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**Water Governance under Occupation:  
A Contemporary Analysis of the Water Insecurities of  
Palestinians in the Jordan Valley, West Bank**

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## Abstract

The West Bank, derived from its position on the western bank of the Jordan River, is the territory that came under Jordanian rule after the 1948 Arab-Israeli war and that has been occupied by Israel since the Six-Day War of 1967. Since this period, access to water in the West Bank has been largely controlled by Israel, with the consequence of severe water insecurities for Palestinians in sensitive areas like the Jordan Valley. This study, based on qualitative interviews conducted in July 2019, analyses how the infrastructure and power relations surrounding water governance have affected water security in the daily lives of Palestinians. It shows that while there are variations with regard to water access in the region, overall Palestinians in the Jordan Valley have serious difficulties in accessing acceptable quantities of water. In addition, they also experience water insecurities in terms of quality, distance and collection time, price and affordability, availability and reliability as well as safety. These water insecurities have had negative impacts on the physical, social and psychological well-being of Palestinians who are facing them. They affect women and girls to an even larger extent due to their productive and reproductive roles, that necessitate access to water (e.g., agricultural work, cleaning, cooking, bathing children) as well as due to their higher physiological water needs in comparison to men and boys, which are partly determined by social norms (e.g., wearing long hair and long clothes).

The main obstacle to achieving water security for these people is the political context of the occupation with Israel having hegemonic control over transboundary water re-sources in terms of material, bargaining and ideational power. This is exemplified in the allocations of water resources and the management of water-related infrastructure according to the Oslo II Accord, that disadvantages the Palestinian side. The situation has further been worsened by the fragmented division of tasks related to the planning, regulation and distribution of water resources among the numerous Palestinian water sector actors, with women being rarely included in governance.

Palestinians in the area have responded to shortcomings in terms of access to water with an array of flexible and adaptable strategies, such as storing water in tanks or reducing domestic water consumption. These strategies, also referred to as strategies of resilient resistance, as they show elements of both adaptation and resistance to the experienced conditions, are used on a daily basis, often in a combined manner, to improve water access. They are motivated by the connection between Palestinians and the land, which they believe should be protected from Israelis, as well as their lifestyles as farmers and herders. Refusing to submit to the control and ideology of the occupation, Palestinians also adopt the ideological and political strategy of ‘sumud’ (steadfastness) to continue with life despite the difficulties and insecurities they are facing.

## **Keywords**

Water insecurities, water governance, hydro-hegemony, Palestinians, Jordan Valley, resistance, resilience, 'sumud'.

## Acronyms

FAO	The Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
ISS	International Institute of Social Studies
JWC	Joint Water Committee
JWU	Jerusalem Water Undertaking
lpcd	Liters per capita per day
MCM	Million cubic meters
MOA	Palestinian Ministry of Agriculture
MOLG	Palestinian Ministry of Local Governance
NIS	New Israeli Shekel (currency; 1 NIS is about 0.25 EURO or 0.28 USD)
NRO	Netherlands Representative Office to the Palestinian National Authority
NWC	National Water Council
OPT	Occupied Palestinian Territories
PNA	Palestinian National Authority
PC	Popular Committee
PHG	Palestinian Hydrology Group
PLO	Palestinian Liberation Organization
PMU	Project Management Unit
PWA	Palestinian Water Authority
SDGs	Sustainable Development Goals
UAWC	Union of Agricultural Work Committees
TDS	Total dissolved solids
WASH	Water, Sanitation and Hygiene
WBWD	West Bank Water Department
WEDO	Water and Environmental Development Organization
WHO	World Health Organization
WSRC	Water Sector Regulatory Council
WSSC	Water Supply and Sewage Authority

# **Water Governance under Occupation: A Contemporary Analysis of the Water Insecurities of Palestinians in the Jordan Valley, West Bank**

## **1 Water in the Jordan Valley, West Bank: Resources and Politics**

Water is life and people's life can be grasped  
and studied through water.  
(Naguib 2009: 1)

### **1.1 Research Problem**

Water is a life-giving substance, coursing through our bodies, our societies and our planet. Yet, it is a scarce resource and control over it has been disputed. Water has also been a major constituent of the Israeli-Palestinian conflict, part of which is the Jordan Valley (West Bank<sup>1</sup>) – a region with abundant water resources and fertile land (Melon 2018: 7, Hareuveni 2011: 55). Being likened to a 'giant greenhouse', the Jordan Valley can contribute to food security, poverty reduction and economic development, which is considered crucial for the sustainability and viability of Palestinian independence (MA'AN 2010: 15, WB 2009: 25, Melon 2018: 7).

Since the Israeli occupation of the West Bank in 1967, distribution of and access to water lie largely within Israeli control. Among other things, the riverbanks of the Jordan River have been designated as military zones, prohibiting Palestinians access to the river (HRW 2015: 16). As a consequence, the Palestinian agricultural production has become fully dependent on rainfall and access to groundwater, which is strictly controlled and limited (Melon 2018: 34, Graham-Brown 1990: 58). Therefore, most of the agricultural land is not irrigated; about 80 % is rain-fed with traditional dry-farming being the norm and a sharp fall in agricultural productivity (Dajani and Isma'il 2014: 10, Graham-Brown 1990: 54, Awwad 2016: 543).

While several important studies have highlighted how human rights of Palestinians living under occupation are violated (e.g., Seidel and Tartir 2019, Akram et al. 2010), less attention has been given to how the governance of the water resources in the West Bank has affected the everyday lives of affected people (Naguib 2009: 161), which is the focus of this study. Edward Said wrote that the Palestinians have been routinely denied 'permission to narrative' (Said 1984: 27). My thesis strives to provide a window into this narrative.

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<sup>1</sup> The West Bank, derived from its location, describes the territory on the western bank of the Jordan River that came under Jordanian rule after the 1948 Arab-Israeli war.

## 1.2 Research Objectives and Questions

The objective of this Research Paper is to analyze the nature of water governance in the West Bank and how it influences the everyday lives of Palestinians in the Jordan Valley. It focuses on the water insecurities faced by Palestinians as well as their responses under these circumstances. In doing so, the study seeks to render visible social injustices. To this end, the following main research question has been developed:

**How and why has the prevailing system of water governance in the West Bank affected water security of Palestinians in the Jordan Valley and in which ways have they responded and strategized under these circumstances?**

This question is approached based on three sub-questions:

1. **How are water resources in the West Bank distributed and what power relations underlie the distribution?**
2. **How has this situation affected water security of Palestinians in the Jordan Valley in their daily lives?**
3. **In which ways have Palestinians responded and strategized under these circumstances?**

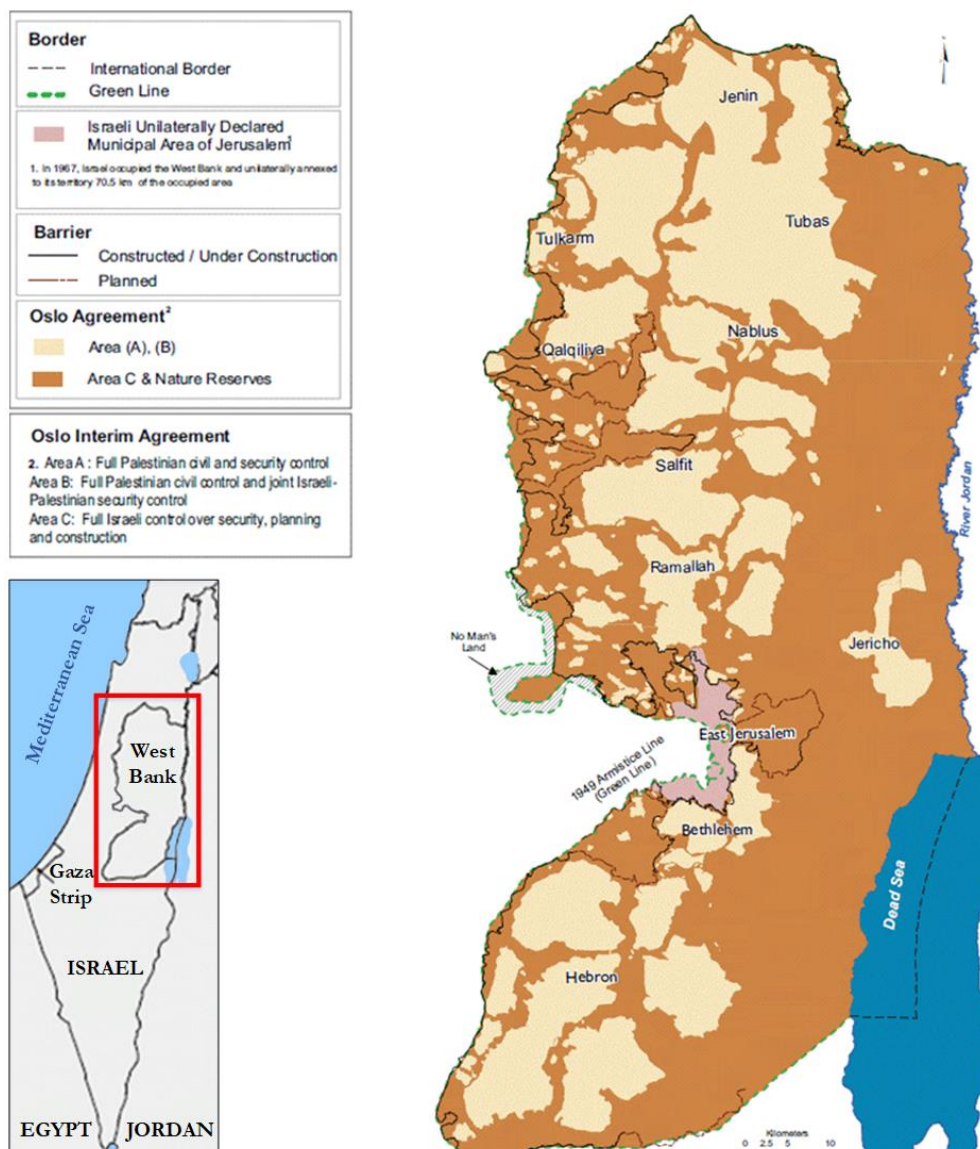
## 1.3 Contextual Background

The creation of the State of Israel in 1948 in part of what had been British Mandate Palestine led to the expulsion of about 750,000 Palestinians from their homeland (Awwad 2016: 542). After the 1948 Arab-Israeli war, the Green Line, or Armistice border, was established in 1949, dividing historic Palestine into three units: The State of Israel, the Gaza Strip under Egyptian rule and the West Bank annexed by the Kingdom of Jordan (Khamaisi 2008: 91). Following the Six-Day War in 1967, Israel occupied the Gaza Strip and the West Bank – the rest of historic Palestine. Under Israeli military administration, a variety of military orders and policies were issued, shaping Palestinian access to land and water resources (Awwad 2016: 542, 543). The Military Orders No. 92, 158 and 291 introduced Israel's full appropriation of water resources, assigning all water resources to the control of the Israeli military authorities, introducing a permit system for the construction of any new water installation and declaring all prior water agreements invalid (Messerschmid 2014: 55, 56). Numerous settlements – communities inhabited by Israeli citizens – were built across the West Bank which placed high demand on available water resources (Kelly 2006: 96).

The first major Palestinian uprising against Israeli occupation, the First Intifada, took place between 1987 and 1993, leading to the Oslo Accords I (1993) and II (1995), which were meant to provide Palestinians with the right to self-determination in the region (Abu-Baker 2017: 49, Wildeman 2019: 153).

The West Bank was divided into three areas with some responsibility given to the Palestinian National Authority (PA) in Areas A and B, which comprise about 41 % of the land of the West Bank, and full control to Israel in Area C, and the remaining 59 % (Figure 1.1) (Koek 2013: 9). While water was referred to as a final status issue, the Oslo II Accord contained interim arrangements on water and sewage (WB 2009: 5). The agreement was intended to cover a period of five years (Abu-Baker 2017: 49). However, when this period ended without any successful permanent agreement, tensions boiled over into the Second Intifada (2000-2005) with both sides suffering from ongoing violence for years (Kelly 2006: 97).

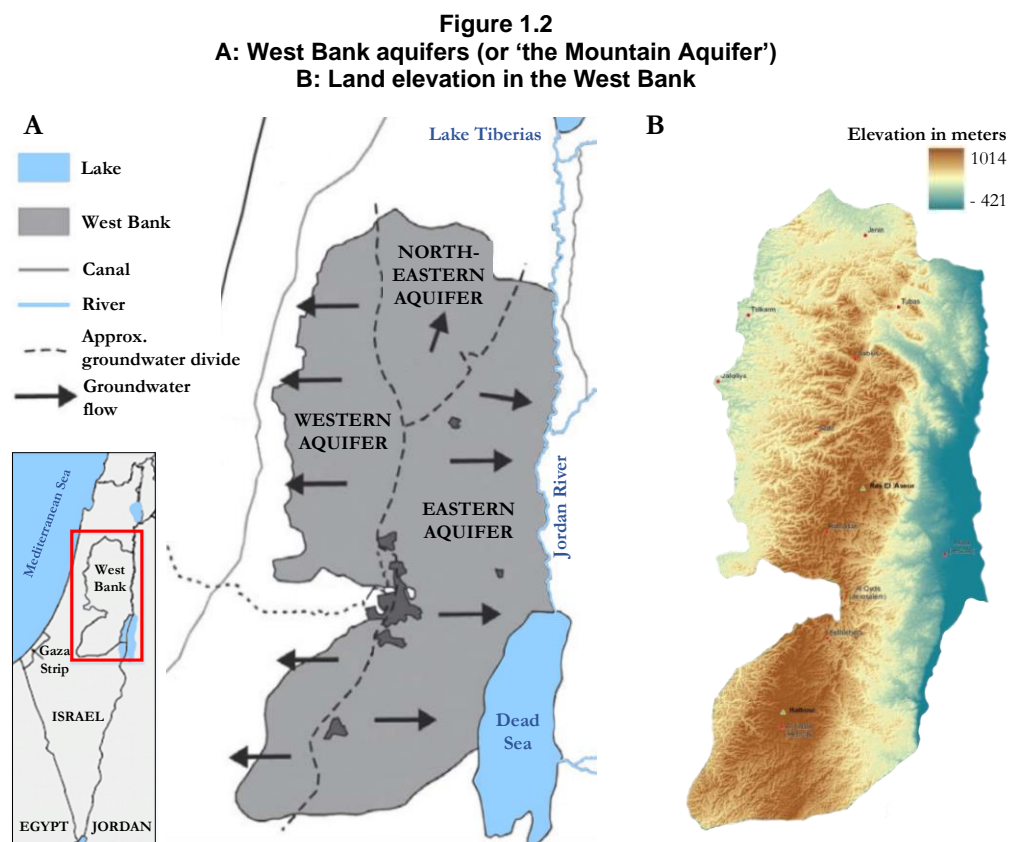
**Figure 1.1**  
**Map of the West Bank with indication of areas according to the Oslo II Accord**



Source: after UN 2011.

Currently, there are some 200 Israeli settlements in the West Bank that have access to water (B'Tselem 2019). Israel has also restricted Palestinian movement and access to land and resources through a combination of physical obstacles<sup>2</sup>, including the Separation Barrier<sup>3</sup> and checkpoints, bureaucratic constraints (e.g., permit requirements) and the designation of areas as restricted or closed (OCHA 2015: 13).

Ecologically, there are two abundant sources of fresh water in the area of the West Bank: the Jordan River and three aquifers collectively referred to as 'the Mountain Aquifer', extending throughout the West Bank and Israel (Figure 1.2, A) (Abu-Baker 2017: 38, WB 2009: 9).



Source A: after SUSMAQ in Aliawi and Assaf 2007: 23, UN 2011.

Source B: after ARIJ 2015: 14.

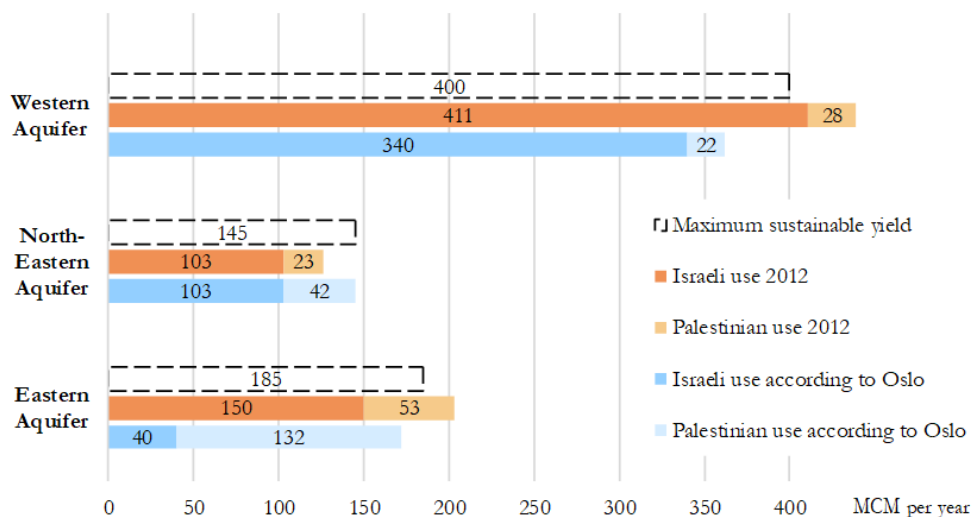
<sup>2</sup> A survey in 2018 recorded 705 permanent obstacles deployed by Israeli forces across the West Bank to control or restrict Palestinian vehicular or pedestrian movement (OCHA 2018).

