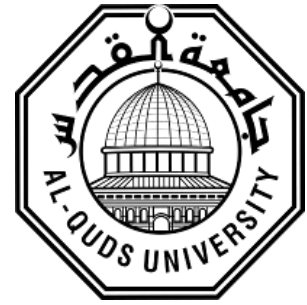


Deanship of Graduate Studies

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**Impact of Geopolitical Factors on Water Supply
Management in Area C, South of Palestine**

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M.Sc. Thesis

Jerusalem-Palestine

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Impact of Geopolitical Factors on Water Supply Management in Area C, South of Palestine

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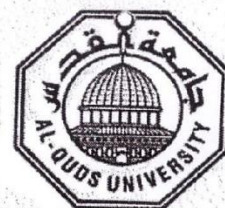
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Dedication

This work is dedicated to those who gave me life and raised me, my parents who were always supportive. I owe them each moment of my life.

To my beloved brothers and sisters.

To my husband, for his endless support.

To my brother in law, for his endless help from day one.

To my friends and all those who stood beside me while preparing this thesis.

To my great professors who were always a constant source of knowledge and inspiration.

Hayat Atawneh

Declaration

I certify that this thesis submitted for the degree of Master in environmental science is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not be submitted for a higher degree to any other university or institution.

Hayat Awad Atawneh

Signature: 

Date: 15 / 08 /2020

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Abstract:

Water scarcity constitutes a major problem in Palestine due to population growth, rising living standards, climate change, and Israeli restrictions on water resources and sector development. There is particular urgency to address the water scarcity problems in Area C, one of the most water-deficit areas in the West Bank, Palestine. Most of the Palestinian communities in Area C are not connected to the water network because of the Israeli control and confiscation. As a result, water supply is limited to high-cost water tanks that can only meet basic humanitarian needs.

This thesis examines the impact of geopolitical factors on local water management in the West Bank, focusing on Area C, and poses the question of whether these factors can be addressed as obstacles or opportunities for water management. To answer the research question, data was collected through document reviews, semi-structured interviews, and focus group meetings with representatives from the government, the private sector, and local and international non-governmental organizations. The collected data was analyzed using an analytical framework of contextual interdependencies and coding of data by using the Atlas.ti software.

The results indicate that restrictions imposed by Israel in Area C, such as obstructing the implementation of projects, demolishing ongoing constructions, confiscating water tanks, and closing the roads to Palestinian communities, negatively impact water management, and have played a significant role in the reduction of support from some donors. On the other hand, there is no Palestinian official representation in Area C that could supervise water distribution and pricing. This results in a higher price of water in those areas, which depend on buying water from tankers. To overcome these constraints, non-governmental organizations use several coping strategies that address management, sustainability or the use of a certain technology.

Finally, recommendations were made for all organizations involved in managing water in Palestine that should work together in a better way towards effective and sustainable management of water resources in Area C, and there should be integration in the functions and roles of the water sectors, both governmental and non-governmental organizations. These functions and roles should be represented by the Palestinian Water Authority

تأثير العوامل الجيوسياسية على إدارة إمدادات المياه في المنطقة ج جنوب فلسطين

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الملخص

تشكل ندرة المياه مشكلة كبيرة في فلسطين بسبب النمو السكاني وارتفاع مستويات المعيشة وتغير المناخ والقيود الإسرائيلية على موارد المياه وتأثيرها على تنمية قطاع المياه. هناك حاجة ملحة بشكل خاص لمعالجة مشاكل ندرة المياه في مناطق ج، وهي واحدة من أكثر المناطق التي تعاني من نقص وعجز المياه في الضفة الغربية وفلسطين. معظم التجمعات الفلسطينية في مناطق ج غير متصلة بشبكات مياه وذلك بسبب السيطرة الإسرائيلية على تلك المناطق إدارياً وعسكرياً وأمنياً. ونتيجة لذلك، تقتصر إمدادات المياه على خزانات المياه عالية التكلفة التي يمكنها تلبية الاحتياجات الإنسانية الأساسية فقط.

تبحث هذه الرسالة في تأثير العوامل الجيوسياسية على إدارة المياه المحلية في الضفة الغربية، مع التركيز على مناطق ج، وتطرح سؤالاً حول ما إذا كان يمكن معالجة هذه العوامل كعقبات أو فرص لإدارة المياه. للإجابة على سؤال البحث، تم جمع البيانات من خلال مراجعات الوثائق والمقابلات شبه المنظمة واجتماع مجموعة التركيز مع ممثلين عن الحكومة والقطاع الخاص والمنظمات غير الحكومية المحلية والدولية. تم تحليل البيانات التي تم جمعها باستخدام الإطار التحليلي للاعتماد المتبادل السياقي تم وتشفير البيانات باستخدام برنامج Atlas.ti .

تشير النتائج إلى أن القيود التي تفرضها إسرائيل على مناطق ج، المتمثلة في عرقلة تنفيذ المشاريع، وهدم البنية التحتية، ومصادرة صهاريج المياه، وإغلاق الطرق المؤدية للتجمعات الفلسطينية، تؤثر سلباً على إدارة المياه، وقد لعبت دوراً مهماً في الحد من دعم بعض المانحين لمشاريع المياه. من ناحية أخرى، فإن غياب تمثيل فلسطيني رسمي في مناطق ج للإشراف على توزيع المياه والتسعير أدى ارتفاع أسعار المياه في تلك المناطق، والتي تعتمد على شراء المياه من خلال الصهاريج. للتغلب على هذه القيود، تستخدم المنظمات غير الحكومية العديد من استراتيجيات التكيف التي تتناول الإدارة، والاستدامة أو استخدام تكنولوجيا معينة.

وأخيرًا، تم تقديم توصيات لجميع المنظمات المعنية بإدارة المياه في فلسطين والتي يجب أن تعمل معًا بطريقة أفضل نحو الإدارة الفعالة والمستدامة لموارد المياه في المنطقة ج، ويجب أن يكون هناك تكامل في وظائف وأدوار قطاعات المياه، على حد سواء المنظمات الحكومية وغير الحكومية. يجب أن تحدد سلطة المياه الفلسطينية هذه الوظائف والأدوار.

LIST OF ABBREVIATIONS

ACF	Action against hunger
AQU	Al-Quds University
CIT	Context Interaction Theory
CONAWAT	Multi-Level Contextual Factors of Local Water Management in the West Bank and the Gaza Strip
CWD	Central Water Department
ERM	Environmental Resources Management
DRL	Delivery Request List
FGM	Focus Group Meeting
GVC	Gruppo di Volontariato Civile.
ICA	Israeli Civil Administration
ICRC	International Committee of the Red Cross
IHCJ	Israeli High Court of Justice
JSC	Joint Services Council
JWC	Joint Water Committee
LWMP	Local water management project
MCM	Million cubic meter
MOLG	Ministry of Local Government
NDWP	National Directorate of Water in Palestine
NGO	Non-governmental Organization
NIS	New Israeli Shekel (₪)
NWC	National Water Company
PA	Palestinian Authority
PCBS	Palestinian Central Bureau of Statistics
PEL	Palestinian Environmental Law
PM	Prime Minister
PLC	Palestinian Legislative Council
PLO	Palestine Liberation Organization
PWA	Palestinian Water Authority

UK	United Kingdom
UNICEF	The United Nations Children's Fund
USAID	United States Agency for International Development
US	United State
VAT	Value-Added Tax
WASH	Water, Sanitation and Hygiene
WBWD	West Bank Water Department
WHO	World Health Organization
WSRC	Water Sector Regulatory Council

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Chapter 1

Introduction

1. INTRODUCTION

Nearly one third of the world's population lives in countries suffering from water shortages particularly in Asia and Africa, by 2025 the proportion of the World's population living in water-deficient countries is expected to increase to two thirds, consequently water-related conflicts in these areas are expected to intensify (Rogers, 2009). The scarcity of absolute water already affects more than 500 million people in more than 30 countries (Rogers, 2009).

Global water use has almost tripled in the second half of the twentieth century, rising at a much faster rate than the World's population in the same period of time, water resources are used for a variety of human activities, widely divided between agriculture (70%), industry (22%) and domestic use (8%), these often competing uses of freshwater often result in conflicts, recognizing that conflicts are an unavoidable part of social change in all societies, peace-building aims at not preventing conflicts per se, but transforming them and avoiding violence (Rogers, 2009). Before further deepening of water-related conflicts, it may be useful to consider some of the characteristics of contemporary conflict in general and include:

1. Some forms of scarcity
2. Real or perceived injustice
3. Monopoly of power by dominant individuals or groups, limiting access to other groups
(crisis of legality)
4. Regional instability
5. Political fragmentation
6. Fragile state structures
7. Competition for land and/or limited resources, including water
8. Ethnic tensions

It is widely recognized that water scarcity is one of the causes of large-scale violence and intra-state conflict, many conflicts erupt in water-deficient countries, especially in downstream areas of river basins that are exploited, water stress and water scarcity continue to spread as the population increases and the rates of withdrawal of freshwater resources exceed. thus, regions within countries prone to water stress are particularly suited to water-related conflict (Rogers, 2009).

60% of all surface fresh water comes from internationally shared river basins, Water treaties between countries should be strong enough to deal with increasingly changing and unstable environmental and climate conditions which will increase the world population to 9.7 billion by 2050 (Anderson, 2017).

According to Petersen-Perlman et al. (2017), the complex challenges of transboundary waters prevail throughout the world, and since first assessing transboundary basins in 1999, Oregon State University's Transboundary Freshwater Dispute Database has most recently identified 286 surface water basins that cross international boundaries. In addition, the International Groundwater Assessment Centre (2015) identified 592 transboundary aquifers, covering only approximately half of the land surface, and home to 40 per cent of the World's population. Countless watersheds cross subnational jurisdictions, the high demand for water in these basins, coupled with increasing volatility, is increasing the likelihood of cross-border conflict (e.g. Paraguay has refused to change the frequency of electricity generation produced by its generators in the Brazilian-Baraguiane dam, despite Brazilian dominance, which strongly presses Paraguay to do so, and offered to pay for the transfer). The existence of agreements and conventions in settling disputes between the state participating in the one river basin is crucial. For instance, the World Bank served as a bridge between the countries of Albania and Macedonia to develop and sign the memorandum of understanding in the Lake Ohrid watershed, which was without diplomatic contact for decades because of historical political circumstances (Petersen-Perlman, Veilleux, & Wolf, 2017).

The Nile river delta is a living example of the challenges that resurface when trying to develop a comprehensive cross-border water management plan, 2011 marked the beginning of an Africa dispute especially between Egypt, Sudan and Ethiopia, the Nile River which has always been hailed as a link between those countries became a source of dispute between them. Grand Ethiopian Renaissance Dam is the biggest project of its kind in the world, the reservoir volume (67 billion cubic meters), the dam will take up to 7 years to full capacity, Egyptians are afraid this massive project may slow the Nile water's flow into Egypt by 25% during these years, especially that Egypt and Sudan's water resources are mainly created outside their borders: 77% and 97% respectively, while Egypt insists on its historic rights in the Nile which are based on colonial treaties, Ethiopia argues that such treaties are unjust and can't be used in modern days.

Lastly, in 2015 the three nations; Egypt, Sudan and Ethiopia have signed an Agreement on the Declaration of Principles for the rights of water usage (Abdellatif, 2015).

According to transboundary water resources strategy report, Palestinians depend greatly on groundwater which is shared with Israel and other Arab countries, water has become a restricting factor in creating and developing a Palestinian state. And with the increase of water consumption there has been an increased dependency on these resources which resulted in an excess use of the water. There's a great challenge to determine the Palestinian water management through two main levels: Political level and Technical level with taken into consideration the good use of water in a fair, sustainable way in compliance with the international water laws, the regional cooperation in managing water in areas with weakest access to water is essential to ensure the protection of resources and to increase their sustainability, regardless, the joined water resources are still managed solely without any cooperative efforts even with the existence of minor cooperation in data sharing and prototypes, the effective joint management of water hasn't taken off yet (PWA, 2013a).

The state of Palestine, as it is today, consists of two separate terrestrial blocs, the West Bank and Gaza strip, with a total area of 5,660 km² and 365 km², respectively (CIA, 2019). The West Bank is surrounded by Israel from the west, the north, the south, and the Jordan river to the east. It is divided into eleven governorates: Jenin, Tubas, Tulkarm, Nablus, Qalqilya, Salfit, Ramallah, Al-Bireh, Jericho, Jerusalem (east Jerusalem), Bethlehem and Hebron, the Gaza Strip is a coastal area in the east of the Mediterranean Sea on the edge of the Sinai desert. It is surrounded by Israel from the east and north, from Egypt to the south and the Mediterranean Sea to the west. It consists of five governorates: north Gaza, Gaza, Deir El-Balah, Khan Younis and Rafah (ARIJ, 2015).

The Oslo II agreement which was implemented between PLO and Israel in 1995, sub divided the West Bank into three regions, each with different arrangements and different levels of security and administration, (A, B and C) to tighten control of the Palestinian land, especially in areas classified as (C)¹ with an area of 3,375 km². About 2,642 km², constituting 76.3% of the total

¹ Area C: Areas under full Israeli control over security, planning and construction.

area classified (C) is exploited by the Israeli occupation directly. The area classified (A)² is about 1000 km², and the area classified (B)³ is 1,035 km², and the area classified "Others" is 250 km² includes (Natural Reserves, and (J1)⁴ in East Jerusalem, and (H2)⁵ in Hebron). In 2018, the Israeli occupation confiscated 0.508 km² of the Palestinian land, in addition to confiscating hundreds of dunums of the Palestinians through the expansion of Israeli checkpoints and establishments of military checkpoints to protect the settlers (PCBS, 2019a).

The Oslo II accord adopted a quantitative method with water issue, the accords provided in details the amount of water that will be allocated from Israel to Gaza and West bank, but it hasn't taken into consideration the social, political and natural developments that may affect the water supply and demand in the region since the accord was signed on 28 September 1995 (EPRS, 2016).

In 2002, during the second Intifada, Israel began the construction of a physical barrier between Israel and the West Bank with the claim to protect Israel from Palestinian revolutionizers. This West Bank Barrier follows the border as agreed on in 1949 in some parts, but also deviates significantly in many areas (B'Tselem, 2017). The area between border and barrier, also called 'Seam Zone', contains a large share of the Palestinian agriculture land and water infrastructure. Palestinians living within the Seam Zone were largely required to move east of the barrier by the Israeli administration (Arsenault & Green, 2007). Large parts of this barrier take the form of a concrete wall, while other segments remain wire fences for the time being. Next to the barrier along the border between West Bank and Israel, additional segments have been constructed near some Israeli settlements, with plans for further expansion.

During the peace process, water was considered a temporary issue; the Palestinian Water Authority (PWA) is held responsible for Palestinian water installations. The Joint Water

² Area A: Areas under full Palestinian civil and security control.

³ Area B: Palestinian lands under full Palestinian civil control and joint Israeli-Palestinian security control.

⁴ J1: Areas of Jerusalem that were annexed by Israeli occupation in 1967.

⁵ H2: Areas under full Palestinian civil control and full Israeli security control in Hebron city.

Committee (JWC)⁶ was established in 1995 by the Oslo II Accord. Its purpose is to manage water and sewage related infrastructure in the West Bank, particularly to take decisions on maintenance of existing infrastructure and approval of new projects. However, Israel has maintained its control over the flow and volume of water. Since then, Israel has consistently used its veto power against Palestinian water projects, forcing Palestinians to buy expensive water from Israel instead of developing their own water resources. The 2009 World Bank's report indicates that the approval of 106 water projects and 12 large-scale sewage water projects from JWC were pending, while Israeli development related projects in the West Bank were approved. Only four of the 30 wastewater treatment plants submitted to the JWC were received. In 1995, approval was obtained from JWC, but the projects were rejected by the Civil Administration (PASSIA, 2012). Between 2011 and 2013, Israel rejected 97% of the applications for building permits for water and sanitation development projects in Area C (ARIJ, 2015).

Based on personal communication (Head of the Palestinian JWC, 2020), approximately 96 MCM of wastewater are produced in West Bank of which 13 MCM are treated in about 18 wastewater treatment plants.

Although international law calls for a "fair and reasonable" allocation of water between the parties on shared waterways (such as the Jordan river), it means that the Palestinians should enjoy full sovereignty over all the East groundwater resources that fall under the West Bank, at least rights equal water for Western and North-eastern aquifers, which are partially recharged from the West Bank. Under international law, Israel should pay more compensation for the past and for the continued illegal use of Palestinian water resources, in addition, The Palestinian water sector has been one of the Israeli forces' targets. In the first three months of 2019, a total of 136 Palestinian buildings were demolished in the West Bank, including 48 in East Jerusalem and 88 in Area C, displacing 218 people, including 97 children and 57 women, the statistical data showed that, forty-two per cent of the demolished structures were residential, 38 per cent were livelihood-related structures, and seven per cent were water, sanitation and hygiene (WASH)-related (OCHA, 2019). This is to say, an estimate of 270,000 Palestinians lived in Area C are

⁶ JWC: is a joint Israeli–Palestinian water committee, created in 1995 by the Oslo II Accord. Its purpose is to manage water and sewage related infrastructure in the West Bank, particularly to take decisions on maintenance of existing infrastructure and approval of new projects.

directly affected by Israeli restrictions and control of WASH-related infrastructure, as the water and sanitation networks (OCHA, 2019). These families pay for water 7 to 10 times more than the other families in areas A and B (PWA, ACF, & GVC, 2017).

In the World Bank report which is entitled “ West Bank and Gaza: Assessment of Restrictions on Palestinian Water Sector Development, April 2009” that prior to 1967, Israel had developed the water resources it had access to and established Mekorot, the Israeli water company, which transported water from existing supply sources to various demand centres from agricultural, municipal and industrial clients. After the 1967 war, Israel took control of water resources and laid wells throughout the West Bank, along with a network of water supplies serving settlements connected to the Mekorot network. Palestinian water rights were abolished in the West bank, including from the Jordan River. The amount of water supplied by Mekorot to settlements is estimated to be about 75 million cubic meters (MCM), of which 44 MCM are produced from wells controlled by Israel or settlers in the West Bank. The Oslo II water arrangements in 1995, contained (article 40)⁷ provisions on water and sanitation, which recognized the rights of

⁷ **Summary of Article 40**

Water rights and management principles: “Israel recognizes the Palestinian water rights in the West Bank, to be negotiated in the permanent status negotiations”. Additional resources are to be developed. In the interim, management of water and sewage is to be coordinated, according to the following principles:

- Maintain existing levels of resource use
- Water to be managed sustainably
- Use to be adjusted in case of climatic or hydrological variations
- Harm to the resource to be prevented
- Sewage to be properly treated and reused
- Harm from sewage to be prevented

Yields and extraction: A total estimated recharge of 679 MCM of the three shared aquifers is allocated between Palestinians and Israeli users (within Israel and in the West Bank).

Additional water: Future Palestinian needs are estimated at 70-80 MCM a year.

Immediate needs: An extra 28.6 MCM annually will be made available to meet Palestinian needs during the interim period.

Transfer of authority: PA is to have responsibility for water and sewage management for the Palestinian population. Ownership of infrastructure will be addressed in the permanent status negotiations.

Governance and pricing: A Joint Water Committee (JWC) will be established to deal with all water and sewage related issues in the West Bank, to coordinate management of water resources, monitor the resource, oversee the

unspecified Palestinian water, and restored some of the responsibilities of water resources and services in the West Bank to the Palestinian Authority (PA).

