User Associations (WUA)*, in charge of distributing irrigation water among agricultural users. WUAs are jointly regulated by the Ministry of Agriculture (MoA) and the PWA (GWP-Med, 2015). WUAs should also monitor private wells and take action against illegal abstractions within their mandate area (PWA/RaD, Oct 2015).

In addition to the overall restructuring of the sector and particular actors, the 2014 Water Law also covers a number of measures to implement and enforce stricter controls on water abstraction in order to prevent excessive or illegal abstractions that exceed the aquifers' safe yields and to prevent groundwater quality deterioration (PWA, 2013a).

Another focus of the new Water Law is on improving the financial situation of the water sector. Previously, many agencies, most notably the WBWD, did not operate according to commercial practices and were not able to recover operation and maintenance (O&M) costs. The implementation of more business-like management principles and the regulation of water tariffs to meet O&M costs are one strategy put forth in the Water Law to make the water sector financially viable (PWA, 2013a). The other strategy concerns the enhanced inclusion of the private sector both in Public Private Partnerships (PPP) and as investors (PWA/RaD, Oct 2015). This requires the establishment of a "stable and suitable investment environment" (GWP-Med, 2015, p. 35). Ideally, the private sector would not only get involved in individual projects, but also become a permanent part of the water sector as service providers to the supply utilities (GWP-Med, 2015).

6.3 | The status of the Water Law's application and delaying factors

The National Water Strategy of 2013 indicates that the Water Law's application will take some years and even expects that WSRC, NWC and the RWUs still won't be fully implemented by 2032, but only at 90 %, 80 % and 80 %, respectively. The PWA's restructuring and the introduction of new policies and regulations is, however, planned to be completed by 2032 (PWA, 2013a). The transition from WBWD to NWC is supposed to happen by 2017 (GWP-Med, 2015). In the meantime, a transitional period in which agencies maintain their previous mandates until all relevant new structures are completely institutionalised is not only expected for the WDWB, but also for the PWA with regards to the regulatory functions that are to be taken over by the WSRC, the PMUs, the Ministry of Local Government (MoLG) and its relations to the different water service providers, and the Ministry of Agriculture (MoA) in its work with irrigation cooperatives and WUAs (GWP-Med, 2015).

With approximately half of the three year time horizon for the restructuring of the WBWD being over at the time of the data collection period, neither the interviewee employed at the WBWD itself, nor the interviewee with the Water Supply and Sewerage Authority (WSSA), the water service provider in the greater Bethlehem area, had noticed any changes to the structure of the WBWD or to the relation between WBWD and utilities (WBWD, Dec 2015; WSSA, Dec 2015). The WSSA adjusted their water tariffs in accordance with the new tariff policies that were introduced alongside the 2014 Water Law, there have not been any further

adjustments to the utility's structure with regards to grouping it with other service providers though (WSSA, Dec 2015).

When asked about the Water Law's application, while all agreeing that it was an important step in the right direction in order to ensure sustainable water resource development in Palestine, numerous interviewees brought up factors that will hinder the transition process and delay the complete implementation of the Law and associated policies. These factors were indicated by colours in the GAT scheme in Figure 10.

From the perspective of the WSSA, the main problem with the restructuring of the water service providers into RWU lies in the isolated nature of districts and municipalities, both in terms of management structures that differ vastly from community to community and in geopolitical terms. Reaching agreements on a supra-municipal level is impeded by problems surrounding meetings of representatives in Ramallah, leading to a weak overall management of service providers' affairs. Due to often unpredictable mobility restrictions such as road blocks on major streets between cities, it may be impossible for some organisations to attend meetings, leading to them getting postponed time after time. Progress on a higher administrative level, such as grouping smaller utilities, is thus hard to achieve (WSSA, Dec 2015).

Besides, many communities are still using laws that were issued during earlier eras in the Palestinian history, such as under British or Jordanian rule or by the Israelis prior to the Oslo agreements. Issuing a new Water Law hence does not mean that it will naturally be implemented in all parts of the oPt. Differences in the water laws applied lead to fundamental differences in how water is allocated, how rules can be enforced and what kind of signals are sent to the members of the community by these enforcement instruments. Under Jordanian law, for instance, damage to a donkey was punished with a fee of $200, damage to a spring with a fee of $5 (PWA/RaD, Oct 2015). This law is still in use in some parts of the West Bank, valuing water resources significantly lower than the national policies do, because consensus about changing laws within the community is lacking and the Palestinian Authority (PA) is lacking influence to enforce their laws on the local level (PHG, Dec 2015). Implementing national laws on a smaller scale is also made more difficult by a variety of legislation structures that differ from community to community (GIZ, Dec 2015).

The objective to bring the water sector to better financial standing, while understood as important step to better resources management, is also seen as very difficult to reach. The central problem about involving the Palestinian private sector in PPPs is the lack of economic potential in the domestic private sector due to the weak national economy (WSSA, Dec 2015). The decline of economic growth to the point of stagnation is usually connected to restrictions imposed on the movement of goods and economic development by the Israeli occupation (MoPAD, 2014). Decreasing the amount of non-revenue water (NRW) in the Palestinian water sector is also seen as rather difficult, as a considerable amount of NRW goes back to concessions Yasser Arafat made towards the Palestinian people, quoted by an interviewee with the Applied Research Institute of Jerusalem (ARIJ) as "I want you to give me ten children per family, twelve children per family, I want ten for the revolution, and two you can keep for yourselves, and you are exempted from everything." Up to today, people are referring to these concessions and refuse to pay their bills for basic services such as water (ARIJ, Dec 2015).

The restructuring of mandates and responsibilities within the ministerial bodies of the water sector, mostly affecting the PWA, is suspected to be delayed by some actors who do not want to give up certain mandates and the resources that come with it (PHG, Dec 2015). Throughout the data collection period, it became repeatedly visible that Palestinian professionals, both in administrative positions and in research, can be very competitive. The fear of losing influence and funding for projects can thus play a role in how committed individual actors are towards changes in the system. Many Palestinian agencies are also already restricted in their mandates by the Israeli occupation and Israeli agencies that take up competing responsibilities, and hesitant to give away additional power (GIZ, Dec 2015).

Many of these obstacles are directly related to the lack of process in the negotiations between Israel and Palestine and in the efforts to unite Palestine under one leadership and cannot be seen as issue of the water sector alone. As a result of this embedment within the overall political situation, it is hard to predict how long the complete application of the 2014 Water Law will take. While some of the problems with the old sector structure are hence rectified, others prevail for the time being. Service provision is still highly fragmented and will, according to the WSSA, probably stay this way for the next years to come (WSSA, Dec 2015). As long as the PWA is in transition and restructuring, its ability to partake in other projects such as climate adaptation efforts is also reduced (ARIJ, Dec 2015).

7 | Crisis Management under Occupation

The Israeli occupation is recurrently brought up as the main source of problems for water management in the West Bank. Figure 14 shows an overview of its main impacts on the Palestinian water sector through the GAT scheme. The issue of the occupation is especially prominent with governmental agencies that are restricted by the lack of control over the water resources in their mandate area and the additional administrative levels of Joint Water Committee (JWC) and Israeli Civil Administration (ICA) in Area C that need to issue permits for water management projects prior to their implementation. As the goals of Palestinian organisations differ from those of the JWC, dominated by Israel, and the ICA, this process is a lengthy and, from the Palestinian perspective, often unsuccessful one. Within Palestine though, this situation leads to a more coherent problem perception throughout the water sector as almost everybody agrees on the occupation and the lack of control over the domestic water resources being the major problem. Other, less pressing, problems tend to be omitted while possibilities to manage the resources under occupation are worked out.

The numerous restrictions on the Palestinian people in general, such as on the movement of people and goods and the different administrative Areas in the West Bank, mainly have an impact on the instruments that are available to the actors in the water sector. Projects may be rendered impossible due to their location in Area C or because required material cannot be imported. As a result, many strategies are based on the anticipation of an end to the occupation, but until this anticipation comes true, little can actually be implemented.

At the same time there are some attempts to foster cooperation with Israelis in individual projects and on a larger scale in order to shift from crisis management that focuses the available resources on the most urgent projects, mainly supplying water to all households, to a more sustainable integrated water management. Opinions on and success with cooperation projects are mixed. There is agreement though that the current situation will persist and an end to the occupation probably does not lay in the foreseeable future.

7.1 | Control over the water resources

Since 1967, Israel has controlled most of the water resources in the West Bank, leaving the Palestinian Authorities in general and the PWA in particular with very limited control over the resources themselves, rendering them unable to develop resources and infrastructure according to their own strategic plans (MoPAD, 2011c, 2014). Prior to the Oslo Accords, there were no Palestinian water agencies and development and maintenance of the water

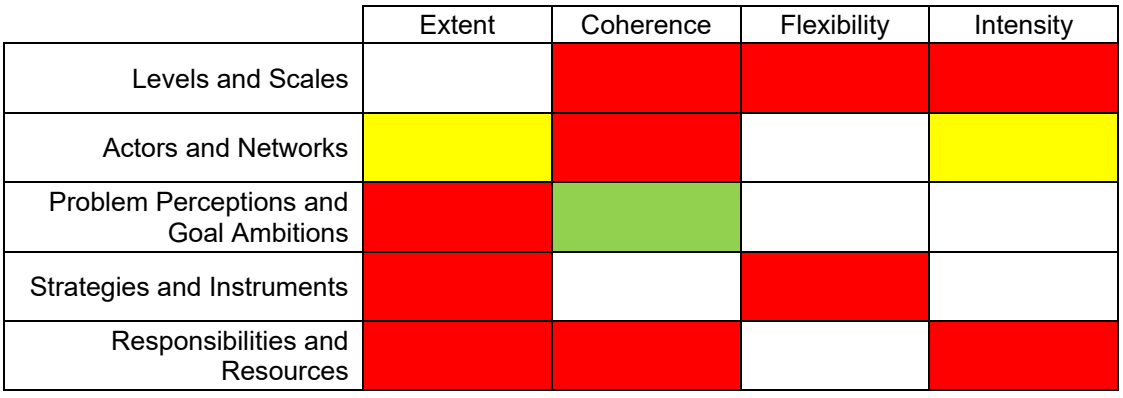

Figure 14. Impacts of the Israeli occupation on the Palestinian water governance regime.

resources and the related infrastructure was in the hands of the Israeli authorities who widely neglected their responsibilities towards the Palestinian water sector. The result was inefficient management and often run-down infrastructure (MoPAD, 2011c). When the PWA was instated in the Oslo Accords to take care of some of these management duties, it was given no definite mandate or power in relation to actual control over resources, but rather the task to administer the Palestinian water sector and supply network while Israel kept control over most of the aquifers. Although new Palestinian water laws have allocated additional responsibilities to the PWA since then, it is still lacking basic control over the water resources within the oPt. The root of this problem, according to a PWA employee, lies within the allocation of resources, both theoretically in the Oslo Accords and in practice, which is not based to population numbers or geographical extension, but “based on force and occupation.” Palestinians have offered to share the transboundary aquifers based on international law for years, but were rejected by the Israelis, allegedly because they are currently receiving a lot more than their share would be (PWA/WRD, Oct 2015).

The Eastern aquifer was intended as the main site of Palestinian water resources development in the Oslo II Agreement. However, according to the EQA, Palestinians only have access to the upper aquifer, but not to the lower one. The upper aquifer widely contains brackish water, limiting the usage to currently approximately 10 % of the aquifer and leading to overexploitation in those regions where the water can actually be used, mostly for agriculture (EQA, Dec 2015).