<sup>3</sup> The Separation Barrier consists of fences and up to nine-meter-high concrete walls. It has a planned total length of 712 kilometres, running through the West Bank, along the Green Line and through Israel (B'Tselem 2017b).

The Jordan River is the only permanent river in the region, flowing roughly north to south from an altitude of 2200 meters above sea level, through the Lake Tiberias and into the Dead Sea as its final recipient at an altitude of 425 meters below sea level (ARIJ 2015: 36, PWA 2013b: 5, Bismuth et al. 2016: 94). The river's basin is shared between Lebanon, Syria, Israel, Jordan and the West Bank (Bismuth et al. 2016: 94). Israel uses 64 % of the river's total water while Palestinians are denied any share as well as physical access to the river (ARIJ 2015: 38, Koek 2013: 24).

Groundwater is the main source of fresh water for Palestinians, representing 95 % of Palestinian water supply (PWA 2017). The aquifers of 'the Mountain Aquifer' – the Western Aquifer, the North-Eastern Aquifer and the Eastern Aquifer – share the same predominant geology, mostly karstic limestone formations, and derive most of their recharge from rainfall and snowmelt within the West Bank (WB 2009: 9). They are characterized by great depth with an average of 250 meters (WB 2009: 9). The Western Aquifer, flowing from the western slopes of the Palestinian hills toward the coast (Figure 1.2), has the highest capacity (362-400 MCM per year) (Figure 1.3) and typically high water quality (WB 2009: 9, PWA 2013b: 8). It provides about one fifth of Israel's fresh water, which is pumped from wells located just west of the Green Line (WB 2009: 9). The North-Eastern Aquifer and the Eastern Aquifer lie almost completely within the West Bank, while the extractions from these aquifers are largely dominated by Israel (Figure 1.3) (PWA 2013b: 8).

**Figure 1.3**  
**Estimated maximum sustainable yield, water utilization in the West Bank area in 2012**  
**and water allocation according to the Oslo II Accord of 'the Mountain Aquifer'**



Source: after PWA 2013b: 8, 9.

According to the values in Figure 1.3, the extractions from both the Western Aquifer and the Eastern Aquifer exceed the sustainable yields. Furthermore, while Palestinian use in 2012 was roughly the amount allocated according to the Oslo II Accord or below, Israeli use has significantly exceeded the allocated amounts in the case of the Western Aquifer and the Eastern Aquifer. Everything considered, Palestinians in the Occupied Palestinian Territories<sup>4</sup> (OPT) only have access to 10 % of the available water resources in the region; the remaining 90 % is retained by Israel (Koek 2013: 31).

The focus of this paper is on Jordan Valley, which (including the northern Dead Sea span) covers about 30 % of the total area of the West Bank and extends from the 1949 Armistice border in the north to the western shore of the Dead Sea in the south (Figure 1.4) (Melon 2018: 15, B'Tselem 2017a). In the west, it stretches along the eastern slopes of the hills that run through the middle of the West Bank (Figure 1.2: B, p.10) while to the east, it borders the Jordan River (Hareuveni 2011: 9, HRW 2015: 16). The area's border with Jordan, currently controlled by Israel, is the West Bank's only international land crossing, which plays a significant role for Palestinian movement as well as trade with the Middle East and the rest of the world (Melon 2018: 16). From the Israeli perspective, the area has been discussed as buffer zone against military offensives from the east (Melon 2018: 16). The area's importance was underlined in 2019 by Israeli Prime Minister Netanyahu's plan to annex the Jordan Valley after he had announced that loss of Israeli control over the Jordan Valley would lead to war (Lazaroff 2019, BBC 2019).

In 2016, about 65,000 Palestinians, representing approximately 2 % of the Palestinian population in the West Bank in that year, lived in the Jordan Valley as well as 11,000 Israeli settlers (B'Tselem 2017a, PCBS 2016). Most Palestinians in the area, roughly 80 %, reside in Jericho city and communities nearby, while the rest live in communities and dozens of small Bedouin<sup>5</sup> villages, most of which are without infrastructure and permanent structures (Hareuveni 2011: 9, MA'AN 2010: 28). The settlers live in about 40 settlements across the area in violation of international law, that prohibits an occupying power to transfer its civilians into the occupied territory<sup>6</sup> (HRW 2015: 16, ICRC 2018).

According to the Oslo II Accord, almost 90 % of the Jordan Valley is designated as Area C, constituting about 40 % of all Area C which remains under full Israeli control (B'Tselem 2017a). On the basis of multiple land designations, such as 'state land', 'nature reserves' and 'military firing zone', Israel restricts Palestinian land use in Area C (HRW 2015: 19). The remaining 10 % of the Jordan Valley area are Areas A or B (B'Tselem 2017a).

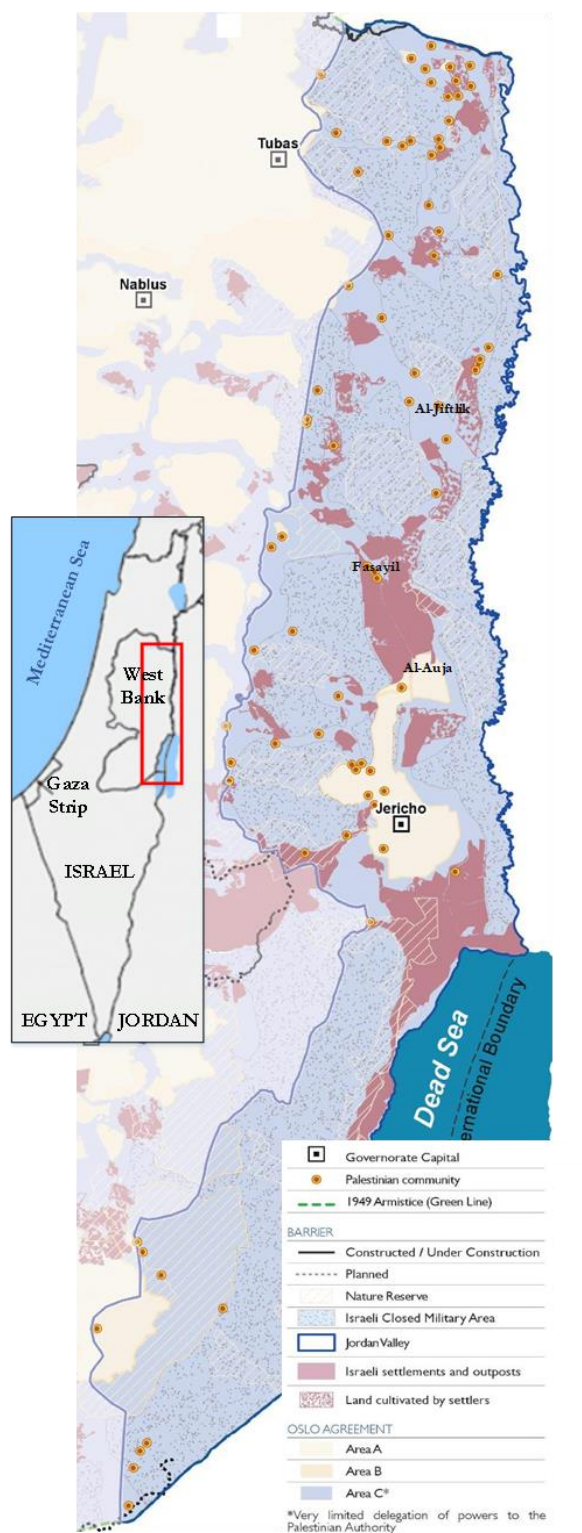
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<sup>4</sup> The term 'Occupied Palestinian Territories' describes the West Bank (including East Jerusalem) and the Gaza Strip – those territories that Israel occupied in 1967.

<sup>5</sup> The term describes Arab people who have traditionally inhabited desert regions.

<sup>6</sup> This prohibition is set out in Article 49(6) of the 1949 Geneva Convention IV which has been signed by Israel (ICRC 2018).

**Figure 1.4**  
**Map of the Jordan Valley and northern Dead Sea area, West Bank**



Source: after UN 2011, OCHA 2011.

Palestinians in Area C of the Jordan Valley live under constant threat of home and property demolitions; they face restrictions on building and movement and lack access to basic resources like water, education and health care services (Jarrar 2018: 9, 14). There is a huge discrepancy between the quantity of water allocated to settlers in the Jordan Valley and Palestinians with settlers having up to 18 times more water available than Palestinians when including water used for agricultural purposes (Hareuveni 2011: 39). While the World Health Organization (WHO) recommends a minimum of 100 liters per capita per day (lpcd) (Howard and Bartram 2003: 1), Palestinians living in the West Bank consume 73 lpcd on average compared to 487 lpcd for settlers in the Jordan Valley (Isaac and Hilal 2011: 422, 423, Hareuveni 2011: 37). The Palestinian domestic water consumption in the Jordan Valley differs, depending on the area, from less than 20 lpcd to an average of 160 lpcd in the Jericho district (Hareuveni 2011: 38).

The Israeli occupation has also affected the agricultural sector which was the mainstay of the economy in the West Bank until 1967 (Graham-Brown 1990: 57). This situation has changed, among other things, due to lack of access to adequate water resources, control of goods and products and competition with highly subsidized Israeli produce (MOA 2017: 12, Graham-Brown 1990: 60, Daoud 2018: 16, 17, Awwad 2016: 543). The ensuing low returns from agriculture have forced Palestinians to abandon their land wholly or partially and become wage workers in Israeli settlements (Graham-Brown 1990: 60, HRW 2015: 30).

In the context of restrictions and disincentives to Palestinian agricultural development in the OPT, the sector's share has declined throughout the years of Israeli occupation, being about 20 % of the Gross Domestic Product (GDP) in 1996 and 4 % in 2014 (Graham-Brown 1990: 58, Awwad 2016: 545, MOA 2017: 10). The amount of agricultural land cultivated by Israeli settlements in the West Bank has increased by 35 % from 1997 to 2012 according to estimates (HRW 2015: 15). Since 2006, the Palestinian agricultural sector has witnessed a decline in employment, from about 17 % of total labor force in 2006 to about 9 % in 2015 (MOA 2017: 10). The percentage of men working in the agricultural sector in 2015 was roughly 8 % of total male workers compared to 13 % of total female workers which emphasizes the relative importance of the sector to women (MOA 2017: 10). FAO (2011: 11) points to the fact that women's large contribution to Palestinian agriculture is rarely recognized as a significant percentage – about 40 % of rural Palestinian women at working age – carries out unpaid. According to IFAD (2017: 3), “only 1.8 % of women active in the [sector of] agriculture earn a wage”. IFAD (2017: 3) further estimates that women only own about 8 % of agricultural holdings in the West Bank most of which are small (IFAD 2017: 3). Besides that, they often do not control agricultural revenues, providing another reason to believe that changes in the agricultural sector may affect men and women who engage in agricultural work in different ways (FAO 2018: 2, FAO 2011: 11).

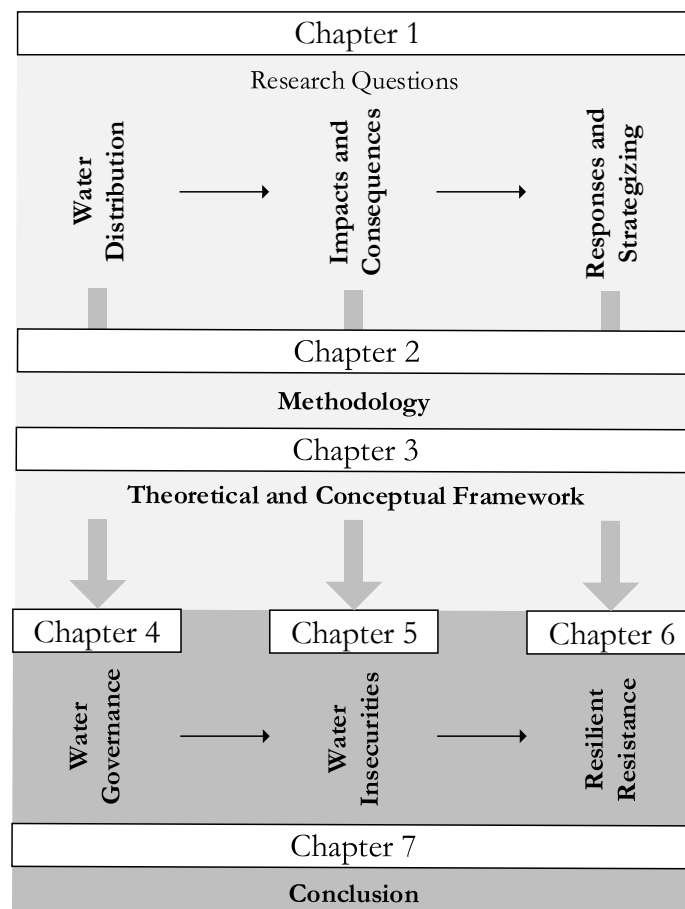
The role of agriculture is considered to go beyond being a pillar of Palestinian economy. It represents social, historical, and national intangibles:

“a direct connection between Palestinians and their land, [...] independence, selfsufficiency, and Palestinian heritage” (MA'AN 2012: 1). This is also reflected in the Palestinian popular proverb “If agriculture is fine, then the country is fine” (MOA 2017: 9). Against this background, the Palestinian Ministry of Agriculture (MOA) defined the objective of “[enhancing] female and male farmers’ resilience and steadfastness on their lands” (MOA 2017: 34), especially in Area C in which nearly 63 % of agricultural land in the West Bank is located (MOA 2017: 10). This directly addresses Palestinian farmers in the Jordan Valley as most of the agricultural land in Area C is located in this area (MA'AN 2012: 1).

## 1.4 Chapter Outline

The Research Paper is composed of seven chapters (Figure 1.5). Chapter 2 explains the methodology that has been adopted. Chapter 3 introduces the theory and conceptual framework that supports the analysis performed in the subsequent chapters. These chapters aim at answering the posed questions and form the basis for the conclusions of this research which are included in Chapter 7.

**Figure 1.5**  
**Outline of the Research Paper**



## **2 Methodology**

This chapter outlines the feminist standpoint theory which is adopted in the research and my own positionality. It then elaborates on the nature of the data and the methods in generating it. It also indicates the ethical considerations and limitations that result from these choices.

### **2.1 Feminist Standpoint Theory**

At the center of the feminist standpoint theory, as elaborated by Sandra Harding (1991), is the epistemology (i.e., theory of knowledge) that the perspectives of those who are marginalized or oppressed could reveal features of dominant institutions which dominant groups often cannot or refuse to see (Harding 2015: 36). Starting off from their everyday lives – as it is the intention of this research – provides “critical questions about how the social order works” (Harding 2005: 226). This may contribute to social justice. According to Harding,

Such a project requires learning to listen attentively to marginalized people; it requires educating oneself about their histories, achievements, preferred social relations, and hopes for the future; it requires putting one's body on the line for ‘their’ causes until they feel like ‘our’ causes; it requires critical examination of the dominant institutional beliefs and practices that systematically disadvantage them; it requires critical self-examination to discover how one unwittingly participates in generating disadvantage to them (Harding 2005: 229).

Critiquing the positivist claim to universal knowledge or the idea that science is free of value and interest as well as the traditional standards and methods that accompany this claim (Hesse-Biber and Brooks 2007: 8), Harding introduces ‘strong objectivity’. Researchers who practice ‘strong objectivity’ recognize that their interests, values and agendas inevitably influence every stage of the research (Harding 2005: 229). They reject a position of ‘value neutrality’ (Hesse-Biber and Brooks 2007: 8) or, in Donna Haraway’s words, the ‘God trick’ – “the view from above, from nowhere, from simplicity” (Haraway 1988: 589). Instead, they have a clear political and social commitment to strengthening the truthfulness and objectivity of knowledge claims through reflexivity and self-transparency (Hesse-Biber and Brooks 2007: 8). In this sense, the standpoint theory is not only an epistemology but also offers a methodological basis.