The reasons for the inability of the PWA to fully manage resources in the West Wank were addressed by the World Bank report as follows (The World Bank, 2009):

- Because of Israel's control of water sources in the West Bank, the PA needs Israel's approval of any proposed project to manage infrastructure in the West Bank, according to article 40 of the Oslo II agreement, as the Israeli territorial jurisdiction in Area C (60% of the West Bank) reinforces this control making integrated planning and management of water resources impossible for the PA. At best the role of the PA in improving water and sanitation services to Palestinian communities is reduced within the constraints laid down.
- Lack of funding and technical problems related to groundwater resource development and institutional weaknesses, resulting in low investment and poor management of water services in the West Bank.
- Palestinian dispossession in the West Bank fell below the basic level recognized in Oslo II (113 MCM in 2007 versus 118 MCM in Oslo). This is due to lower groundwater levels due to excessive extraction by Israel, inadequate maintenance or obstruction of the rehabilitation of wells, and the supply deficit from Mekorot, which increases the dependence of Palestinians on Israeli water supplies.
- Water resources are not being used efficiently in the West Bank, and scarce resources are being lost. The high rates of physical loss of transport and network supply systems reduced by one third the water resources available in monitoring and assessment processes, and the reuse of wastewater in agriculture is currently limited to a small experimental scale.

1.1. Background

The water dilemma is still one of the most controversial issues which requires a solution between Israel and Palestine, the current water crisis is not a result of the water scarcity only but also part

joint supervision and enforcement mechanism, license wells and approve water resource systems. Joint Supervision and Enforcement Teams (JSETs) will supervise and enforce decisions of the JWC. Water purchases will be at supply cost at the point of delivery.

of the Palestinian - Israeli conflict, for example, Palestinians have not been granted their rights in using water that confiscated by Israel (Mahmoud Rahil, 2012).

1.2. Problem Statement

The main reason for water shortages in the West Bank is due to restrictions on Palestinian water management and unfair allocations. The unfair allocations are manifested in the wide variation in water consumption between Palestinians and Israelis. Average household water consumption among Palestinians in the West Bank is about 88 liters per capita per day (PCBS, 2019b), less than the "absolute minimum" standard of 100 liters per person per day recommended by the World Health Organization (WHO). It is also less than the "preferred minimum" standard of 150 liters per capita per day. On the other hand, the average household water consumption in Israel is 250 liters per capita per day (Frenkel, 2017) there are also understand variations in water supply and consumption between Israeli settlements and Palestinian towns and villages in the West Bank (GVC, 2014).

One of the most important problems facing Palestinians in the context of water management is the water availability is a natural diverse, as well as the influence of the Israeli Civil Administration over areas, leads to inequitable distribution of water among the governorates in Palestine. The average per capita consumption in some areas according to PCBS statistics, 2017 especially in Area C is 50 liters per day, this rate exceeds 120 liters per day in other places (area A and B), such as Jericho (PCBS, 2019b). Due to the lack of connection to water networks in some of Area C, the main dependence of the population in these areas relies on high-cost water tanks, due to the high risk of water transport due to the difficulty of the roads leading to these communities, which are subject to the confiscation or violation of the Israeli forces in the area most of the times (Mercedes Melon , 2018).

The inability of Palestinians to obtain permits to repair or rehabilitate water and sanitation infrastructure in Area C has affected their access to water and sanitation services for many Palestinian communities, 70% of these communities are not connected to water networks. They totally depend on water supplies carried by trucks in the dry season (UNDP, 2016).

Families rely on water collected in winter, but usually consumed during the beginning of summer. Consequently, their summer consumption water carried in trucks is determined based on

their storage capacity, this can sometimes last until autumn. Water trucks supply water for families through filling points, such as PWA connection, private wells, Mekorot connections and springs, water cost is significantly related to the travel time necessary for water tankering (to reach the community from the related filling point). Distance and road conditions result in the travel time that contributes to defining water price, the security situation (risk of settler harassment and/or truck confiscation), as well as the tanker size, are important factors in the definition of the water cost, as customers pay high prices for the limited transported water quantities, which are unable to meet their needs (PWA, ACF, & GVC, 2017).

1.3. Case study

In this study, the “Emergency supply of water trucking to vulnerable in Area C of the West Bank” project implemented by Gruppo di Volontariato Civile (GVC) was examined. This project aims at improved access to safe drinking water for the most vulnerable and marginalized communities and effective coordination of different levels of government and its management capacity for the water access response. The project was implemented between 2014 and 2018. The emergency project has been always 6-7 months of duration (Personal communication, Vincenzo Paladino, GVC area manager - Gaza). Target communities in Area C where water price is higher than 20 NIS (5.8\$) /m³ and/or water consumption is lower than 30 l/c/d. The communities covered by the project vary from each year according to the needs assessment.

GVC specifically identified the most un-/under-served communities and groups in terms of access to water through:

1. A thorough assessment conducted in the spring before the launch of the project, building on assessments undertaken from 2014 under the framework of a UNICEF-funded water distribution program;
2. Continuous GVC-conducted assessments in the most marginalized communities, collecting and elaborating data related to water access indicators in the framework of the UNICEF water distribution project ended on December 2018;
3. WASH-related data collection (2016) for the elaboration of the Water Master Plan for Area C; and
4. Community-based protection approach undertaken by GVC (and other partner agencies of the West Bank Protection Consortium) for the development of the protection community

profiles and response plans, that includes specific analysis of the WASH Sector, for 163 communities located in Area C. This approach was initiated in 2015 and is updated on a yearly basis. For the beneficiaries of the last edition of the project (2018), table 1.

Table 1. Beneficiaries of “emergency supply of water trucking to vulnerable in Area C of the West Bank” project.

Beneficiary	Number
Communities	57
Potential beneficiaries (people who had potential access to subsidized water)	10,215
Beneficiaries (people who purchased subsidized water)	9,744
Schools	10
Students	1,460

1.4. Research Aims

This research study aims to assess the impact of the geopolitical factors on local water management in the West Bank, and determine whether these factors can be treated as obstacles or opportunities for the water management to alleviate water scarcity in Area C. In order to achieve the main aim of this study a set of specific objectives has been set:

1. To identify the geopolitical factors and their influence on collection and distribution of water in Area C.
2. To evaluate the sustainable policies in selected WASH projects in Area C.
3. To study the effectiveness of local water management projects by identifying mechanisms that reflect on the political context of the Palestinian situation.

1.5. Research Questions

This research will create empirical knowledge to be able to understand the effects of the geopolitical factors on water projects and management in the West Bank. For this purpose, the following research question will be answered:

How do the geopolitical constraints in Area C affect water management and supply projects in the West Bank, Palestine?

1.6. Outline of the Thesis

The overall research study was divided into five chapters:

Chapter two presents the literature review related to the national laws and strategies, water crisis in Palestine, and Area C water master plan. In addition, an explanation of the contextual interaction theory is presented which formed the base for the whole thesis. **Chapter three** describes the methodology adopted in the research study. Data collection was based on semi-structured interviews and a focus group meeting, and the data was then coded using the qualitative analysis tool 'ATLAS.ti' to be formulated for reorganization according to contextual interdependence theory. **Chapter four** includes the analysis of results, discuss the problems, and the answer to the research question. **Chapter five** presents the conclusions and recommendations.

Chapter 2

Literature Review

2. LITERATURE REVIEW

This chapter reviews the literature related to the water resource management in Palestine and its approaches. In addition to discussion of the contextual interaction theory which is considered as the base of the thesis analysis, also reflection of conflict's impacts on water sector management in various sectors.

2.1. Policy background

In 1999, the PWA issued the Palestinian Environmental Law, which aims at protecting the environment in general from all types of pollutants, protecting national health, promoting sustainable developments of bio resources, protecting biodiversity and improving environmentally affected areas by reducing the damage that may result from new projects and to impose penalties and fines on those who cause problems to the environment regardless of type and size (PWA, 1999). With regards to protecting water, the law states that water quality policies are determined by the government in cooperation with the concerned parties, also states that protecting water from natural and man-made pollutants should be within special standards and conditions (PWA, 1999).

Based on the Palestinian water policy, the PWA has developed a unified framework for the water sector with a strategy that mixes the directives, policies, legislations in the sector on national level with the major goal of protecting, saving a sustainable management of water resources and providing supplies and sewage services in Palestine. Work includes many factors such as cooperating with the stakeholders in the water sector on national, regional and local levels, determining their duties with this framework (PWA, 2013b).

The PWA released the new Palestinian water law to achieve water resources management and development in Palestine, increase its capacity and protect it from pollution and depletion, also

improve the water services level by implementing a sustainable and complete management of water resources.

The law states that the water authority and through a system initiated by the Prime minister, is authorized of creating a regional water facilities and water societies, it also includes articles that covers the way the authority will preserve water resources and protect them from pollution, declare protected areas in addition to control over water resources, among other things included is the authorization of the head of water authority to grant judicial police description and other articles that cover the punishment law in case of any attack on water resources, the National Water Company (NWC) is the supreme decision making body, the PWA is responsible for water resources management and regulation, and a bulk water supplier distributes water to four regional utilities, which are responsible for retail distribution (PWA, 2014).

The water sector reform plan 2016-2018 was created by the PWA in order to make a long-term change in cooperation with local and international parties. A set of principles were also created for the management of the reform plan. The plan aims to direct the work of the water sector institutions in order to achieve the main goal; reforming the water sector and providing a base for measuring progress in the water sector reform, and a reference for justifying any correction procedures.

The directive policy principles in the Palestinian national water policy were drafted (32-2012), discussed and agreed upon by the stakeholders. The new water law assimilated the main principles recognized internationally as a suitable components of the modern process for water sector reform such as: Separation of service delivers, setting policies that will improve efficiency and transparency, the right of having access to water, and a legislative framework to process water as a commodity that can be completely managed. The new law grants the PWA the authorization to completely control and manage water resources (PWA, 2016b).

The water governance report in Palestine is a result of the Palestinian's political dialogue (2014 - 2015) which was facilitated by the global water partnership - Mediterranean in cooperation with the PWA, the report determined the obstacles that Palestine faces in implementing water projects both on public and private sector levels, such obstacles include budget, accountability and stakeholders. The report confirmed that the Palestinian political situation plays an important role

in slowing the development process as Palestine lacks the authority over its resources, adding to that the repeated security activities by Israel which slows the movement of products and people. The report aimed at increasing awareness of the current state of water in the region, also to involve all influencing parties, the understanding included in the report aims at putting the water crisis in an environmental, social and economic context. It shows the complete role that water governance can take in the sustainable human development (Water Governance In Palestine, 2015).

In the “Water in Palestine” report in 2013 that has been developed by Birzeit forum for strategic studies, Ibrahim's institute and Abu Laghad International institute at Birzeit University – Palestine, the Multiple technical solutions and details were discussed. The report discussed the challenges of the current situation in the Palestinian Water sector, it indicates that the underlying problem is the way water sectors in the occupied territories work, it also concluded that the problem stems from the lack of the intervention from authorities and local, the regional nongovernmental organization where the basic mission and challenge in the water sector is no longer to overcome the destructive effects of the occupation rather than to plan for this challenge and try to avoid a faceoff with Israel (Water in Palestine, 2013).

2.1.1. Area C Water Master Plan

In the absence of a master water plan in the Area C and based on the request of the PWA; The West Bank Water Department (WBWD), Action Against Hunger (ACF) and Gruppo de Volontariato Civile (GVC) have come out with an evaluation and maps drawings of the water resources in the Southern and Northeastern parts of the West Bank. They have also put forward a master plan that aims at specifying, promoting effective short- and long-term technical solutions for the water problems and its availability in Area C. The plan targeted 247 communities in 7 governorates in the West Bank (72 communities in northeastern West Bank - Jordan valley - formerly targeted by GVC and 175 communities in the southern West Bank targeted by ACF) (PWA, ACF, & GVC, 2017). The plan adopted a methodology that was implemented in three stages as follows:

stage 1: collecting and checking data - base line, water demand.

stage 2: analyzing current water supply situation, availability of water.

stage 3: reporting any technical solutions, costs and planning, suggesting an intervention that aims at closing the gap between demand and supply.

There have been some measurements of the water needs for every community based on:

1. Expected population growth (20 years expectations), certain criteria were adopted and priorities were set in regards with the actual consumption (less than 30 liters/ day)
2. The price of water (20 shekels / m³), quality of water and other protection standards related to the location of the community
3. Risks associated with the location.

Interventions varied in regards with the current context of the community, and included:

1. The main water pipelines used for carrying water to the group.
2. Distribution lines used to connect main lines to targeted areas.
3. Construction of new water network and connection to homes.
4. Rehabilitation of existing water networks.
5. Construction of water pumps (when needed).
6. Other technical solutions including rehabilitation or construction of home tanks or water trucks.

2.2. Contextual Analysis

Ingram (2011) defines context as "used to indicate the numbers of complex characteristics that distinguish one geographical and temporal space from another". The context is thus given a spatial and temporal element, involving historical events and the evolution of contextual factors over a longer period of time.

In a study on policy implementation, Brynard (2005) emphasizes the importance of capacity to address the different aspects of the context systematically in order to understand its potential and potential effects. It points out that "this study is becoming a permanent measure for consideration, but it is never easy to study systematically, there is risk of learning and lack of contextual impacts on effective implementation.

2.2.1. Contextual Interaction Theory

The contextual interaction theory (CIT) provides an explanatory framework for depicting governance and policy processes in water management, it understands these processes as social

interactions between different actors with specific characteristics that determine the overall success of the policy. The CIT framework has been developed in the Netherlands and applied mainly to European countries so far (Owens & Bressers, 2013).

In the context of CIT, actors (people, organizations) within a social interaction process are characterized by the motives underlying their actions and decisions, their cognitions, i.e. the information they use to make sense of a situation, and the resources they have available, both material and immaterial. While these actors are naturally affected by the process itself, they are also heavily influenced by external conditions, referred to as the context of the process. This context is subdivided into the following three layers, as also shown in Figure 1:

1. Specific context: factors specific to the current situation, such as geography, including the availability of water in the present and future, and outstanding institutional arrangements in place.
2. Structural context: factors related to the system of government and the existing rights system and their various elements that are usually much more stable than the specific context as defined at a broader level, such as the national level.
3. Wider context: factors that are not specifically related to the policy processes involved, but rather to general circumstances that are stable over longer periods of time and are not affected mostly by individual operations.

These different classes are of the context to identify processes in which policies are conducted and constitute actors interacting with each other. They therefore have an impact on the results of the process and whether a policy can be effectively enforced.

The multi-level, multi-actor network, institutional and other contexts are represented in contextual interaction theory as factors that influence the motivation, perception and resources of the actors involved (in fact they are only as influential as they do). When boxes with active characteristics are folded into the process, there is room to visualize additional contexts as a supposed contextual interaction theory. Figure 1 illustrates these contexts as overlapping entities. The shape can be better read from right to left, which means that each step to the left give's context to the previous circle, excluding the possibility of direct impact on broader contexts. The most direct context in the context of the situation for certain circumstances and previous

decisions taken that constitute direct input in and sometimes the starting point of the process studied (Bressers, 2009).

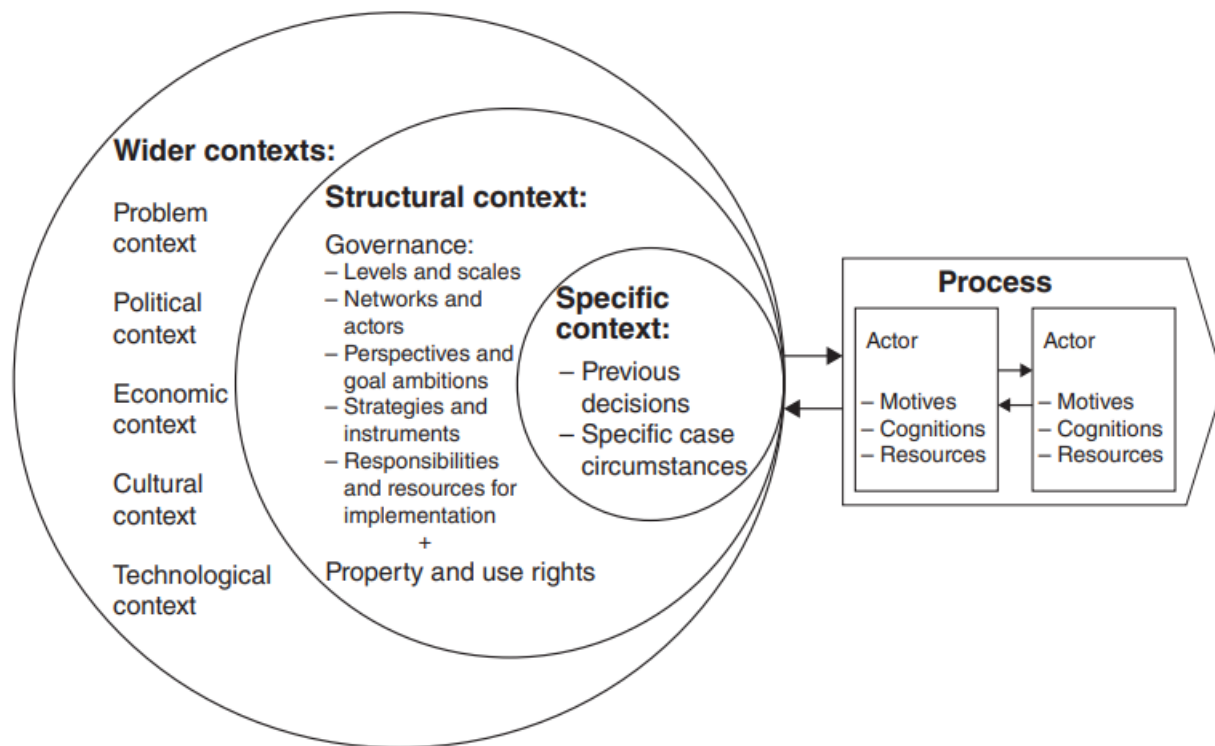


Figure 1. Layers of context that influence the actor characteristics that can be as specific context (previous decisions, and specific case circumstances), structural context (governance, property and use rights), wider contexts (political, economic, cultural, and technological contexts). Source: (Bressers, 2009).

2.2.2. Conflict geographies

Harris (2002) uses the concept of conflict geographies to analyse the key historical and geographical features that provide the context of the Southeastern Anatolia Project (GAP) in Turkey. The term is used to describe “a range of different interrelated conflicts associated with a specific site or place, varying across scales, including the ways that these conflicts affect other aspects of the geography of that place” (Harris L. M., 2002, p. 744). It should be noted that “conflict” in this case does not solely refer to acute or violent conflicts as defined above, but also includes competing uses within a socio-economic or environmental system.

The concept is also defined to “include the intersections across scales of interstate conflict, intrastate conflict, historical conflicts, local power dynamics, or even competing uses of ecological resources (all intersecting with axes of race, class, ethnicity, and gender)” (Harris L.

M., 2002, p. 744), thus prominently applying a multiscale approach to the analysis of contextual factors.

In the analysis of intersections and interactions across different scales, Harris and Alatout (2010) and Boelens et al. (2016) both studies highlight the importance of treating scales as a socio-political construct related to an actor's framing rather than as a geographical fact. Harris and Alatout (2010) thus describe scales as “the outcomes of, or rather constituted through, discourse and practice”. In approaching contextual studies, it is important to ask why these scales are defined in a particular way as important as asking which scales are relevant.

2.2.3. Contextual interdependencies

While the time element of contextual factors is generally recognized in many analytical frameworks, the broader context of policy processes is often assumed to remain relatively constant, this includes, for example, social, economic and political conditions (Bressers & Boer, 2013; Ostrom, 2007).

However, in the case of conflict settings, the wider context is less stable and often rather unpredictable (Keskinen, et al., 2010). In these cases, a more differentiated analysis of the context is required (Vivekenanda, Schilling, & Smith, 2014). In a study on the motives and effects of pastoralist raiding neighboring tribes in north-western Kenya, (Schilling, J., Opiyo, F. , & Scheffran, J., 2012) draw up a net of connections between direct effects of raiding and other contextual factors. They show that through direct and indirect effects, efficient resource use and human wellbeing are at stake from conflict (figure 2).