In addition to the inequitable sharing of the groundwater resources, Palestinians have had no physical access to the Jordan River since the onset of the occupation as the land alongside the river was declared Israeli military area, forbidding any Palestinian to enter. The Palestinian usage of Jordan River water thus dropped from 250 Mcm per year to zero in 1967 (PWA/WRD, Oct 2015).

The lack of control over the water resources is usually given as the main problem the Palestinian water sector has with supplying water in sufficient quantity and quality to its people. It limits not only the amount of water the PWA and Palestinian communities can produce from their own wells, but also the PWA’s ability to enforce quality standards and react to cases of pollution such as the release of untreated wastewater into the Jordan River and aquifer recharge areas by Israeli settlements (PWA/WRD, Oct 2015). It is also seen as a more pressing problem than as a solution to the prospects of aggravated water scarcity. Climate impacts would not be problem for the Palestinian people if they were able to manage and develop their own water resources (PWA/RaD, Oct 2015). While it is important to the PWA to increase the water sector’s resilience against climate change and higher drought occurrence, it is also vital to increase its resilience against occupation (PWA/WRD, Oct 2015).

The inability to develop and manage all of the national water resources also has a socio-economic impact on the water sector. According to a World Bank report from 2010, the Israeli control over the resources takes approximately 110,000 jobs away from the Palestinian water sector, and the Environment Quality Agency (EQA) expects this number to rise further due to climate change (EQA, Dec 2015). For the agriculture sector, the aforementioned problems with access to and supply of water for irrigation are additionally propagated by the lack of control over much of the land within the West Bank. With the irrigation demand on the available land increasing and limited alternatives to move to within

the oPt, farmers will experience additional struggles as a result of Israeli occupation and climate change (MoPAD, 2011a).

In order to offset the impact the Israeli restrictions have on the development of new water resources and thereby on the amount of available water, the PWA purchases water from the Israeli national water company Mekorot. The PWA then sells this water to the WBWD (the NWC) who in turn sells it to the water service providers on the local level (WBWD, Dec 2015). Around 50 % of the water currently consumed in the West Bank is imported from Mekorot (PWA/RaD, Oct 2015), and the amount has been increasing over the past years (see Figure 15). In addition to the dependency on Israel and Mekorot that is created through these imports and seen rather critically in the light of the overall geopolitical situation (PWA, 2013a), the imported water is usually a lot more expensive than the water from PWA and municipal wells, according to the PWA up to six times (2.8 NIS m^{-3} compared to as low as 0.5 NIS m^{-3}) (PWA/RaD, Oct 2015).

However, in some cases even imports cannot make up for the amount of water the people are lacking. 65 % of the water in Bethlehem is originally purchased from Mekorot, but the total amount of water still only constitutes about half of the share the municipality is entitled to according to the Oslo Accords. Instead of 135 L per day and capita, people are only receiving 50-70 L per day and capita. According to the WSSA, the amount of water Bethlehem receives has decreased since the Oslo process, while the population has grown; a problem very common to municipalities and service providers in the West Bank (WSSA, Dec 2015).

7.2 | Administrative and mobility restrictions

The Palestinian water sector is highly restricted in its possibilities to govern and manage the water resources in the West Bank by the necessity to obtain permits from the Joint Water Committee (JWC) for each hydraulic infrastructure project, from drilling new or rehabilitating old wells over laying pipelines to building reservoirs. The JWC was created in the Oslo Accords in order to coordinate the water sector in the West Bank in cooperation between

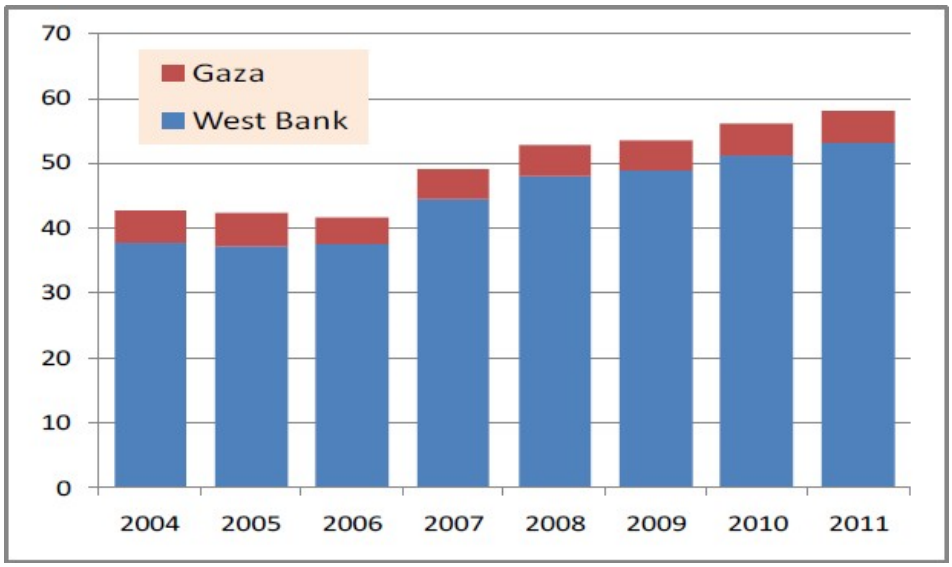

Figure 15. Amount of water purchased from Mekorot for domestic use in the West Bank, in Mcm. Source: PWA (2013a).

Israelis and Palestinians. However, Palestinians agree that it does not meet its goal to foster effective joint water resource management, but instead is dominated by the Israelis who aim to strengthen the position of the Israeli settlers in the West Bank (PWA, 2013b; PWA/RaD, Oct 2015). Obtaining permits from the JWC is a lengthy process that can take up to several years and chances are that the required permit will actually never be granted (EQA, Dec 2015). In many cases, the JWC also demands the inclusion of Israeli settlers into the project when there are settlements nearby, a condition rejected by Palestinians as they see it as legitimising the settlements (GIZ, Dec 2015). It thus seems to be significantly easier to obtain a JWC permit if there are no settlements nearby the project area (ARIJ, Dec 2015).

When justifying the denial or issuance of a permit, the JWC often refers to the water shares allocated in the Oslo Accords. Intended to be only temporary until final negotiations took place over the course of five years, the abstraction rights granted in these agreements are based on numbers from 1995. However, with the final status negotiations not having taken place, the same allocation is still used today, although the Palestinian population in the West Bank has approximately doubled since 1995. The old water shares are hence not sufficient to meet the requirement of the Palestinians anymore and are frequently criticised by Palestinians as outdated and in dire need of an update to account for nowadays socio-economic conditions (PWA, 2013a).

Additional restrictions apply to all projects in Area C of the West Bank. While work in Areas A and B only requires a JWC permit, efforts in Area C also need a permit granted by the Israeli Civil Administration (ICA). Similarly to the JWC, this process can take up several years and often comes to a close without success (PWA, 2013b).

These two additional levels of control over which projects are allowed to proceed within the West Bank pose massive constraints on construction and rehabilitation of water and wastewater management infrastructure (PWA, 2013a). A certain focus of PA and PWA lies on infrastructure connectivity throughout the West Bank. There is high inequality in the availability of water resources to the Palestinian communities, with those in the Northern and Southern parts of the West Bank struggling particularly, due to Israeli restrictions and denied permits to extend the Palestinian water network to Area C in order to connect different communities (MoPAD, 2014; PWA, 2013a). According to a PWA employee, there are currently around 10,000 Palestinians in the West Bank who do not have access to water because there are no accessible resources nearby and connection pipelines to other resources would have to cross Area C (PWA/RaD, Oct 2015). A similar problem affects the use of treated wastewater for irrigation in agriculture. There are currently only few wastewater treatment plants in the West Bank and they are usually not located close to agricultural areas. A connection between treatment plants and farmland is, however, not possible due to them being separated by strips of Area C. Ideally, the treatment plant in Ramallah would for instance provide treated wastewater for irrigation in the Jordan valley around Jericho, but plans to build pipes to connect the two areas have failed as the required permits could not be obtained (WBWD, Dec 2015).

Area C along the Jordan River is subject to even stricter restrictions as it is declared Israeli military area, forbidding Palestinians to enter (PWA/WRD, Oct 2015). Restricting the arable land in the Jordan valley has led to intense overgrazing on the pasture land that is still available to Palestinian farmers and to the deterioration of vegetation and soils in those military areas that are not cultivated or otherwise taken care of. The ARIJ fears that desertification on the valley slopes will negatively affect the rainfall patterns by interfering

with the weather fronts, and therefore works on projects to restore the vegetation und use the available water more efficiently. However, 97 % of the intended project area (3,000 km^2 in total) are located within the military area where work is not possible. When the NGO set up a pilot project of 6 km^2, a sign informing about a demonstration area was taken down by the Israelis, because, as an ARIJ member explained, “it was a security threat to Israel” (ARIJ, Dec 2015).

Next to the restrictions related to the administrative Areas and the JWC, the water sector’s work is also impeded by restrictions on the movement of goods. The import of technical equipment to the West Bank is generally limited by the Israelis, leading to scenes of bizarrely extensive junk yards, mostly containing car wrecks, which are exploited for spare parts to use for repairs (Figure 16). These restrictions have negative impact on economic growth and the overall business and investment environment which will be dealt with further in Section 8 (PWA, 2013a). They also affect infrastructure projects of all sorts, including those in the water sector, as the import of both material and equipment, for example for pipelines or the rehabilitation of already existing networks, require additional permits of the ICA (PWA/WRD, Oct 2015).

Travel and mobility restrictions due to checkpoints and alike are part of the Palestinian daily life. While they naturally have an impact on the overall working environment, they do not particularly affect the water sector any more than the other aspects of Palestinian society. Noteworthy obstacles arise, however, during times of heightened tensions when certain areas of the West Bank are either surrounded by tightened controls at checkpoints and roadblocks and therefore harder to reach, or deemed insecure due to the risk of spontaneous protests or uprisings. Both Palestinian and international organisations are affected by such circumstances as they can render work in high risk areas temporarily impossible (PWA/WRD, Oct 2015; ARIJ, Dec 2015; GIZ, Dec 2015). One prominent high risk area are the city and surroundings of Hebron, one of the biggest Palestinian cities that has partly been taken over

Figure 16. Car junkyard next to a small repair shop in the village of Abu Dis. Own photo, taken November 2015.

by Israeli settlers. Hebron also has one of the lowest quantities of water available per capita and day, hence is in dire need of projects to increase the water availability. Yet organisations like the GIZ tend to put security measures in place as soon as tensions between Israelis and Palestinians rise, including temporarily suspending all project work south of Bethlehem (GIZ, Dec 2015).

In order to be able to implement some projects irrespective of the Israeli restrictions, Palestinian organisations and contractors have worked out some strategies to evade needing any permits or getting in conflicts with Israelis in the area. The PWA is focusing on small-scale projects that do not need JWC permission for the implementation, such as the construction of small desalination plants at agricultural wells in the West Bank to desalinate brackish water from the upper Eastern Aquifer. Thanks to the small capacity of around 0.5 Mcm per year, these plants do not require permits. Projects are also preferably planned in Area A as it is normally easiest to obtain a permit there if necessary. Some projects in the implementation phase get disrupted by Israelis who attempt to stop workers from fulfilling their tasks. Some contractors therefore have strict requirements about the working conditions, demanding the work to be done at night exclusively (PWA/WRD, Oct 2015).