### **2.2 Positionality**

Intending to follow Harding’s call for ‘strong reflexivity’ – “the manifestation of ‘strong objectivity’ through method” (Hesse-Biber and Brooks 2007: 15), I want to disclose the parts of my personal background and viewpoint that influence the analysis.

As environmental engineer with focus on water and as a student of development and social justice, I study the problems of water access and the lived realities of Palestinians under the occupation, combining my academic

expertise with my political commitment to support marginalized and oppressed groups in society. Never having been to the OPT before and not speaking Arabic (the language spoken by Palestinians), I acknowledge that I am an ‘outsider’ to the context. However, it is my hope that this research, which forms part of my master’s degree, brings attention to and a better understanding of some of the struggles that Palestinians are facing. Hence, I hope that the study goes beyond “extract[ing] their knowledge for [...] [my] own personal and professional benefit” (Icaza 2017: 63).

Influenced by the standpoint theory’s focus on reflexivity and transparency as well as constructivist thinking, I share the view that the ways of speaking and writing about reality matter as they produce knowledge and, thereby, power (Foucault 1976). Furthermore, given the high level of political sensitivity surrounding the Israeli-Palestinian conflict and the fact that there are often many terms to describe the same ‘reality’, I agree that “it is necessary to abide by the highest standards of accuracy and impartiality [...] [and] not to uncritically utilize and interiorize terminology” (Le More 2008: 18). Therefore, I have tried in this thesis to be aware of possible implications of terminologies. In general, I used the international terms from the literature that my work is based on and the terms that were used by the respondents or interpreters in direct quotes.

Lastly, I am attaching a pencil drawing (Appendix 1) that I produced as a complementary visual means of communicating the results of this research from an artistic perspective.

## **2.3 Research Methods**

In order to analyze the system of water governance and its impact on the lives of Palestinians, this research was guided by different methods and data sources.

### ***Review of Secondary Data***

At the outset, a thorough review was done on available secondary research and statistical material on the subject, providing a clear understanding of relevant information on the background of the situation, including statistical data, as well as social, economic and political factors involved. This enabled me to sharpen my research questions as well as to identify and critically examine important analytical concepts, such as water governance, hydro-hegemony and forms of access, resilience and resistance. It also deepened my understanding of the research area and allowed the development of interview guides for different respondent groups to gather empirical data through fieldwork.

### ***Primary Data Collection***

Between 10 July and 31 July 2019, I then conducted 27 semi-structured face-to-face interviews in the West Bank to supplement the secondary data with primary data which constitute the second set of data. This qualitative method was chosen as it provides insights into the ways in which people understand a

situation, which is at the core of this research. Starting off from a rich network of contacts that my supervisors provided me with, I selected most informants based on snowball sampling.

The interviews were conducted, on the one hand, with fourteen informants (thirteen Palestinians and one Dutch) from relevant institutions such as the Palestinian Water Authority (PWA), the Ministry of Agriculture and organizations that work directly with people in the study area (Appendix 2). For lack of a better term, I will refer to them as ‘governance informants’. On the other hand and in the sense of the standpoint theory (Section 2.1, p.16), thirteen interviews were conducted with Palestinian water users who this research is about. These people were from different communities in the Jordan Valley in the Jericho and Tubas Governorate (Appendix 3 and Appendix 4) and mostly they engage in agricultural work. In both groups, 60 % of the informants were male, 40 % female. It was crucial for me as a feminist and committed to gender justice to include both interview groups and both men and women in order to hear a wide range of perspectives on different governance levels and also to understand if gender made a significant difference in their experiences.

With the governance informants, I discussed the distribution of water in the West Bank (e.g., actors, institutions, regulations), agriculture in the Jordan Valley as well as access to water and related challenges and choices (Appendix 5). Water users were asked about their lifestyles (e.g., daily routine, work at home, jobs), what water sources they rely on, how they access water and what they use it for as well as related challenges and choices (Appendix 6). Some interviews deviated from these rough structures, depending on the respondent’s background and preferences.

The first set of interviews was conducted in English and mostly in the confidential environment of the informants’ personal offices. The majority of the second set of interviews was conducted in Arabic with English translation and, mostly with other family members present. Two of them could be called small focus group discussions, given the participation of different informants in the conversation and the interaction. Most of the 27 interviews were, under permission, recorded and later transcribed. The average duration of the interviews was more than one hour.

The third set of data comprises my observations during fieldwork which I have often discussed with my interpreters, who were familiar with the context. Besides that, the possibility to ‘view from the body’ (Haraway 1988: 589) through the fieldwork was important in order to get a glimpse of what the situation may mean for Palestinians in that area – drinking salty, supposedly fresh water myself, not being able to take a shower after a day in the heat of 46 °C, etc.

### ***Data Triangulation***

The interview transcriptions and notes from fieldwork were then coded, using the software *Atlas.ti*, with a total of 140 codes derived from the data to identify common themes (e.g., ‘agriculture: crops’, ‘governance actor: municipality’ or

‘water quality: salty’). The triangulation of the data from fieldwork with the data from literature was a continuous process going back and forth between analyzing the data sets individually and critically comparing them. It implied looking thoroughly at what information could be derived from the primary data, further narrowing down the focus of this research and identifying what knowledge contribution could be made. The combination of different methods as well as the use of secondary and primary data at different levels allowed for and in-depth analysis of the complex nature of water governance, the experiences of insecurity and forms of resilience and resistance of Palestinians in the Jordan Valley.

## **2.4 Ethics and Limitations**

Throughout all research stages, great importance was placed on upholding ethical standards as the paper could bring harm to the people who have been involved in the process.

Prior to the interview conduction, the context of the research and its limitations were explained to the informants. It was highlighted that they could refuse to answer any question as well as withdraw at any point without consequences. They were also asked if they had any questions or anything they would like to add. This opportunity was used by many water users to ask me in more depth how I think my project will help them. Having replied honestly that, in my view, the project could bring some attention to their situation but is certainly limited in terms of its scope, no one refused to talk to me, nor did anyone seem to be surprised. One man from a community in the Jordan Valley replied:

I know that most problems in this area are hidden. I am happy to see you or anyone like you who comes to make the world see the real face of the occupation.

A man from the village of Al-Jiftlik (Figure 1.4, p.13) asked me at the end of the interview to add some recommendations to my paper:

This area needs support to improve the livelihood conditions such as electricity, the water network and support for agriculture in general. Another issue is education. The students go to a school which is far away [...] by feet, so they need a bus or there needs to be a bridge to the main street to ensure the safety of the students when they cross the street.

In general, I had the impression that the conversations were well-appreciated by the respondents who seemed to speak openly about their perceptions. The positive and kind attitude, among other things, as it was expressed in one of my respondent’s words, “You are welcome, any day, any way, any time”, made it easy to connect with the people and build up some sort of relationship regardless of language and background-related barriers. Working with interpreters has implications for the interview context (confidentiality, anonymity, etc.) as well as for the analysis, given the additional interpretative factor of translation. Therefore, I carefully considered who to work with. Especially, finding a female interpreter proved to be difficult.

Eventually, I worked with three different interpreters, two men and one woman. They were gatekeepers at the same time who mostly knew the informants well and I trusted them with approaching possible respondents. They also gave me advice on the appropriateness of questions (e.g., regarding income, hygiene), which I followed.

The fact that they were all Palestinians from the Jordan Valley and not from other regions in the West Bank seemed to be important. One of the respondents of the small focus group discussion said, “We talk to you [addressing my interpreter] because you are not from Ramallah”. When I asked my interpreter later, in the presence of her brother, how to understand this, he explained, “People feel comfortable when they talk to someone who has the same experience. So, whatever they will tell you, you will understand because you have the same kind of problems”. He added an Arabic saying that loosely translates to: “People who put their hands in fire do not feel the same as people who put their hands in ice water”.

Another ethical concern is the anonymization of the respondents by not giving revealing details about them. This decision was taken as, due to practical constraints, it was not possible to inform them in which context their words have been incorporated in this paper and whether they agree with this representation or not. Recognizing the difficult nature of representing others, I have decided to include many direct quotes. I hope that the voices of the people who this project is about and their actual views break through the ‘noise of transmission’.

### 3 Theoretical and Conceptual Framework

This chapter presents key concepts that help to frame the analysis and answer the questions that guide the research. These concepts, which are considered in the analysis from a gender perspective, include water security, water governance, hydro-hegemony, everyday resistance, resilience and ‘sumud’.

#### 3.1 Water Security, Water Governance and Hydro-Hegemony

The Human Development Report (1994) introduced the idea of human security to the wider debate on development (UNDP 2006: 3). This meant a shift from narrow perceptions of national security (i.e., protection against military threats and protection of strategic foreign policy goals) towards looking at security rooted in people’s lives (UNDP 2006: 3). Since then, the concept of water security as integral part of human security has become increasingly influential (UNDP 2006: 3, Empinotti et al. 2019: 48). It broadly refers to “ensuring that every person has reliable access to enough safe water at an affordable price to lead a healthy, dignified and productive life, while maintaining the ecological systems” (UNDP 2006: 3). If these conditions are not met, people face human security risks due to poor health and the disruption of livelihoods (UNDP 2006: 3).

A set of parameters, including *quantity*, *quality*, *accessibility*, *affordability* and *availability*, is embodied in the Sustainable Development Goals (SDGs) and has been viewed as guiding for the evaluation of water security by the global community (UN 2018, Jepson et al. 2017: 47). The parameters, however, are designed to assess water security globally and Nganyanyuka et al. (2014: 365) stress the importance of using-context specific parameters for understanding day-to-day water insecurities experienced by water users. In addition to the parameters named above, I add the access dimension *safety* to my analysis, derived from the discussions with water users in the study area, which in the context of conflict and occupation also plays a role in accessing water as will be shown.

Jepson et al. (2017: 46) point to the fact that the concept of water security remains loosely defined and criticize the dominant focus on water supply (Jepson et al. 2017: 50). They propose to define it as:

[...] a relationship that describes how individuals, households, and communities navigate and transform hydro-social relations to access the water that they need and in ways that support the sustained development of human capabilities and wellbeing in their full breadth and scope (Jepson et al. 2017: 50).

This conceptualization, that places hydro-social relations at the core of water security, implies the engagement of people and institutions in water governance “*not just as water users but also as political actors*” (Empinotti et al. 2019: 48, emphasis added).

The term water governance has indeed become increasingly popular within the water security literature (Empinotti et al. 2019: 48). It has been acknowledged as a key challenge in achieving long-term sustainability of the resource (Franks and Cleaver 2007: 292, Özerol et al. 2018: 43). Despite its popularity, there is little consensus regarding the scope and definition of water governance (Araral and Wang 2013: 3948). Most definitions refer to “the different actors involved and the structures that are required in the formulation and implementation of water policies” (Durán-Sánchez et al. 2019: 3). Predominantly, there is a focus on normative sets of principles of ‘good’ governance (e.g., accountability, transparency, participation, integrity) which would lead to ‘good’ outcomes for all (Zwarteveen 2015: 19, Cleaver and Hamada 2010: 28). This assumption, however, masks that there is, in fact, little understanding of how water governance systems work out in practice in specific local contexts and how they impact the lives of individuals (Cleaver and Hamada 2010: 28, Franks and Cleaver 2007: 292). The focus on ‘good governance’ neglects how power relations and politics can shape governance elements that support water security or even how they can contribute to water insecurity (Empinotti et al. 2019: 48, Loftus 2015). Furthermore, despite considerable evidence that access to water and participation in governance institutions are gendered<sup>7</sup>, much writing on water governance is gender-blind (Franks and Cleaver 2007: 296).

Therefore, Zwartveen (2015) suggests to make “questions about the what, how and why of distribution the very center of the study of water governance” (Zwartveen 2015: 12, 13). This focus allows to contextualize water governance in dominant policies and economic trends and to uncover political choices that are often hidden in the neo-liberal water policy language (Zwartveen 2015: 12, Ahlers and Zwartveen 2009: 410, Cleaver and Hamada 2010: 30). The approach calls for research in “detailed documentation of everyday dealings with water, anchoring reflections about water governance in everyday water practices” (Zwartveen et al. 2017: 3). This could contribute to reinvigorating the concept’s capacity for challenging power relations and water-based inequities (Zwartveen et al. 2017: 3).

The conceptualization of water governance applied here invites to “trace how water that flows to one place carries implications for its quality and quantity in other places” (Zwartveen et al. 2017: 5), uncovering that reality often diverges from distributional agreements as set in laws and regulations, infrastructural lay-outs and water distribution schedules (Ahlers and Zwartveen 2009: 411, 412). Furthermore, unravelling why some knowledges and expertises carry greater authority than others for intervening in water distribution reveals broader structures of dominance and injustice (Zwartveen et al. 2017: 7). Lastly, it allows to question how possibilities to control and steer the distribution of the resource are organized in specific contexts and on what basis (Zwartveen et al. 2017: 5). This is of particular importance in the context of occupation as institutions, spaces and scales for water governance – while

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<sup>7</sup> The term gender is used in this work to describe socially constructed differences between the sexes that produce relationships of power (Scott, J. W. 1986: 1067).

being presented as pragmatic policy endeavors – “may serve as a means through which to stabilize existing [or aspired] status quos that reflect unequal power relations” (Empinotti et al. 2019: 49).

Recognizing the central role of power relations in transboundary river basins, Zeitoun and Warner (2006) introduced the framework of hydro-hegemony, defined as “hegemony<sup>8</sup> at the river basin level, achieved through water resources control strategies [...] that are enabled by the exploitation of existing power asymmetries” (Zeitoun and Warner 2006: 436). Applying Gramscian’s hegemony accomplished through relations of coercion and consent and Lukes’ (2005 [1974]) three dimensions of power, they suggest different forms of power as analytical structure for examining the interplay of water, power and conflict (Warner et al. 2017: 9): *material* power (i.e., economic, military, technological, political, financial), *bargaining* power (i.e., the capability of actors to set agendas and control the rules of the game) and *ideational* power (i.e., the capacity of actors to impose and legitimize ideas and narratives) (Casção and Zeitoun 2010: 31, 32). In this work, the concept of hydro-hegemony is used to investigate power relations that shape the governance of ‘the Mountain Aquifer’ (Section 1.3, p.11), building on the work of scholars who have expanded the concept to transboundary aquifers and following the call for more empirical work tied to hydro-hegemony analysis (Warner et al. 2017: 3, 10).

The review of the three concepts highlights the significance of politics and power relations that lie behind the more neutral formulation of water governance and demonstrates that the distribution of and access to water can be an outcome of power asymmetries, resulting in inequalities and injustices. These notions are used in the analysis of water insecurities experienced by Palestinians in the Jordan Valley.

## 3.2 Everyday Resistance, Resilience and ‘Sumud’

Analytically, the present work also draws on resistance theory, in particular on the concept of ‘everyday resistance’, introduced by James Scott (1985). In contrast to earlier work on resistance which “focused on large protests, movements, and revolutions which confronted their targets directly and openly” (Ali 2018: 147), everyday resistance pays attention to how people act in ways that challenge dominant power relations in their everyday lives (Ali 2018: 147). Scott and other scholars like Michel de Certeau and Judith Butler argue that “resistance might be hidden or disguised, or a subtle change of everyday repetitions” (Lilja and Vinthagen 2018: 213, 214). This is in line with Foucault (1990), who argues that power is a plural and ubiquitous relation that permeates all aspects of social life and that “points of resistance are present everywhere in the power network” (Foucault 1990: 95). According to Richter-Devroe (2013: 34), it is the perspective of the everyday which can reveal structures of dominations and their interrelation. From a feminist perspective,

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<sup>8</sup> Hegemony can broadly be described as “leadership buttressed by authority” (Zeitoun and Warner 2006: 438).

the concept of everydayness, exemplified in the work of Michel de Certeau (1984), is critical as it is the realm in which women are often most visible (Shalhoub-Kerkovian and Busbridge 2014: 88).

The research also draws on the concept of ‘resilience’ defined as “the capacity to positively or successfully adapt to external problems or threats” (Chandler 2012: 17). From the 1800s onwards, the concept has passed different phases, from initially focusing on individual traits to currently understanding it as culturally embedded (Jackson et al. 2007: 2, Marie et al. 2018: 22, 24). This understanding of cultural embeddedness has brought attention to non-Western cultures and the need to investigate resilience in so far under-researched contexts (Marie et al. 2018: 24, 25).