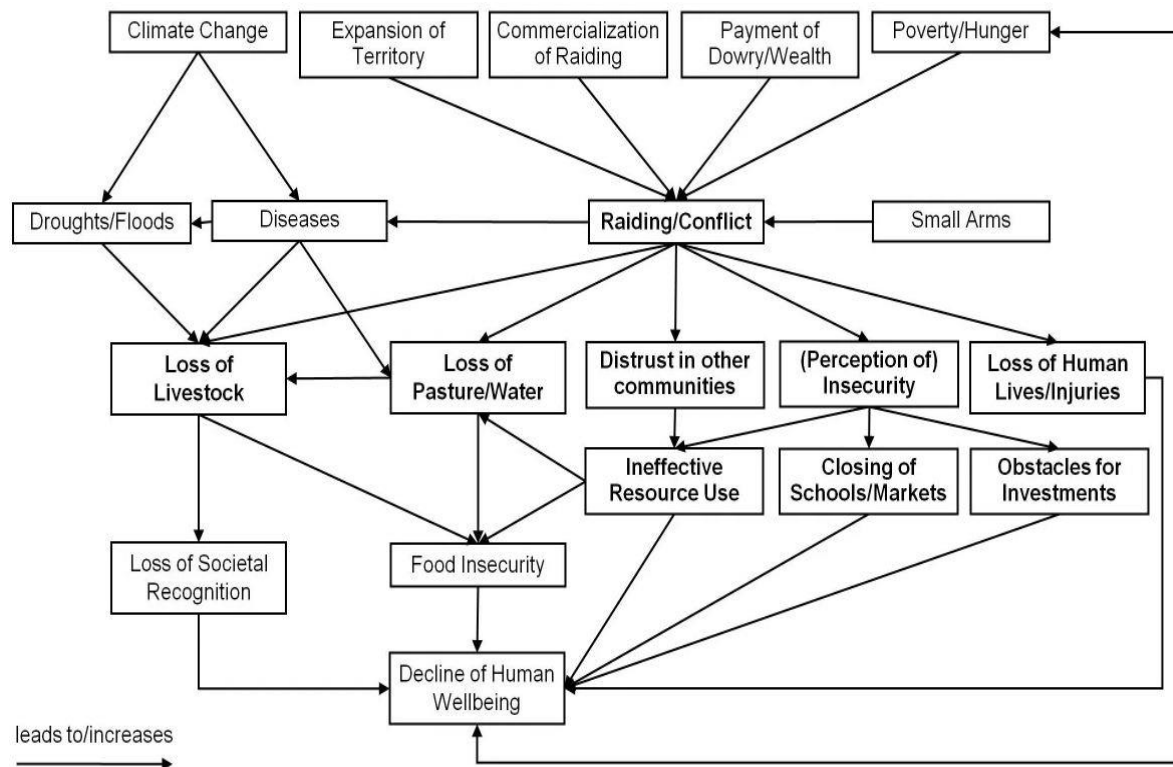


Figure 2. Motives and effects of raiding and conflict between pastoralist tribes in north-western Kenya (most direct effects shown in bold such as loss of livestock, loss of pasture/water, distrust in other communities, loss of human lives/injuries, and perception of insecurity that causes ineffective resource use, closing of schools/markets, and obstacles for investments). Source: (Schilling, J., Opiyo, F., & Scheffran, J., 2012)

While Schilling et al. (2012) do not apply any specific conceptual framework to the study of these interlinkages of different effects, their results show that closer attention needs to be paid on the interdependencies of contextual factors and conflict impacts.

The wider context, however, is less stable and often rather unpredictable in conflict environments. The main conceptual assumption is therefore that the context in developing countries, particularly in conflict situations, is much less stable and predictable than in developed countries. This leads to the need for a more differentiated analysis of contextual factors, particularly with regard to the political sphere. Contextual factors are therefore more dynamic in nature, using the elements of the approach outlined above.

Based on previous insights, three types of correlations are defined:

1. Sectoral interdependence: interactions between contextual factors and processes in different sectors (e.g. politics, economy and technology)
2. Spatial interconnection: interactions between different metrics (vertical dependency, for example local and national) or different locations (horizontal interdependency)
3. Timeline: interactions between current contextual factors and pre-conflict factors, or the effects of historical events on current circumstances

Sectoral and spatial interdependencies both tie in with the Contextual Interaction Theory (CIT) which accounts for linkages between the different layers of context that do not only influence actor characteristics and policy processes, but also each other. The wider context in the CIT includes aspects such as the overall political system in the respective society, the socio-economic conditions, the cultural background and the technological advancement within a society (Bressers & Boer, 2013). Combined with the structural context which provides information on the governance arrangement and the property and use rights systems in place, these sectors form the foundation of sectoral interdependency see (figure 3).

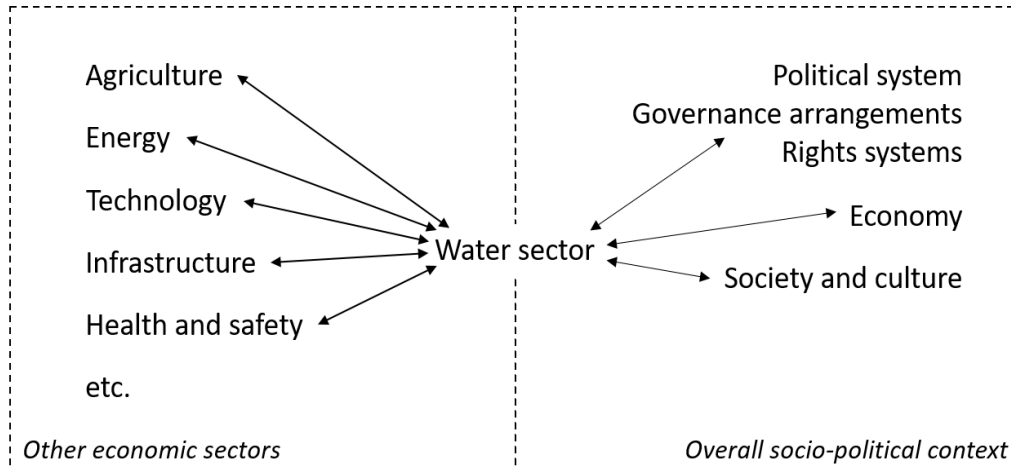


Figure 3. Draft framework for sectoral interdependencies which include (overall socio-political contexts such as political system, governance arrangements, rights systems, economy, society and culture, and other economic sectors like agriculture, energy, technology, infrastructure, health and safety ... etc.)

A prominent example of a sectoral interdependency is the link between the overall economic state of an area and the performance of its water sector. The inability of individual households to pay for service provision can quickly lead to an increase in non-revenue water which presents an

obstacle to financial sustainability (Pinera & Reed, 2014) . A weak domestic private sector that can result from widespread conflict (Allouche, 2014) additionally limits the possibilities for broader private sector involvement in the water sector aimed to increase its economic strength. This in turn can also lead to a stronger dependency on international aid in the sector which comes with a number of problems itself (see for instance Schillinger, 2016). Using India as an example, (Shah & Koppen, 2006) point out that the success of IWRM approaches in alleviating water poverty depends on the economic development of the region they are applied to. Shah and van Koppen link this to the level of (in)formality in the local institutional arrangements of the water sector.

Spatial interdependence is additionally linked to the multi-scalar concept of conflict geographies by Harris (2002). It refers to the ways in which a single site is included in its region or country, influenced by policy decisions at a higher level or grassroots approach at a lower level, and provides an idea of different levels (Vertical interdependency which effects by factors on a higher or lower level and Horizontal interdependency that effects by factors from a different entity on the same level) as shown in figure 4, note that various actors may use the definition of different levels or scales for distinct geographies to invoke certain narrative.

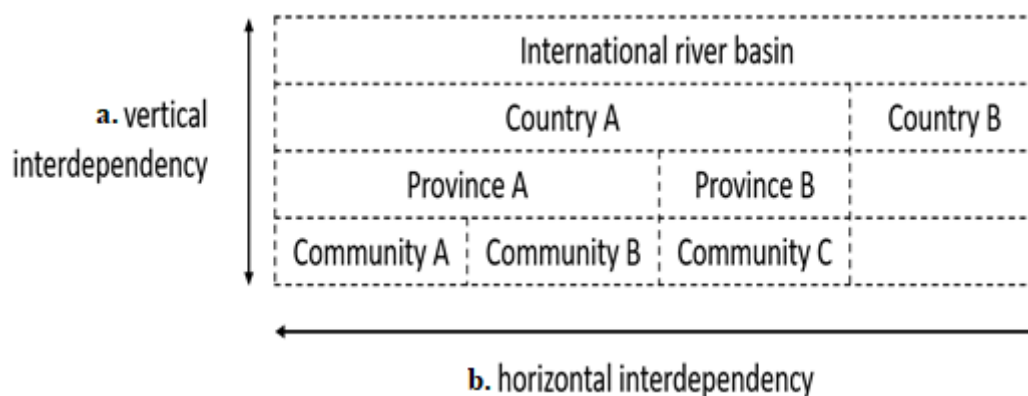


Figure 4. Draft framework for spatial interdependencies which consist of: a. Vertical interdependency: effects by factors on a higher or lower level. b. Horizontal interdependency: effects by factors from a different entity on the same level

Temporal interdependency calculations are represented in relation to current and previous conditions, in this case for water management. The distinction between the contextual factors already caused by the beginning of the conflict and those who were part of the context of the

situation in advance allows for the beginning of the conflict. An important aspect in this context, for example, is the enforcement of water policies and regulations that may decrease with the onset of conflict due to a shift in priorities with management. However, as Shah & Koppen (2006) pointed out, the water sectors in developing countries are generally less organized and formal than in developed countries. Thus, another reduction in rule enforcement may be reflected without notice, and it is of little importance for water management in such cases.

Chapter 3

METHODOLOGY

3. METHODOLOGY

This chapter deals with a detailed description of the methods and procedures implemented in this study was carried out in accordance with the scientific origins of scientific research, in order to achieve the general aim of this study, this chapter includes the description of the study area, research design, data collection and data analysis.

The Multi-Level Contextual Factors of Local Water Management in the West Bank and the Gaza Strip (CONWAT) project explores how the intersection of different geopolitical processes and other contextual factors impacts the feasibility of water management approaches in both West Bank and Gaza in order to improve the current status of the water sector. It also aims to bridge the research gap through creating insights from an in-depth examination of two recent projects that are being implemented in the West Bank and the Gaza Strip. This research thesis took place within the scope of the CONAWAT project which analyzes the impact of the Israeli occupation on resource management is often analyzed in isolation from other political circumstances rather than in interaction with political instabilities within the Palestinian society.

Part of the used methodology in this study detailed below was hugely influenced by the methodology that was adopted by CONWAT project.

3.1. Study Area

The study covers the southern parts of the West Bank which falls under Area C jurisdiction, Hebron governorate. The research has been conducted in Susia and Masafer Yatta communities, which are comprised of 16 communities with an approximate population of 1,700 inhabitants (Jarrar, 2019), distributed over an area of 36 km² (ARIJ, 2009).

3.1.1. Masafer Yatta

Located within the Israeli – declared active “firing zone 918”⁸ of Area C in south Hebron, Masafer Yatta lies to the north of Al-Naqab Desert. The area is surrounded by many Israeli settlements, including Karmel and Ma’on to the north, and Susya settlement and Mezerit Yehuda to the west (Jarrar, 2019).

⁸ Firing Zone 918, which encompasses approximately 30,000 dunams, was declared a restricted military zone as far back as the 1970s. with multiple closures set by the Israeli Forces for the purpose of military training.

3.1.2. Susya community

Located in the South Hebron Hills with a total area of 3269 km² protected by TABO document and classified as: 2000 km² are confiscated, are residents of Susya are denied access to these lands, 300 km² used for agriculture, 300 km² used for grazing, and 20 km² built area.

The population of the community is 450 (207 Females, 243 Males, 120 Children $\leq$ 5, 110 Children $\leq$ 18) divided into 45 households. The existing structures in Susya are: 41 residential structures, 20 kitchens, 20 fodder storages, 32 animal tens, 31 latrines and 26 water tanks (2m³ capacity) (GVC, 2016).

The residents in Area C (Figure 5) depend mainly on animal herding where their combined, estimated herd reaching over 25,000 sheep and goats, which consumed around 75 per cent of the water (OCHA, 2019), as their main income source. Also, they depend on rainwater harvesting cisterns, which considered as the main source of water, but it is only sufficient until June. The secondary main source of water is tanked water (GVC, 2017).

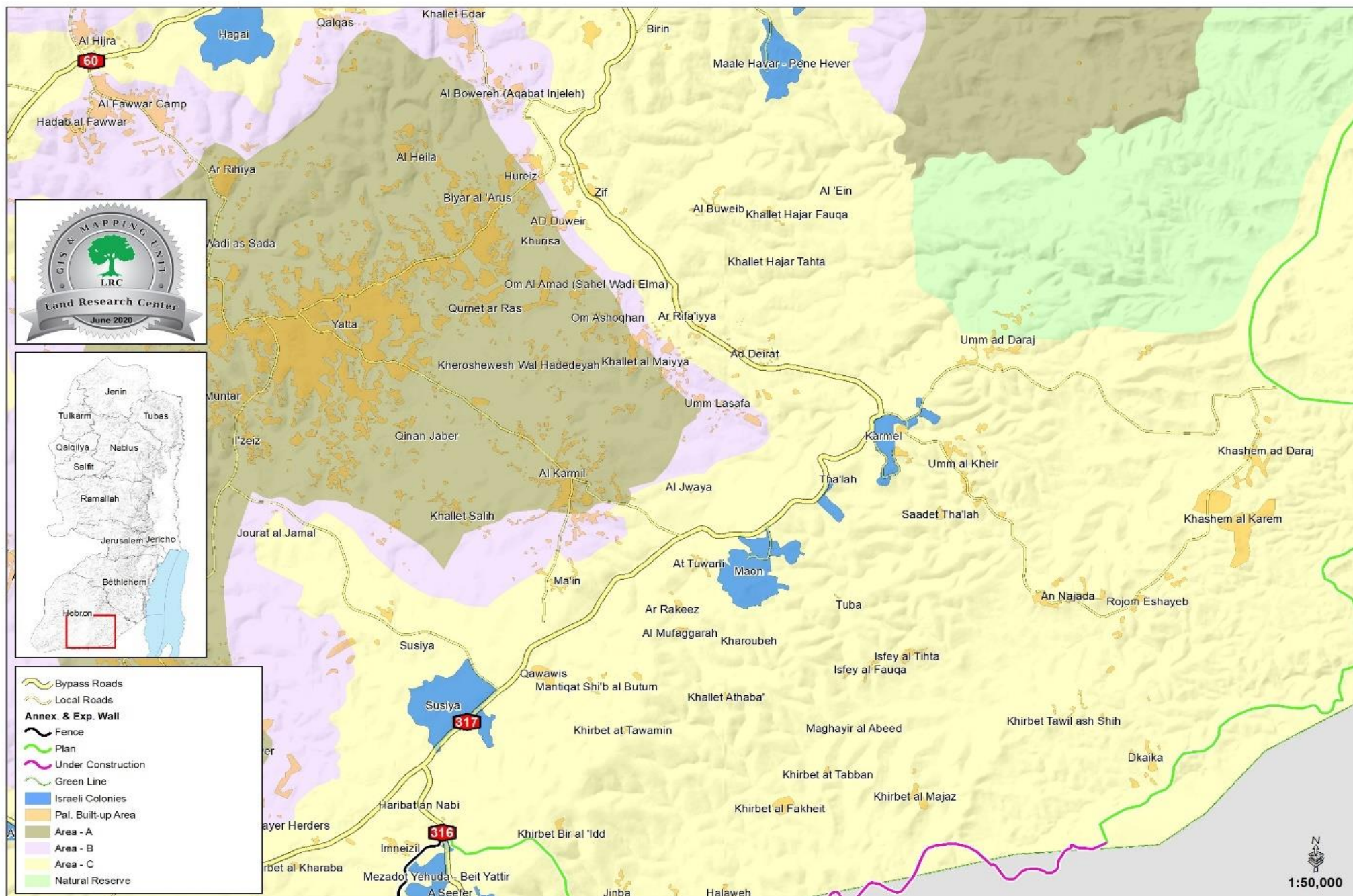


Figure 5. Location map of Masafer Yatta and Susya. Source: LRC (2020)

3.2. Research Design

This study is designed to explore geopolitical factors affecting local water management and to study the causes of water shortages in Area C in the West Bank, where coping strategies have been formalized to overcome conflicts facing local water management. The study provided a systematic qualitative analysis and then a comprehensive methodology has been designed including the development of interviews questions and the collection of data regarding the research that can be broadly broken down into different stages, as described below.

3.2.1. Data Collection

Data collection lasted for 17 months from May 2018 to Sep 2019 in cooperation with Al-Quds University (AQU) staff in the West Bank. The first three months were spent studying documents and literature to get a better overview of the situation before conducting the primary data collection, the remaining time was spent collecting and analyzing data.

There are three main sources of data: Review of documents, interviews with relevant stakeholders, humanitarian response projects beneficiaries, and a focus group meeting with relevant organizations.

Participation and coordination with GVC staff members facilitate work especially at field visits for beneficiaries, all the interviews reported, reviewed to be ready for the analysis stage.

3.2.1.1. Review of documents

The available policy documents, professional reports and scientific studies have been collected, studied and reviewed the necessary information developed in the course of the study, included comprehensive background information on the political context of water resources management in Palestine.

Documents were also collected from Palestinian governmental and non-governmental institutions operating in the water sector such as the PWA, the Water Sector Regulatory Council (WSRC) and the GVC, and included annual reports, summaries of the water projects implemented in the targeted areas.

3.2.1.2. Interviews with stakeholders

The first step of the interviews is conducting exploratory interview that is semi-structured preliminary with GVC project staff and other experts and interview guide design. This interview was conducted to identify stakeholders and relevant organizations (stakeholder assessment), to identify specific local issues for inclusion in the interview guide for the case project (accurate interview guide) and to collect background information.

Semi-structured interviews were conducted with decision-makers and representatives from the government, private sector, local and international NGOs, and the communities that benefit from water projects. The respondents have special knowledge in water management in Area C and are considered as main stakeholders. The interviews were conducted face-to-face with stakeholders after describing the subject of the study and clarifying the purpose of the interview. An overview of the interviewees is provided in Table 2.

A set of questions for each stakeholder were designed according to the organizations in which they operate and their positions, these questions aim at collecting information about how the interviewees and their organization are affected by the political situation and its impact on their work in the water sector or to adapt to the current situation. (All data needed in the interview questions listed in Appendix 1).

Thirteen face-to-face interviews were conducted with stakeholders, the notes and answers obtained, and all interviews were conducted in Arabic and later translated to English.

Table 2. List of Interviewees and their positions, the table also shows the respondents group numbers that were assigned to them.

Stakeholder	Organization / Department	Position	Respondent group
Policy making	PWA	- Director of Research and Development - Technical Advisor - Water Quality Manager and WASH Coordinator	PWA – 01
Municipalities	Susya Council Masafer Yatta Council	- President - President	Beneficiaries - 04
Beneficiaries	Local Beneficiaries		
Water regulator	WSRC	President	WSRC – 03
International NGOs	ACF GVC	- West Bank Head of Base - WASH Coordinator	NGOs - 02

3.2.1.3. Focus group meeting

The stakeholders interviewed were contacted to attend the focus group meeting that held under the umbrella of PWA on Oct, 16th 2019, grouping of 11 stakeholders from the organizations representatives are from PWA as the main responsible actor of water sector, GVC as a representative of international NGOs, who plays a crucial role in supporting water sector projects, and the team of AQU. The meeting took place initially with the definition of the study and its objectives, as well as an illustration of the purposes of these meetings with two objects: **First one** which lies in the identify and compare the perceptions of different stakeholder categories regarding the influence of the multiple governance factors on the water projects and identify relevant coping strategies that different stakeholders develop regarding the possible

obstacles and opportunities. **Second**, the discussion of policy brief, evaluate and provide suggestion to improve its content.