7.3 | Future planning

Due to the restrictions imposed on the water sector by the Israeli occupation, the possibilities to develop new water resources and to adapt the sector to climate change are limited. When planning for the future, a differentiation is thus made between strategies on the short term and on the long term. Short-term planning is characterised by coping strategies that attempt to make the most out of the current situation by reducing water losses, increasing efficiency and developing non-conventional water resources such as the reuse of treated wastewater, water harvesting and the desalination of brackish water on a small scale. While these efforts are crucial to provide water as long as the occupation sustains, they can only contribute a fraction of the amount of water that will be available as soon as Palestinians will be able to develop their own resources without restrictions. The short-term focus on increasing the availability of water in those areas that suffer most from scarcity by all possible means makes the current approach one of crisis management instead of sustainable development (PWA, 2013a; PWA/WRD, Oct 2015). Similarly, many multilateral efforts, for instance related to joint management of the Jordan River basin, are impossible unless peace between Israel and Palestine has been reached (Royal HaskoningDHV and EcoPeace, 2015).

It is, however, important to take the political and legal situation into account, especially when planning for the short term. From the perspective of the EQA, the reuse of wastewater is an interesting issue in this context. While the EQA supports the notion that wastewater needs to be reused, especially under the current geopolitical circumstances, it has to be kept in mind that wastewater that is directly reused for irrigation will be added towards the share of water Palestine in entitled to in the Oslo Accords. A possible way to circumvent this could be to let the treated wastewater infiltrate and use it to increase the recharge rate of the, in parts overexploited, Eastern Aquifer (EQA, Dec 2015). While increasing the amount of water imported from Mekorot could also be a short-term solution, the PWA refuses to resort to this strategy for political reasons. As the main issue is the Palestinians gaining their rights and control back, purchasing more water and thereby enhancing the dependency on Israel is not a viable option (PWA/WRD, Oct 2015).

Long-term planning is based on the assumption that the occupation has ended and Palestine has regained control over its land and resources, although it is impossible to predict with certainty when this will happen. The PWA's plans for the long-term future include the expectation of approximately 50 Mcm per year that will be made available to the Palestinians immediately after the retreat of the Israelis from the existing Israeli infrastructure in the West Bank. This water is supposed to bridge the gap for the first few years while larger resource development projects and re-allocation infrastructure to transfer water from governorate to governorate are being implemented (PWA/WRD, Oct 2015). In order to decrease the dependency on Israel and as an adaptation to the naturally water scarce conditions, water imports from other countries are also a long-term policy objective (PWA, 2013a).

One central problem with long-term planning in the West Bank was pointed out by a GIZ employee: not only is it uncertain *when* the occupation will end, it is also uncertain *how* it will end and what kind of agreements will be made over the course of the peace process. Uncertainty about issues like future land ownership and whether projects that are planned now will actually be possible to implement once the time has come lead to very low incentives to invest in long-term measures, both with regards to money and to time and workforce. For these reasons, the long-term strategies devised by the PWA and other agencies would be "rather naïve" (GIZ, Dec 2015).

7.4 | Cooperation with Israelis

In principal, there is some openness towards cooperation and joint projects with Israelis. While a number of ministerial bodies, including the PWA, have to work with their Israeli counterparts or other Israeli or bilateral organisations like the JWC, NGOs can choose more freely who to cooperate with, leading to differences from organisation to organisation. While ARIJ is open towards working with Israeli organisations and institutions, EcoPeace prefers to work with individuals on a one-on-one level. This way they want to avoid that the political agenda an organisation follows in the greater conflict gets in the way of project work (EQA, Nov 2015; ARIJ, Dec 2015). In any cooperation, be it with individuals, organisations or service providers, the main requirement for success is being treated with respect and as an equal. The ARIJ made the experience that many Israelis have a mentality of looking down on Palestinians and, although involving them in joint project meetings, keeping them at a lower level of power. Requiring a permit in order to be allowed to travel to Israel to attend a meeting as a Palestinian is not considered as being treated as an equal, but as a "slave" (ARIJ, Dec 2015). When it comes to commercial collaboration, a fair share of the benefits involved in the joint project has to be ensured as well (WSSA, Dec 2015).

A major attempt by the PWA to meet the present-day water scarcity in the West Bank by cooperating with the Israelis focuses on new agreements to swap allocated amounts of water from the different aquifers. Instead of further developing the already overexploited usable fractions of the Eastern aquifer the Palestinians were entitled to in the Oslo Accords, the PWA wants to swap these entitlements for the same amount of water to be developed from the Western aquifer. This strategy is an example for how the urgent need for additional water quantities can also be tackled within the bilateral institutional framework. There has not be any progress with this plan yet though (PWA, 2013b).

There are some successful joint projects though. The ARIJ has cooperated with Israeli settlers for some time now with both parties accepting each other as equal partners.

However, this cooperation created problems for the settlers who got “crucified” by the Israeli government for their involvement with Palestinians and had their funding decreased by the Ministry of Interior which has to approve all money that is spent on settlement projects in the West Bank (ARIJ, Dec 2015). There are also Palestinians opposing any cooperation with Israelis, especially settlers, pointing to Israel’s responsibility for the overall situation and accusing fellow Palestinians of legitimising settlements by working with their inhabitants (GIZ, Dec 2015).

On the institutional level, the JWC is supposed to foster cooperation between Israelis and Palestinians over the joint management of transboundary water resources. As mentioned above, the JWC does not fulfil its intended task. The latest Palestinian National Water Strategy therefore calls for the JWC to be disbanded and replaced by a new cooperation mechanism, involving all stakeholders at truly equal rights, in order to ensure sustainable water management (PWA, 2013a).

8 | Donor Dependency and the Involvement of International Organisations

International organisations and donors are important actors in the Palestinian water sector. The generally weak economy and the lack of financial resources in the water sector itself as well as the inability to benefit from financial support from the different United Nations programmes make donors one of the main sources of project money. Additionally, the implementation of many projects relies on the support of international organisations in order to obtain Israeli permits faster or more easily or to act as neutral third party in cases where cooperation between Palestinians and Israelis is necessary. International organisations can, however, also be needed to facilitate communication between different Palestinian parties. Figure 17 shows in the GAT scheme how the political situation affects the governance regime to make the involvement of international organisations and donors necessary as colours. Arrows indicate the implications of their participation in the Palestinian water sector.

8.1 | The need for financial and technical assistance in Palestine

The Palestinian economy is characterised by low GDP growth rates, reaching as low as 1.5 % in 2013, and decreasing private investment, leading the National Development Plan 2014-16 to expect a fiscal crisis as public expenditures cannot be covered by the PA's revenues. The main reasons for the weak economy are seen in the Israeli restrictions on the movement of goods, limiting international trade, and the denied access to resource-rich areas such as the Jordan valley that hold potential for economic growth. As a result, international donors play a major role in sustaining the national budget: international assistance currently constitutes around 10 % of the GDP (MoPAD, 2014).

The water sector similarly depends on the financial support of donors, both in order to implement individual projects and to finance the overall work of governmental agencies. This 'donor dependency' is widely expected to last until the Israeli occupation ends and unrestricted economic development is possible. For the water sector, additional financial problems occur as many people are unable to pay for water under the current circumstances. The refusal of the PWA to leave households without water even when bills cannot be paid increases the amount of NRW (PWA/WRD, Oct 2015). After the end of the occupation, the PWA expects free economy and a better investment environment to attract participation of the private sector to make the water sector widely independent of international donations

	Extent	Coherence	Flexibility	Intensity
Levels and Scales	▲	▲		
Actors and Networks	▲	▲	▲	▲
Problem Perceptions and Goal Ambitions		▶	▲	
Strategies and Instruments			▲	
Responsibilities and Resources	▲			▲

Figure 17. The impact of the involvement of international organisation in the Palestinian water sector (arrows) and the factors within the water governance regime that make international assistance necessary (colours) within the GAT scheme.

within a two year period. The need for financial assistance will then be limited to the implementation of large scale projects (GWP-Med, 2015).

With regards to the implementation of water and climate adaptation projects, socio-economic uncertainties such as the high unemployment and poverty rates restrict the capacity of governmental institutions from the local up to the national level (PHG, Dec 2015). Projects like new and more efficient wastewater treatment plants are usually completely donor financed (GIZ, Dec 2015). In addition to funding, international organisations also offer technical assistance. In the case of German involvement in the water sector for instance, the KfW, a state-owned development bank, grants financial assistance, while the GIZ (Gesellschaft für Internationale Zusammenarbeit) provides technical know-how to projects (GIZ, Dec 2015). Professional assistance is especially needed when it comes to new, more advanced technology (PWA/WRD, Oct 2015) and the combination of technical and organisational issues in order to implement Integrated Water Resource Management (IWRM) (PWA/RaD, Oct 2015).

While the geopolitical and socio-economic situation in the oPt makes international support crucial for both water sector and the PA in general, it also affects the willingness of those same donors to become involved in the West Bank. The National Development Plan 2014-16 calls the financial assistance by donors “unpredictable and volatile” (MoPAD, 2014, p. 16) and greatly dependent on the overall political situation. While many donor organisations are nowadays involved on the basis of contracts that make short-term reactions to political events difficult (GIZ, Dec 2015), major incidents like Hamas’ victory in the 2006 elections have had consequences on the amount of support that reached the oPt. An interviewee at the PWA recalled how donors pulled out money and suspended projects they were implementing in cooperation with the PWA in 2006/07. The drop in financial assistance even led to the PWA’s inability to pay salaries (PWA/WRD, Oct 2015). Such quick reactions highly depend on the individual donors and their political ties within the region. USAID, one of the biggest donors and important partner of the PWA, is known to temporarily retreat as a consequence of Palestinian provocations against Israelis (GIZ, Dec 2015). On the longer term, the PA fears a general decrease in international support if the political situation in the region does not improve (PWA, 2013a).

An additional factor specifically complicating financial assistance for projects in the water sector is the need for Israeli permits. Donors are more hesitant to become involved with projects that still require a permit from the JWC or ICA or are generally politically disputed (PWA/WRD, Oct 2015; ARIJ, Dec 2015).

8.2 | Involvement of international organisations in the water sector

Following the above-mentioned dependency on donor money, international organisations are important stakeholders in the Palestinian water sector and Palestinian actors cooperate with them on virtually all levels, sometimes for individual projects, sometimes in the context of bigger programmes or as parts of global networks (PWA, 2013b; GIZ, Dec 2015).

The GIZ works together with both authorities and NGOs, however, normally not in the same projects. Large scale projects in the water sector are implemented in cooperation with the PWA, projects focused on adaptation usually involve the MoA instead. Work with NGOs is limited on those projects the NGOs can get funding for, usually by the GIZ’s partner KfW.

Other donor organisations are usually following a similar strategy. As the density of international organisations that are active in the West Bank in general and the water sector in particular has steadily increased over the past years, especially since most organisations left Gaza when Hamas rose to power in 2006/07, donors try to coordinate their involvement amongst themselves in order to avoid redundant projects (GIZ, Dec 2015).

A great part of the PWA's work, especially with regards to climate adaptation, is done in cooperation with UN agencies, most notably the United Nations Development Program (UNDP) and the United Nations Department of Economic and Social Affairs (UN DESA). The latter is the initiator of a programme focused on drought in the Arab region and the PWA's main partner in devising a national drought measurement plan for which the UN DESA provides contacts to both regional and international consultants (PWA/WRD). While the lack of recognition as a sovereign state does not allow the PA to apply for development grants provided by UN programmes like the United Nations Framework Convention on Climate Change (UNFCCC), Palestinian representatives are already able to attend the corresponding conferences which are important platforms to establish dialogues with developed countries. The EQA uses these platforms to get in touch with potential new partner organisations in developed countries, following the notion that these countries need adaptation in developing countries just as much as the local people (EQA, Dec 2015).