There is also a call for more empirical studies that explore the link between ‘resilience’ and ‘sumud’, which roughly translates to steadfastness and describes the insistence of many Palestinians on continuing with life despite the difficulties they face under occupation (Marie et al. 2018: 29, 31, Ali 2019: 71). Doubtlessly, part of these struggles is limited access to water. ‘Sumud’ was introduced to the discourse in the late 1970s and since then, recommended by the Palestinian Liberation Organization (PLO), it has become a national concept and strategy for Palestinians (Marie et al. 2018: 28). Peteet (1991) highlights the role of women for defining the concept:

Women took the concept of *sumud* and carved a niche for themselves within its bounds of meaning. [...] The qualities that comprise *sumud* are also those that are characteristic of femininity – silent endurance and sacrifice for others (family and community) (Peteet 1991: 153).

This had paved the way for Palestinians to see their everyday actions as politically significant (Peteet 1991: 153).

Contributing to bridging the gap between the terms ‘sumud’, ‘resilience’ and ‘resistance’, I build on Ryan’s (2015) notion of ‘sumud as resilient resistance’ and refute conceptualizations that diminish ‘sumud’ and ‘resilience’ as ‘passive resistance’ or ‘just coping’ (Ryan 2015: 313). First, using the adjective passive is, particularly from a gender perspective, problematic as “passivity is a trait traditionally associated with women, in contrast to active men” and could be regarded as undesirable characteristic, linked to weakness (Ryan 2015: 312). Second, describing Palestinians living under the occupation as ‘just coping’ or as ‘living *with* the occupation’ downplays the effort needed to cope or survive. Instead, ‘sumud as resilient resistance’ represents “living *despite* the occupation, or even living *to spite* the occupation” (Ryan 2015: 313, emphasis added). Thus, in addition to adaption, resilient resistance also challenges the conditions that are experienced (Ryan 2015: 313).

Analyzing the situation of the Palestinians with these different lenses will allow for a more comprehensive notion of how levels of and controls in water governance, politics and power relations, as well as resistance and resilience have been embedded in the daily lives of Palestinians in the Jordan Valley.

## 4 Governance for Water Security?

Water governance in the Palestinian context has been studied before (e.g., GWP 2003, WB 2009, UNICEF and GVC 2010, WB 2018). However, this chapter relies to a large extent on data generated from fieldwork combined with secondary data and it analyzes the main formal structures of water governance in the context of the Israeli occupation. It also deals with the power relations and hegemonic controls inherent in these structures, which influence access to water for Palestinians in the Jordan Valley. Lastly, it includes a consideration of internal constraints under occupation and pays attention to women's participation in the water sector.

### 4.1 Hegemonic Controls of the Occupation

Article 40 of the Oslo II Accord allocated to both parties specific quantities of the aquifers which underly both the West Bank and Israel (the Jordan River being excluded) (Figure 1.2: A, p.10) – roughly one quarter of the allocations to the Palestinians and the rest to Israel and the settlements (WB 2009: iv). It also included the formation of the Joint Water Committee (JWC) for the management of water-related infrastructure in the West Bank, with equal number of Palestinian and Israeli representatives (Messerschmid 2014: 40). These arrangements have been criticized harshly as “dressing up domination as ‘cooperation’” (Selby 2003) or even as “water apartheid” (Glavany 2012). Such critiques, suggesting Israel's hegemonic control of the transboundary groundwater resources, are based on evidence of asymmetries regarding different forms of power in play (Section 3.1, p.23). These are elaborated below.

The Palestinian side is relatively weaker in terms of *material* power as the arrangements under Oslo only apply to the parts of ‘the Mountain Aquifer’ that lie within the West Bank, which means that the PNA does not enjoy equivalent veto power in relation to Israel (Messerschmid 2007: 12, Selby 2013: 7). The fact that this also applies to the decisions made by the JWC, which officially have to be reached by consensus, is reflected in the approval rates of the JWC, which are significantly lower for Palestinian projects than for Israeli projects (Messerschmid 2014: 58, Selby 2013: 11). A research informant from the municipality of Jericho highlighted the dependency on the Israeli approval for water-related projects, even in Area A: “Without agreement from the Israeli side we cannot dig a deep well. [...] We asked but till now we have no permission. We speak about more than 10 years ago”. Another participant who is involved in the JWC (which may prospectively be frozen according to him) gave an example of its malfunctioning, further pointing at Israel's higher *bargaining* power:

We had more than one year of negotiation for the prices of the water for the extra 32 MCM [...]. And in the end, [...] they said, ‘This is the price’ and that’s it.<sup>9</sup>

In addition, the military orders (Section 1.3, p.8) which assigned water resources to the control of Israeli military authorities and introduced a permit system for water-related installations remain in force (Selby 2003: 135). This gives the Israeli Civil Administration power to veto any Palestinian proposal even after it has received consent from the JWC – another example of *material* power asymmetries (Selby 2003: 135). Furthermore, given its military presence in Areas B and C, Israel can destroy unlicensed infrastructures to enforce Palestinian compliance with the Oslo II Accord with the PNA having no equivalent means of enforcing Israeli compliance (Selby 2013: 11). Likewise, the PNA unlike Israel depends on financial support from international donors who insist on full approval by the JWC and the Civil Administration (Selby 2013: 9). Israel has also geographically the advantage of better pumping conditions given that ‘the Mountain aquifer’ mostly drains downstream into Israel (Figure 1.2, p.10) (Messerschmid 2007: 3, 8).

Inseparable from the above, the discourse around water in the West Bank is largely influenced by Israel and the Oslo II Accord (i.e., *ideational* power). One of the Palestinian governance informants, for instance, pointed at the often-distorted perception of the situation:

The world outside thinks there is a Palestinian state. This is a shadow government. It is not a real government. [...] This is something we brought to ourselves because of the good faith in the Oslo Accord but it was a trap. [...] Israel still controls everything.

Messerschmid (2007: 18, 19) further highlights ‘myths’ deliberately spread by Israel (e.g., depicting the West Bank as desert and Israel as responsible state-of-the-art water manager) that shape people’s views on the water sector.

These factors have contributed to a reduced “development of water resources and services for Palestinian people below levels expected at the time of Oslo” (WB 2009: ix). Therefore, Selby (2013: 21) problematizes the concept of ‘cooperation’ itself, arguing that ‘cooperation’ under the Oslo II Accord not only maintains the status quo ante in the control of transboundary water resources, which is in favor of Israel, but has also facilitated Israel’s domination of the water resources.

Reflecting this, the research participants have, without exception, talked negatively about the effect of the Oslo II Accord and the occupation in general on the water sector. Drawing attention to the gravity of the situation, one of the Palestinian governance informants said,

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<sup>9</sup> This remark refers to a deal between Israel and the PNA according to which Israel would sell 32 MCM of water to the PA from Mediterranean desalination plants (Ahren and Lidman 2017).

We are managing a water crisis. All the time. [...] Once we have a final agreement with Israel – whether we get enough water or not – at least we know what we have. Then we can plan our strategies accordingly.

For the theorization of hydro-hegemony, the findings suggest the concept's applicability to aquifers and highlight the importance of understanding different forms of power as interacting (e.g., *ideational* power influencing *material* power in terms of financial support by international actors). For the theorization of water governance, the case emphasizes the importance to look beyond laws and regulations (Section 3.1, p.22).

## 4.2 Governance in a Scattered Palestinian Water Sector

The Palestinian water sector “features a fragmented and heterogeneous make-up” (WB 2009: 15) due to a large number of actors as well as unclear mandates and responsibilities (Appendix 7). Against this background, a reform process was initiated, which led to the endorsement of the 2014 Water Law that includes roles and relations among the various institutions (Appendix 8) (GWP 2015: 17, 18). Currently, however, the sector is “in an undefined period of transition as structures and responsibilities are being shifted” (GWP 2015: 5). A Palestinian governance informant explained,

Water governance in Palestine is very scattered because of the history and because of the political situation. [...] Some service providers<sup>10</sup> are still working according to the Jordanian law. [...] There is no connection between the service providers and the higher level of water governance because most of the service providers are municipalities and they belong to the Ministry of Local Government, not to the Palestinian Water Authority [(PWA)]. [...] Our agricultural water is private [...]. This is because people inherited water use since the Turkish mandate.

Another informant mentioned problems among the newly established Water Sector Regulatory Council (WSRC) and the PWA “because, obviously, it is about roles and mandates and control and power”.

The problems in the Palestinian water sector were often explained in connection with the occupation, as a result of the lack of water access – “Everybody is competing for a very limited quantity” or “What do you expect from the PWA if they can’t control their own national water resources? So basically, you expect a bird to fly but you cut off its wings”. However, Palestinian actors were also blamed, mainly by the governance informants. One, for instance, said,

For the part of the governance the Palestinians do control, they should be far more willing to proceed in reform processes [...]. Municipalities who collect water revenues use these bills to build new roads or do things completely not related to water. [...] Either use the revenues that you have collected and leave me [PWA] out or give everything to me and I take care of it. [...] [However,] the

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<sup>10</sup> According to two informants, there are currently more than 300 different service providers in the West Bank and the Gaza Strip.

ministry of finance also withholds tax revenues from municipalities, so then municipalities take the revenues that they have in house to pay for the services.

Most criticism directed at the PNA was related to the distribution of financial resources or the lack of priority given to Area C and the Jordan Valley. Several informants gave the example that less than 1 % of the total budget of the PNA is allocated to the Ministry of Agriculture, which they suggested should be increased (MOA 2017: 17, EC 2017: 169). Other suggestions are listed in Appendix 9.

### ***Gender and Water Governance***

Examining which knowledges and expertises carry authority for intervening in the distribution of water (Section 3.1, p.22) brings us to the participation of women in the water sector. With a hint of sarcasm, one of the female governance informants summarized: “The water is controlled by Israelis and after the Israelis it is controlled by men. Then it comes to the women”.

According to Carmi et al. (2019: 335), women make up 30 % of the staff at the PWA, while holding around 37 % of decision-making positions. Carmi et al. (2019: 335) found two main factors that contribute to this unbalanced male-female ratio, namely a patriarchal society<sup>11</sup> as well as a strong negative perception of female decision makers. The struggles resulting from social norms and gendered perceptions were also expressed by one of the male respondents from the PWA:

We are trying to do our best to involve women in decision-making, but to be honest, [...] the water sector is not like any other sector [...] because there are a lot of tasks that women cannot be engaged in. [...] We cannot send a woman to work night shifts at a pumping station [...]. It is difficult. It is even socially not accepted to have a woman working during night. Even physically it is not possible for women to work on maintenance of sewage networks which needs extra physical power. They cannot, for instance, open a manhole of 30 kilograms on the street. So ok, we all agree that women’s participation is very important, but in their position. They should be respected as women. Sending a woman to work on anything that is socially not acceptable is non-respect for the woman.

In water provision utilities, the number of female staff is with about 8 % even lower (GWP 2015: 52). Underpinning such statistics, one of my informants shared that there are currently 50 men and only 2 women working at the water and sewage department of the municipality of Jericho. Contradicting the previous informant regarding women’s capacities to some extent, he explained,

Some women now work on installing the pipes, irrigation networks and maintenance of the pumping stations. It is possible. I believe nothing can prevent

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<sup>11</sup> The term describes a society that “consists of a male-dominated power structure throughout organized society and in individual relationships” (Napikoski 2019).

this. Maybe we need time because [...] we need to change the culture and to persuade the people that women have the capacity to do this work.

It was argued that, among other things, due to the fact that a lot of the water-related work at the ground level is undertaken by women, it is imperative to involve them in water management decision processes (Carmi et al. 2019: 339). Other reasons were given by one of the female governance informants:

It is important to mainstream women in the sector from the point of view of the right to work. There are large numbers of well-educated female engineers<sup>12</sup> and they are willing to work in the water sector. It is important to involve them and to encourage men to accept them. Male managers sometimes reject female employees. They think she cannot go to the field [...]. I think water is [...] a vital issue. If you are not involved in this, I don't think you can be involved in anything.

She added that a lot could be gained from learning from the public regarding water issues, especially from women who “are the key in water management at the household level”.

Approaches towards tackling this issue can be found in the Water Sector Reform Plan (2014 - 2016), which prescribes that recruitment and promotion systems should be “based on merit and a related performance evaluation” (PWA 2013a: 15). The PWA has, furthermore, as part of a so-called ‘Gender Strategy’ expressed a “strong belief in the leading role of women and working diligently to be gender-sensitive in all activities” (PWA 2016: 13).

The findings show that water governance is not a neutral concept as it is sometimes portrayed, but is reflective of power relations, for instance, based on occupational domination and gender differences. The impacts of this on water security of Palestinians in the Jordan Valley are analyzed in the following chapter.

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<sup>12</sup> The chief executive officer of the WSRC stated that the proportion of women in water and environment master programs at universities was 64 %, while only 6 % of the jobs in this sector were occupied by women (Hmaidí 2019).

## **5 Water Insecurities of Palestinians in the Jordan Valley**

This chapter, which is largely based on data from fieldwork, analyses how the controls in water governance affect the daily lives of Palestinians in the Jordan Valley. It provides an overview of the types of water sources Palestinians rely on as well as related access problems. It then highlights the water related hardships that women face as both informant groups indicated that women suffered more than men from the situation. As in the previous chapter, attention is given to the voices of the people and their understanding of the situation.

### **5.1 Types of Water Sources**

With no access to the Jordan River (Section 1.3, p.11), Palestinian water users from different regions in the Jordan Valley (Appendix 3) rely on water from a network operated by Israel's national water company Mekorot as well as from Palestinian springs and wells, some of which are owned privately. As this section highlights, political decisions on infrastructure and distribution have resulted in water insecurities for Palestinians in the area.

The Palestinians largely depend on groundwater pumped and allocated by Mekorot (Melon 2018: 63). However, many smaller villages, especially Bedouin communities, are not served by any network. A man from a Bedouin community told us, "The Mekorot pipes run under our tents but we can't use the water from them". One of the governance informants explained that while connecting many of these communities to the Mekorot network was technically easy, there were political reasons for not doing it: "Israelis don't build these pipes because if they did, that would mean that they recognize Palestinian existence in this area".

Besides that, there are about 90 active wells in the area, mainly operating for agricultural use; prior to 1967 there were more than 200 (Hareuveni 2011: 32). Most of them have a depth from dozens of meters to 200 meters, which is in contrast with Israeli wells that go down hundreds of meters (Hareuveni 2011: 32). For the past decades, pumping from the wells has decreased or even ceased because of Mekorot drillings nearby (Hareuveni 2011: 33). This has also negatively affected the water quality. Attempts to increase the depth of the wells to regain access to the groundwater are usually either denied permission by the JWC or given permission but in restricted ways (Section 4.1, p.25). A farmer from the village Al-Auja told me,

The first well in this village was dug in 1954. My father dug it. The depth of it was 40 meters only. At that time, they reached the water at the level of 17 meters. In 2011, I lost all the water from the well. It was sweet water, good water. From 2011 until 2015, I waited to receive a permission from the Israelis to dig deeper. I received permission to dig until 84 meters. When I dug, the water was salty.

Mekorot drillings as well as little precipitation in the past years, furthermore, led to a significant decline in the amount of water withdrawn from springs. Al-Auja Spring was given as an example by several of the informants. One of them explained,

In Al-Auja, the water came from the natural spring. There is an open canal. This water went to farming. In the past, eight to ten farmers who had private ownership of the water benefitted from it. [...] Then Israelis dug three wells close to the spring and the spring got dry. So, the families that didn't have wells, didn't have any water resources left. Al-Auja used to be known for banana cultivation. Now, it's empty like a desert.<sup>13</sup>

The fact that during my stay, there was water flowing in the canal from Al-Auja Spring was explained by one of the governance informants by reparations that had been done recently at the close by Mekorot pumping station (Figure 5.1). One of the water users explained that, while there is usually only water from the spring in winter, this year, due to the high rainfall, it was still there in summer.

**Figure 5.1**  
**Left: Fenced Mekorot pumping station in Al-Auja;**  
**Right: Canal of Al-Auja Spring (July 2019)**



An example of a network operated by the Palestinian side can be found in the city of Jericho (Area A). Here, water users mainly depend on Sultan Spring of which 42 % is used for domestic purposes and 58 % for agricultural purposes according to an informant from the Jericho Municipality. From the main source, the water for domestic purposes is pumped to tanks and from

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<sup>13</sup> Another informant explained, “In this village, we used to cultivate more than 7000 dunums of banana and 2000 dunums of citrus fruit. Now you find just some banana trees around the houses”.

there distributed by gravity. There is a separate network for agricultural use. This share of water is owned by Palestinians.

## 5.2 Water Insecurities according to Dimensions of Access

Six dimensions of access were identified on the basis of the discussions with water users, namely (a.) water *quantity*, (b.) water *quality*, (c.) the *distance* of the source and the *time* it takes to collect the water, (d.) the *affordability* and the *price* of the water, (e.) the *availability* and *reliability* (i.e., How frequent and how certain is the access to the water?) as well as (f.) *safety* (i.e., How safe is the access?). Overall, the data shows significant variations regarding water access across spatial, temporal and socio-economic boundaries. This was mostly pronounced between planned areas in which piped water is theoretically available, and unplanned areas, mainly Bedouin villages, in which it is not (Section 5.1, p.30).