The meeting began with the question of *what are the challenges/obstacles an organization face during construction and the operation phase of water projects?* Which discussed at the meeting and out of the desired objectives and were discussed by all attendees and lasted for 40 minutes. All the data and information obtained from the meeting were analyzed by ATLAS.ti 8.

3.2.2. Data analyses and coding

Analysis of data collected from interviews, the focus group meeting and the review of documents on the case project took place using the analytical framework of contextual interdependencies and coding of information according to the framework (See Figure 6). The goal of data analysis is to achieve the relevant contextual factors and coping strategies for local water management in the West Bank.

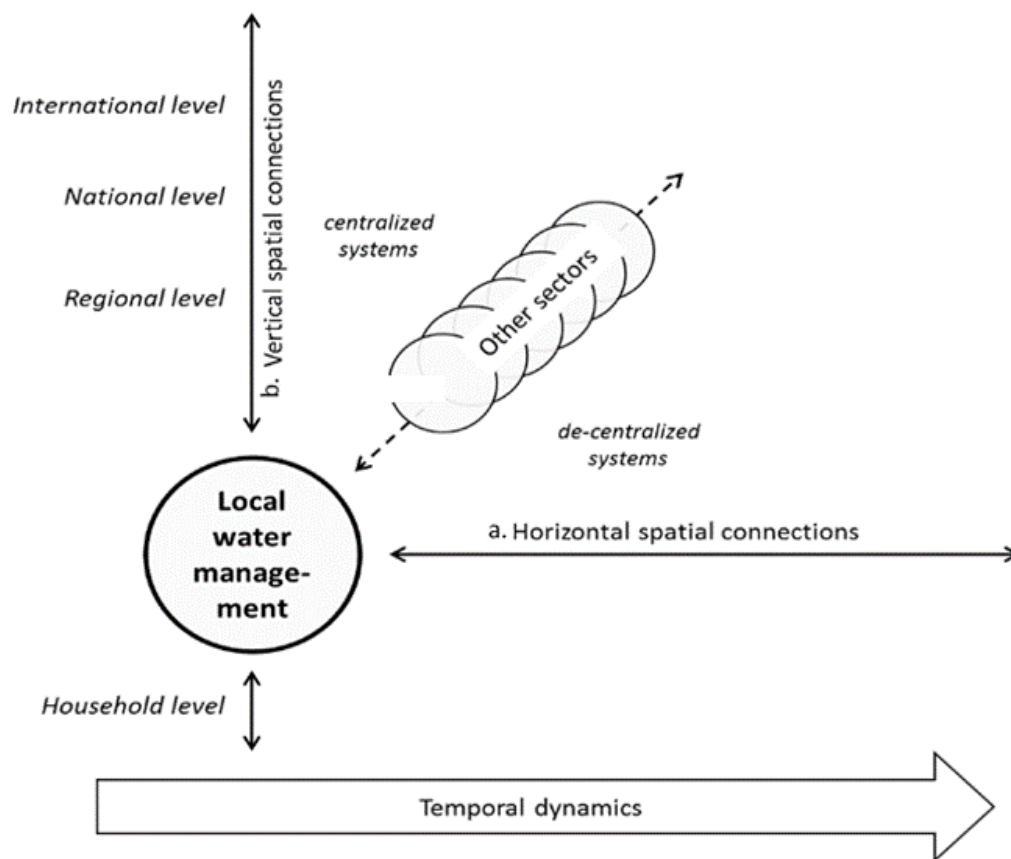


Figure 6. Visual interpretation of the four categories of contextual interdependencies.

a. Horizontal spatial interdependency: Intersection between different locations, which may have the same management level. b. Vertical spatial interdependency

3.2.2.1. Code tree

The code tree has been formed as a starting point in the analysis to categorize the data collected through interviews and focus group meeting. Noting that one sentence can be encoded in more than one group, each group contains many codes related to the group phenomena, and the following code tree was used during the analysis phase. The code tree was created by the partner team in CONAWAT project. As shown in Figure 7.

The processes surrounding local water management can fall into multiple categories. The categories are non-exclusive and overlapping in many cases the interaction between the horizontal spatial interdependency connection in the governance arrangement and vertical spatial interdependency rely on the international level. The interactions between different categories are important part of the analysis to get the answer for the research question.

The codes have been identified depending on the interviews that have been carried out with four types of stakeholders, namely the PWA, beneficiaries that are receiving the services, the NGOs that are providing service for the beneficiaries in Area C, and the WSRC.



Figure 7. Code tree, which divided into six main code groups, each group consisting of many sub-codes. The code tree was built based on the analytical framework of contextual interdependencies

3.2.2.2. Code processing

By using qualitative analysis software "ATLAS.ti 8" data collected can be categorized across all interviews conducted based on the structured analysis adopted to answer research question. This program consists of codes, each code indicates an action or factor observed through the previous discussion with stakeholders, a set of codes giving the full picture of the relevant category.

After forming the code tree, all reports are added to the software and all the information is encoded into the code and the relevant category, noting that a sentence can be coded into more than one code. Subsequently, the data is presented by reporting a property within the program, this can categorize the entire class-related data to facilitate the next analysis steps. The figure 8 below illustrates the main steps of working with ATLAS.ti 8.

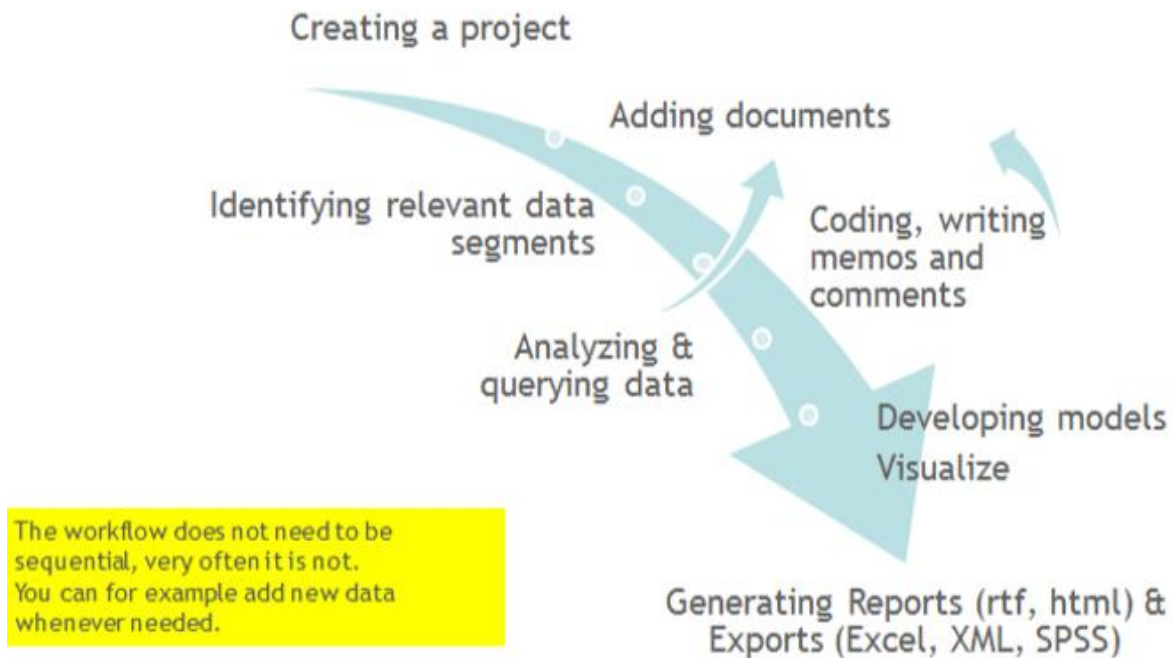


Figure 8. Main work flow in the ATLAS.ti version 8 software. Source: (ATLAS.ti 8 User Manual)

Two tools were used in Atlas.ti, one building on the other:

1. The Query tool: it allows to take a look at all segments assigned a specific code (or that are part of a code group) at the same time, allows all texts encoded to be displayed in a specific code, as they are displayed on a single page, in addition to speeding up the process of accessing and opening quotes and encrypted texts in the original file (Figure 9).

2. The Networks tool: it allows to conceptualize the structure by connecting sets of related elements together in a visual diagram. With the aid of networks can express relationships between codes, quotations, and memos, documents, and groups. (Figure 10).

After creating the results (list of quotations) of the query tool, the linkage between the quotations and the related code group, sub-code and document were built by using the network tool.

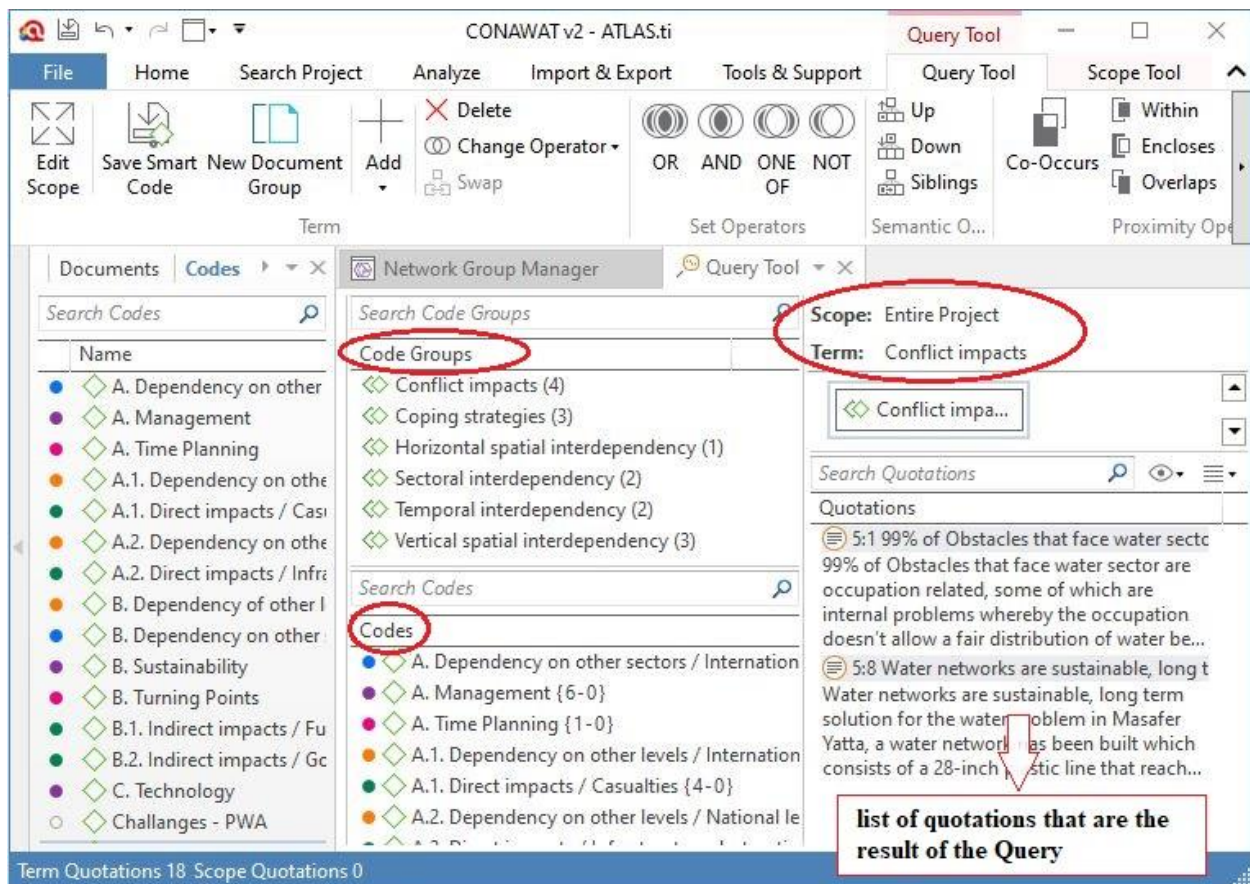


Figure 9. Query tool in ATLAS.ti software that obtains the code groups, codes, the scope and term, and the list of quotations that are the result of the query

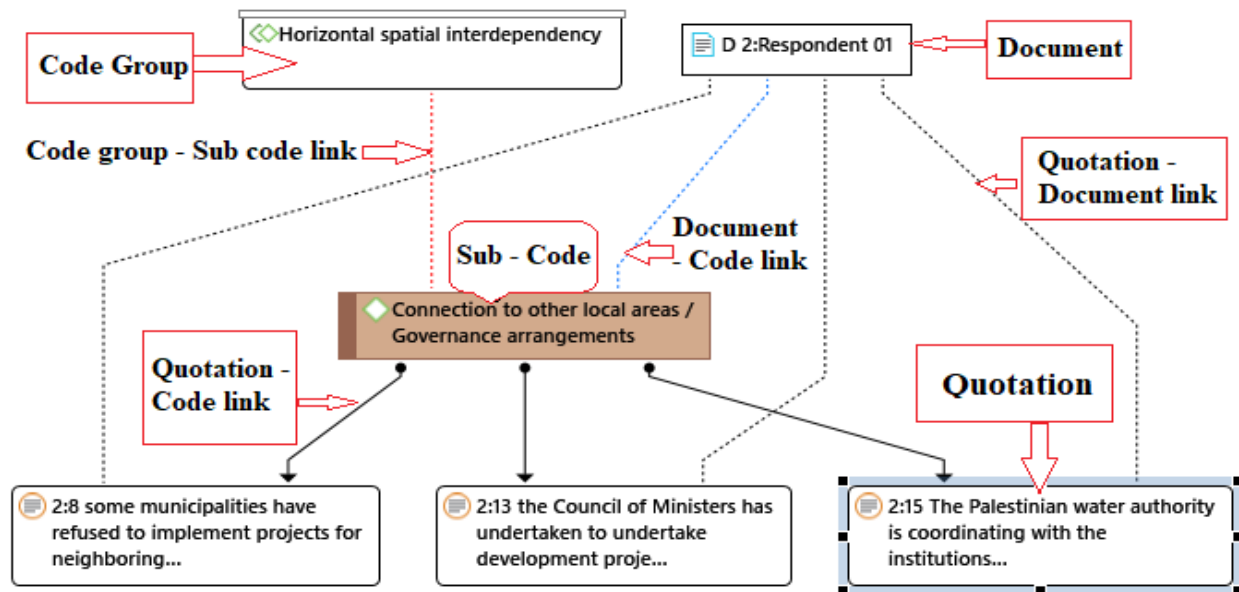


Figure 10. linkages between ATLAS.ti entities (Code group, Sub – Code, Quotation and Document) by using the network tool

This software allows to create a report for all sectors that are encoded in a text file that can be saved separately and/or printed. This makes it easy to look at all the different parts of the text contained in the report and easy access to the text to be read. The report is a complete summary of all the codes, texts, and files that have been entered and dealt with in the software, where the code sets are classified by each group individually with the texts that have been encoded and the source of texts from the files (Figure 11).

With this file of all the segments related to each code or group of codes, the analysis started by looking for the relevant bits for each category to get the overall picture in order to reflect these factors on any local water project, including the case project.

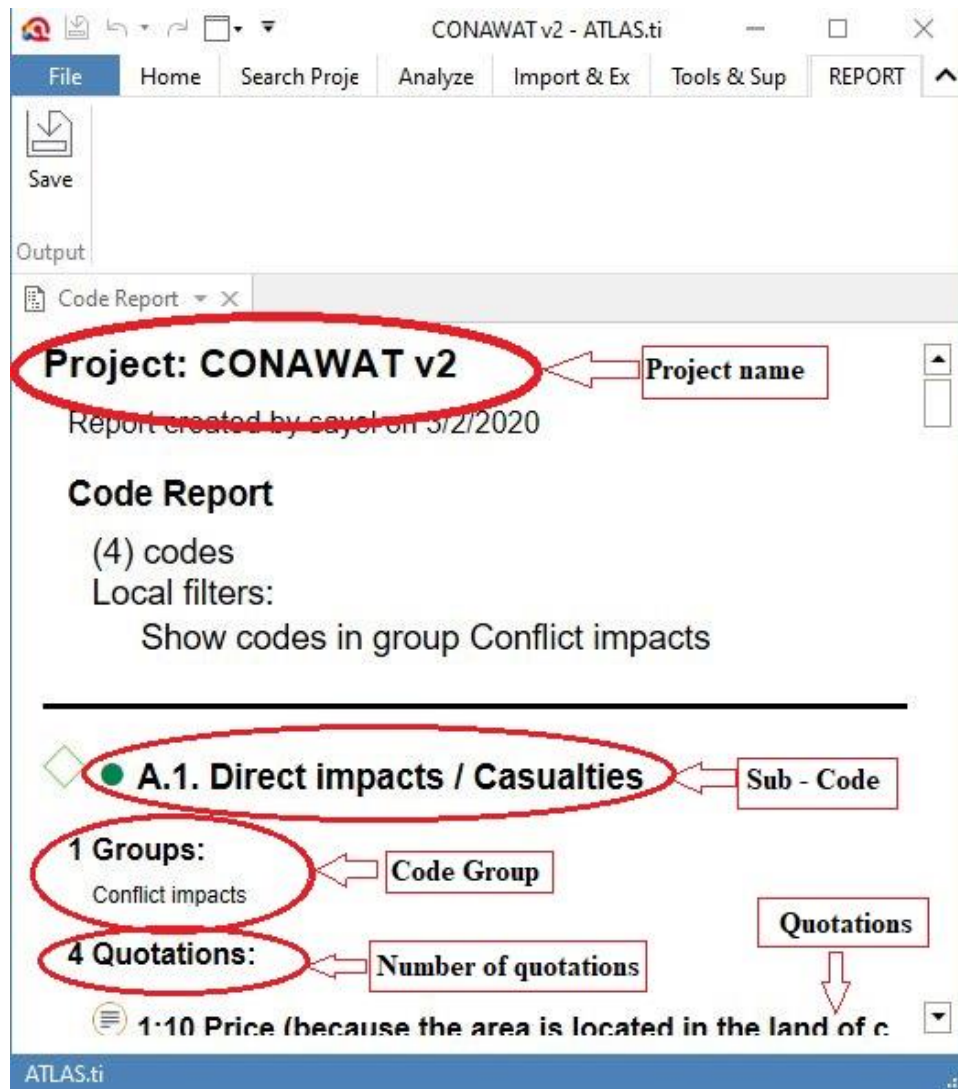


Figure 11. Sample of data analysis report which includes (the Code group, Sub – Codes, the quotations and the number of quotations) by using ATLAS.ti software

Chapter 4

Results and Discussion

4. RESULT AND DISCUSSION

This chapter deals with collected data interpretation and analysis as well as presents the research findings to be used by the policy makers for future planning. The collected data were organized and structured using qualitative analysis software (ATLAS.ti version 8) then the data was analyzed depending on the CIT.

The interviews and the focus group meeting elicited the views of all stakeholders in the water sector at all levels (regional and international NGOs). The interviews and focus group meeting helped to cover water sector issues from all sides and identify real needs compared to the activities carried out. In the following sections, all information is being discussed with details to clarify the relationships between different levels and sectors. The analysis was illustrated into six fields.

4.1. Conflict impacts

4.1.1. Indirect impacts: the funding and governance are the two indirect impacts that influence water management progress in Palestine.

4.1.1.1. Funding

In light of the first impact that lies in the funding, the respondent group 01 from PWA stated that *“it is difficult to obtain funding for the water network building projects in Area C this is because such projects have been destroyed by the Israelis, and some donors need prior Israeli approval for projects to be implemented especially in Area C”*.