Widely independent of Palestinian governmental and non-governmental organisations, service providers mostly foster partnerships and networks with other utilities around the globe. The WSSA for instance is part of the Global Water Operators' Partnership Alliance (GWOPA) which allows them to not only work together on different projects, but also regularly exchange know-how at international conferences. One of the WSSA's lead projects to reduce problems with the mixing of stormwater and wastewater is implemented in cooperation with Eau de Paris, the Paris water department, that can provide both financial and technical assistance (WSSA, Dec 2015).

Through this great involvement with the water sector and the control over an important part of the finances available to project implementation, donors have a significant influence on which projects will get realised and which approaches are followed within these projects (PWA, 2013b). In some cases the involvement of international organisations also leads to additional project objectives that would normally not be pursued by the involved Palestinian actors, in many cases related to issues of gender equality. These additional objectives usually do not interfere with the Palestinian interests though (GIZ, Dec 2015). In order to ensure that the project goals and strategies match the overall objectives of the sector development and that project results will last once the active implementation is over, the PWA calls for better monitoring and evaluation throughout the project planning and implementation process (PWA/RaD).

An example given at the PWA for a project that seemed to work out at first, but then failed on the longer term revolves around the use of treated wastewater for irrigation. A project was implemented that included the construction of additional infrastructure in order to increase the supply with treated wastewater to farms. However, after the completion of the project and when the supporting donors had left, the farmers themselves destroyed the new structures again and used the materials otherwise as they did not think the infrastructure was necessary. The project did not include sufficient communication with the beneficiaries on the ground, namely the farmers and their water user association, and thus did not take the methods the farmers had developed to cope with water scarcity in the past into consideration

(PWA/RaD, Oct 2015). The provision of tankers to increase the water supply is a similar problem according to an interviewee at the Applied Research Institute of Jerusalem (ARIJ), an NGO that works with international partners to increase the resilience of Palestinians to climate change and implement adaptation projects on a small scale. Water supplied by private tanker companies is significantly more expensive than water supplied by the utilities (25 NIS m^{-3} instead of below 5 NIS m^{-3}). As the Bedouin herders are one of the main target groups of these international organisations and their tankers, the higher price for water translates into an increase in meat prices. The ARIJ criticises the usage of tankers as an approach that is common in water scarce regions in Africa, but not suitable or sustainable for Palestine where water collection systems like rainwater harvesting are part of the culture and should be encouraged (ARIJ, Dec 2015).

8.3 | International organisations as facilitator of regional cooperation

Next to their financial and technical assistance, international organisations are also welcome as a neutral third party to oversee or facilitate bilateral cooperation between Palestinians and Israelis. The PWA especially wants to include neutral observers into JWC meetings to ensure compliance with the legal procedures by all parties (PWA, 2013a) and have them exert additional pressure on Israel comply with international law (PWA, 2013b). NGOs similarly like to involve international organisations in order to make sure that everybody is treated equally and with respect (ARIJ, Dec 2015; PHG, Dec 2015).

In other cases, donors get specifically mobilised to put pressure on the JWC or ICA in order to speed up the issuing of a permit required for the project they are involved in (PWA/WRD, Oct 2015). While this is a common practice, the process can still take up to five to ten years (GIZ, Dec 2015).

International organisations are furthermore desired to supervise cases of multilateral cooperation on a regional level. Efforts towards basin-wide management of the Jordan River that require participation of all riparians for instance should happen under the supervision of the United Nations in order to ensure that all stakeholders know and observe their responsibilities (ARIJ, Dec 2015).

In addition to the facilitation of bilateral or regional cooperation, the involvement of international organisations can also be required to help setting up joint projects involving several Palestinian institutions. Due to a rather competitive climate in working relations, both research institutes and many agencies are often reluctant to cooperate with colleagues from other organisations and to share resources. The presence of an international organisation as intermediary between Palestinian institutions can thus be beneficial for joint projects and strategies (PHG, Dec 2015).

9 | A United Vision for Climate Change Adaptation?

With a small contribution to the causes of climate change but being greatly affected by its impacts, adaptation has to be the main Palestinian reaction to climate change. A major part of adaptation is focused on stopping the decrease of water availability, relating not only to the water resources, but also to sustainable livelihood and welfare conditions. Adaptation is therefore a task of the whole Palestinian society (PWA/TPAT, Nov 2015). It is, however, impeded by the lack of a coordinated course of action that involves all relevant actors. Although numerous governmental agencies and NGOs are active in the field of climate change, most efforts and strategies are based on a core mandate area or interest of the implementing organisation and only involve a limited number of other actors. In many cases, more pressing issues than climate change, such as the provision of clean water, take priority on the agenda of ministerial bodies. Adaptation measures therefore need to also serve a more immediate cause ('no-regret measures') in order to get implemented.

Figure 18 shows an overview of the conditions the water governance regime sets for the implementation of an integrated climate adaptation strategy in the West Bank. It also highlights that while there are a lot of uncoordinated efforts by different organisations, there are cases in which cross-organisational cooperation works rather well, especially within the governmental level where collaboration between different bodies is institutionalised.

9.1 | Priorities of ministerial bodies and the people

The key priorities of the different agencies in the Palestinian Authority (PA) vary with their different mandate areas. Three of these agencies are highly relevant to the water sector and its adaptation to climate change: the Palestinian Water Authority (PWA), the Ministry of Agriculture (MoA) and the Environment Quality Agency (EQA). While they all have their specific priorities and policy goals, all government agencies' strategies ultimately come down PA's main objectives – the empowerment of the Palestinian people and the creation of an independent state of Palestine. In this context, ensuring access to clean water and regaining the related rights and control over resources is a top priority for the government (MoPAD, 2014). Climate change and its impacts are generally counted towards the responsibilities of the environmental sector, and not particularly priorities in other sectors. It is, however, acknowledged that climate change will affect many parts of the Palestinian society and that different sectors and agencies will have to deal with it eventually (PWA/TPAT, Nov 2015).

	Extent	Coherence	Flexibility	Intensity
Levels and Scales				
Actors and Networks				
Problem Perceptions and Goal Ambitions				
Strategies and Instruments				
Responsibilities and Resources				

Figure 18. GAT scheme showing the conditions for adaptation policies within the Palestinian water governance regime due to internal relations and processes.

- Project area needs, defined by access to quantity of available clean water and water supply network
- Benefits, described by per capita access to clean water and networked supply
- Immediacy of project benefit
- Project cost per person

Figure 19. Project prioritisation criteria given in PWA (2013a, p. 118).

The PWA's highest priority is to ensure water security and supply water to all people in the oPt (PWA, 2013a), with one of the current key strategies being the reduction of non-revenue water (NRW) (PWA/RaD, Oct 2015). Due to the urgency and scope of this main task, many other aspects have been neglected over the past years, most notably sanitation and the wastewater sector (MoPAD, 2011c). With regards to climate adaptation, the PWA sets its focus on increasing the Palestinian resilience to droughts. However, the PWA and its project partners agree that with more pressing problems like improving the very basic supply of water to all communities, adaptation projects take a lower priority on the PWA's agenda (PWA/WRD, Oct 2015; ARIJ, Dec 2015). In order to allocate resources to different water projects, the PWA prioritises efforts according to factors such as those given in Figure 19. These criteria mirror the importance of immediate action to improve the access to and availability of water, as opposed to long-term climate adaptation projects. Adaptation projects therefore need to be so called 'no-regret' measures that also have an immediate impact on other areas in the water sector (GIZ, Dec 2015).

The overall goal of the MoA is food security and the establishment of a sustainable agriculture sector (MoPAD, 2011a). The MoA's involvement with the water sector is mostly focused on working with WUAs to increase irrigation efficiency and to promote the use of treated wastewater for irrigation. Both aspects are also central strategies at the MoA with regards to climate adaptation (MoA, Nov 2015).

The EQA is generally concerned with sustainable resource management and raising awareness for the Palestinian natural resources (EQA, Dec 2015). It is also the leading ministerial body when it comes to climate adaptation, coordinating policies and government strategies (UNDP/PAPP and EQA, 2010). The EQA's strategic goals related to climate change do not only focus on droughts and desertification, but also on coping with natural disasters and higher flood occurrence (MoPAD, 2011b).

Outside of the ministerial level, priorities differ further. The main task and priority of water service providers is, naturally, to provide water and wastewater services to the people in their mandate area. Their main priorities when it comes to climate adaptation are therefore those issues that immediately affect the quantity or quality of the water in their supply network. As state-owned institutions such as PWA and WBWD are responsible for the provision of sufficient amounts of water, the service providers' focus often lies on problems with the quality. For the WSSA for instance, the main problem with climate change that is in need of attention are periods of high intensity rainfall in winter that lead to mixing of stormwater and wastewater, thereby deteriorating the water quality (WSSA, Dec 2015).

The variety of NGOs that are active in the West Bank translates into a range of objectives and priorities. Yet the work of many organisations includes a focus on the empowerment of marginalised groups such as women or youth and on the needs of local communities (ARIJ,

Dec 2015). The people themselves, however, are often not aware of or interested in climate impacts, including farmers who are one of the most affected groups (PHG, Dec 2015). Palestinians usually have more immediate issues to worry about, such as the occupation and Palestinian resistance and the survival needs of their families. Climate change is therefore not a priority in the minds of the people (ARIJ, Dec 2015).

9.2 | Coordination and integration of efforts

With a multitude of actors from different backgrounds and with different priorities and objectives, the governance system requires thorough coordination in order to integrate the separate efforts of each actor into a coherent climate adaptation strategy.

On the ministerial level, the involvement of other agencies in the water sector and their collaboration with the PWA is institutionalised in order to define the responsibilities of each agency. In addition to the MoA, in charge of policies dealing with irrigation, and the EQA, defining environmental regulations such as quality standards for treated wastewater, there is the Palestinian Standards Institute (PSI) which is setting all sorts of standards, including rules on sanitation and water facilities, and the Ministry of Local Government (MoLG) which oversees the local water service providers and their restructuring into RWUs. The Ministry of Planning and Administrative Development (MoPAD) is in charge of devising both the National Development Plan and all Sector Strategies and thus drafts the overall path of the water sector over the course of the next planning period in cooperation with the PWA (PWA, 2013a). In one way or another, these agencies hence have an influence on what is happening in the Palestinian water sector and should agree on shared objectives and a joint course of action when it comes to water management. The continuous decline in households without access to the water supply network indicates that this network of ministerial bodies is effective in fulfilling the most pressing task the Palestinian water sector is currently faced with (PWA/RaD, Oct 2015).

When it comes to climate adaptation, the situation is more complicated. As adaptation is part of the EQA's mandate and therefore an environmental issue, not a water issue, cooperation and project coordination is reached via a ministerial committee that is led by EQA and includes representatives of 13 different governmental agencies. This committee has to conduct an environmental impact assessment for every governmental project that might have an effect on the environment and issue a project permit based on the assessment results. All water-related projects have to pass this committee, especially those that evolve around wastewater treatment plants (EQA, Dec 2015).