### a. Quantity

Large variations regarding the water consumed by Palestinians in the Jordan Valley have been mentioned earlier (Section 1.3, p.14). Supporting such statistics, a man from the village Al-Jiftlik, for instance, said that twice per week his family of nine people filled two plastic tanks (1500 liters per tank) with water supplied by Mekorot for domestic use. This makes roughly 95 lpcd.

Many informants highlighted that the quantity of the water provided by Mekorot was insufficient to cover their domestic needs. An informant from the refugee camp Aqbat Jaber which is connected to the Mekorot network stated, “They give us the quantity they want to give us and not how much we need”. This was a problem especially in summer when due to high temperatures domestic needs were higher and at the same time, the possibilities to fall back on alternative resources (e.g., spring water) were limited. The relation between climatic conditions and water needs was also highlighted by an informant, who explained that the air conditioners which he used depended on water – “Each of them needs about 200 liters of water per day” – and that they therefore competed with other domestic water needs. Many farmers, like the one from Al-Auja quoted in the previous section (p.30), also face problems due to reduced quantities of agricultural water from wells and springs.

Quantities were expressed in different ways, depending on the type of source and the way in which the water is handled. For instance, people from Bedouin communities who rely on water trucking expressed their consumption in number of tanks filled per day or week (Figure 5.2). Others, when being asked about how much water they used, answered in hours or times per time period in which they are supplied with water from a network. One informant from the village Al-Jiftlik with 4 dunums<sup>14</sup> of greenhouses and 28 dunums of urban field cultivations said,

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<sup>14</sup> Dunam is the commonly used measurement unit for land in the OPT (1 dunum is about 0.1 hectare).

The issue here is that people pay in hours not in cubic meters. For all my land, I have 12 hours every 3 days, with about 30 cubic meters per hour from a well.

Two informants who work on land that they, like other families in the neighborhood, rent from an owner from Ramallah explained that he had divided the access to the water from his well among the tenants:

The owner decides how much water each family gets for days. Some have 20 hours, others 27 or 30 hours. We, for instance, rent 50 dunums which we have divided into different areas where each area gets about 7 hours of water. Sometimes we have to get up at 1 am in the morning to change where the water goes to.

Thus, in this case, the time of (e.) *availability* plays an important role in the context of (a.) water *quantity*. This calls for using parameters for assessing water access that are adjusted to the local conditions (Section 3.1, p.21). It also shows the interdependence of access dimensions on the ground, which can hardly be categorized separately. To give an example, if people did not have to drive many hours per day to fill their water tanks (i.e., reduced (c.) *collection time*), they might have money from reduced fuel costs (i.e., reduced (d.) *prices*) to buy another tank to store water in (i.e., increased (e.) *reliability*).

**Figure 5.2**  
**Truck with water tank of three cubic meters (July 2019)**



### ***b. Quality***

Overall, the quality of the water supplied by Mekorot as well as from springs was considered good while the water from the wells was described as salty – unusable for domestic purposes and restrictedly suitable for agricultural purposes. An informant from the PWA said that besides the high salinity of the water of the agricultural wells, there were also problems with turbidity and total dissolved solids (TDS).

The only significant complaints regarding the quality of the Mekorot water were made in Aqbat Jaber where the water is salty. A woman from the camp said, “Even the animals have been sick from this water. What about us?”.

In addition, other factors that influence the quality and safety of the water were named. For instance, a man from a Bedouin village said that he filled the tank of his truck with fresh water; but once he filled this water into small tanks to store it, it became contaminated – “Sometimes my small children drink from that water and become sick”.

### ***c. Distance and Collection Time***

The distance to the water source and the collection time played a role for water users whose households are not connected to a network as well as for connected households.

One family from Fasayil, for instance, said that they were the only family in the village with continuous water supply from the Mekorot network, while the other households were supplied for only about ten hours per day. The father explained, “Our house is close to the main pipe. The location is good”.

Many informants also drew a connection between the distance from the water source and the price of the water. A woman from Aqbat Jaber explained that due to the lack of water and the salinity of the Mekorot water, they would regularly call a man who would bring water from Sultan Spring in Jericho:

We pay about 30 shekels<sup>15</sup> for 1.5 cubic meters when he brings the water also for other families. If he only fills our tank, then he asks for maybe 50 or 60 shekels because he must come all the way just for us.

A man from a Bedouin community explained that he collected water from different farmers who gave their surplus for free. The ‘searching for water’, however, would take him about three hours every three days in winter; in summer often every two days. It could even take him up to a full day, he said.

Another informant who fills the tank on his truck twice per day said that it took him up to 4 hours in total – each time about 1.5 hours for getting from the source to the destination because the road was bad, which meant that he had to go carefully with the full tank, and 20 minutes to go back.

Yet another man from a Bedouin community mentioned that, while his main source was about one kilometer away and the water there was for free for him, he sometimes preferred to go nine kilometers to Sultan Spring where he buys the water because “sometimes there are too many people at the main source and I would have to wait for maybe one hour”.

### ***d. Price and Affordability***

Prices of water differ from one locality to another. Two factors determining them are the costs of the electricity needed for pumping the water up from the deep aquifer and distributing it as well as the costs of the fuel to transport water. Informants indicated that other factors like ownership of water resources and relations to the Israeli Civil Administration were also important.

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<sup>15</sup> New Israeli Shekel (NIS) is the main currency in the West Bank (1 NIS is about 0.25 EURO).

The municipality of Jericho has implemented a water tariff system with two categories, namely domestic use and commercial use, and for each category different price levels that depend on the amount of water taken. The range is between 1 shekel and 10 shekels per cubic meter. Farmers who take their owned shares from Sultan Spring only pay 0.36 shekel per cubic meter for the pumping of the water.

A woman from Aqbat Jaber said that she had used to pay 100 shekels for three months to the so-called Popular Committee (PC), which represents the camp residents. The PC then paid Mekorot for the water supply. However, due to insufficient service, she had stopped paying – “If you want us to pay, you need to give us the services that we pay for”. In fact, most people said that they were not paying for the Mekorot water anymore (Section 6.1, p.42).

For the water shares from agricultural wells owned by Palestinians, the prices depend on the deal that is made between the users and the owner (Section 6.1, p. 42). A man from a Bedouin village, whose income stems from livestock, drew attention to the cost factor of the fuel he needs for trucking:

I pay 20 shekels for one tank of 3 cubic meters to the owner of the well and about 60 shekels on top for the fuel to transport the water. [...] There is a period in the year where there is no milk from the sheep because of pregnancy. In this time, we don't get money, but we have to pay [...]. It is a lot of money that we must pay for water every day.

While most informants did not regard affordability as a main issue, some highlighted the socio-economic status mattered. A woman from a community close to Jericho, where the municipality collects 100 shekels per month for the water supply, said that some people who did not have this money would not get water until they paid. Two women from Aqbat Jaber added, “Not all people have the money to buy the good water from Sultan Spring.” and “It's all about money. If you have a lot, you can get all you want”. Sharing his perceptions regarding class structure in this context, one governance informant explained,

We have been occupied by many [...]. During these eras, there have always been families with good relations to the occupying government. So, some families have control or power from the past. [...] The majority of the people in the Jordan Valley are the same class, more or less. But there are families [...] that buy the land from the poor. [...] For them, it's a business. [...] These Palestinian families go to the Israeli Civil Administration to dig a well or rehabilitate it and they have permissions quickly [...]. If you have a lot of money you can facilitate the process.

### ***e. Availability and Reliability***

Many issues that fall under this dimension have been touched upon before (e.g., having limited access hours, relying on uncertain water surpluses from others, having to wait at a filling point).

In addition, an informant from the municipality of Jericho said that in summer, due to shortage of water, they had divided the supplied area and were

using an intermittent program in which each area would be supplied for 8 to 9 hours per day. A woman from Aqbat Jaber said that the water was currently coming once per week with some uncertainty – “I know it will come today or tomorrow [...] because since last Thursday it has not come”. Two other informants from the camp agreed that the situation had been likewise bad from about ten years ago until three years ago when they started to have better supply until now. In general, many participants highlighted that the situation was better in winter.

Another factor is the link between electricity and the access to water. As the pressure is weak, many households use pumps to improve the transport of the network water. A family who lives on a small hill in Al-Jiftlik said that the pressure was not enough to reach their home. Therefore, they were using their own pump but “if the water comes, the electricity is cut off and when the electricity comes, the water is cut off and to pump the water you need the electricity”.

### ***f. Safety***

In a context of conflict and occupation, safety in accessing water cannot be taken for granted which is why safety risks (e.g., from building and movement restrictions) should be considered for analyzing water security. As mentioned before, property is destroyed by Israeli soldiers on a daily basis (Section 1.3, p.14) which includes water-related systems like water tanks. Furthermore, some strategies that people use in response to insufficient access (Section 6.1, Table 6.1, p.40), like illegal tapping from the Mekorot pipes, are strictly penalized.

An example of how safety and reliability of water access are related was given by a man from a Bedouin community, who told us that he had been arrested several times by the Israeli military for unknowingly letting his sheep graze on land which had been closed off – “There are no borders. Only by experience you learn where [...] you can’t go”. One time, he said, he had been in the mountains with his son and sheep when an army jeep had arrived, and he had been arrested for several hours. “Had it not been for my son, my wife would not have known where I was and the sheep might have gone to the military camp or been stolen by settlers”, he said. It was the same man who said that collecting water took him up to a full day, which means that arrest can also have severe consequences for water access.

The discussion on access to water for Palestinians in the Jordan Valley shows that the governance structures, analyzed in the previous chapter, have resulted in severe daily water insecurities of different types which are often interactional and cumulative.

## **5.3 Women’s Burdens in the Face of Water Insecurities**

Jarrar (2018: 6) argues that due to

[...] their multi-faceted productive, reproductive, and community-managing roles [...], women in the Jordan Valley are more vulnerable to the impacts of Israel’s unlawful measures in the region, which have had direct adverse impacts on their

standard of living and on the various roles and responsibilities they undertake [...].

This, however, according to Jarrar (2018: 28), has not been adequately addressed yet. A report by the UN (2018: 30), furthermore, emphasizes that most documents and publications related to gender analysis in the OPT pay little attention to water, sanitation and hygiene (WASH).

Many informants of this research highlighted that both “women and men are targeted by Israelis and they are living in the same conditions, which are [...] bad and very primitive” and that “women and girls are not a target group on their own”. However, there are specific repercussions that effect women and girls differently in comparison to men and boys. This was also brought up by one of the male governance informants who clarified,

So, when Israel distributes the water, it goes to the village. The village distributes the water to the houses. There is an unequal distribution but not on the basis of gender. But, of course, the women will be more affected. Why? [...] The women are doing the homework, the women are doing a lot of the work in the farms, the women have to take care of everything.

Putting these words in concrete terms, a man from a Bedouin community, not asked about any numbers, said

In percentages, I face about 8 % of the problems with the water; 92 % is faced by my wife [...] because she needs more water. [...] I only go to the mountains [with the sheep]. She gets up at 4 am in the morning; she starts making milk, cheese and yoghurt. Then she starts making breakfast. [...] After that she starts to clean, wash the clothes, shower the children and then to make lunch for me and my children. [...] In the evening, she helps me to put food for the animals. All day she is like a machine. She works from 4 am in the morning until midnight.

A male governance informant highlighted the special role of water in the context of the Jordan Valley compared to more urbanized areas as well as that socially constructed differences start from an early age:

The land is very salty, so we have always problems in the houses. Also, because the material from which they are built are very cheap. So, they get dirty [easily]. [...] If there is any water on the streets, this will make mud. And then the kids will enter the house [...]. And *she* has to clean [...]. The lucky woman who has a younger daughter because also the girls help with the homework.

Other informants pointed at the productive roles of women, explaining that agriculture is traditionally family work in the Palestinian context (Section 1.3, p.14). While one female water user and her daughter who both work in agriculture said that there was traditionally an equal division of work – “men and women do the same in farming” – others highlighted that the tasks were gendered. Explaining this, one of my informants said that the division of tasks would depend on whether it is the formal or informal level of the agricultural sector – “the formal level is mostly dominated by men because those are large businesses and that is where the money is”. To give an example, one man from the Jordan Valley explained,

In the Jordan Valley, [...] more than 80 % of the farming duties are done by women [...]. The jobs that need the use of vehicles, like tractors and trucks, are the jobs of the men, so is the preparation of the land before cropping, because it needs [...] huge equipment [...]. At the time they have prepared the land [...], women start their work. Women are seeding, they follow up the arrangements of the plants. They do after that everything or most of the things. And the men just take the crops to the markets to sell them.

He added, “This is the culture. [...] This is the tradition; we keep following it and there is very little change”.

Such explanations also matched my observations. In one interview with a man from a community in the Jordan Valley, for instance, that started with both men and women, the women left at some point – from what I could observe – to fulfil other tasks (e.g., to bring drinks, to go to the animals), while most men stayed. Without any question from my side related to this, the informant said, with a hint of sarcasm, “And you know, while the men are talking here, the women are feeding the animals. This is the world of the men”. One of the female water users explained how both women and men maintain traditional gender roles:

Even if my son was at home, I would be the one who would bring the water because we [my husband and I] taught them from when they were young that the mum must do everything. I taught them. This is how we grow up, our culture.

In addition to women’s roles in tasks which necessitate water (e.g., cleaning, cooking, bathing children, gardening), several informants also pointed out that women individually needed more water in the Palestinian context. This was explained on the basis of traditions (e.g., women having traditionally long hair and wearing more clothes) as well as physiology (e.g., special needs during the menstrual cycle or pregnancy). Indicating that this is often not talked about openly, one of the male water users said, “I cannot tell you all the details but there are more needs for women than for men”.

As discussed in one of the small focus groups, among others with a doctor from a health clinic in Al-Jiftlik, the situation affects both men and women negatively regarding their health (e.g., diseases like amoeba due to contaminated water) and their social and psychological well-being, however, to a larger extent women. One of the male participants explained,

You can imagine the situation with twelve members in the house without water. It will affect them psychologically and will cause conflicts. [...] The woman is the main root in the house. [...] Everything is connected to her. If there is no water – ‘You are responsible!’ [...] So, she is the blame taker in the house.

Another participant added,

If there is no water, [...] for the women, it is something serious and critical, especially [...] [for] the young girls at school. When she starts to have her menstrual cycle, she needs the water. It is related to her psychological status if there is [none] [...]. Sometimes she goes with a dirty body, with dirty clothes and she feels uncomfortable for the smell and everything.

While awareness regarding gendered impacts was high among all informants, relatively few of them mentioned possibilities of changing roles in order to reduce some of women's burdens. Some informants, however, expressed that it was necessary to change current structures, among other things, because the right to water was a human right which, thus, included women. Initiatives for changing traditional roles are also reflected in one of the identified strategies of resilient resistance, namely *raising awareness* (Section 6.1, p.44).

The discussion shows that the identified water insecurities faced by Palestinians in the Jordan Valley have implications for their health, safety and livelihood. Due to their productive and reproductive roles as well as higher physiological water needs, women and girls are affected to an even larger extent than men and boys.

## 6 Resilient Resistance in the Face of Water Insecurities

In the face of water insecurities, Palestinians in the Jordan Valley have adopted practical, ideological and political strategies to survive under the conditions. This chapter, mostly based on primary data, analyzes strategies undertaken to improve access to water, if and how these are gendered, and how they have been supported and promoted by resilience and resistance, including the notion of ‘sumud’ (steadfastness).

### 6.1 Strategies for Improving Access to Water

People have responded in different ways to water insecurities. From the primary data, 18 strategies have been identified which are listed in Table 6.1 including an indication of which dimensions of access they possibly address.