This means PA does not have the means to develop the needed infrastructure in Area C therefore national and international NGOs come to innovative solutions and developing policies to be implemented in conflicting areas (Area C) to bridge the gap between what is available and what is needed. To do so two methods were used, the first is to subsidize water price and provide the needed amounts of water-based on humanitarian needs. The second approach was to construct the infrastructure in the restricted area, no matter what the consequences are. The two approaches have proven their functionality with the cons and pros.

4.1.1.2. Governance

Respondent group 03 and respondent group 02 mentioned that *“the other part of shrinking of the humanitarian space is the shrinking posed by the PA, through the accumulation and devolution*

of authority between the different administrative levels dealt with by NGOs, where this situation delays the implementation of projects, creates problems and postponed of activities, etc. Not only at the administrative levels of the ministries, but also at the local level, which includes the community representative, municipalities, governorate, etc., do not cooperate with NGOs and impose certain conditions of cooperation that serve their personal interests in the region. The PA should be enthusiastic about NGOs helping the Palestinian people but instead, they are not, also with the PA, NGOs get approval”.

Respondent group 01 stated that: *“In the coupon project that has been implemented by GVC, there was a voucher management database (coupon Area C database), where information about all beneficiaries were collected in order to regulate the distribution of water to the population in Palestinian communities to ensure efficiency and equitable distribution according to the criteria adopted by the project, the PWA was among the supervisors of this database, but currently, this database is not dealt with by GVC and PWA”.*

Although there is cooperation between the PWA and non-governmental organizations to organize work in Area C, there are many obstacles to the implementation of projects at the government level due to certain considerations that may be political at the Palestinian internal level (local government directorates, municipalities and village councils) or geographical considerations (locating areas to be targeted), where the process of obtaining approval for the implementation of the project in a given area requires a lot of time, which in turn delays the implementation of projects and depends on the duration of the implementation of the projects and what is specified. This is a real obstacle to these NGOs. Therefore, the PWA should establish a mechanism of understanding with the local government and municipalities to facilitate the implementation of projects in the targeted areas and to facilitate the emerged obstacles that might face the NGOs.

The PWA and GVC should reactivate the database and update the information regularly to ensure the equitable distribution of water to beneficiaries regardless of the limited funding or life time of the project.

On the other hand, the respondent 03 states that *“there is a lack of efficiency in work in Area C, and this is the result of the lack of a clear Palestinian policy to follow up on what is happening in those areas, especially when talking about development and sustainability in Area C”.*

On 25 August 2019, the Council of Ministries released a decision to consider Area C as an integral part of the Palestinian Territories (Alsaleh, 2019)(See Appendix 2). However, there is no effective control of the PA over those areas, administratively or militarily. This is one of the most important reasons that hinder the process of water management in Area C, making it difficult to monitor water resources and progress with water distribution and project implementation.

4.1.2. Direct Impacts of conflict: this factor comprises two issues that influence water management progress in Palestine which are the casualties and infrastructure destruction.

4.1.2.1.Casualties

Speaking about casualties (losses) that may occur as a result of the direct impact of the conflict on the implementation of water projects in Area C, respondent group 01 emphasized that *“the need for permits from Israeli side limits the possibility of implementing projects in Area C, and requires permits by the Israeli side to implement projects in Area C can be linked to the difficulty of obtaining funding from donors.”* As a consequence, this action usually leads to lose of funding opportunities.

When we asked about other casualties and impacts of the Israeli actions on the implemented projects and how does it influence the beneficiaries, respondent group 04 stated that, *“when the road to Susya village is closed by the Israeli army, the water tank drivers who are delivering the subsidies water to village faces a problem with the water being delivered, as the road takes two hours in such cases which increase the cost into duple or treble of its original cost, in a normal state, the road takes from a quarter of an hour to half an hour, adding to that closing the main rods force the drivers to take side rods which are unpaved and very rough roads, these rods are considered dangerous to the tank and the driver, increasing the incidents of accidents or even confiscation by the Israeli army”*.

After being forcibly displaced from their original land, the people of Susya lived in an area between the village from which they were displaced and the Israeli settlement of Susya, which was named after the area where it was built, and the citizens again began digging new caves and setting up tents to house their families, and human expansion began for them.

Because of the geographical location of the Susya village and its proximity to the main roads leading to the Israeli settlements, exposure to such attacks mentioned above is normal and is constantly occurring, which is a major problem and the real danger to the residents of the Palestinian community, which is also a major reason for the difficulty of obtaining water either through tanks or even the construction of water networks that serve the assembly, and the consequent increase in water prices and the decrease in quantity as well.

4.1.2.2. Infrastructure destruction

Many of the water projects in Area C have been rejected by the Israeli side, as well as projects that have been implemented without the Israeli army approval was destructed in addition to the destruction of most existing infrastructure, retrospective and infrastructure in implementation, giving orders to stop work and notifications of the demolition of infrastructure projects that are built in Area C (OCHA, 2019).

Respondent group 04 confirmed that *“many of the demolitions and arrests have been given to the work of the old wells restoration projects in Area C. New wells and rehabilitated wells also received demolition orders and have already been demolished. In Susya there are 15 Roman wells in regions where people aren’t allowed to enter without permission from the Israeli Civil Administration (ICA) through some sort of coordination, rarely that people are successful in getting closer to the well in order to pump the water”*.

“In the coupon’s projects, which depend on supplying people with water through trucks, the risk is very high. Trucks are at risk of being confiscated by the Israeli forces. For example, in 2018 a truck was confiscated for more than two months, sometimes tanks are stopped and undergo full inspections which can last for hours”.

The ICA prohibits the construction of water network in Area C, where expanding the water network for the communities is a sustainable solution to the water problem in those areas.

There have been attempts in 2018 to make an ideal and sustainable solution to the problem of water shortages and accessibility in Area C, specifically in Masafer Yatta area. A water network of agricultural nature was established by ACF, which is a 2-inch pipeline of 28 km and extends to all of the 13 communities in the area. The water source is the joint water point of the Masafer Yatta villages council and the Tuwani village council. The project was implemented and operated

for three months, with about 50,000 cubic meters of water pumped in this period for these communities, a very high amount of short duration, which had never been acquired in previous years.

This network was designed to reduce the suffering of the people of Masafer Yatta and underlying the shortage of water, the high-water prices and also to reduce the danger that they are exposed during the transportation of water tanks because of the difficult roads leading to these communities. The discovery of this network by the Israeli army forces lead to a complete destruction of the pipe and prevented the arrival of water for the area of Masafer Yatta.

Working in Area C is a high risk due to the occupation forces; confiscation of equipment and machinery is taken into consideration thus there will be a higher implementation cost of five times in Area C if compared with Area A and B. As indicated by respondent group 02, *“the shrinking of humanitarian space by Israeli army is off rules, they impede the freedom of movement of people, material, building infrastructure, seizure of materials and equipment, arresting people”*.

Masafer Yatta water network project was planned and executed successfully, but after three months of the execution, the network was destroyed by the Israeli army. The risk of demolition was expected because the occupation forces are known to demolish any project in this area as soon as it is discovered.

The Israeli civil violence (settlers) against Palestinian in Area C increased a lot in the last few years and this type of violence is perpetrated by the Israeli military, leading to more shrinking of humanitarian space.

The respondent group 01 points out that *“the demolition of water networks by the Israelis and the insistence of the Israeli side to do this, documents the relationship between infrastructure destruction and lack of funding.”*

Respondent group 02 confirmed that *“in the project planning there are always some risks that may face the foundation during the implementation of the project regardless of its type, water networks or well digging. Such risks include destruction and demolition reports, completely stopping projects. But usually the foundation has alternative plans in case of demolition, such plans include pursuing legal action against demolition orders in order to save the project.”*

According to the report of GVC about Susya village, for water resources the community depends on rainwater harvesting cisterns and purchasing water tankers, where one cubic meter costs 35 NIS (10\$). During the life time of the coupon project, the community is fully dependent on coupon water distribution project funded by UNICEF and implemented by GVC, where one cubic meter costs 10 NIS (2.9\$). There are around 40 cisterns owned by the Susya community located in the confiscated area, but the Susya people are suffering from access restrictions to these wells. The ICA asks them to access these cisterns as an alternative source of water, but on the other hand they refuse to give them approval for access and keep giving unconvincing excuses for that (GVC, 2016).

4.2. Sectoral interdependency

This factor discusses the dependency on the political sector represented by international politics and national politics and its importance in water management in Palestine.

4.2.1. International politics

In this context, respondent group 01 states that *“the projects are all carried out under the humanitarian tincture, lately, donors avoid funding long-term projects and require Israeli approval to implement projects in targeted areas, especially Area C, even donors didn’t engage in discussion with the Israelis because often the project period ends without getting approval.”*

Respondent group 02 confirmed that *“the projects implemented in water supply for Area C depend on the mandate of the donors, for example when GVC get funds from UNICEF to do water distribution, UNICEF mandate is human use, so water only for human use, the people they receive water they do what they want with water but the purpose is for human use, for other projects, for example, Italian cooperation funds development project, GVC is rehabilitating pipeline for irrigation, rehabilitating land for cultivation, rainwater harvesting for whatever use, etc. sometimes GVC have constraints from the donors mandate which is purpose only human. other times it’s up to the beneficiary to use water whatever way he wants”.*

In its policy to support projects implemented in Areas C, donors require that the aim of implementing these projects be for human use only as in water projects, and this policy plays a major role in determining the course of NGOs operating in the water sector.

It should be noted that the quantities provided through water projects for Palestinian communities in Masfer Yatta and Susya are mainly for human use without the domestic use, which leads them to buy water by tankers, the use of water in these communities is not limited to human use but also to livestock, which they depend mainly on in their economy, where they consume about 75% of the available water, which is excluded from water projects in accordance with the policies of the donor.

To illustrate that for example, in coupon project the water quantity for the one family consists of 13 persons, for a project 90 days = $(30L * 13 * 90) = 35.100$ L just for human use without the domestic use, if this family having 100 heads of livestock, each head needs 6 L/d (UAWC, 2013). So, the water quantity needed for livestock in 90 days = $6L * 100 * 90 = 54.000$ L.

4.2.2. National politics

Respondent group 01 confirmed that *“the Council of Ministers has undertaken measures to develop projects in Area C. This is because they constitute the largest proportion of the Palestinian land area and are the areas of development, the decision of the Council of Ministers to work in the territory of Area C is not excluded from the use of projects for certain political considerations. The PWA is coordinating with the institutions that work in the water sector following the projects and priorities in Palestine, national and sectoral strategies.”*

Projects are distributed in a way that guarantees geographical distribution and all areas are covered by water projects. The number of local and international institutions is 15. GVC is one of those institutions that work in the water sector. PWA worked with them and with ACF to put a master plan, they made field visits, take notes from locals living in Area C, study how interventions can make difference in these areas either by supplying the communities with water networks or water tanks or wells. GVC's work depends on the needs of Area C. They determine the most vulnerable community and supply them with water. After GVC gets support from UNICEF, communities are studied to determine the potential of implementing the project, parties agree to start work in some areas, after that they communicate with the West Bank Water Department (WBWD) in the West Bank to determine the nearest distributions points to the targeted communities in a way that guarantees least cost. An MoU is then signed between the water authority and the GVC, local council, Joint Services Council (JSC) and WBWD. After determining the targeted communities and the amount of water a coupon system (the philosophy

of coupons) is created and every citizen pays 10 NIS (2.9\$) per cubic meter of water. The water authority sells water to the municipalities for 4 NIS (1.2\$) per cubic meter, JSC prepares a daily-consolidated Delivery Request List (DRL) summarizing the pending requests and organizes the deliveries accordingly. The truck drivers receive from the JSC for every trip a DRL and the coupons. Choosing tanks depend on many factors like the condition of the tank, permit, qualified driver. Every tank, the driver has his own file which kept at GVC and PWA, the tax police start their work through the starting of the practical stage of the project, they check the quality of the tank and water quality.

According to the assigned Filling Point (FP) indicated in the coupon (or backup source), the trucks collect the water from the FPs while the operator of the FP fills the FP logbook and fills and stamps the coupons. Water is delivered to the beneficiary who sign the coupon and hands it to the truck driver. Trucks deliver the two coupons (signed and stamped) to the JSC Which updates the information in the database on a daily bases and delivers the coupons (signed and stamped) - together with reports about water distribution – to the GVC to assure that the water is distributed as specified in the beneficiaries' lists prepared and signed beforehand.

At the final stage of the project, a meeting is held with the implementing association to assess the work and study the obstacles faced in the project. Another workshop is done to study the project with some concerning parties like the Ministry of Health, Ministry of Local Governance (MOLG), local institutions that will benefit from the project, also with the WBWD, work procedure is discussed and the amount of water is determined.

Represented 03 mentioned that *“the 2014 water law gives the control right to over three provisions”*:

1. *“Price control: the prices of water tanks are supposed to be set by the water regulations council and within the framework of the transparency law and not from the owners of the tank. The reason that restricts the council from doing its job is the absence of a Palestinian tariff law”*. The water authority impedes the issuance of the law, the Palestinian water regulation council is supposed to have the right to control prices and tariffs starting from the year 2014. The price of one cubic meter of water sold by water tanks is usually 35 NIS (10\$) in Area C, which indicates that it is a tool for expelling not supporting of the citizens living there.

2. *“Permission System: has not been issued yet because of the rejection from the PWA, the water authority is not interested in such a system. If such a system gets implemented the council will be responsible for supervising every aspect of the operations like managerial and financial control of the water suppliers in Area C also control over water quality”.*
3. *“Transparency and accountability in the water sector to control any thefts of water through a system that is a part of the water regulation council in the West Bank including Area C. Starting on 1/1/2019 a price control system has been implemented in the water sector; full support has been given by the Prime Minister”.*

Respondent group 02 observed that *“with the PA, GVC gets approval. GVC coordinates with them and there is another example of a shrinking humanitarian space. A few times the approval for a project took three months or four months”.*

4.3. Vertical spatial interdependency

This factor discusses the dependency on international and national levels, the dependency of the levels on LWMP (Local water management project) based on large – scale programs, and its importance in water management in Palestine.

4.3.1. Dependency on other levels

4.3.1.1. Dependency on international level

In light of the dependency on other levels that lies in the international level, respondent group 01 states that *“there has been some hardship in getting funds to build water networks in the area so the best solution was to supply the communities with water by water tanks through an MoU between the PWA, GVC and UNICEF, lately, donors avoid funding long-term projects and require Israeli approval to implement projects in targeted areas, especially Area C, even donors didn’t engage in discussion with the Israelis because often the project period ends without getting approval.”*

Respondent group 02 pointed that *“the donor approval of projects depends on the individual policy of donor itself, and its objectives in supporting the project. USAID for example doesn't work in Area C, nor does it support any projects in Area C”.*

Some donors however intended to the people regardless of where they live, project proposal is presented to the donors with a risk analysis that may face the project, depends on these factors the project is either approved or rejected.

This means that the funding relaying on the international level of dependence will limit the functionality of the NGOs supporting the humanitarian needs of the Palestinians in Area C in case if the project being supported is very high risk and drains the project budget to no avail.

4.3.1.2. Dependency on national level

In talking about the dependency on the national level, respondent 03 noted that *“Area C suffers from the absence of an official party that could oversee the process of supplying citizens with water. Right now, there’s No authority or municipalities, there is no full management of water resources in Area C, the PA only manages water problems (water crisis), has only control of dug wells and there is no possibility to dig new wells due to Israeli restrictions and must obtain licenses to approve the drilling in all areas of the West Bank and not only in Area C, so there is no Palestinian control over water”*.

“The water department sells about 1 MCM per year, only 15% of the water from the wells controlled and the rest is purchased from Mekorot, and the evidence of chaos and lack of regulation and absence of censorship that the water department in PWA buys the CM of water of 3.6 NIS (0.94\$) from Mekorot and sells it in the amount of 2.8 NIS (0.73\$) as loss and the water department in Jerusalem buys a cubic meter of water with the amount of 5.5 NIS (1.43\$) from HAGIHON Company (Jerusalem Region Water and Wastewater Utility) and sells at cheaper prices”.

In the same context, respondent group 02 recommended that *“to sustain and ensure the continuity of projects in Area C, most of its stays behind accountability of the PA. The PA is not accountable for what they should be accountable for in Area C. Under accountability you can find participation from beneficiaries, you can find commitment, if you have a project with a little money and the PA is not able to support it, is not a matter of the quantity of money, it’s a matter attitude”*

This means that there should be official representation of the PWA in Area C to prevent the manipulation of water prices in that area whether there are water projects implemented through

NGOs or not, the water sector in Area C suffers from a lack of regulation and management, allowing some contractors who supply water to communities there to exercise monopoly and increase water prices.

The PWA can apply to the Prime Minister to establish a competent authority for Area C to manage and follow up on affairs and issues related to the water sector and organize it in a way that ensures the achievement of justice, and submit periodic reports to the competent authorities to achieve the requirement of supervision and the functioning of the recommended laws.

4.3.2. Dependency of other levels on LWMP – large scale programs

Water master plan in Area C has been developed by GVC and ACF in coordination with PWA. The roles implementation of the master plan in Area C was divided between GVC and ACF. The vision of the master plan was to develop solutions to secure water needs through innovated workable solutions through connecting communities to water networks and if not possible to allocate water via tankers. The plan analyzed 247 communities in the WB (72 communities) targeted by GVC and 175 communities targeted by ACF in order to provide technical solutions to connect them to water networks. Besides Area C Water Master Plan, the water authority is a strategic partner for GVC and ACF and for water suppliers with main objective is to regulate the water sector in Area C.

Planning a comprehensive strategy for the water sector with the water authority in order to find a solution for the sector in the southern regions through programs that have been partially implemented, also increasing the capacity of the PWA employees in their office across Hebron. This can be achieved through training and supplying them with new smart tools to detect water leakage and control water amounts, such training included water suppliers' offices.

Respondent 02 confirmed that *“working in Area C comes a part of a clear plan with the PWA and NGO’s. this is why Masafer Yatta is an approved project by the water authority that intends to serve a strategic aim for the water authority in its efforts to supply water to the Palestinian homes through water networks not tankers, the tankers are a secondary solution in case of a missing water network. Water networks are sustainable, long term solution for the water problem in Masafer Yatta”*.

4.4. Horizontal spatial interdependency

This factor discusses the connection to other local areas includes resource sharing on other levels. In this context, respondent group 01 states that *“some municipalities have refused to implement projects for neighboring municipalities, such as supplying a particular municipality with a water network that requires the passage of this network from another area, it is within the conditions of such municipalities to benefit from the project in exchange for permitting the supply of water systems to another town through its territory.”*

This point is also an obstacle to the implementation of the projects and a reason for delaying their implementation, and in order to avoid this problem, it is necessary to establish a mechanism of understanding between the municipalities, local government and the PWA so that this memorandum of understanding allows the implementation of the projects without problems.

4.5. Temporal interdependency

This factor has two issues that affect the implementation of water projects in the targeted areas which are time planning and turning point.

4.5.1. Time planning

Obtaining permits from the Israeli side to carry out projects in Area C takes a long time and may not be obtained as explained by respondent group 01, so most projects expire before the permit is obtained. Some NGOs take it upon themselves to implement the projects in Area C without authorization from the Israeli side, and bear the risks that may be exposed to them and also explain to the donor to ensure support for the implementation of the project. In 2017, there was a new agreement in the JWC which allow PWA to work in Area C without permissions. However, the problem continued with ICA where they need permits.

Respondent group 01 stated that *“the biggest challenge faced regarding the long-term planning of the water sector is the Israeli side that controls the execution of projects in Area C, where no project is carried out until after obtaining permission from the Israelis to start work there. These permits are obtained only after lengthy negotiations many years. The negotiation process has been suspended since 2009.”*

The adoption of such a measure by NGOs allows for the maintenance of the project time and the possibility of implementing it in a shorter time and achieving the goal of meeting the needs of the target community, even if there is any objection or attack on the project from the Israeli side, the necessary measures are taken at the same time by adopting alternative plans or resorting to the judiciary, which is one of the things that are taken into account when planning the implementation of projects in Area C.