Close collaboration between the different agencies and coordination and integrity when it comes to policies are thus prerequisites for the implementation of adaptation projects (EQA; Dec 2015). The MoA for instance, focusing on the use of treated wastewater in irrigation, needs to obtain permissions from both the EQA-led committee and the PWA for its projects, and has to turn to the PWA as intermediary for all requests directed at the JWC (MoA, Nov 2015). However, even though almost all of these relations and interdependencies between different ministerial bodies are institutionalised, the actual coordination of efforts between the agencies is still occasionally criticised as poor or insufficient to bring about improvements to the sectors involved or the boundary-spanning issue of climate adaptation (MoPAD, 2011a; PHG, Dec 2015). The PHG criticises furthermore that ministerial bodies usually only deal with issues related to climate change as they become actual urgent problems, but not in

advance, while otherwise focusing on their mandates and key priorities. This lack of long-term awareness, while understandable in the current Palestinian circumstances, is a major obstacle to adaptation (PHG, Dec 2015).

As soon as all other non-governmental stakeholders in the water sector and climate adaptation are taken into consideration as well, strategies and efforts become fragmented and widely uncoordinated. According to the PHG interviewee, this is due to the great variety in priorities, the lack of effective communication and because relations between stakeholders are not institutionalised outside of the ministerial level. Although many relevant organisations occasionally meet to discuss their courses of action, these meetings usually only contain each stakeholder stating their strategy. An integration or coordination of efforts in order to create synergies to reach a common goal does not happen. The different strategies pursued by each stakeholder do not interfere with each other, hence there are no conflicts between actors that would warrant better communication, just scattered efforts that do not live up to their potential. (PHG, Dec 2015).

One example given for how approaches by different stakeholders on different levels could be integrated to create synergies is the use of legal action by the ministerial bodies to support the work of organisations in promoting the use of treated wastewater in agriculture. There are currently no laws that incentivise the use of treated wastewater for irrigation. In Jordan on the contrary, laws were introduced forbidding the use of freshwater in agriculture and allocating it to domestic consumption instead. This way, farmers had to switch to treated wastewater step by step. Jordan's water crisis is not as urgent as the one in the West Bank, yet there have not been any steps towards similar regulations in order to prepare the Palestinian agricultural sector to increase the use of treated wastewater for irrigation. While it could be argued in this particular case that the hydraulic infrastructure for the reuse of wastewater on the larger scale is still missing in the West Bank, the PHG is convinced that the overall lack of integration between policies and adaptation projects is, at least in parts, a more general issue (PHG, Dec 2015).

The difference between strategies by governmental bodies and those by NGOs becomes particularly visible in the scale of projects. Authorities are usually following a top-down approach. Their projects are based on sector strategies and development plans for the whole West Bank or a certain governorate, and focus on national needs (GIZ, Dec 2015). NGOs on the contrary operate on a small scale down to the household level to raise awareness and work with the local community in a bottom-up approach. From time to time, NGOs get involved in projects on a larger scale, however always under the supervision of the governmental agency that is in charge of the project (EQA, Dec 2015). Even though working on a smaller scale, NGOs have to obtain permits from the PWA and the EQA just like any ministerial body. The PHG, although working together with the PWA in quite a number of projects, complained about a lack of cooperation from the government agencies whenever they are not involved in the particular project, and the high level of bureaucracy that is involved in the process of obtaining the required Palestinian permits that can take up to several months (PHG, Dec 2015).

In order to improve the coordination of climate adaptation efforts of all stakeholders, including governmental agencies, civil society and private sector, many NGOs call for the establishment of a committee or round table on climate change with the task to come up with an adaptation strategy that takes all stakeholders and their possibilities and priorities into account (ARIJ, Dec 2015; PHG, Dec 2015). A few years ago, the EQA, in collaboration with

the UNDP Programme of Assistance to the Palestinian People (UNDP/PAPP), had already come up with a strategy and action plan that included measures to improve the exchange of knowledge on climate change and enhance the institutional capacity to act upon it (UNDP/PAPP and EQA, 2010). This strategic report, however, still came short of ensuring a future vision that is shared by all stakeholders and on which joint adaptation efforts can be based. This vision has to go beyond climate predictions and include such basic questions of the socio-cultural life like “Where do we want to stand in the future?” and “How do we want our country to look like?” From there, the vision can be extended to more concrete issues like what objectives the agricultural sector will pursue and whether it is necessary to grow crops like citrus and bananas that consume a lot of water and are mainly exported. A dialogue between government, civil society and private sector is needed to discuss and answer these questions and to identify the role each sector can play. This extensive future vision, shared by all shareholders, can then serve as baseline for effective governance and suitable climate adaptation strategies (PHG, Dec 2015).

9.3 | Stakeholder involvement in projects

Almost all actors in the Palestinian water sector agree that thorough and active stakeholder involvement is necessary for successful sustainable water management and climate adaptation in the context of Integrated Water Resource Management (PWA, 2013a; PWA/TPAT, Nov 2015). Engaging stakeholders from the private sector, the civil society and the local communities in projects creates ownership and a better sense of accountability (GWP-Med, 2015). The link between politics and civil society, mostly in the form of NGOs, is particularly stressed and to be further improved by the PWA who relies on NGOs to promote sustainable management on the local level (PWA, 2013a, 2013b).

NGOs are the main driver of stakeholder involvement on the local level, relating back to their objective to empower local communities and marginalised groups. The communities are involved in projects from the first need assessment over the planning period up to the implementation phase. The locals should be able to identify their own problems and find solutions to them, ideally the NGOs only assist in the realisation of these solutions. The PHG usually also wants the local community to contribute their part to the project funding in order to create a sense of ownership. The ARIJ has made very good experiences with the involvement of all social groups into local councils and project planning, and would particularly like to see more women and youth in discussions on national level (ARIJ, Dec 2015; PHG, Dec 2015).

Utilities are important stakeholders in the water sector, not just as water service providers for the consumers, but also as party concerned by climate change. However, in most cases they are only perceived in their function as distributor, and not included in any projects that go beyond the scope of water supply or the leadership of the PWA (WSSA, Dec 2015; EQA, Dec 2015). While some utilities like the WSSA are actually interested in joint projects with NGOs and other partners and regularly take the initiative to raise awareness for their own perspective and the issues that are relevant to them (WSSA, Dec 2015), NGOs often rather not work with the service providers, especially private companies, pointing out differences in overall priorities. Utilities, in their opinion, are mainly interested in mechanisation and business revenue, but not in environmental protection and the empowerment of local groups (ARIJ, Dec 2015). As a result, utilities do not get invited to projects led by local NGOs. There is some cooperation with international partners, including NGOs, though (WSSA, Dec 2015).

As previously mentioned in Section 8, international organisations are important actors in many projects due to the fact that they are providing financial and technical assistance. The MoPAD is currently in charge of coordinating the flow of donor money, but organisations mostly decide for themselves where they get active and who they are collaborating with (GIZ, Dec 2015). The PWA calls for a better institutionalisation of the involvement of international organisations in order to make sure that their contributions are properly organised and that projects include all relevant stakeholders (PWA, 2013b, PWA/RaD, Oct 2015).

10 | Desalination of the Al-Fashkha Springs

In order to show how the previously mentioned interrelations and contextual factors become visible in the implementation of adaptation strategies, two projects will be briefly introduced and analysed with regards the role the political situation is playing in their realisation. The first of these projects is the PWA's plan to construct a desalination plant at the shores of the Dead Sea in order to desalinate the brackish water of the Al-Fashkha springs.

Desalination as a non-conventional water resource is a common adaptation strategy in semi-arid to arid countries bordering to the sea. The PWA is involved in large desalination projects in Gaza, adding up to a capacity of 129 Mcm per year. In the West Bank, however, desalination is only used on a small scale with particular wells in order to desalinate the brackish water from the upper Eastern Aquifer. Thanks to their low capacity of up to 0.5 Mcm per year, these small desalination plants do not need Israeli permits for the construction. There is yet one larger project near the shoreline of the Dead Sea: While the desalination of the Dead Sea itself is not an option, a large desalination plant is planned to desalinate and divert the brackish water from the Al-Fashkha springs (Figure 20) before it enters the Dead Sea (PWA/WRD, Oct 2015).

Of the total of 100 Mcm per year flowing from the springs into the Dead Sea, 22 Mcm are intended to be desalinated in a treatment plant and diverted to Palestinian communities. An additional 11-13 Mcm per year will be produced from drilling additional wells upstream of the springs where the water is still fresh (Solutions for Water, 2012). The water is mainly supposed to be supplied to the Palestinian population in Hebron where the current supply rate ranges around 40 L per capita and day, less than half of the minimum supply of 100 L per capita and day recommended by the World Health Organisation (WHO). Next to the provision of urgently needed additional water, the project is also supposed to serve socio-economic purposes, for instance by creating jobs, and to support the Palestinian right to manage their own resources (Solutions for Water, 2012; PWA/WRD, Oct 2015).

Most of the project area, including the transmission lines to supply water to Hebron, falls into Area C, some is even classified as military area, and hence the whole project needs permits

Figure 20. Location of the Al Fashkha Springs (arrow) near the shores of the Dead Sea. Source: Deeb Abdelghafour, personal communication, November 2015; arrow added for clarification.

from both the JWC and, afterwards, the ICA. A detailed project plan was submitted to the JWC in 2009, but has not been approved so far (PWA/WRD, Oct 2015).

In 2010, the Dutch governmental infrastructure development aid programme ORIO (Ontwikkelingsrelevante Infrastructuurontwikkeling)[1] considered providing financial assistance to the PWA project. However, no funding could be granted as long as the project did not have an Israeli permission to guarantee its implementation. ORIO shared some professional experience though, encouraging the PWA to conduct a feasibility study first to ensure financial and technical viability of desalination and water transmission. This input was highly appreciated by the PWA, the said feasibility added to the project agenda (PWA/WRD, Oct 2015).

In the context of this feasibility study, different scenarios concerning the transfer of water to Palestinian communities were considered. Supplying water to Hebron still has the highest priority, but will be rather expensive as the water has to be transported from 400 meter below sea level to 850 meter above sea level. Subsidies might be necessary in order to prevent the water price in Hebron to raise. The high price of the water transfer was one of the reasons against the project mentioned by the Israelis. In the eyes of the PWA, however, this is a problem that is not up to the Israelis or the JWC to solve, but to the Palestinian authorities, and should therefore not have an impact on the JWC decision (PWA/WRD, Oct 2015).

The PWA has not been successful in attracting any other financial assistance for the desalination of the Al-Fashkha springs yet. In 2012, the project was presented at the 6th World Water Forum in France, but could not convince international donors to become involved (Solutions for Water, 2012; PWA/WRD, Oct 2015).

The Al-Fashka project is a classic example of a large-scale governmental project, impaired by problems that correlate with the desalination plant's rather high capacity and the large area parts of the project are spreading out over. Both lead to the necessity to obtain JWC permits, with some parts of the project that lie within Area C also requiring ICA permits. Although some work has already been done, mostly related to preliminary research and feasibility studies, the realisation of the whole project relies on financial assistance. Donors, however, are hard to attract as long as the PWA lacks the permits necessary for the overall implementation and the construction of the desalination plant in particular.

11 | Restauration of the Roman Wells in the West Bank

The second exemplary project is one by the Applied Research Institute of Jerusalem, a Bethlehem-based NGO, aiming for the rehabilitation of a network of ancient cisterns in the West Bank. These cisterns are referred to as 'Roman wells' as they were first built by the Romans around two thousand years ago (ARIJ, Dec 2015).