**Table 6.1**  
**Indicative assessment of positive effects of identified strategies**  
**on different dimensions of access**

Strategies	Dimensions of Access					
	Quantity	Quality	Distance and Collection Time	Price and Affordability	Availability and Reliability	Safety
1. Storing water in tanks or ponds	•		•	•	•	•
2. Using pumps to increase the pressure of the water from a network	•				•	•
3. Using filters to improve the water quality		•				
4. Buying water from additional sources (e.g., wells, springs, supermarket)	•	•			•	
5. Sharing water sources or services				•		
6. Collecting water from other people’s surpluses	•	•	•	•		
7. Asking for permission to deepen or rehabilitate wells	•	•	•	•	•	•
8. Tapping pipes	•	•	•	•	•	
9. Refusing to pay for water				•		
10. Using different types of water for different purposes	•			•		•
11. Being careful with handling water	•		•	•	•	•
12. Reducing domestic water consumption	•		•	•	•	•
13. Changing crop or livestock production (e.g., growing dates, reducing area)	•		•	•	•	•
14. Having additional jobs (e.g., one family member working in a settlement)				•		
15. Having special arrangements with land and well owners	•	•	•	•	•	•
16. Moving within the Jordan Valley or leaving the area	•	•	•	•	•	•
17. Protesting on the streets	•	•	•	•	•	
18. Raising awareness internally, nationally and internationally	•	•	•	•	•	•

As visible from the table, one strategy can cater for problems in several dimensions of access at the same time. It should be noted that the list is indicative and not exhaustive and that no quantitative conclusions can be drawn from it. Overall, the strategies are employed on an individual, household or community basis. The strategies (2) *Using pumps to increase the pressure of the water from a network*, (5) *Sharing water sources or services*, (6) *Collecting water from other people's surpluses* and (7) *Asking for permission to deepen or rehabilitate wells* have already been introduced in the previous chapter. The remaining strategies are explained according to one of the dimensions of access they address.

People usually use an array of these strategies. This is captured in the quote of a man from the village Al-Auja which includes two different strategies, namely (13) *Changing crop or livestock production* and (14) *Having additional jobs*:

When we changed our way of cultivating here, I did many things. First, I worked as an individual in Jericho and my wife used to cover the farm [...]. It was very difficult. After that I started with livestock – with the sheep and goats. My wife knows much about bees, so we started keeping bees. [...] The money from the honey we used for the sheep and my wife started making cheese and yoghurt [...]. Now I have about 100 heads of sheep and goats, and horses, chicken also for eggs [...] and I cultivate about 40 dunums of dates [...] because they can tolerate the bad quality of the water.

### ***a. Improving Access: Quantity***

A common strategy is (1) *Storing water in tanks or ponds* (Figure 6.1), both applied by water users in areas connected to a network and in those not connected. A woman from Aqbat Jaber (connected to the Mekorot network), for instance, said that as the water was only coming about one day per week. During these hours, they filled their tank on the rooftop. Besides, to make maximum use of the water, she opened the taps when she expected it – “The water comes with a sound like ‘shshshsh’. I am very happy when I hear that sound”. This is one example of strategy (11) *Being careful with handling water*.

Another strategy is (12) *Reducing domestic water consumption*. A man from a Bedouin village said, “My children need a shower everyday but maybe they can take one every second or third day”. Reducing the consumption of water with good quality is also accomplished by (10) *Using different types of water for different purposes*. For instance, a woman from Aqbat Jaber said that she used the salty Mekorot water for watering plants, cleaning, washing and cooking, while buying bottled water for drinking.

Lastly, an informant from Al-Jiftlik told us that Israelis – who we could observe from the place where we were sitting – were checking the Mekorot pipes to find out if anyone was illegally (8) *Tapping pipes*. Another informant said that “Israel started to make some military interventions to stop illegal connections”, with people being arrested and paying penalties. Only one water user mentioned that he had used to take water from before the water counter, until Israelis had started to regularly check his pipes.

**Figure 6.1**  
**Water tanks of one cubic meter each**  
**(left: in a garden; right: on the rooftop of a house - July 2019)**



### ***b. Improving Access: Quality***

Besides other strategies of water quality improvement, such as (4) *Buying water from additional sources* (e.g., bottled water from a supermarket for drinking), one that has not been named yet is (3) *Using filters to improve the water quality*. A family from Fasayil said that they used filters which they cleaned regularly, and which improved the quality of the network water.

### ***c. Improving Access: Distance and Collection Time***

Strategies for enhancing access regarding this dimension are (15) *Having special arrangements with land and well owners* and (16) *Moving within the Jordan Valley or leaving the area*. An example was given by a family, currently living on a farm close to Jericho, that originally comes from the Tubas governorate. They explained that they had moved several times, always staying at one rented place until their well ran dry or the water quality was insufficient. Currently, they said, they had a renting arrangement with the owner of the land, the house and the well from which they used water for agriculture. They are living there for free and do not pay for the water. However, all agricultural incomes are shared equally between them and the owner. A family from Al-Jiftlik told me they had a similar arrangement in which “all the inputs and all the outputs are shared fifty-fifty” between them and the landowner.

### ***d. Improving Access: Price and Affordability***

Affordability being a minor issue, two lines of reasoning were given for (9) *Refusing to pay for water*. First, people said they were unwilling to pay for insufficient services. Second, people explained that the former Palestinians Yasser Arafat had given them the order to stop paying – “If we leave the land, the Israelis would take it, so they needed people to stay here. It was an incentive for people to stay”. Other reasons were added by an informant from

the PWA. Somewhat contrary to the findings from interviews with the users who said that access to sufficient quantities of water was a main challenge, he said,

The quantity is actually ok. This is not the main issue that people are not paying. Not paying for water started to be like a culture in Palestine. They consider water as from God. So, they think, 'How could we pay for something that we can use from God?'. On the other hand, they say, 'Ok, give us the authority to drill our own wells. Then we will not take any water from others'. They feel like they are asked to pay for something that is not fair.

Another PWA informant explained that the collection rates of the West Bank Water Department (WBWD), responsible for paying the Mekorot bills, varied across areas and that it was low in the Jordan Valley,

In several cases, the collection rate is less than 40 % on average [...]. In Area A it is about 80 or 90 % because there is some enforcement and more affordability but in rural areas it is less.

While some water users considered it an act of resistance against the occupation, the governance informants rejected this strategy, among other things, as Israel deducts the amounts due for unpaid Mekorot bills from the taxes it collects on behalf of the PNA (WB 2018: 79). These deductions are considerably higher than the calculations made by the Palestinian side (WB 2018: 79). One of the informants explained that Palestinians who tap Israeli pipes or refuse to pay the Mekorot bills

think they have access to water and simultaneously they do damage to Israel. [...] They are not aware that the PNA is actually paying for it, so there is no understanding that they are shooting themselves in the foot. [...] Or maybe, because Area C is often completely overlooked, they don't care.

Another governance informant shared that many farmers who are renting land do not even benefit from it:

We are not subsidizing the end users because they – the farmers who don't own land and water – are still paying. [...] They spend maybe 30 % of the output on the water, 30 % on the land and 40 % is for the people who are working on it. So, in the end, the farmers only have 40 %, while the owners of the water are not paying back the money from the water that they are collecting from the people. So, we cannot even consider it a subsidy because for a subsidy, the end user [...] should benefit.

### ***e. Improving Access: Availability and Reliability***

A strategy that can lead to improvement regarding this and other access dimensions is (17) *Protesting on the streets*. This was brought up by an informant from Fasayil who told us,

Last week we went on a protest [...]. We made a deal with the Israelis that we get more power. We wanted to go another time [...] but they said, ‘Don’t go, we will solve this problem’. We had a meeting with them before but after that nothing changed. When we closed the street, they realized that they must do something, so the protest was successful. We told the Israelis that we have three main problems [...] but most important is the electricity and the water.

One of the governance informants, however, highlighted that this strategy was dangerous and limited regarding its effect:

When people make demonstrations [...] and the Israeli army comes – What will happen? People will go home. The Israeli army will throw some tear gas bombs and that’s it. [...] Even when the Israeli army invades a refugee camp, for instance, the young people will go out to throw stones. But that will not stop the Israeli army from killing or arresting or completing the mission that they are coming for. [...] We are not fighting the occupation. The occupation is uprooting us, the occupation is killing us, and the occupation is preventing us from our rights.

#### ***f. Improving Access: Safety***

Lastly, some strategies improve people’s access to water regarding safety. In general, moving from one place to another in the Jordan Valley already constitutes safety risks for Palestinians, especially when it implies passing checkpoints. In this respect, strategies that imply a reduction of movement positively affect access regarding safety. This is unless the strategy itself poses risks such as in the case of (8) *Tapping pipes*.

Finally, (18) *Raising awareness internally, nationally and internationally* can improve water access regarding this dimension and other ones. One woman who is active at a women center in Aqbat Jaber said that they offered special trainings about women’s rights and raised awareness about water. Hence, this strategy can change power relations, reducing women’s burdens, and it can encourage people to employ strategies more effectively (e.g., (11) *Being careful with handling water*). A similar example was given by employees of a health clinic in Al-Jiftlik, who shared that women also come there “to get advice and to talk [...] because they often can’t talk about their problems with their men”. A young farmer gave yet another example, saying that he was joining theater performances in Ramallah where they tried to raise awareness on stage “because many Palestinian organizations do not focus on the situation in the Jordan Valley”. Lastly, as mentioned in Section 2.4 (p.19), many water users expressed their wish for raising awareness internationally such as one man who said, “We hope that our voices will reach Europe and the United States and that people know how we are suffering here”. In that sense, the perceived openness to participate in this research can also partly be interpreted as a strategy that could potentially improve their situation.

## 6.2 Gendered Strategies?

In view of the gendered impacts of water insecurities (Section 5.3, p.36), I tried to find out if the responses are gendered as well. In general, tasks that require driving vehicles or operating machines (e.g., trucking water, installing tanks) are carried out by men, which matches the remark on tasks in agriculture (Section 5.3, p.38). For (11) *Being careful with handling water* and (12) *Reducing domestic water consumption*, women play an important role, given that they are mostly involved in water-consuming tasks at home. Other strategies like (16) *Moving within the Jordan Valley or leaving the area* are mostly employed at the household level.

There are differences between men and women regarding who initiates a strategy. In the discussion with the extended family in Fasayil that talked about (17) *Protesting on the streets* (Section 6.1, p.44), the father said, “We went to the protest and took the women with us”, indicating that men were the initiators of that protest. Being asked about who in the household is responsible for bringing the water in case of shortage, he explained,

Of course, I will bring it. My wife will call me at work. Then I call the man who brings the water and then she pays the man. [...] All my money is with her.

His sister-in-law who lives with her parents added, “If there is no water, surely, my father has to bring it”. Contrarily, an elderly woman from a village close to Jericho said that if she was married to a man, she would be responsible for bringing the water from the nearby spring. Two women from Aqbat Jaber also stated that they were responsible for bringing the water in the household. One of them explained that since her husband had passed away, she did the tasks that he had used to do. The other one said that she called the man who they hire to bring water from Sultan Spring because she was mostly at home: “Sometimes my husband does not know that the water was not there during the day because I have already arranged everything before he comes home from work”. Hence, who performs which tasks to improve water access, not only depends on gender but also on individual decisions that vary from household to household.

## 6.3 Access Strategies as Resilient Resistance

Governance informants were convinced that the Jordan Valley plays an important role in the Israeli-Palestinian conflict and that it is crucial for the Palestinian side that the population stays in the area. One of them shared his opinion: “Israel wants all of historic Palestine. The only problem that Israel faces is how Palestinians manage themselves”. Another informant said, “It is good that people stay because else, the Jordan Valley would be empty [from Palestinians]”. Regarding water, one of the respondents argued,

Everybody knows that water is a basic human right but here, it is a tool for the occupation, a victim of or a hostage of the politics, because water is essential for a lot of things and by controlling it, Israel controls the fate of the Palestinians.

These statements and the insecurities discussed before stress that the strategies to improve access to water – vital for survival – have both elements of

successful adaptation to external threats (resilience) and of challenging the experienced conditions (resistance).

Four lines of argumentation were identified for why informants are responding to the conditions the way they do. While they are discussed in separate sections, they overlap to some extent. Besides, people often gave explanations from several of the categories.

### ***National Sense***

Many informants explained that they consider it a national duty “to protect the land from Israelis”. This argumentation was given by both governance informants (e.g., “The aim of cultivation is not economic benefit but to protect the land from confiscation”) and water users (e.g., “We stay here because it is our land. And we will not sell it, not even for billions of dollars”). Highlighting that, from his perspective, it is first of all a national issue, a governance informant from the Jordan Valley explained,

Palestinians have the opportunity to sell their land to the Israeli side, but this is not acceptable because [...] Israelis have no right to be on it. If, let's say, the Palestinian government [...] sends us to another place with better conditions, this would be acceptable. [...] But they never sell land to Israelis even if they would pay triple the amount.

### ***Connection to the Land, Profession and Lifestyle***

Informants have also expressed special connections with the land as farmers. This is captured in statement of one of the governance informants:

It's his heritage from his father, grandfather, etc. He grew up there and worked on the land. Another thing is that it is his profession. So, if he goes to the city and he is a farmer, he doesn't have an opportunity to work his profession and the unemployment level is high.

For Bedouin communities, the need to stay may be even stronger. Another governance informant explained, “They need enough space, for the family, for the animals, etc. [...] If they go to cities, there is not enough space”. A man from a Bedouin community himself said that moving to another area meant a loss of freedom and giving up on his profession and lifestyle:

I have about 400 sheep. Where can I go? If I moved to another area, I would have to sell my sheep [...]. My neighbors would not let me move free there. [...] I would need three or four people just for supporting the grazing. If all the area around is farmland, then you need to make sure that the animals don't eat from that land.

### ***Best Opportunities***

The question was raised how much agency people have to decide to stay. Many informants mentioned that there were no (better) alternatives for the people. A PWA informant said, “Give them alternative areas with extra water, with

support, [...] and they would go”. Agreeing with this, one of the informants quoted a saying that he translated to “Wherever you have better living conditions, you should be there”. Another one advised me to keep limitations of agency in mind when discussing the lives of Palestinians in the Jordan Valley:

The reason why people are not leaving is because they don’t have options. It is not only steadfastness. Sumud is a result. You know, we are humans, Michelle. I hate making people heroes [...]. They are, yes, but as a result. Not because of a decision.

### **‘Sumud’**

Some informants, as the one just mentioned who called ‘sumud’ *a result from a lack of better alternatives*, brought up ‘sumud’ to explain why they stay on the land. Others elaborated on it after being asked directly. Overall, many informants used similar notions of *national sense* and *connection to the land*, as discussed above, to explain what ‘sumud’ means to them. A woman from Aqbat Jaber explained,

Sumud is everything. It is a sentence that president Yasser Arafat said, which means that we are strong and that this is our land and that we will not move from here. [...] It is a feeling.

Underlining that ‘sumud’ has *collective* and *personal* meaning, another woman explained,

It means patience and staying on this land. I don’t leave my own land like other people who get out of Palestine. I am not like them. Sumud has a meaning for me personally.

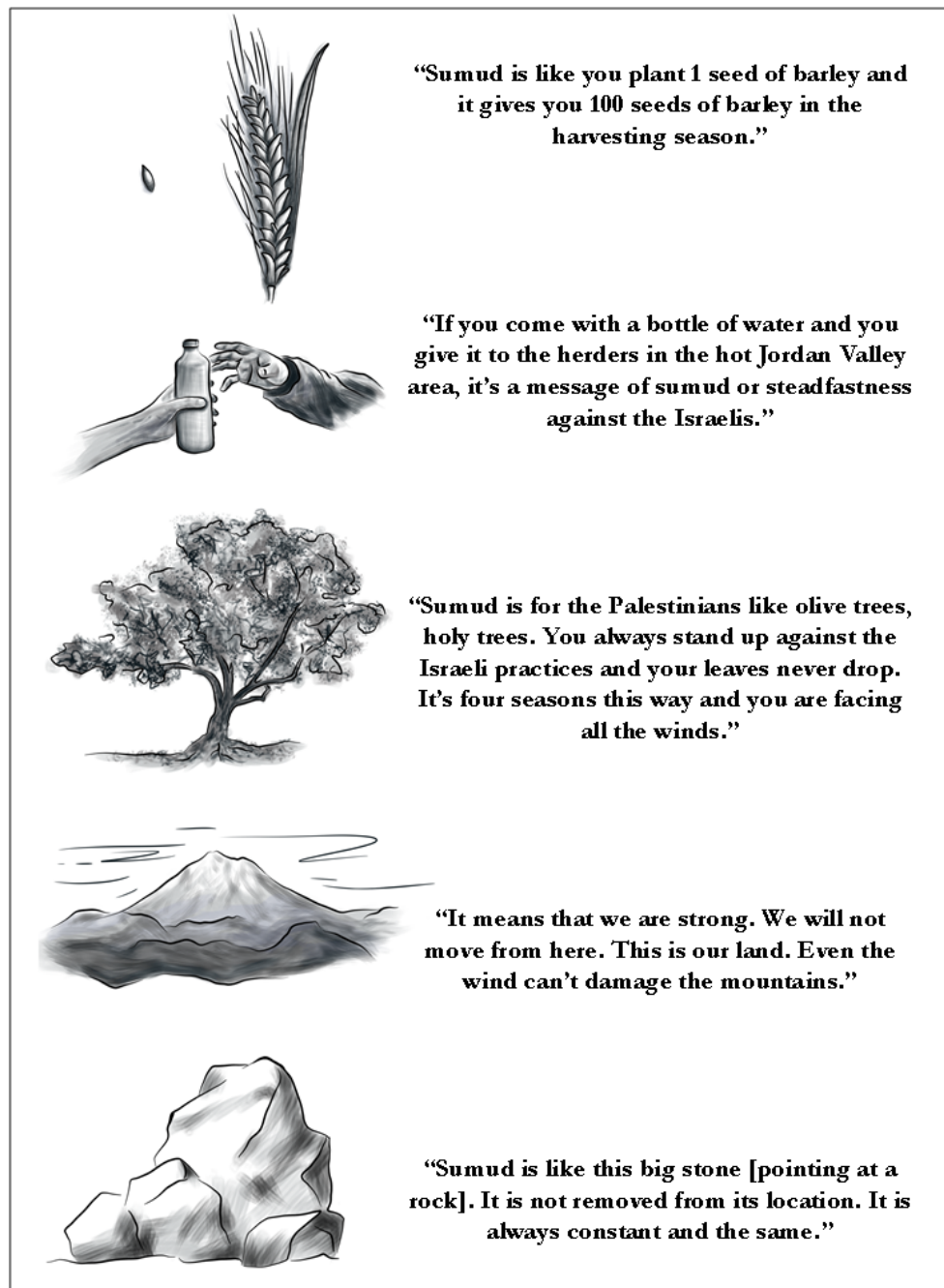
One of the governance informants also brought up the *all-embracing* nature of ‘sumud’:

Anything we do in the Jordan Valley [...] is like a steadfastness message against the Israeli plans. So, if you just walk around with your family on your field [...], it is a steadfastness message because you tell the Israeli settlers [...], ‘We are inside our land and we will continue to be here’.