4.5.2. Turning points

In talking about water in Al-Msafer and Susya area beyond the year 2000, and based on the decision of the Israeli High Court of Justice (IHCJ) to keep citizens in these places in Area C, where this decision did not clarify how the citizens will live and did not specify the basic necessities of life that will help them to live in those areas, including water and sanitation infrastructure, this decision, in view of the living conditions of citizens in these areas, allowed the intervention of a group of international institutions to find human livelihoods for citizens in those areas at various levels, the first water intervention by the Environmental Resources Management Corporation (ERM) was British-supported, where the project was based on the restoration of old and historic wells in those areas, in addition, GVC and ACF institutions have significant activities in improving the quality of life in these areas. The activities included enhancing the quantity and quality of water through the restoration and rehabilitation of wells and the possibility of finding ways and solutions to deliver water to these areas through various projects, including water network projects and coupons project.

From the respondent group 04 standpoint, *“there is no improvement in the projects, where previously it was better, individuals are now requested to pay a symbolic amount of money in return for their rationed share of water, while previously the projects were implemented through the Red Cross as humanitarian projects and the water reaches the citizen for free”*.

From another perspective, the respondent group 01 said that *“the current situation is better for the population of communities in the Area C in terms of regulating the quantities of water reaching these communities and in terms of water quality as well by knowing the source of water and conducting tanks checks in an organized process under the supervision of several actors.”*

On the other hand, and from a totally different standpoint of respondent 03: *“Nothing has changed in practice in the reality of water in Area C, but the Palestinian Water law in 2014*

defined the terms of reference and created more than one entity to formally work in the water sector, including the National Water Company (NWC), the National Directorate of Water in Palestine (NDWP), which operates separately from the Palestinian Water Authority, and the Water Authority sets out regulations, laws, national legislation and plans. However, the full provisions of the Water law 2014 have not been fully implemented”.

“On the other hand, for temporary water projects implemented by civil society and international support institutions such as Spain providing support for the coupon project as well as Italy, the current situation means that this is not the typical solution to the water problem in that region. Such solutions are contrary to development and against all efforts to keep citizens on their land”.

This indicates that some of the projects that have been implemented previously and are currently being implemented are temporary projects and emergency response projects, not sustainability projects, and do not support a sustainable solution to the problem of water shortage in Area C.

However, it cannot be concluded that these projects do not work to stabilize citizens on their land. On the contrary, the implementation of such projects contributes to the stability of citizens in their lands and is an essential part of their resilience, despite the demolition, confiscation and suspension of the projects. On the other hand, the management of these projects should be strengthened through more structured cooperation between the PWA and NGOs to ensure that Palestinian communities are provided with the quantities that meet the needs of citizens on all aspects, at their real prices.

4.6. Coping strategies

Which consist of three sections, management, sustainability and technology.

4.6.1. Management

Respondent group 04 mentioned that *“the quantities of water aren’t enough to fully cover people needs, but some project akin to the coupons project has made available some large quantities of water, quantities are decided based on the size of the family, some families are given only 10 CM, others are given 20 CM for personal use only, when the project is done many people are forced to buy highly expensive water that may reach up to 300 NIS (87\$) per 10 CM”*

Water is used during the project only with the allocated amount. If a citizen needs more water, he or she can buy it on their own. The joint services council is responsible for providing the water

that is used in the project. The important intervention that has occurred in the past period is the coupon project sponsored by the GVC. Coupons are based on the fact that wells are insufficient to cover people's needs, and rainfall shortages occur in winter. As a result, it is necessary to provide people with water when it is mostly needed (especially in summer), and at the same time the water must be of high quality. This project has solved a big problem during summer. Through coupons work is regulated and a fair distribution is guaranteed, people can buy coupons (10 NIS (2.9\$) per coupon is the beneficiary's contribution) based on their needs, which in itself is determined by the project. Coupons are provided to the community through Yatta's service council, coupon notebooks are received by the head of the council, every resident of the community takes a coupon in exchange for 100 NIS (29\$), quantity is determined based on the size of the family as mentioned earlier, the truck driver is provided with the names of the people who bought the coupons and their location, the truck is owned by Masafer Yatta council, the truck then delivers the water to the people and takes a receipt and handed them over to the council.

For example, if the driver hands over 10 receipts to the head of the council, it is known that 10 people were supplied with water. The head of the council in turn hands over all receipts to the service council.

On the other hand, during the year 2018 there have been attempts to make a sustainable water solution for Masafer Yatta residents through implementing new water network. This project was implemented by ACF as an emergency project, but the network was destroyed by the Israeli forces.

Respondent group 02, mentioned that *“when NGOs does projects in Area C, they apply mitigation measures, regarding work in a specific condition before working they do the risk analysis to know what to do in case of receiving the demolition order, stop-work order, etc.”*. NGOs do project implementation through a known working plan for community implementation, which analyzes all the steps that NGOs should take in order to sustain the resources, for example, work with flexibility, working on Saturdays, or working two different shifts rather than one shift. In terms of community involvement respondent group 02 said that *“People and beneficiaries in Area C targeted at water projects are now more aware of the legal steps in the Israeli legal process, knowing that they must refer to a lawyer who will file a legal challenge in the Israeli*

court in order to commute or postpone demolition orders if they receive such notices. Increasing people's legal awareness of receiving these orders is also part of NGOs intervention."

The administrative policy that NGOs deal with in Area C ensures the continuity of the implementation of projects despite the harassment of projects by the Israeli forces there, whether through demolition orders, suspension of work or even initiating the demolition of the project, in which case the institutions follow the above-mentioned measures as a precautionary order to preserve the project.

On the other hand, from the respondent 03 standpoint *"the typical solution should be an agreement with the Israeli side that includes specifying water filling points that will be under Palestinians control, not the settlers. Also, an agreement should guarantee the availability of a water network and if this is hard to achieve then water tanks should be the alternative, such tanks should be close to Palestinian areas with control over quantity and price."* In the current situation, the procedures of agreements and negotiations with the Israeli side are very difficult, so it is necessary to arrange the Palestinian matter internally with regard to water in Area C and how to organize the process of distribution of water fair and control prices.

4.6.2. Sustainability

Respondent group 02, emphasized that *"the sustainability of projects in Area C depends on the type of the intervention, because if you implement just an emergency intervention you don't look at sustainability, you look at life-saving activities. while if you talk about the development intervention, you have to have a big sustainable component."*

GVC approach follows the protection model from the International Committee of the Red Cross (ICRC), which is divided into three steps:

1. Immediate intervention, lifesaving.
2. Remedial intervention which is providing sustainability to the immediate intervention.
3. Environmental building interventions that create the environment within the other interventions can be sustained.

For example, people living in Area C should not rely only on the humanitarian aid, but they have to advocate for their rights toward the ministries and this is the ultimate label of sustainability because the ultimate goal of the government is building the society, building the state and

providing service to their people regardless of the area they live in (A, B or C). On the other hand, the respondent from ACF said that *“the projects in Area C are sustainable projects but have a human nature. The water sector is very important and working in this sector by these foundations is an unregulated random work”*.

The majority of the projects come usually as a sudden response to an urgent problem and thus don't have a sustainable nature. Respondent group 02 said *“We have to find creative solutions in order to give the people their food security, all living needs and water related rights, most of the projects provide basic primitive support, the typical solution includes connecting people in Area C to the water network, this is an undisputed solution”*.

4.6.3. Technology

The type of projects that implemented in Susya and Masafer Yatta were projects of rehabilitation of wells, water filters for every house in the communities, and coupons. Masafer Yatta has a humanitarian problem that has always been related to water, regarding services the occupation is working to displace the area with all forces possible, on the infrastructure level water is one of the key issues that face the region.

Respondent group 01 confirmed that *“the difficulty of working water networks in Area C lies in the source dimension of the community and the presence of a large distance (km) between them, and the presence of settlements in those areas, so the alternative solution was the tanks, where ACF emphasized that the tankers are a secondary solution in case of a missing network”*.

Respondent 03 mentioned that *“each municipality has its own wells, the West Bank Water Department sells about million cubic meters of water annually, 15% of this water comes from wells owned by the municipality as well as from private agricultural wells and springs, the rest purchased from Mekorot (Israeli water company)”*

The use of tanks is one of the coping strategies adopted in cases of inability to implement projects to extend the water networks to the Palestinian communities in the Areas C as a function of the obstacles imposed by Israel, lessons learned were adopted mainly in the coupon project, which was a successful plan to bridge the gap between what is required and what is available as much as possible.

Chapter 5

Conclusions and Recommendations

5. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions drawn from the result chapter, recommendations were drawn out in order to improve the local water management in the Area C and overcoming obstacles through planning and implementing interventions in the water sector.

5.1. Conclusions

The main objective of this research was assessing the impact of the geopolitical factors on local water management in the West Bank, and determine whether these factors can be treated as obstacles or opportunities for the water management to alleviate water scarcity in Area C.

Moreover, the strength of this research is to take advantage of the experience of water actors in overcoming the different issues facing all stages of any water-related projects, and this leads to the establishment of some guidance and dealing with a follow-up mechanism in case of facing any similar circumstances 'lessons learned'.

The Outcomes of the Stakeholders and Experts Review was summarized to answer the research question, which is; “How do the geopolitical constraints in Area C affect water management and supply projects in the West Bank, Palestine?”, as follow:

Examining the relationships among the organizations that are operating in the water sector that affect local water management in the West Bank, and based on the CIT theory, and in answering the first and second objectives of the study, which are, respectively “to identify the geopolitical factors and their influence on collection and distribution of water in Area C, to evaluate the sustainable policies in selected WASH projects in Area C”, the following was concluded: The intersection between the horizontal spatial interdependency connection in the governance

arrangement and vertical spatial interdependency rely on the international level. As far as funding agency policy and its effect on the type of projects to be supported are concerned, it is found that there are some difficulties in obtaining funds to build water networks in Area C due to the demolition of these networks by Israeli forces. Recently, some donors have avoided funding long-term projects and are seeking Israeli approval to implement projects in targeted areas, especially Area C. This includes previous donors who have ended their involvement in discussions with the Israeli side about giving permits to implementing projects in such areas which turned out to be a very complicated especially due to the fact that Israel is announcing the annexation of Area C. As a part of the coping strategies, NGOs effective solution in collaboration with the Palestinian Water Authority was to supply water to Palestinian communities in Area C by tankers.

In response to the third objective of the study, which is; “to study the effectiveness of local water management projects by identifying mechanisms that reflect on the political context of the Palestinian situation”. The intersection between horizontal spatial interdependency (connection of the governance arrangements) and vertical spatial interdependency (the dependency on the national level) shows that PWA coordinates with organizations working in the water sector based on the priorities of the projects in Palestine based on national and sectoral strategies. Water projects are distributed in a way that takes into consideration the geographical distributions of the areas that will be a target.

At the same time, the council of ministers embarked on developing projects in Area C as detailed in a decision published on August, 25th 2019. Accordingly, there are no aspects of the Palestinian political system that affect work in Area C that are contrary to the ICA, where Area C constitutes the bulk of the Palestinian land area and the development area. On the other hand, Area C suffers from the absence of an official party, such as a regional authority or municipalities, which oversees the provision of water to citizens. This hinders the water management process in Area C in terms of monitoring and progress in water distribution and project implementation.

Finding ways to end the Palestinian-Israeli conflict is a prerequisite for a good and sustainable management of the water resources in Area C. It is important to pay attention to the Palestinian policies, which resulted from the political instability and poor cooperation between the various administrative bodies in the PA. The PWA may currently work in coordinating the process of

implementing water projects with NGOs, but the implementation mechanism needs to be more organized to achieve higher efficiency in water distribution and management.

This research was limited to West Bank, so the results are affected by the Palestinian narrative. If more research is carried out researching the Israel narrative, this will help the Palestinians to defend their position and prove their rights, which can lead to a better overview of the situation.

Other limitations that the research was faced such as; difficulties in accessing data which resulted in some numbers and statistics being out of date, difficulties in validating some data, which resulted in repeated interviews with officials and decision makers of deferent levels within the same institution, and the lack of any official body representing Area C or in charge of coordinating people's life in the area.

Similar research in other conflict regions can help in a better understanding of how the political attitudes will in turn affect the water resource management and the related policy processes.

5.2. Recommendations

It is clear that Israel plays a major role in setting back Palestinians efforts to manage their own water resources. Without Palestine's full control over water resources the current situation will continue and as will the suffering of the Palestinian people.

1. All actors involved in managing water in Palestine should work together in a better way to ensure effective and sustainable management of water resources in Area C, and there must be integration in the functions and roles of the water sectors, both governmental and NGOs. These functions and roles should be represented by the PWA. Such role lies in the development of policies and labor legislation in Area C and periodic or annual reports to the Council of Ministers. The main role of local government is to manage the sale and purchase of water. Finally, the role of the province and the municipal council is to manage the control force of the water distribution in the required quantities and quality and to provide an implementation of policies and legislation provided by the PWA.
2. The PWA should step up its support for beneficiaries through increasing water quantity per each coupon. So that quantities are not limited to human use only, but also take into account livestock.
3. In the absence of a water networks and when there are difficulties in implementing or establishing water networks in Area C, PWA should:
a. Ensure an equitable distribution of water between areas in the West Bank, by activating the database for coupons management, which is a software with the aim of counting data related to all beneficiaries, and therefore planning, implementing, and monitoring the water distribution through a reliable system, assuring efficiency, equity and prevent the manipulation of water prices in Area C.
b. Improving collection wells located in Area C and the work of new collection wells with low depth (rainwater harvesting), allows citizens to collect large amounts of water during the winter in order to meet the need during the spring period and reduce the need to buy water in tanks in larger quantities.
4. Establishment of the water company in a way that allows it to do its business as described in the 2014 water law to provide all needed information to close the water gap in conflicting Area.

5. The PWA should support projects implemented by NGO's institutions by providing the necessary facilities to implement projects on time, and organizing the water distribution process according to the requirements of the projects.
6. The Palestinian water providers in cooperation with PWA should allocate mobilization points in Areas A and B that may be close to Palestinian communities in Area C to facilitate the collection and transportation of water to Area C.

REFERENCE

- Abdellatif, M. (2015). *Water Management in Africa: Nile River Basin Case Study and the Modern Water Disputes*. Germany: HafenCity University Hamburg.
- ACF. (2019). *Community Profile: Khirber al Majaz Communit, Hebron Governorate*. Palestine : Action Against Hunger .
- Allouche, J. (2014). The Role of Informal Service Providers in Post-Conflict Reconstruction and State Building. In J. J. Erika Weinthal, *Water and Post-Conflict Peacebuilding* (pp. 31–42). New York.
- Alsaleh, M. (2019). *Generalization Regarding Structural Plans*. Ramallah: Ministry of Local Government.
- Anderson, L. G. (2017). *Global Water Crisis* . Hamilton, Canada : United Nations University Institute for Water, Environment and Health .
- ARIJ. (2009). *At Tuwani & Mosfaret Yatta Profile*. Palestine: The Applied Research Institute – Jerusalem.
- ARIJ. (2012). *Water Resource Allocations in the Occupied Palestinian Territory: Responding to Israeli Claims*. Bethlehem : Applied Research Institute - Jerusalem.
- ARIJ. (2015). *Status of The Environment In The State of Palestine*. Bethlehem: Applied Research Institute - Jerusalem.
- Arsenault, D., & Green, J. (2007). Effects of the Separation Barrier on the Viability of a Future Palestinian State. In H. D. Hillel Shuval, *Water Resources in the Middle East, Israel-Palestinian Water Issues — From Conflict to Cooperation* (pp. 273-282). Springer, Berlin, Heidelberg.
- Birzeit University. (2013). *Water in Palestine*. Ramallah.
- Boelens, R., Hoogesteger, J., Swyngedouw, E., Vos, J., & Wester, P. (2016). Hydrosocial territories: a political ecology perspective . *Water International*, Vol. 41, No. 1, 1-14.
- Bressers, H. (2009). From public administration to policy networks: Contextual. In F. V. Stéphane Nahrath, *Rediscovering Public Law and Public Administration in Comparative Policy Analysis: A Tribute to Peter Knoepfel* (pp. 123-142). Lausanne: Presses polytechniques.
- Bressers, H., & Boer, C. d. (2013). Contextual Interaction Theory for Assessing Water Governance, Policy and Knowledge Transfer. *Water governance, policy and knowledge transfer: international studies on contextual water management*.
- Brynard, P. (2005). Policy implementation : lessons for service delivery. *Journal of Public Administration*, 649 - 664.
- B'Tselem. (2017, November 11). *The Separation Barrier*. Retrieved from B'Tselem; the Israeli Information Center for Human Rights in the Occupied Territories:
https://www.btselem.org/separation_barrier
- Centre, I. G. (2015). *Transboundary aquifers of the World Map 2015*. Retrieved from http://www.un-igrac.org/sites/default/files/resources/files/TBAmmap_2015.pdf

- CIA. (2019, June 11). *the World FactBook* . Retrieved from Central Intelligence Agency :
<https://www.cia.gov/library/publications/the-world-factbook/geos/we.html>
- EPRS. (2016). *Water In The Israeli - Palestinian Conflict* . European Parliamentary Research Service .
- Frenkel, E. (2017). WATEC 2017 V.I.P. Water in the Digital Age: Vision, Innovation, Practice. *WATEC Israel*. Tel Aviv.
- GVC. (2014). *Local Management and Good Governance to Improve Water Distribution* . Gruppo di Volontariato Civile .
- GVC. (2016). *Susya Community Fact Sheet*. Palestine: Gruppo di Volontariato Civile.
- GVC. (2017). *the Gender - Differentiated Impact of WASH Programming* . Palestine: Gruppo di Volontariato Civile .
- GVC. (2019). *Community Profile; Halaweh, Hebron Governorate*. Palestin : Gruppo di Volontariato Civile.
- Harris, L. M. (2002). Water and Conflict Geographies of the Southeastern Anatolia Project. *Society and Natural Resources*, vol. 15, no. 8, 743-759.
- Harris, L. M., & Alatout, S. (2010). Negotiating hydro-scales, forging states: Comparison of the upper Tigris/Euphrates and Jordan River basins. *Political Geography*, vol. 29, no. 3, 148-156.
- Ingram, H. G. (2011). Beyond universal remedies for good water governance: a political and contextual approach HEIEN INGRAM. In *Water for Food in a Changing World* (pp. 241-261). New York: Routledge.
- Jarrar, S. (2019). Adaptation Under Occupation; Climate Change Vulnerability in the Occupied Palestinian Territory. *Al-Haq*, 14-15.
- Keskinen, M., Chinvanho, S., Kumm, M., Nuorteva, P., Snidvongs, A., Varis, O., & Stila, K. V. (2010). Climate change and water resources in the Lower Mekong River Basin: putting adaptation into the context. *Journal of Water and Climate Change*, vol. 1, no. 2., 103–116.
- Mahmoud Rahil, B. N. (2012). Water Crisis and Agricultural Development in Palestine. Tulkarm, Palestine: Palestine Technical University-Kadoorie.
- Mercedes Melon . (2018). *Settling Area C: the Jordan Valley Exposed*. Ramallah: Al-Haq Organisation.
- OCHA. (2019, April 15). *Demolitions in West Bank undermine access to water*. Retrieved from United Nation Office for the Coordination of Humanitarian Affairs:
<https://www.ochaopt.org/content/demolitions-west-bank-undermine-access-water>
- Ostrom, E. (2007). A Diagnostic Approach for Going Beyond Panaceas. *Proceedings of the National Academy of Sciences*, 104(39), 15181-15187.
- Owens, K. A., & Bressers, H. (2013). A Comparative Analysis of How Actors Implement: Testing the Contextual Interaction Theory in 48 Cases of Wetland Restoration. *Journal of Comparative Policy Analysis: Research and Practice*, 203–219.