The wells form a sophisticated rainwater harvesting network of more than 1,000 subterranean cisterns throughout the West Bank. Water is mainly collected during the rainy season in winter with the capacity of the individual wells varying between tens and hundreds of cubic meters (ARIJ, Dec 2015). As a non-conventional resource, this rainwater harvesting

[1] The ORIO programme was terminated in 2014 and relaunched as Development Related Infrastructure Investment Vehicle (DRIVE) one year later.

is an important strategy to adapt to the semi-arid to arid climate in the region that will be reinforced by climate change. Water stored after high intensity rainfall events during winter can be used during the dry summers, especially to support rain-fed agriculture. In drought years, the water available from the cisterns can make the difference between losing and not losing the harvest from primarily rain-fed crops. The wells also provide water directly to the local population or agricultural areas, independently of the geopolitical situation and its influence on the management of the conventional water resources. It is considered a particularly important coping strategy as long as the Israeli occupation prevails and Palestinians are unable to develop cheaper water resources. As soon as free development is possible and the water price decreases, the wells will mostly become a cultural asset only (Koelbel, 2009).

Many wells, especially those that are not privately owned and maintained, are nowadays not usable anymore because they have been filled up with trash and rocks. In some cases, herders dumped stones into the cisterns in order to raise the water table and make the water more easily accessible. Given the importance of those wells both as climate adaptation strategy and as a way to cope with the restricted development of water resources under the Israeli occupation, the ARIJ wants to clean and restore the Roman wells. Newly installed WUAs for each well will be put in charge of future maintenance. In addition, the possibility to install small pumps powered by solar panels is considered in order to avoid damage to the well structure by users (ARIJ, Dec 2015).

Koelbel (2009) estimated the costs to restaurate a well at around US$4000. The project has been submitted to international donors for approximately ten years by now, but has failed to attract any funds. A member of the project team at ARIJ presumes this to be due to most of the wells being located in Area C where a separate Israeli permit will be necessary for the rehabilitation of each well (ARIJ, Dec 2015).

There is also incomprehension for the necessity of a permit to rehabilitate the wells in the first place. The interviewee went as far to state that he would rather start working on wells in Area C without a permit and have Israeli soldiers try to stop him in the name of national security. In his own words, “I’m not installing Patriot missiles, I’m just removing stones. […] They would look stupid.” (ARIJ, Dec 2015)

An additional aspect of the project is the rehabilitation of three large reservoirs the Romans build around Bethlehem (Area B) that are nowadays idle and neglected. These reservoirs could store up to 300,000 m^3 per year, providing sufficient additional water to solve the current water scarcity in Bethlehem. The ARIJ has submitted restauration plans to the PWA for the past five years, but has not gotten any reply yet. However, the PWA is not blamed for ignoring the project so far as they are perceived to have other, more pressing, issues to worry about and to allocate funds to (ARIJ, Dec 2015).

This project is an example for one of the many small-scale efforts that are primarily made by NGOs. Locals are to be included in the project and the maintenance after the completion of the project as newly instated WUAs. While some wells are located in Areas A and B and thereby relatively easily accessible, most of them fall into Area C which means that an ICA permit is required for the rehabilitation of each well. This administrative obstacle discourages international donors to become involved with the project and leads to a lack of funds which currently renders the project not possible.

12 | Discussion

12.1 | Impact of the political situation during the fieldwork period

My fieldwork lasted from 4th October 2015 till 20th December 2015. On 1st October 2015, an attack by a small Hamas cell in the West Bank killed a settler couple and left their four children lightly injured. This incident came at a time of heightened tension between Palestinians and Israelis over disputes on the access to and usage of the Temple Mount in Jerusalem, location of the Al Aqsa mosque and one of the most important holy sites in both Islam and Judaism (The Guardian, 2015a). It sparked a series of violent attacks in the oPt and Israel over the course of the following weeks, most of them executed by single Palestinian attackers and met with lethal force by Israeli police and military. By the end of my fieldwork period around Christmas, 150 people had been killed in attacks, including 129 Palestinians, 19 Israelis, an American and an Eritrean (The Guardian, 2015b).

The overall security situation during my stay was regularly analysed in consultation with supervisors and colleagues both on site in the West Bank and back in the Netherlands in order to ensure my personal safety. Thanks to the relatively calm environment in the village of Abu Dis where I was based, I was able to stay for the whole duration of the planned fieldwork. However, the new outbreak of violence certainly had an influence on the data collection.

Travel between cities was greatly impeded by enhanced mobility restrictions and streets leading up to busy checkpoints being jammed for kilometers during October and November. Due to security concerns, it was agreed on that I should not travel on my own, but always had to have a colleague accompany me to interviews in other cities, most notably to Ramallah. This limited my travel possibilities as I had to align my schedule with theirs. As a result, I conducted most of the interviews in December when the tensions had lowered a bit. The overall number of interviews was also lower than intended, leaving out most actors that are not directly involved with the water sector or climate adaptation such as the MoLG or the MoPAD. I therefore put a higher focus than initially planned on the analysis of different reports and strategic plans.

In addition to the reduced number of interviews, it is also possible that the new outbreak of violence and Palestinian resentments towards the Israelis had an influence on the answers given by interviewees. The Israeli occupation of the West Bank is a central element of the political context of the Palestinian water governance and thereby also of this research, however, it needs to be considered that interviewees could have, intentionally or unintentionally, overstated its importance compared to other factors because problems due to the occupation were very present again at the time of the interview. A similar study at times of relative peace between Israelis and Palestinians might find additional factors that are unrelated to the occupation.

On the other hand, the recent situation gave me the possibility to gain insight into the unpredictability that is part of the everyday working life for decision makers and researchers in the West Bank and to understand the difference in the working atmosphere between the Netherlands and Palestine. With an omnipresent uncertainty about whether colleagues would be able to attend meetings or get stuck somewhere on the road returning from fieldwork and the possibility of having to evacuate the university on short notice due to escalating protests on or just outside of campus, detailed planning is almost impossible and gives way to a certain spontaneity. These personal experiences match the problems many interviewees

mentioned about setting up projects or managing water resources on a larger scale in an atmosphere of uncertainty about the geopolitical situation at large and what impact it might have on life over the next days.

12.2 | Possible biases within the research

This research only covers the Palestinian perspectives on matters, with the exception of an interviewee at the German GIZ. The decision to leave out Israeli opinions was made due to time constraints. Including the Israeli viewpoint, especially on the impacts of the occupation on water governance and climate adaptation, would certainly help painting an exhaustive picture of the political context and its implications on water management in the region. However, when it comes to issues like the occupation of the West Bank and the way Israel should interact with the Palestinians, opinions amongst the Israelis differ as much as they do amongst the Palestinians, if not more. It is therefore important to ensure that all Israeli perspectives are included instead of generalising based on a limited impression. Gaining sufficient oversight over all Israeli positions next to covering the different Palestinian actors is not possible within the time frame of three months that was available for my fieldwork. I therefore decided to restrict my research to the experiences made with the political situation by the actors in the Palestinian water sector and those directly involved with climate adaptation in the West Bank only.

The decision to focus my study on the West Bank instead of on the whole oPt was motivated by the political separation between West Bank and Gaza that was explained in Section 2.4. Including Gaza in the research would have meant to include a whole new set of actors in order to cover the Hamas perspective on Palestinian water governance and climate adaptation, and would most likely have resulted in additional aspects to take into consideration when it comes to the analysis of how the political context affects climate adaptation. While these aspects as well as accounting for the whole extent of the disputes between Fatah and Hamas and the resulting split within the oPt are important when piecing together all factors that have an impact on water governance and adaptation in the oPt, they were beyond the scope of this thesis research. Additionally, after the latest outbreak of violence between Hamas and Israel in 2014, fieldwork in Gaza would not have been justifiable with regards to my personal security.

With regards to data collection, a possible bias lies in the selection of interviewees. While the choice of institutions was motivated by a stakeholder analysis, the final selection of the respective interviewee within each institution depended on the decision and available contacts of intermediaries. It is possible that the selection of another interviewee within the institutions at focus could have led to different qualitative information as the research topic is rather subjective. It is equally possible that, through the selection of interview contacts by intermediaries, several interviewees belong to the same network within the water sector and represent similar ideas. The comparatively low number of interviews would lead to a potential overrepresentation of these ideas in the results. In order to minimise this effect, different people were approached to make contacts to potential interviewees. All contacts at ministerial bodies (PWA, MoA, EQA) were made by two fellow researchers at Al Quds University, as well as the contact to EcoPeace and the PHG. A person unrelated to the working group at university made the contact to the interviewee at the WBWD who then introduced me to the interviewees at the WSSA and the ARIJ. The interview at the GIZ was organised by myself and independently of all other interviews.

Although interviewees were ensured anonymity, they might have omitted certain information that could cast a slur on themselves or their institution. This is particularly likely for interviewees that hold a high or representative position within their organisation or department. During some interviews, the intermediary that made the contact was present as well. While the relation between interviewee and intermediary was always friendly, it is likely that their presence also had an influence on the interviewee's answers. Intermediaries were present during the PWA/RaD interview (Al Quds University researcher) and the WSSA and ARIJ interviews (WBWD interviewee).

12.3 | Comparison to literature

In a study similar to this research, van der Molen and Stel (2013) analyse the role multi-stakeholder partnerships (MSPs) play for effective water governance in the oPt and what kind of impact the political context has. They found three main features of the political situation that affected the cases studied in their research: the Israeli-Palestinian conflict and the possible outbreaks of violence alongside with the lack of sovereignty of Palestinian agencies, the institutional multiplicity that followed the split between Fatah and Hamas and the related lack of communication between authorities in both parts of the oPt, and the fragmentation of the West Bank into the three administrative areas. However, instead of precluding any multi-stakeholder partnerships, van der Molen and Stel find that, on a case-by-case basis, these contextual factors often triggered the formation of platforms and stakeholder involvement in order to implement projects and realise joint management in conflict situations. They also point out, however, the overall "difficulty of generating a common vision and action plan in conflict-affected situations", especially on a larger scale (van der Molen and Stel, 2013, p. 155).

Jarrar (2015) analyses the Palestinian adaptation planning through the lens of climate vulnerability, concluding that the current political context makes the implementation of the majority of strategies impossible, especially relating to the action plan outlined by UNDP/PAPP and EQA (2010). She finds that there are two main obstacles to climate adaptation, namely the Israeli occupation of the Palestinian territories and the dependency on financial assistance, but also notes that the lacking access to funds for adaptation overall as well as a weak institutional capacity within the Palestinian society play an important role in hindering adaptation and thereby making the oPt more vulnerable to climate change.

With regards to the feasibility of specific adaptation instruments, Mimi et al. (2003) and Nazer et al. (2010) both look at the application of measures on a very small scale, the former at the construction of wastewater treatment plants in two schools, the latter at domestic water use at the household level. These articles focus on technical aspects and social acceptance rather than the larger political context as the context is not seen as an influential factor for the individual projects. Mimi and Abu Jamous (2010) on the contrary analyse the impact of climate change on the agricultural water demand and adaptation opportunities in relation to farm management on a somewhat broader scale for the governorate of Jericho. While they conclude that in many cases it is up to the farmers themselves to implement more adaptive management practices, they also stress that the overall success of adaptation strategies relies on a variety of contextual aspects such as the socio-economic, political and environmental conditions and that a certain degree of "policy development" within the Palestinian governance regime is necessary in order to make adaptation measures effective (Mimi and Abu Jamous, 2010, p. 190).

The conclusions from these case studies, namely that small-scale projects that are less impacted by the political context are the best bet for climate adaptation under the current circumstances, resonate well with the information I got from those interviewees that were directly involved in projects. The different layers of political context that van der Molen and Stel (2013) and Jarrar (2015) point out roughly coincide with the four overall issues I found to impact the water sector. It is noteworthy, however, that while a number of my interviewees voiced their concern about the lack of effective stakeholder participation and collaboration, van der Molen and Stel (2013) find that the difficult political context can spark stakeholder involvement, although mostly at a local level. Whether a similar effect will eventually occur on a higher level and facilitate water management and adaptation planning on the national level remains to be seen.