In addition to the notion of *lifestyle* in the quote above, several informants explained that ‘sumud’ was a *faith* that could not be taken away from Palestinians – “It is bigger than me or you or anybody. [...] Once you have a belief, who can change it?”.

To make this seemingly *all-embracing* ‘sumud’ more tangible, several people used figurative explanations. In some of them, ‘sumud’ is presented in a *dynamic* way (e.g., as a seed that multiplies, an action of solidarity) and in others as *static* (e.g., as a rock) (Figure 6.2).

**Figure 6.2**  
**Figurative explanations of 'sumud'**



Source: Quotes from informants with my visualized imagination.

While no significant differences between male and female informants regarding the understanding of 'sumud' were identified, there was a difference in the explanations given by water users and governance informants. Water users, overall, seemed to enjoy explaining 'sumud' and were positive about it. Many governance informants, though highlighting the importance of 'sumud' in people's lives, criticized its use. One of them said, "Sumud is a great kind of

thinking but it also needs action. We cannot only hope for a better future”. Another one explained, “You cannot make sumud without resources [...]. You need to be supported to stay in the land”. Several governance informants stressed that ‘sumud’ should not be used as an ‘empty word’ but that it was important to practically and emotionally support Palestinians in the Jordan Valley through helping them to develop creative solutions by sharing information, rules and techniques regarding agriculture with them as well as by giving them “the sense that we are together in the same place, that we are moving on the same road”.

Overall, the chapter highlights the strategies devised by Palestinians to improve water access reflecting resilience and resistance to the occupation. Despite recognizing the hegemonic controls exerted in water governance, Palestinian in the Jordan Valley have not submitted to the ideology of occupation.

## 7 Conclusions

Water governance in the West Bank and its impacts on the daily lives of Palestinians in the Jordan Valley are highly influenced by the nature of the Israeli occupation. While water governance in the OPT, according to the Oslo II Accord, has been called a joint undertaking between both conflict parties, this Research Paper has shown that, in practice, asymmetries of *material*, *bargaining* and *ideational* power substantially disadvantage the Palestinian side. These asymmetries, exemplified in physical movement and access restrictions, hinder development of Palestinian water resources and related services. This has led to a situation in which Palestinians in the Jordan Valley suffer from serious water insecurities, while water is abundantly accessible to the settlements in the same area which are illegal under international law. The situation has been worsened by the fragmented division of tasks related to the planning, regulation and distribution of water resources among the numerous Palestinian water sector actors, with women being rarely included in governance.

The study showed that Palestinians particularly face access problems regarding water in acceptable *quantity* but also regarding the other dimensions of access, namely *quality*, *distance and collection time*, *price and affordability*, *availability and reliability* as well as *safety*, the latter a specific outcome of occupation. These water insecurities have had negative impacts on the physical, social and psychological well-being of Palestinians. They affect women and girls to an even larger extent due to their productive and reproductive roles that necessitate access to water (e.g., agricultural work, cleaning, cooking, bathing children) as well as due to their higher physiological water needs in comparison to men and boys that are partly determined by social norms (e.g., wearing long hair and long clothes).

Overall, Palestinians' access to water in the Jordan Valley largely relies on private efforts. They include strategies like *storing water in tanks* or *reducing domestic water consumption*, which often improve several dimensions of access. These strategies are flexible and adaptable to unstable and unpredictable conditions and commonly employed in a combined manner. The actions taken by the Palestinians are not just forms of resilience or successful adaptation to the situation of water insecurity. They rather need to be recognized as acts of resistance. Palestinians in the Jordan Valley have responded to water insecurities promoted by the pervasive nature of occupation with what could be called resilient resistance, by both adapting to and challenging the experienced conditions.

The strategies are motivated by the conviction of Palestinians that the land on which they live belongs to them and needs to be protected from Israelis. Other motivational factors are the strong connection between the land and them as farmers and herders as well as a certain lifestyle, which they could not lead when leaving the area, or a lack of better alternatives in general. Strategies of resilient resistance have also been framed as 'sumud' (steadfastness), which plays a significant role for Palestinian water users through giving them a sense

of connectedness with one another as well as direction, hope and strength. However, as pointed out, 'sumud' is no 'magic key' to solve all problems and requires support to be sustained. This is especially the case for Palestinians in particularly vulnerable areas like the Jordan Valley whose narratives show that despite all aspects of their lives being penetrated by the occupation, they refuse to submit to its control and ideology.

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## Appendices

### Appendix 1: Thirsty Roots

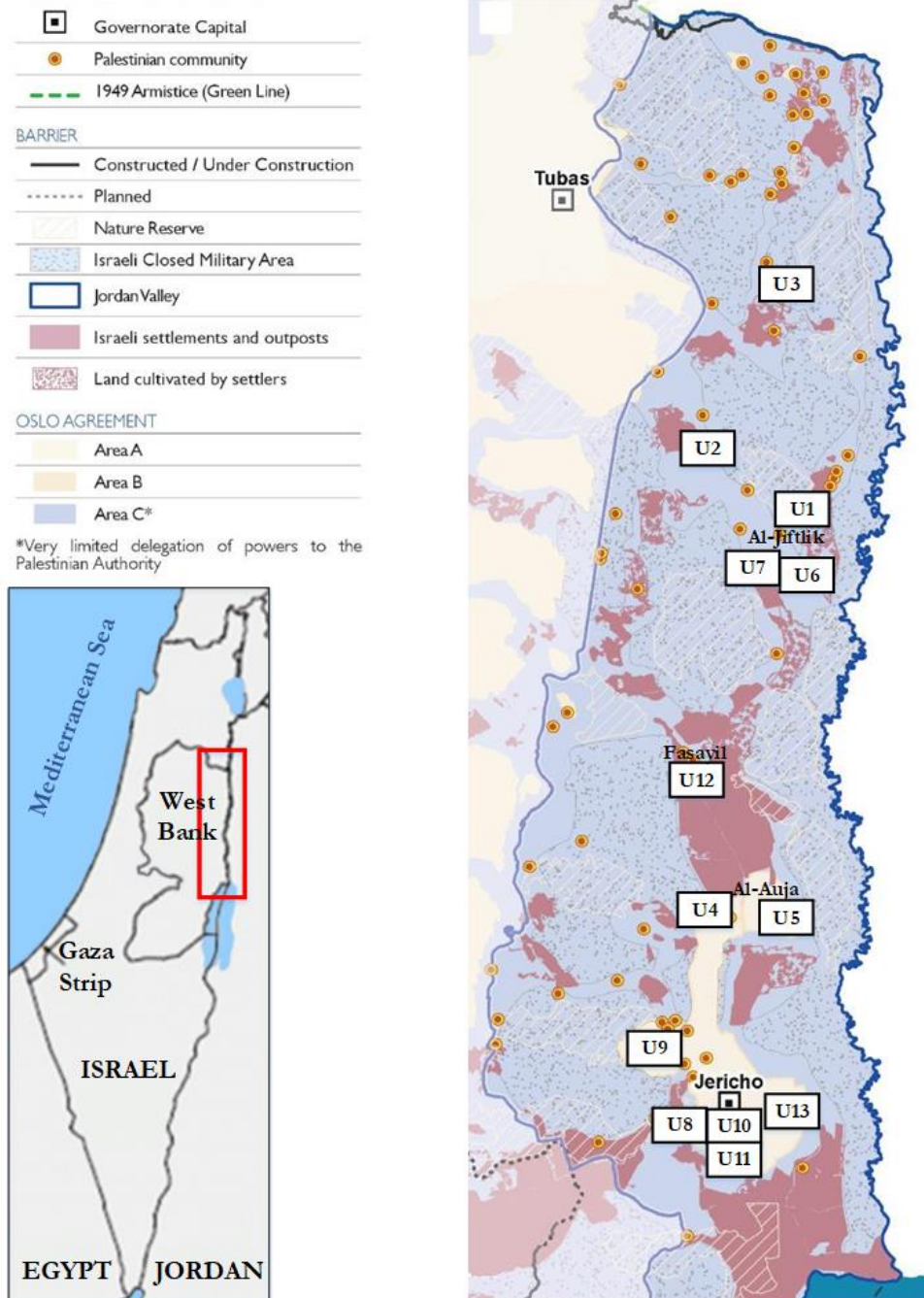


Source: Pencil on paper, A2; Drawing by Michelle Rudolph, August 2019.

**Appendix 2: Institutions associated with the 14 interviews conducted with the ‘governance informants’ on different aspects of the research topic**

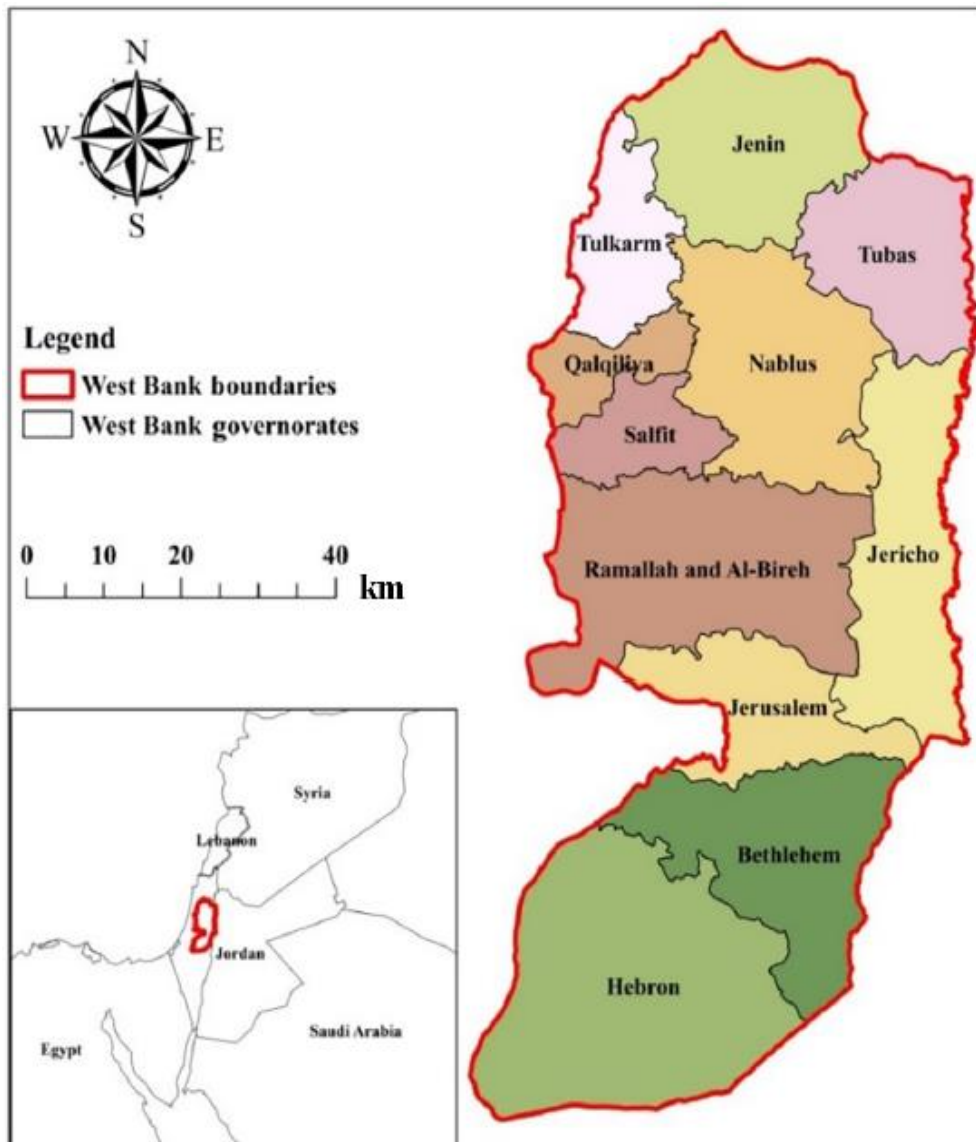
<b>Code name</b>	<b>Institution</b>	<b>Description</b>
G1	Al-Haq	Independent Palestinian Human-Rights Organization
G2	UAWC	Union of Agricultural Work Committees
G3	MA’AN	Independent, Non-Governmental, Non-Partisan Palestinian Development and Training Institution
G4	Jericho Municipality	Municipality of Jericho, Jordan Valley
G5	Jericho Municipality	Municipality of Jericho, Jordan Valley
G6	Al-Haq	Independent Palestinian Human-Rights Organization
G7	PHG	Palestinian Hydrology Group
G8	PWA	Palestinian Water Authority
G9	NRO	Netherlands Representative Office to the Palestinian National Authority
G10	WEDO	Water and Environmental Development Organization
G11	MOA	Palestinian Ministry of Agriculture
G12	PWA	Palestinian Water Authority
G13	PWA	Palestinian Water Authority
G14	MOA	Palestinian Ministry of Agriculture

**Appendix 3: Map of the Jordan Valley (without northern Dead Sea area) with rough indication of the locations of the 13 interviews conducted with ‘water users’ in the Jordan Valley (code names: U1 – U13)**



Source: after UN 2011, OCHA 2011.

Appendix 4: Administrative division of the West Bank into 11 governorates



Source: (Shadeed et al. 2019: 1582).

**Appendix 5: Interview guide for the 14 interviews conducted with the  
'governance informants' on different aspects of the research  
topic**

**Interview Information**

Date  
Location  
Name of the institution  
Name / code of the interviewee  
Gender  
Age / age range  
Role of the interviewee in the institution

**Personal Introduction**

My background  
Research objectives and limitations  
Explanation of how the interview is built up  
Confidentiality  
Question about notes and recording

Do you have any questions before we start?

**General Questions**

1. Could you describe what you are doing in this institution?
2. How is your work related to water / agriculture / the Jordan Valley / women?

**Water-related Questions**

3. How is the distribution of water organized and coordinated in the West Bank / The Jordan Valley? By whom / Who are the most important actors involved in the distribution on different levels? Do you see any division between the engagement of women and men (gendered division of labor) in the different relevant institutions (water authority, local government, etc.)?
4. What laws or regulations that determine the distribution of water are most relevant, from your point of view? From your point of view, are these laws or regulations complied with in reality?
5. What is your opinion about the way water is governed in the West Bank?
6. What, if anything, would you change / recommend changing first to improve how water is governed?

### **Agriculture-related Questions**

7. From your point of view, what role does agriculture play in the West Bank / What role does the Jordan Valley play for agriculture? Has this always been the case?
8. What kind of agriculture is most dominant for Palestinian farmers? Has this always been the case? If no: What has changed, how, when and why?

### **Questions related to the Effect on People's Lives**

#### Access to Water

9. Do you happen to know what sources of water people engaged in agriculture in the Jordan Valley have? Has this always been the case?
10. Do you know how much people pay for water?
11. Has the price changed over time?
12. Do you think they are satisfied with the quality, quantity, access and cost? Why? If not: If they would be given (easier) access to (more / cleaner / cheaper) water, how would you recommend them to use it?