- PASSIA. (2012). *Area C, The Key to The Two - State Solution* . Jerusalem : Palestinian Academic Society for The Study of International Affairs .
- PCBS. (2014, May 22). *Theme for World Water Day 2014 is "Water and Energy"*. Retrieved from The Palestinian Central Bureau of Statistics:
<https://www.pcbs.gov.ps/post.aspx?lang=en&ItemID=1058>
- PCBS. (2019a, March 30). *Ms. Awad highlights the 43rd Annual Commemoration of Land Day in Statistical Figures*. Retrieved from The Palestinian Central Bureau of Statistics:
<http://www.pcbs.gov.ps/post.aspx?lang=en&ItemID=3429>
- PCBS. (2019b, March 22). *On the Occasion of World Water Day, March 22, PCBS and PWA Issue A Press Release. The UN Announced that the Theme of World Water Day 2019, is "Leaving No One Behind...Water for All"*. Retrieved from The Palestinian Central Bureau of Statistics:
<http://www.pcbs.gov.ps/site/512/default.aspx?lang=en&ItemID=3419>
- Petersen-Perlman, J. D., Veilleux, J. C., & Wolf, A. T. (2017). *International water conflict and cooperation: challenges and opportunities, Water International*. USA: Taylor and Francis Online.
- Pinera, J.-F., & Reed, R. (2014). A Tale of Two Cities: Restoring Water Services in Kabul and Monrovia. In J. J. Erika Weinthal, *Water and Post-Conflict Peacebuilding* (pp. 43-62). New York.
- PWA. (1999). *The Palestinian Environmental Law* . Palestine: Palestinian Water Authority.
- PWA. (2012). *Palestinian Water Sector: Status Summary Report*. Palestine : Palestinian Water Authority .
- PWA. (2013a). *Transboundary Water Resources Strategy*. Palestine: Palestinian Water Authority.
- PWA. (2013b). *National Water Policy for Palestine*. Palestine: Palestine National Authority.
- PWA. (2014). *the New Palestinian water Law* . Palestine: Palestine National Authority.
- PWA. (2016). *Water Sector Perform Plan* . Palestine: Palestinian Water Authority.
- PWA. (2016). *Water Sector Reform Plan 2016 - 2018*. Palestine: Palestinian Water Authority .
- PWA, ACF, & GVC. (2017). *Water Master Plan for the South and North-East Communities of the West Bank Specifically Area C (2017-2035)*. Palestine.
- Rogers, J. G. (2009). *Water and Conflict*. USA: Catholic Relief Services.
- Schilling, J., Opiyo, F. , & Scheffran, J. (2012). Raiding pastoral livelihoods: motives and effects of violent conflict in north-western Kenya. *Pastoralism: Research, Policy and Practice*, vol. 2, no. 25.
- Schillinger, J. (2016). *Adapting to Water Scarcity in the Israeli-Palestinian Conflict, An Analysis of the Influence of Conflict on Water Governance and the Implementation of Adaptation Strategies*.
- Shah , T., & Koppen, B. V. (2006). Is India Ripe for Integrated Water Resources Management? Fitting Water Policy to National Development Context. *Economic and Political Weekly*, Vol. 41, No. 31, 3413-3421.

- The World Bank. (2009). *Assessment of Restrictions on Palestinian Water Sector Development*. USA: The International Bank for Reconstruction and Development; The World Bank.
- UAWC. (2013). *Raising Sheep and Goats*. Hebron: Union of Agricultural Work Committees .
- UNDP. (2016). *Joint UN Strategy for Hebron*. Palestine: United Nations Development Programme.
- Vivekenanda, J., Schilling, J., & Smith, D. (2014). Understanding Resilience in Climate Change and Conflict Affected Regions of Nepal. *Geopolitics*, vol. 19, no. 4, 911-936.
- (2015). *Water Governance In Palestine*. Palestine .

APPENDICIES

APPENDIX 1: INTERVIEW QUESTIONS

**APPENDIX 2: COUNCIL OF MINISTRIES DECISION ABOUT
AREA C**

APPENDIX 3: ATLAS.TI ANALYSIS (CODE GROUPS NETWORKS)

APPENDIX 1: INTERVIEW QUESTIONS

For the PWA

Since the Palestinian Water Authority is responsible for the water sector in the West Bank, what are the challenges facing the Palestinian Water Authority during the planning of the long-term water sector?

- While supervising the projects concerned with water, what obstacles they face in the stages of construction or operation?
- How political problems affect the plans and policies specific to the water sector?
- Are there aspects of the political system that affect your work?
- Are there exceptions to projects due to political obstacles?
- Have the amounts of the available funds changed over the years?
- Does the funding agency policy affect the type of projects to be supported?
- What are the turning points in local water management over the past years? What factors led to this or regression?
- What are the basic requirements that affect the PWA's decision to accept a project?
- What is their position concerning internal politics in Palestine?
- Where does the water come from that is consumed by the local population?

For NGO

- What projects have you implemented in area C?
- What problems have you encountered in the process of implementing projects in area C, what are the obstacles and risks that you take into account during the planning and execution of projects in area C?
- Are current projects implemented in area C are sustainable projects?
- Are certain approvals from political parties (Israeli government, Palestinian Authority, Joint Water Committee) being taken to direct work, project execution or planning of projects?
- Are your projects in water supply for area C limited only on to human use?
- What is your role in the area C water master plan with the Palestinian Water Authority?
- Do you have specific recommendations to sustain and ensure the continuity of projects in area C?

For Local Beneficiaries

Category 1: Mayors

- What types of projects have you benefited from?
- Is the project covering your needs during the implementation period (e.g. construction of a pipeline or any other Water infrastructure)?
- Have you encountered any problem as a delay in the arrival of resources throughout the project period (e.g. arrival resources of project and drilling the land)?
- Has one of these problems provoked the stop (standby) of the project? Has the project been stopped by external cause? What are the causes of these problems? Are these problems related to the political restrictions due to Palestinian Context?
- Out of the project, what is your water source (well, rainwater harvesting cistern, tank, tanker, pipeline, natural spring, desalination plant, subsidized water by truck)? Do you have a primary and a secondary water source?
- Do the political issues between Palestinians and Israelis affect the projects implemented during the past years?
- There has been an improvement in project implementation?
- Are projects affected by wars and political situations?

Category 2: Community Members

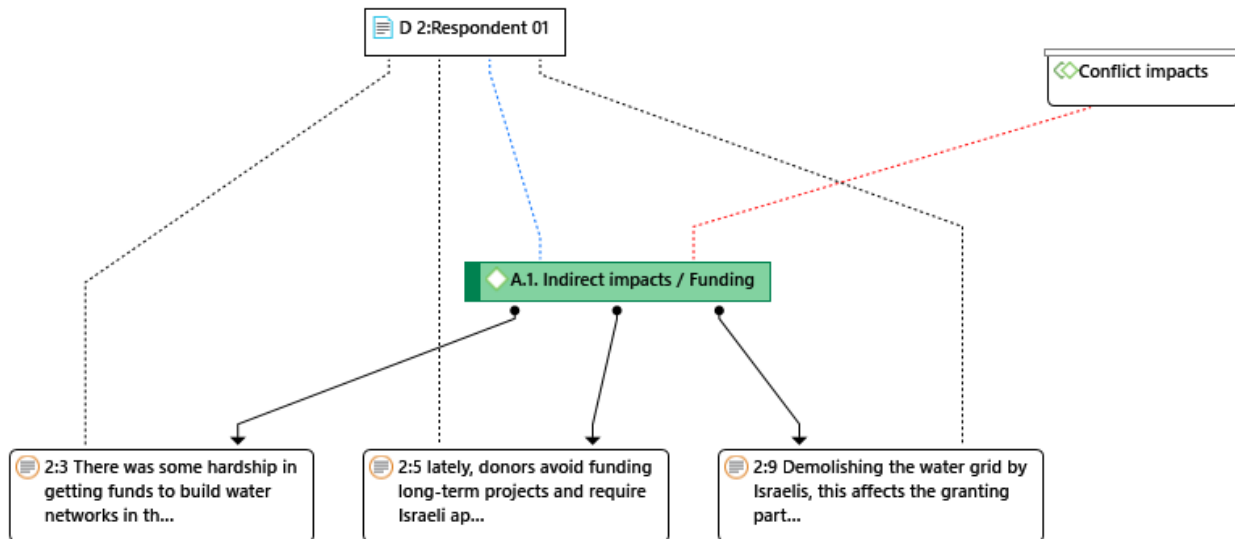
- Do you have a way to store water, a well or a water tank?! And is your dependence on water available only for the purchase of water tanks or are there other sources, e.g. rainwater harvesting?
- What problems do you face concerning water, such as late arrival of water from the time of demand, water quality, water quantity (sufficient or insufficient), and do water projects cover your water needs or not?
- What is the price of the water tank and what is its capacity, and is the price of the tank different each time or is there stability on one price?

For WSRC

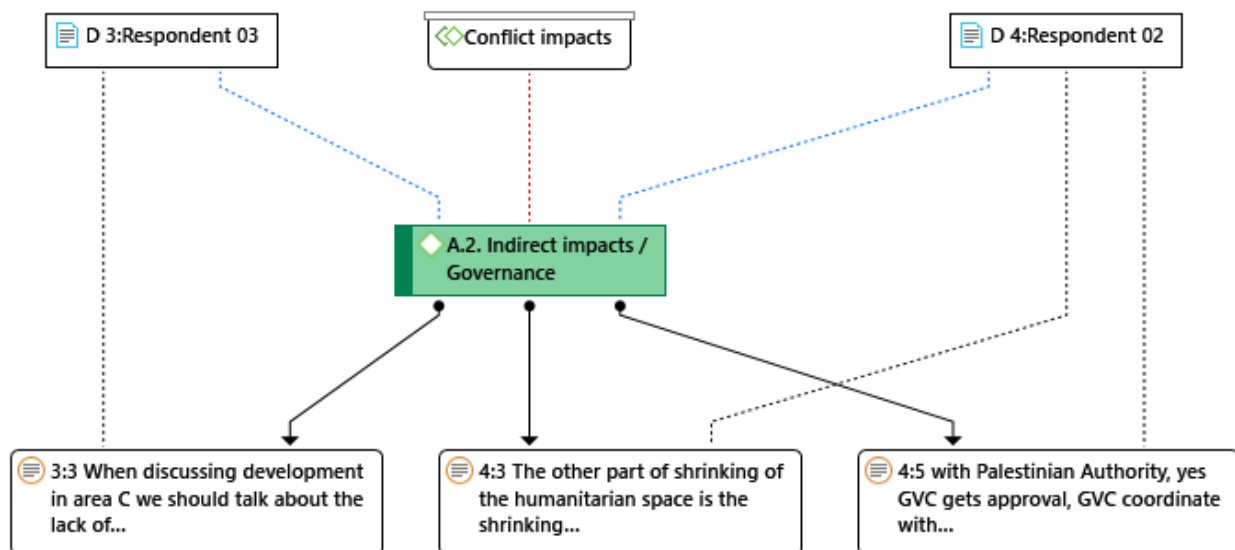
- Are there aspects of the political system that affect your work?
- What are the turning points in local water management over the past years?

APPENDIX 3: ATLAS.TI ANALYSIS (CODE GROUPS NETWORKS)

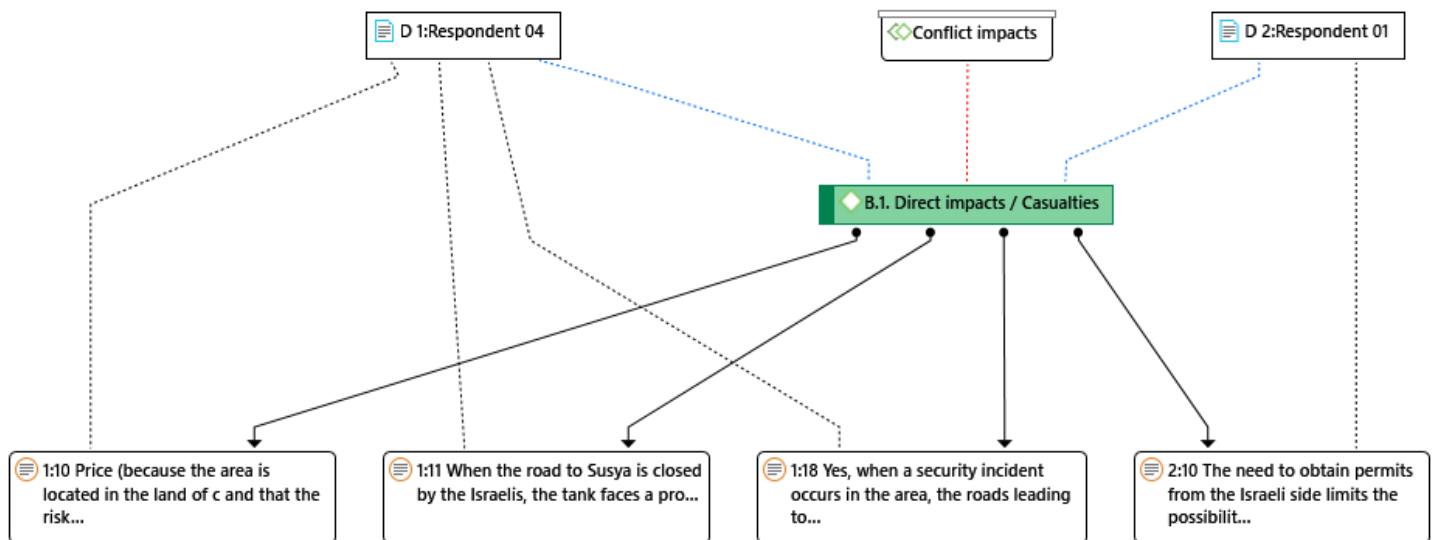
1. The network of group code of indirect impact that related to the funding



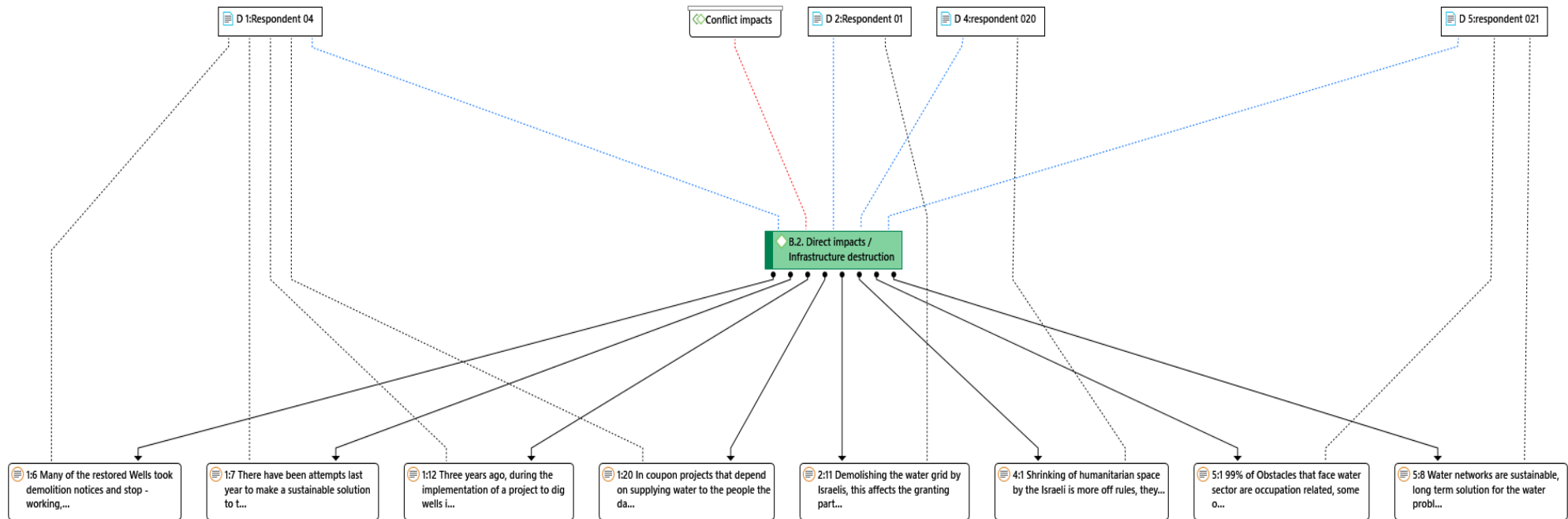
2. The network of group code of indirect impact that related to the governance



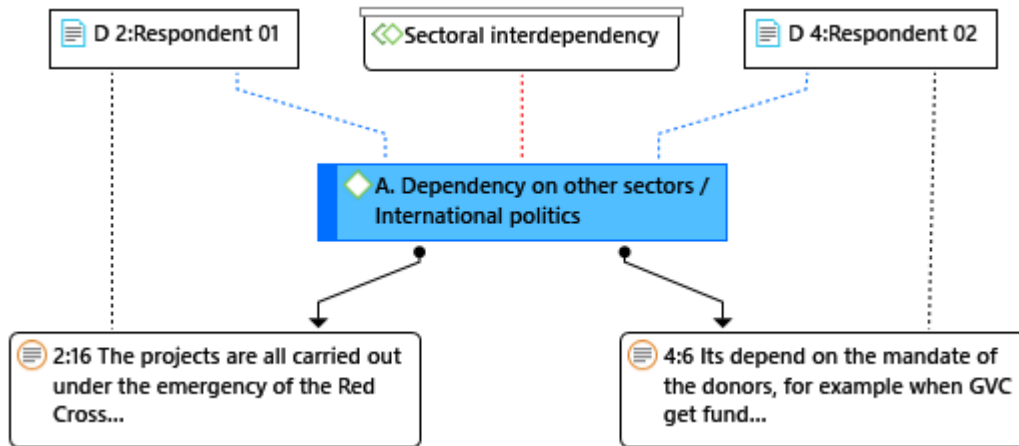
3. The network of group code of direct impact that related to casualties



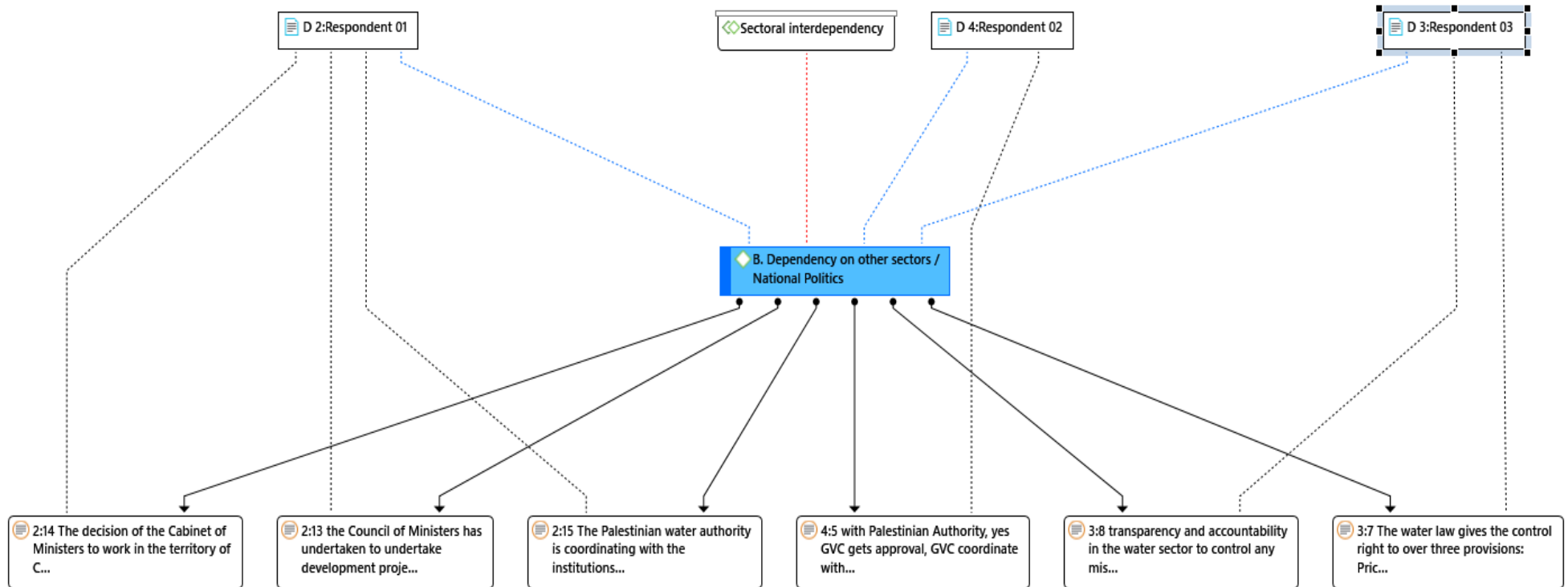
4. The network of group code of direct impact that related to infrastructure destruction