There has been quite a lot of work done on the impacts of the Israeli occupation on the Palestinian water sector and governance regime in general. The JWC is regularly mentioned as the main impediment to effective water management in the West Bank due to the fundamental power asymmetries between Israel and Palestine that give the Israelis a dominant role in debates and decisions within the committee and lead to a very high rejection rate of Palestinian projects (Rouyer, 1999; Selby, 2005; Zeitoun, 2013). Mobility and administrative restrictions are also usually brought up as obstacles to sovereign Palestinian resource management and the participation in bilateral meetings (Selby, 2003; Zeitoun et al., 2011). Consistently with most of these factors stemming from the Oslo Accords, the peace process is often criticised as having aggravated the water management problems in the West Bank by legalising discriminatory pricing mechanisms, unequal water allocations between Israel and Palestine and the introduction of institutions like the JWC (Aruri, 2011; Selby, 2005; Weinthal and Marei, 2002). Selby (2005) also claims that the Palestinian authorities that were put in place by the Oslo Accords process were largely hollow shapes that lack administrative capacity and institutional infrastructure, leading to the PWA being unable to "govern the Palestinian water sector adequately" (Selby, 2005, p. 18).

Possible political problems within the Palestinian authorities or the water sector that are not directly linked to the occupation are usually set to the background. My results reinforce the notion that the Israeli occupation is a major factor in the political context that frames water governance in the West Bank. It is not, however, the only factor and while Lautze et al. (2005) are certainly right stating that a peace agreement between Israelis and Palestinians is the prerequisite for effective climate adaptation on the larger scale, more attention needs to be paid on other aspects that impact water governance and adaptation strategies in the oPt. Almost all interviewees agreed that an end to the Israeli-Palestinian conflict is currently not foreseeable. Instead of presenting the Israeli occupation and lack of bilateral cooperation as the only problem, a more differentiated look on other obstacles, both within and outside of the Palestinian water governance regime, is hence needed in order to improve the water sector's capacity to implement adaptation strategies.

12.4 | Reflection on the Contextual Interaction Theory

It was one of the more conceptual objectives of this research to analyse how the Contextual Interaction Theory (CIT) performs in a by many means more extreme surrounding than the European governance systems it was initially drafted for, with a particular focus on the interaction between wider context and structural context.

There has been a number of studies in different fields using the CIT outside of Europe. Mengistie et al. (2014) used the CIT to analyse actors' characteristics in relation to problems with the implementation of agricultural policies in Ethiopia, and Djellouli and Quevedo-Gómez (2015) did a similar study on health policies in Colombia. Both studies found the main impediments to successful policy implementation in their cases to lie within the lead actors' access to information, motivations and resources. Mukhtarov (2013) analysed the importance of the structural context for the introduction of policy innovations in the Kazakh water sector. None of these three studies, however, includes a political context of a bearing comparable to the situation in the West Bank.

Shifting the focus closer to my study area, Hophmayer-Tokich (2013) used the CIT in an analysis of water pollution control policies in Israel, but only focused on the interactions between different actors and their characteristics, not on the political context. Van der Molen and Stel (2013) finally applied the CIT to the Palestinian water sector and the viability of multi-stakeholder platforms (MSPs) in a study that was already mentioned above. They focused part of their research on the influence of the wider political context on MSPs. Their work hence bears the greatest similarity to the CIT's application to extreme political circumstances in my research. One of the main conclusions relating to the CIT in van der Molen and Stel's (2013) work is that the wider context does not have one general impact, but affects different cases in different ways. Stakeholders' responses to these various impacts differ similarly. They see the value of the CIT in the possibility to differentiate between the effects the wider political situation has on the structural and on the specific case context as well as on the individual actors themselves.

The two very short case studies presented in Sections 10 and 11 support the notion that the political context of the Palestinian water sector has an impact that goes beyond the governance regime by affecting specific cases and actors that can be analysed through by taking the comprehensive perspective of the CIT. In both cases, for instance, the administrative difficulties created by the Israeli occupation are perceived and interpreted by international donors as insuperable obstacle to the implementation of the whole project and thus lead to a low motivation to become involved with said project. On a larger scale, the same process leads back to a decrease in financial resources available to the water sector at large, hence impacting the structural context in a similar way.

There is, however, a great variability in how the political context impacts the water governance regime and, in some cases, specific context or actors' characteristics directly. While some interactions can indeed be 'up-scaled' from an interaction between wider context and actor, many impacts the political situation has on the structural context are quite unique to the individual issue. The four issues that have been outlined in the empirical results from this research all show different relations between aspects of the wider political context and impacts on the water governance regime and beyond.

The transition of the water sector in relation to the 2014 Water Law is primarily a process happening within the governance regime, hence within the structural context itself. It is yet influenced by several aspects that are not inherent to the water governance regime and are thus part of the wider context, such as administrative problems related to the diversity in municipal management and legal systems throughout the West Bank and obstacles stemming from the mobility restrictions created by the Israeli occupation.

The occupation itself is easily discernable as one of the major elements in the wider political context. Its most prominent impact on the structural context is the introduction on the Joint Water Committee (JWC) which does not only decrease the coherence and flexibility of the regime with regards to actors and scales, but also creates an additional obstacle for individual projects. The occupation hence plays a role for both the structural context and the specific case context. By limiting the scale of individual projects and the measurements available to them through administrative and mobility restrictions, impacts on the specific context also lead back to affect the strategies and instruments available to the water governance regime at large. Additionally, the overall conflict with the Israelis is a very influential factor when it comes to actors' characteristics, especially revolving around questions of possible cooperation between Israelis and Palestinians. The occupation hence has an impact on all layers of the CIT, with most of them relating back to the water governance regime in a way, highlighting the interconnectedness of the different layers and the various aspects within the water sector.

The dependence on international assistance is not unique to the water sector, but an issue that affects all kind of sectors within the oPt. The causes for this dependence can be found in several of the wider contexts and are not limited to the political context alone. There often is a connection to political factors though. For instance, one of the main reasons for the need of financial support is the weak Palestinian economy. While this falls into the economic context that Bressers and Boer (2013) distinguish from the political context, many economic problems stem from political obstacles such as restrictions on the movement of goods due to the Israeli occupation and the aforementioned administrative difficulties within the oPt. Other factors such as the lack of technology or know-how and limitations due to the lack of resources play a role here as well. With regards to the water governance regime, the overall dependence on international organisations is mainly caused by the lack of resources and the need of assistance when dealing with Israeli organisations in joint committees.

The scattered adaptation efforts of different organisations within the water sector and associated agencies (e.g. MoA, EQA) are primarily an issue of the structural context and are caused by a number of problems immanent to the water governance regime, such as the lack of effective communication and integration of adaptation strategies. However, at least some of these problems are based on more general issues, such as the overall high competitiveness among Palestinian professionals that impedes collaboration between different organisations and the geographical and administrative fragmentation of the West Bank. It is rather difficult to systematically differentiate between causes that are still lying within the water governance regime itself and causes that are indicators of bigger problems within the Palestinian political system or society or stem from other external factors in the wider context.

Impediments in the water governance regime can hence be primarily symptoms of more general problems in the political context. Under the term of 'hydrocentricity,' Brichieri-Colombi (2004) criticises the rather common approach to limit the search for solutions to water-related problems to the water sector itself. In the same way, the origin of water governance-related problems does not always lie within the sector or governance regime itself, but in the wider context. This is particularly relevant under extreme conditions where the aspects of the wider context have far-reaching impacts, such as in conflict situations. The example of the lack of a united vision to climate adaptation shows that the line between causes in the political context and symptoms within the governance regime can be hard to draw. The obstacles the application of the 2014 Water Law has met so far, however, also

show that it is important to account for the more general problems outside of the water sector when solutions to internal problems are to be found. The CIT hence makes an important point in highlighting the existence of the wider context and stressing its influence on policy processes.

At the same time, it should be noted though that the CIT's primary focus lies on the on the interplay of actors in the policy process and on how the different context layers affect the actors' characteristics. Contextual aspects that do not have a direct influence on an actor might therefore be overlooked and left out of the analysis. It is consequently a very suitable framework to analyse actors and the background of their cognitions, motivations and resources. In order to analyse how different broader political issues could affect governance regimes and, on the smaller scale, individual actors, however, the CIT has to be used reversely, starting with the wider context instead of the actors. That way, contextual aspects and processes can be analysed in greater depth as the focus is not limited by what becomes visible in the actors' characteristics. Possible feedback loops in which the political situation might reinforce already existing problems can also be explored as processes in relation to the wider context are mapped extensively.

An example mentioned during the interviews for such a contextual aspect that seemingly does not affect the actors of the water sector or the policy process itself is the political stance different Western countries or governments take in the Israeli-Palestinian conflict. However, when tensions between Israelis and Palestinians rise or even lead to yet another period of violence, governments siding with Israel might cut financial or technical assistance provided to projects in the West Bank by the governmental development programmes. USAID, the United States Agency for International Development, for instance is an important partner for the Palestinian water sector, but also well-known to reduce funding as a reaction to Palestinian provocations against Israel. It is thus important to account for the position that donor organisations might take in the future in order to be able to financially plan ahead and to be aware of possible set-backs that may accompany an aggravation of the conflict situation.

12.5 | Suitability of the Governance Assessment Tool

The Governance Assessment Tool (GAT) was used in order to systematically map the impacts of the wider political context on the Palestinian water governance regime. The GAT matrices proved useful to visualise in which way the governance regime and thus the water sector is affected by the four main political issues, including both obstacles to effective governance and improvements to the regime through the 2014 Water Law and the inclusion of international organisations.

The set of analytical questions provided by Browne et al. (2015) to facilitate the data collection in line with the characteristics of governance regimes from the CIT, however, was less suitable for this research. While the questions give a good indication of the rather abstract elements and qualities of governance, they were designed to analyse the interaction between the governance regime and the specific process and its actors, not for the focus on how the governance regime itself is affected by external factors. The questions were hence modified to aim at different political factors that might play a role for the interviewee's institution's work and the sector at large.

13 | Conclusion

This research explored how the political context of Israeli occupation and internal instability affect the Palestinian water governance regime and the implementation of strategies to adapt to the decrease in water availability caused by climate change and population growth. Within the water sector and in connection to the wider political circumstances, four main issues were identified: (i) the transition of the Palestinian water sector after the introduction of the 2014 Water Law that makes the division of mandates and responsibilities more coherent, but is hindered in its application by administrative problems; (ii) the Israeli occupation that limits most of the efforts made in the water sector to crisis management instead of sustainable development; (iii) the dependency on financial assistance and the involvement of international organisations in order to implement projects due to the weak domestic economy and difficult geopolitical status of the oPt; and (iv) the absence of a vision for climate adaptation that is shared among the important actors of the water sector and beyond and of effective coordination and integration of adaptation efforts.

These different issues interact in a variety of ways with the Palestinian water governance regime. There are, however, certain patterns visible with regards to a distinction between factors that are external or internal to the oPt. The political instability within the West Bank, characterised by the PA and its associated agencies struggling for authority and most actors engaging in solo attempts instead of fostering collaboration, primarily presents an obstacle to the planning of sustainable water management on the larger scale which is a prerequisite for effective climate adaptation. It also reflects the lacking capacity in those elements of the water governance regime that relate to adaptive governance, such as the coherence of actors and problem perceptions. This obstacle manifests itself for instance in overlapping and thus conflicting mandates and in vastly differing priorities within the water sector and between the actors involved in climate adaptation. The Israeli occupation, most commonly named as influential external factor, in turn has its largest impact on the implementation of strategies. While the introduction of the JWC as additional administrative level also affects planning and decision making processes, many of the restrictions that result from the occupation are an obstacle to the realisation of overall strategies or particular measures and thus also have an impact on the selection of feasible instruments in the first place.