#### Challenges

13. What do you think are the greatest challenges regarding water that these people face?
14. What, in your eyes, are the main causes of these challenges?
15. Are there specific time frames in which these challenges often occur? If so, when and do you know why?
16. Do you think there are differences between the challenges that men face and challenges that women face? If yes, in what way and why? How do you feel about this?
17. What would you do / recommend doing first to prevent challenges in future?
18. (Do you know if there are any controls placed by Israel? How do people respond to them?)

#### Choices

19. What, from your point of view, motivates Palestinian people to continue their work in agriculture?
20. Some people told me about the idea of 'sumud' and I was wondering if this somehow relates to what you told me. Do you know what it is and if yes, could you explain how you understand it? Could you tell me if you think it relates to what we have discussed? If yes, how?

That was my last question. Is there anything that you would like to add? / Do you have any further recommendation for my project (people to talk to, literature, etc.)? Do you have any questions? May I, in case I have any further questions, come back to you?

## Appendix 6: Interview guide for the 13 interviews conducted with ‘water users’ in the Jordan Valley

### Interview information

Date  
Location  
Name / code of the interviewee  
Occupation / work  
Gender  
Age / age range

### Personal Introduction

My background  
Research objectives and limitations  
Explanation of how the interview is built up  
Confidentiality  
Question about notes and recording

Do you have any questions before we start?

### Life- and Work-related Questions

#### Home

1. Could you describe your daily routine (activities, tasks etc.)? Do you live alone or with other people? If with other people: With whom? How is the work at home distributed at home?

#### Work

2. What do you consider as your main job? Could you describe in detail what you do? When have you started with this job? Were there other opportunities you considered? / Why have you started this job? How much time do you spend on this type of work? How do you combine this work, if at all, with your work at home?

#### Income

3. Who owns the land you are working on? If you: Do you sell the crops from the land and who is responsible for that? If the land is not yours: How do you get paid? Is the income coming from this work sufficient for you to sustain yourself / your family? If not: Do you have another job next to this one or are there others contributing? If so, how?

### **Water-related Questions**

#### Use and Access

4. What do you need water for in your private life and work?
5. How much water do you use?
6. Where does the water you use come from (rain, tanker, pipe, tab etc.)? How far is the source away from you where you use the water? Who fetches the water? Any support from others (family, boys, girls)? How much time do you spend on a normal day for water needs? Has that always been more or less the same? Who pays for the water and how much, if anything? Has the price always been more or less the same or changed over time? (Management of pressures from changing expenditure?) Who else has access to this water (influenced by class, religion, ethnicity etc.)? Who, if anyone, determines the access? Have there been any significant changes in the recent period?
7. Are you satisfied with how much water you get; how clean the water is and with the access / cost? Why? If not satisfied: If you had (easier) access to (more / cleaner / cheaper) water, how would you use it?

#### **Challenge-related Questions**

8. What are the greatest challenges that you face with regard to water in your life and work?
9. What are the main causes of these challenges?
10. Are there specific time frames in which these challenges often occur? If so, when and do you know why?
11. How did you feel when facing these challenges?
12. How have you coped with these challenges?
13. What would you do / recommend doing to prevent these challenges in future?
14. Do you know of other people who have had similar / different problems?
15. Do you see differences in how these problems affect women compared to men? If yes, in what way and why? How do you feel about this? (Could you elaborate on that...?)
16. (Are there any controls placed by Israel? If yes: Could you explain? How do you respond?)

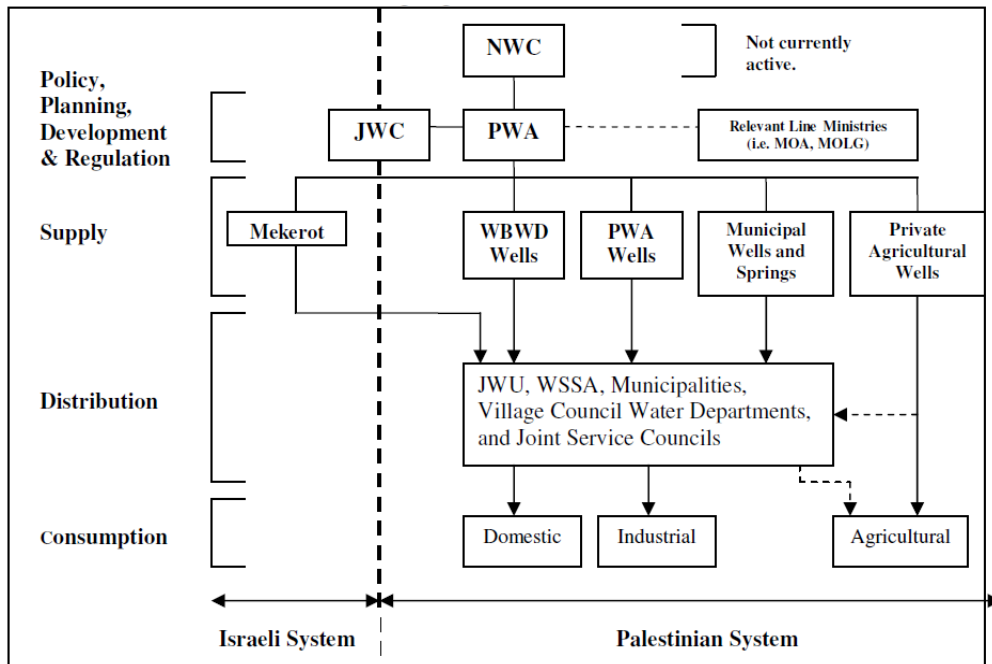
#### **Choice-related Questions**

17. What motivates you to do this agricultural work (even though you face all these challenges)? Do you ever consider changing the kind of work you do? If yes, in what way? If not, why not?

18. Some people told me about the idea of ‘sumud’ and I was wondering if this somehow relates to what you told me. Do you know what it is and if yes, could you explain how you under-stand it? Could you tell me if it means something to you in relation to what we have discussed? If yes, how?

That was my last question. Thank you very much for taking time and giving me the opportunity to learn from you. Is there anything that you would like to add? Do you have any questions? May I, in case I have any further questions, come back to you?

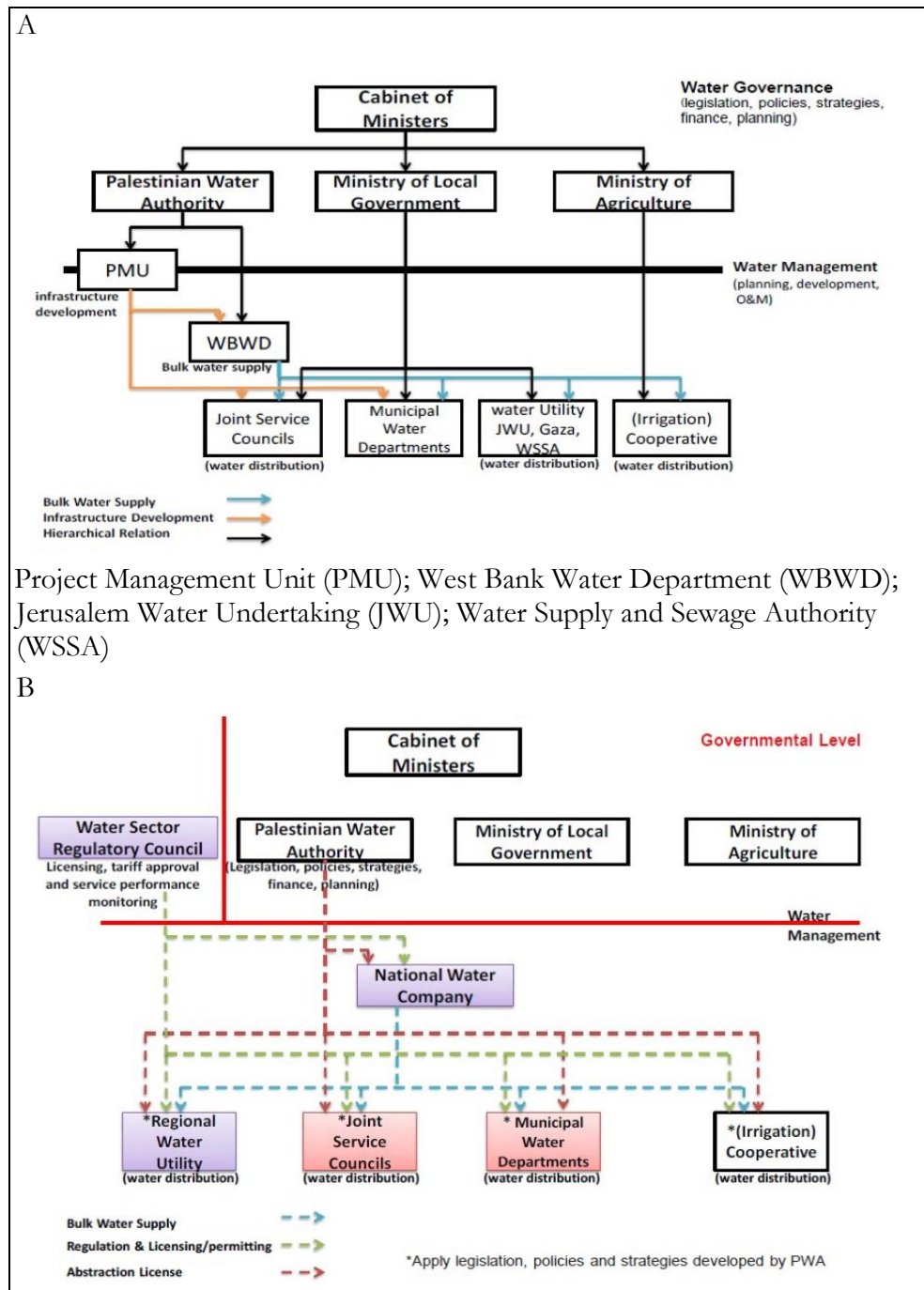
## Appendix 7: Institutional organigram of the water sector in the West Bank (state 2009)



Source: WB 2009: 15.

The diagram shows that the policy, planning and regulatory roles belonged to an interministerial body, namely the National Water Council (NWC) which, however, had met only once by then and to the Joint Water Committee (JWC), the Palestinian Water Authority (PWA) as well as relevant ministries like the Ministry of Agriculture (MOA) and the Ministry of Local Governance (MOLG) (WB 2009: 15). On the service side, water supply was carried out by the Israeli water company Mekorot, the West Bank Water Department (WBWD), the PWA as well as through municipal or private well operators (WB 2009: 15). In urban areas, the distribution was ensured by regional utilities like the Jerusalem Water Undertaking (JWU) or the Water Supply and Sewage Authority (WSSA) that serves Bethlehem and neighboring towns and by municipal utilities (WB 2009: 15). In rural areas, water was distributed by so-called Village Council Water Departments and Joint Service Councils (WB 2009: 15).

Appendix 8: A. Framework of the Palestinian water sector according to the 2002 Water Law; B. Framework of the Palestinian water sector according to the 2014 Water Law



A detailed explanation of both frameworks can be found in GWP (2015: pp. 15 ff.). Annex A1.1 (pp. 71-73) of GWP (2015) also tabulates all roles and responsibilities of the water sector entities that are defined by the 2014 Water Law.

**Appendix 9: List of suggestions made by Palestinian governance informants (incl. quotes) to improve conditions for Palestinians in the Jordan Valley / West Bank from a governance perspective.**

The suggestions listed here have been made by Palestinian governance informants during the interviews conducted in the context of this research. They are included as they may invite for further research into creative solutions of some of the issues raised in the context of this research. It should be noted that they have not been studied regarding their potential, feasibility, etc. and, hence, they should be treated with caution.

- **Finding a ‘political solution’ (e.g., increased access for Palestinians to land and to water resources in Area C)**

“Without solving the political problem, there is no solution.”

“The only solution is that Israelis give up occupied land [...]. If they don’t want that, they will pay the cost in the future, because the young generations feel their dignity is threatened and this will create a lot of problems with Israelis, which I don’t wish for – violence from anyone. But Israelis will face a lot of violence against themselves because they left the Palestinians without any solution. They don’t want one state; they don’t want two states; they don’t want to leave us our dignity. If you put a cat in the corner, it will scratch you.”

“The main obstacle for the water solution is the conflict. Imagine even in general, not only in Palestine, how much money is spent for conflicts. If there was no conflict, [...] imagine what you could do with that money. If there was some kind of peace, then there could be more cooperation. [...] Peace would be win-win. It would also be good for Israelis because with regional cooperation solutions become easier.”

- **Governmental support and management of the agricultural sector (e.g., improved legislation, agricultural insurances, cutting taxes, agricultural subsidies, not only *emergency* support but also *protective* support prior to demolitions etc., rotational cultivation)**
- **Establishing a committee (with strategic planners, experts in water, land, economics etc.) to implement a strategy**

“... because now we live in a chaos. Every farmer is doing what they want and not following the need of the market. This is why they don’t make a lot of money. They think that tomatoes will become be profitable and that is why they cultivate tomatoes. Then they find that they are not.”

“Demand management is important. We have to give up some crops like bananas that consume a lot of water.”

“The ministry of agriculture should have good cooperation with the farmers [...]. They should focus on profitable crops. [...] Greenhouses and dripping pipes are water consuming. If you increase awareness, this will increase water availability.”

- **Encouraging farmers to use new agricultural techniques and methods (e.g., producing organic products to avoid pesticides and chemicals with no health risks and to increase productivity)**
- **Increasing accountability and transparency in governmental institutions to improve performance and international reputation**

“Only when the Palestinian National Authority does an outstanding job [...], the international community cannot point their finger at the Palestinian National Authority anymore and say, ‘The reason for why things are not advancing here is all because of you’.”

- **Proceeding in clarifying mandates and responsibilities of actors in the Palestinian water sector (e.g., merging institutions, capacity building of utilities)**
- **Nationalizing all water resources**

“If we want to control the water, it cannot be private ownership of anyone. It should be public ownership.”

- **Building two national systems for freshwater and wastewater to distribute water**
  - Buying water rights from farmers in urbanized areas and using that water for domestic purposes where needed
  - Diverting treated wastewater from bigger cities to the east to increase supply for the agricultural sector with little risk for pollution of the groundwater resources due to low groundwater recharge in the east
- **Investing in wastewater treatment and reuse / Treating wastewater and using it for agricultural purposes to reduce freshwater use**

“We need to invest [...] in the wastewater treatment and reuse. Now we are investing in it but in terms of reuse it is still a big problem. Israel is a world leader in the treatment and reuse of the wastewater. But Palestinians need to be convinced that if we reuse water, it does not mean that more freshwater goes to Israel. People say, ‘Why should we protect our water resources if Israel is using them?’. Sustainable agriculture will depend on wastewater, because this is the only sustainable resource. This is the only resource that keeps increasing, and treatment of wastewater is not an option; it is a must.”

“All wastewater that is flowing from Palestine into Israel is treated on the Israeli side. [...] Everything treated is being deducted from the tax bills as well. So, they treat water and take money for it, and to some extent you can’t doubt

that because, obviously, it does cost money to treat the water. But what is strange is that they are not transparent about how much is being treated and how much they charge per cubic meter. They even built a wastewater treatment plant on the Israeli side and let the Palestinians pay for it. Then they treat water and they use the treated water for irrigation. So, it is win-win-win for them.”

“The treated wastewater from Nablus goes to the west and on the way, it gets polluted through Palestinian towns that don’t have sewage systems. By the time it crosses the Greenline, it is polluted – maybe little but Israel considers it polluted and charges the Palestinians. So, we are paying for the treatment of our wastewater twice: the first time to ourselves, the second time to Israel.”

- **Tackling the water-energy-food security nexus**

“It is very important to be independent from Israel regarding energy for the water sector [...]. We have deep aquifers, so the cost of the energy to pump water is one of the highest shares regarding the water expenses. So, now we are moving to the idea of energy from wind turbines as well as solar energy. Renewable energy would make water services more affordable [...]. We are not allowed at this stage to import wind turbines. Israelis put some technical or environmental constraints. [...] On the paper, we see that we have the power in Area A [...] but on the ground [it is different] [...]. We are asking to have the wind turbines in Area A. Regarding the location, they cannot say anything, but they came up with [...] that the importation of the wind turbines must be approved from their side. We don’t have the manufacture of material. We import most of the materials that we use. So, whenever we want to import a pump or like in this case wind turbine, we need to have their acceptance, and they want to know where exactly we are putting this pump and the wind turbine. So, they have another way to control it. On the ground, [...] they control Areas A, B and C [...] because we have the borders with them, and we cannot get the materials in a different way.”

“Ninety percent of Jordan is desert which has no economic value right now. You could invest in solar energy in the Jordan desert and the energy could be easily transferred to Israel and Palestine for desalination because of small distances. Water could then be sent to Jordan. [...] But in the absence of peace this remains only on paper or in the heads of people.”

- **Increasing pressure from the international community on Israel to comply with rights for Palestinians**