The analysis of the political context's influence on Palestinian water governance was guided by the Contextual Interaction Theory (CIT). As the CIT was initially designed and used in less extreme contextual circumstances, an inductive approach was used in order to test the framework's performance in the complex situation of the Israeli-Palestinian conflict. Applying the empirical data from interviews and report analyses to the CIT showed the framework's value to highlight the importance of contextual factors for policy processes, be it the overall political situation or other contexts such as economy or culture. The wide variety of political factors that were mentioned by interviewees and reports to have an influence on water governance also emphasised the importance of painting a comprehensive picture of the socio-political circumstances and the interactions and feedbacks between different contextual factors. While it is generally possible to use the CIT to create such an extensive picture of the political context, the framework's main focus lies on how these factors eventually affect the actors involved in the policy process at hand. In order to fully understand the wider context of the process, however, I recommend using the CIT 'in reverse,' thus starting with and focusing on the wider context, and including specific contexts and actor characteristics as they become relevant to the analysis.

For the case of water governance and climate adaptation in the West Bank, the analysis in this research showed a complex network of interactions and causes that reflect the generally complicated political situation in the greater region. It became visible that while the end to the Israeli-Palestinian conflict is a prerequisite for effective governance and sustainable resource management including adaptation strategies, it is also necessary to pay attention to internal Palestinian politics and flaws within the water governance regime that are caused by the political instability and the related uncertainties as well as by the lack of effective cooperation between different organisations and ministerial bodies. As this research was limited to Palestinian perspectives in the West Bank, further research including Israeli viewpoints can contribute to extend the picture by taking both sides of the Israeli-Palestinian conflict into account.

Similar research in other conflict areas in and beyond the Middle East will help to reach a better understanding of how political extreme situations affect sustainable resource management and the related policy processes. Many conflict-ridden regions and developing countries are also the ones that are most vulnerable to climate change impacts and thus in need of adaptation strategies (UNFCCC, 2007). Comprehension of how the political circumstances might affect decision making and the implementation of adaptation measures can contribute to informed decisions in adaptation planning that take possible obstacles into account and, where necessary, address root problems in the wider socio-political context.

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Appendix

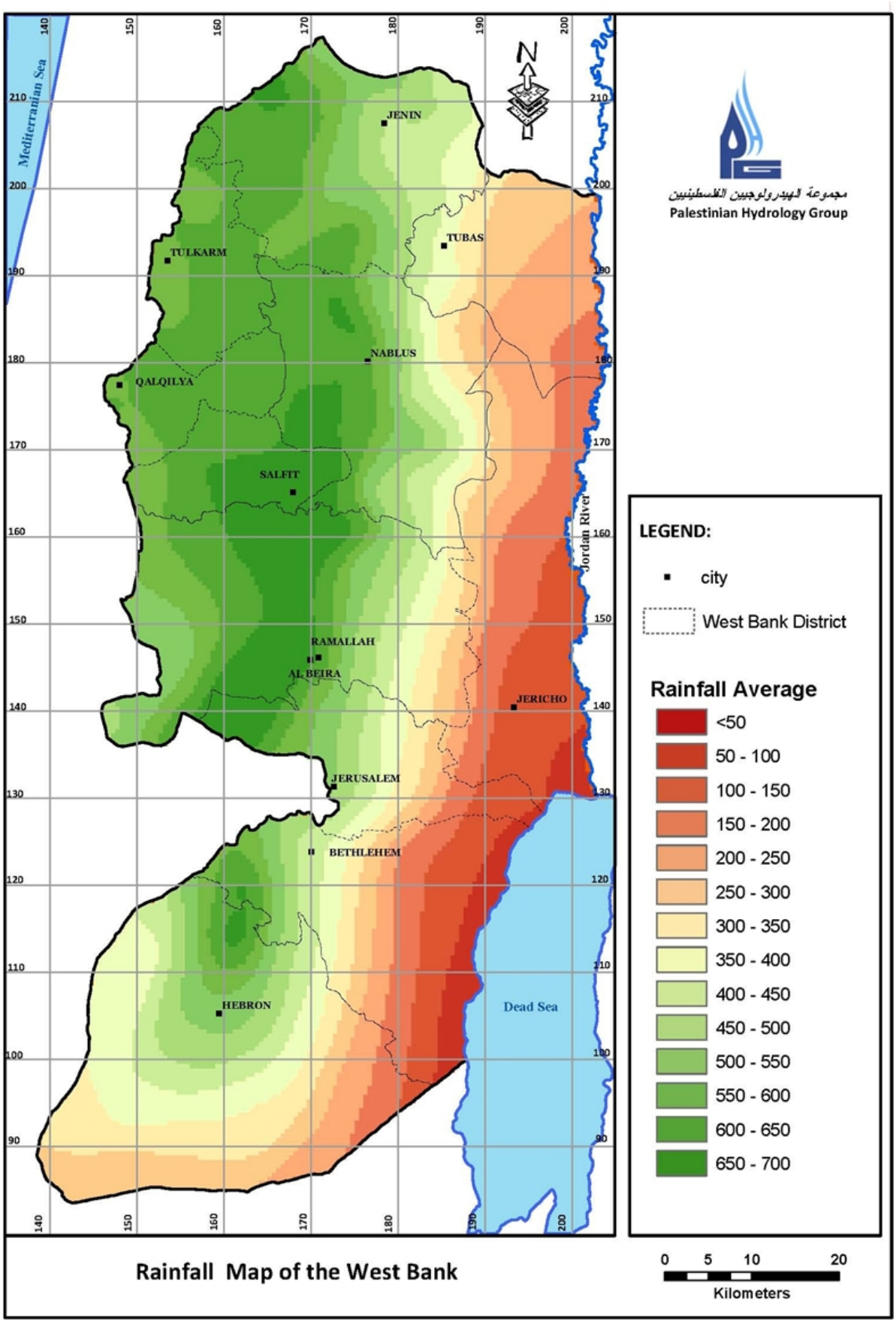

Figure A1. Distribution of rainfall over the West Bank. Source: PHG (http://www.phg.org/maps.asp?map=9, 24-02-2016).

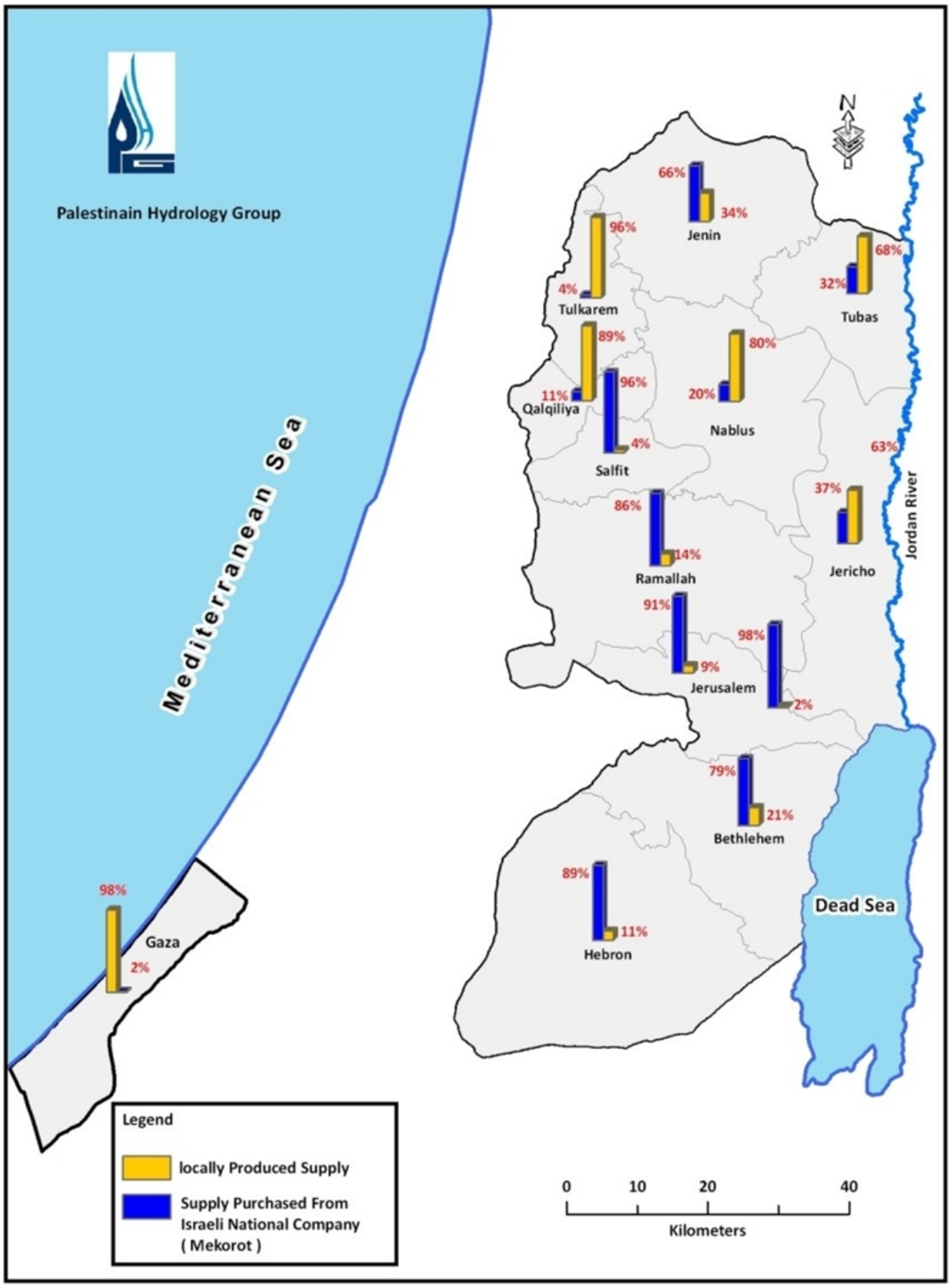

Figure A2. Source of available water per governorate in the West Bank. Refer to Section 2.5 for absolute values. Source: PHG (http://www.phg.org/maps.asp?map=10, 24-03-2016).

Table A1. Analytical questions in the Governance Assessment Tool. Source: Browne et al. (2015).

Governance dimension	Quality of the governance regime			
	Extent	**Coherence**	**Flexibility**	**Intensity**
Levels and scales	How many levels are involved and dealing with an issue? Are there any important gaps or missing levels?	Do these levels work together and do they trust each other between levels? To what degree is the mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors and networks	Are all relevant stakeholders involved? Are there any stakeholders not involved or even excluded?	What is the strength of interactions between stakeholders? In what ways are these interactions institutionalised in stable structures? Do the stakeholders have experience in working together? Do they trust and respect each other?	Is it possible that new actors are included or even that the lead shifts from one actor to another when there are pragmatic reasons for this? Do the actors share in 'social capital' allowing them to support each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives and goal ambitions	To what extent are the various problem perspectives taken into account?	To what extent do the various perspectives and goals support each other, or are they in competition or conflict?	Are there opportunities to re-assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies and instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement instruments included?	To what extent is the incentive system based on synergy? Are trade-offs in cost benefits and distributional effects considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibilities and resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?