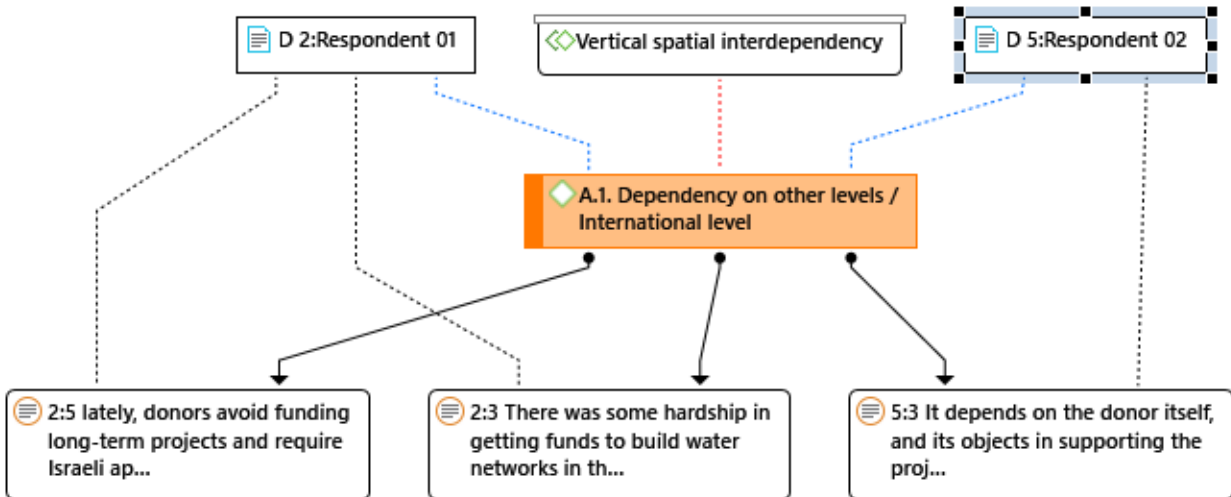
5. The Network of Group Code of Sectoral Interdependency related to Dependency on international politics



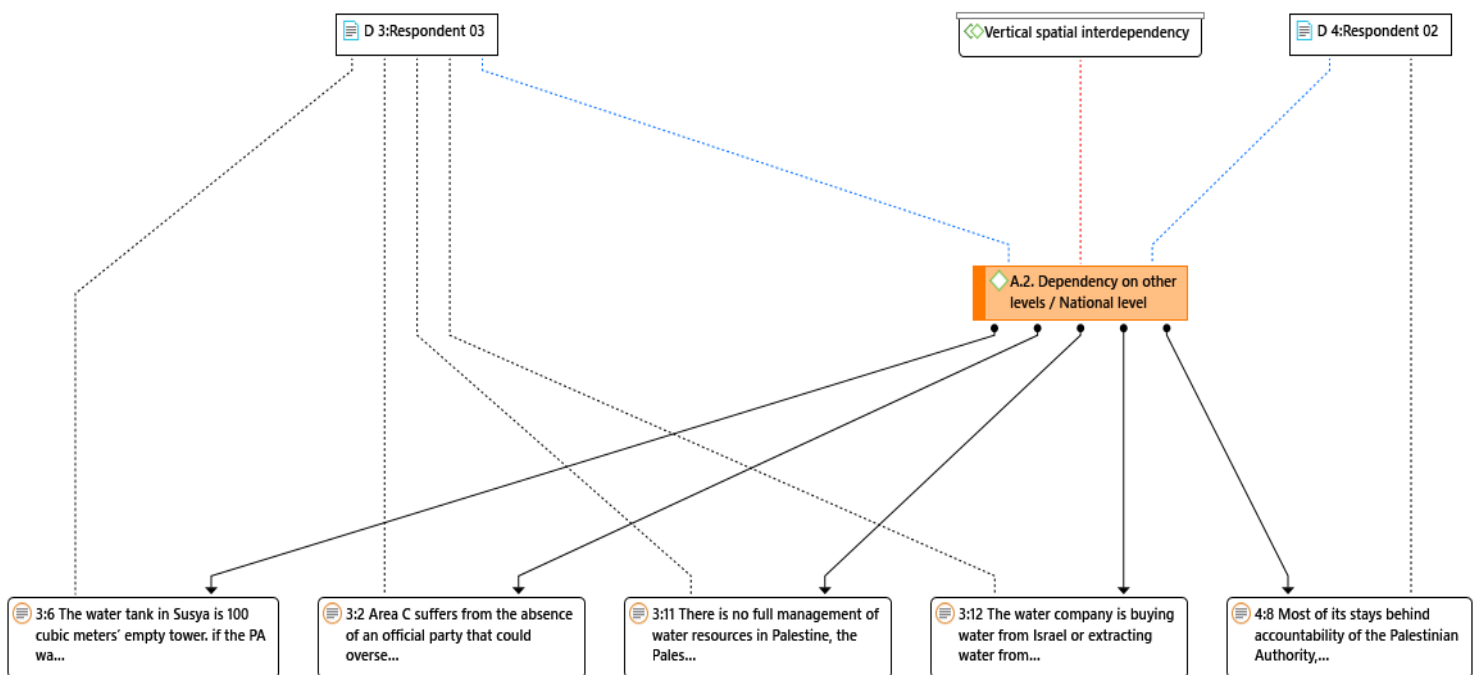
6. The Network of Group Code of Sectoral Interdependency related to Dependency on national politics



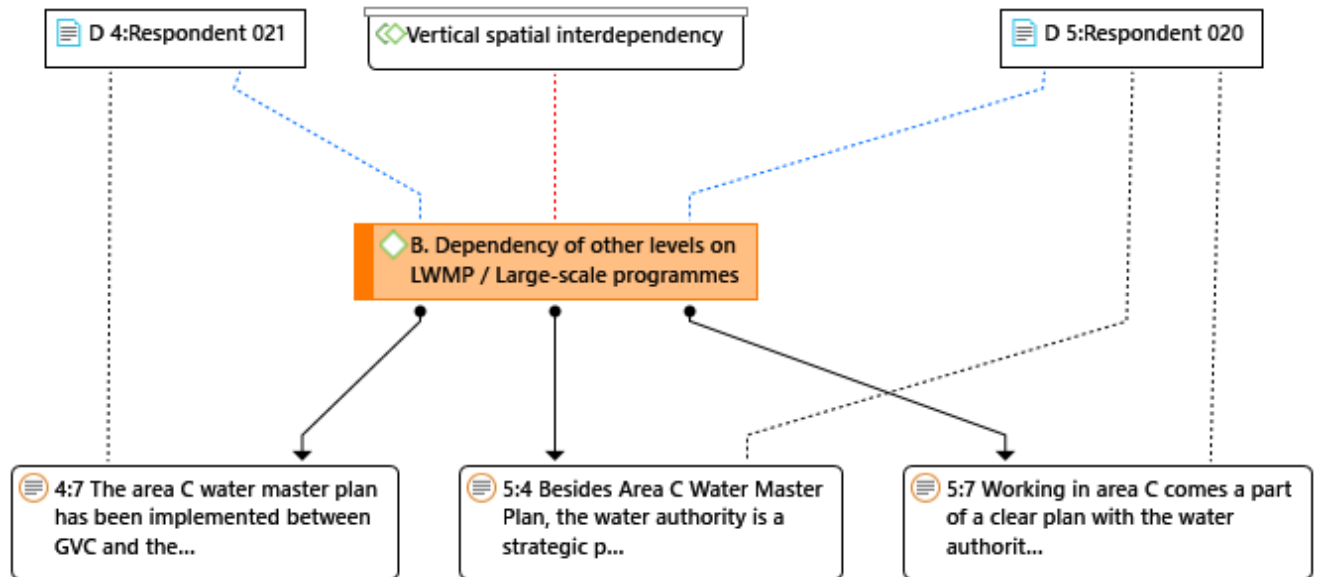
7. The Network of Group Code of Vertical Spatial Interdependency lies into dependency on international level



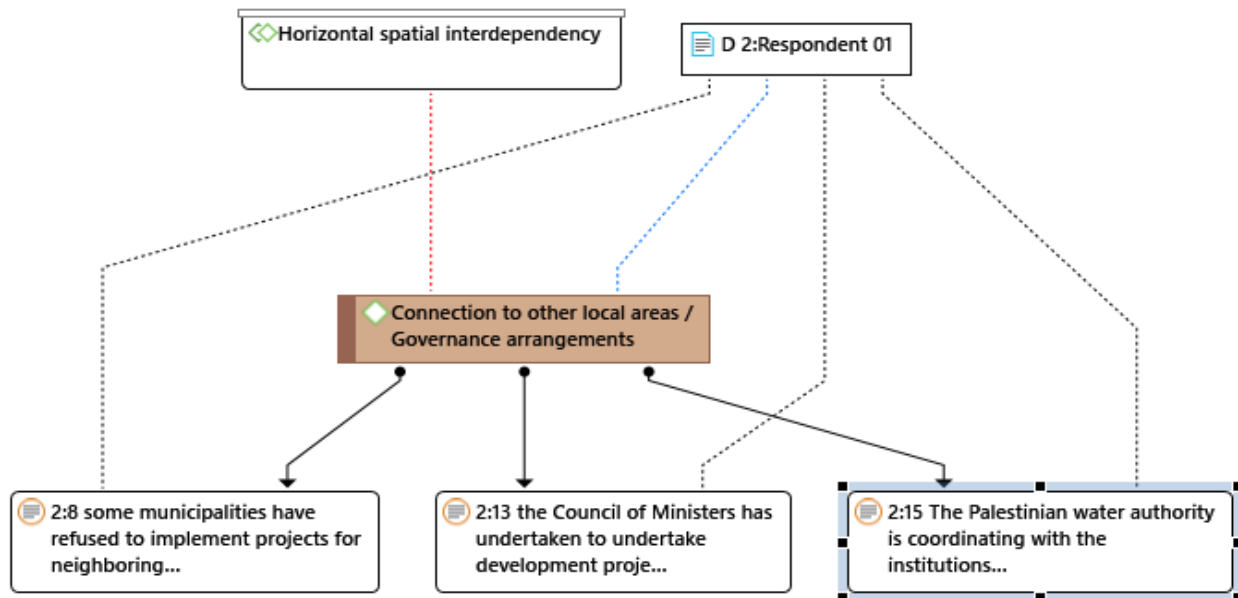
8. The Network of Group Code of Vertical Spatial Interdependency related to dependency on national level



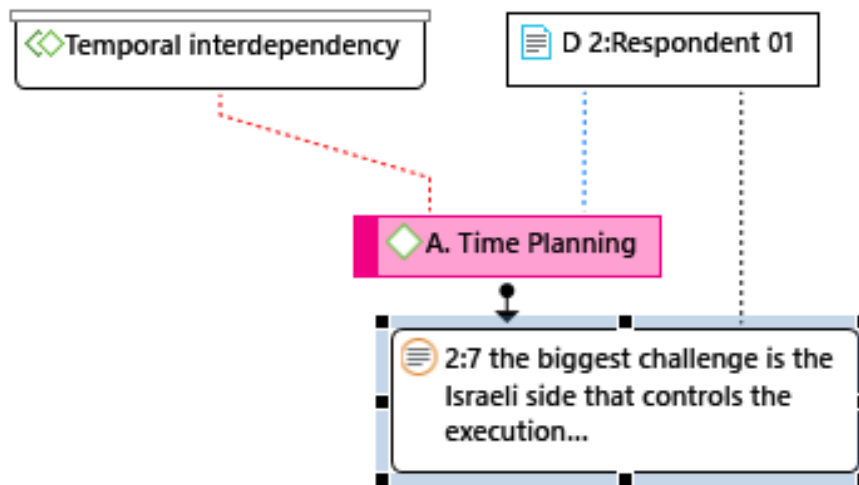
9. The Network of Group Code of Vertical Spatial Interdependency related to dependency on large-scale programs



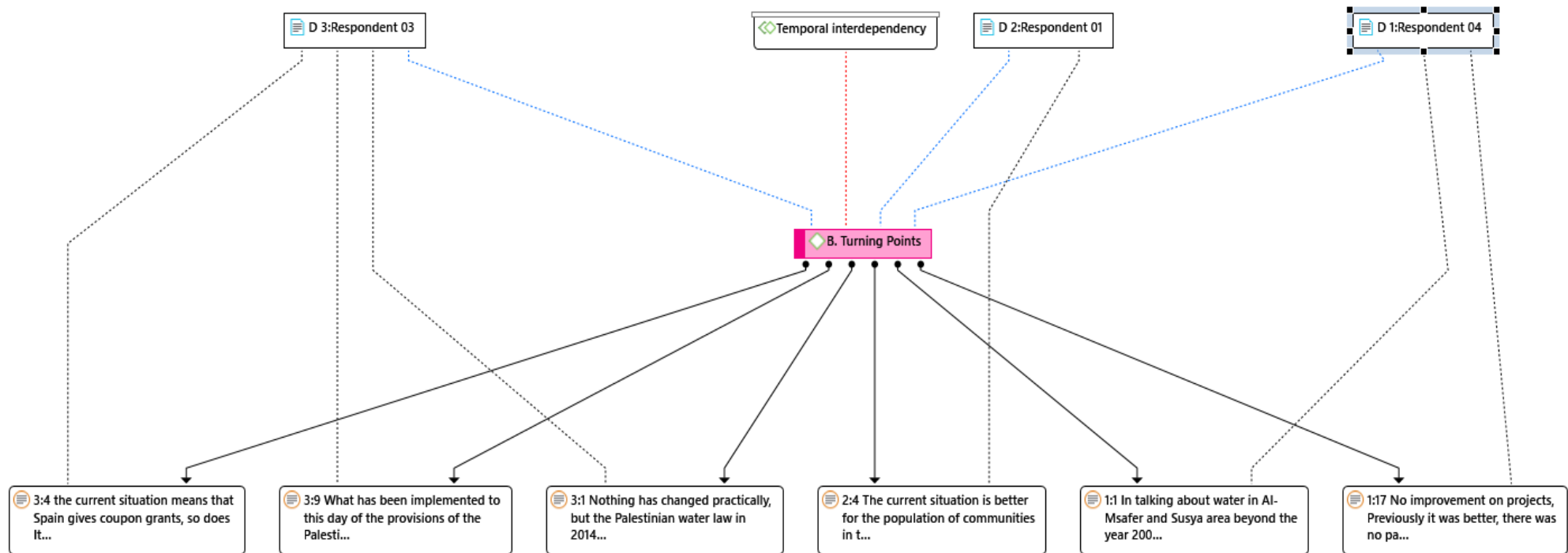
10. The Network of Group Code of Horizontal Spatial Interdependency



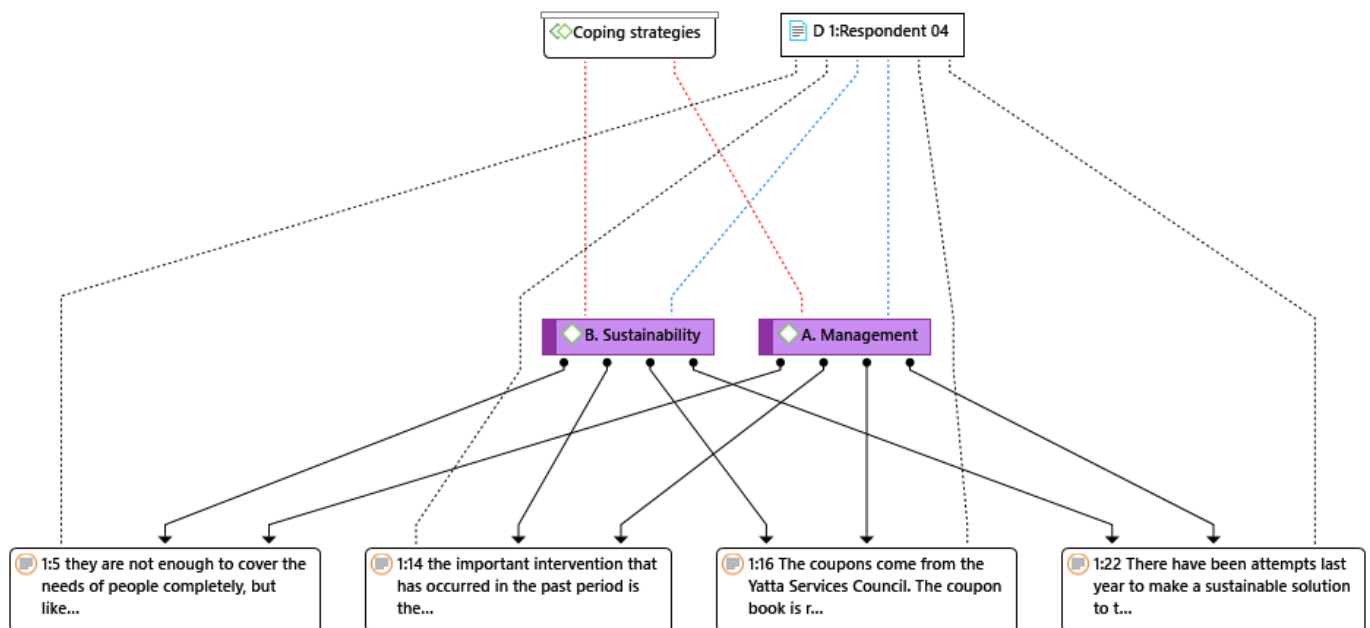
11. The Network of Group Code of Temporal Interdependency related to time planning



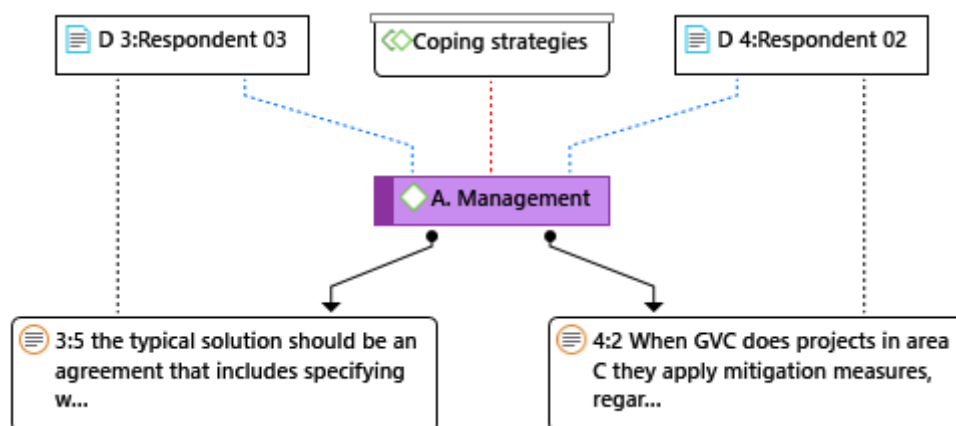
12. The Network of Group Code of Temporal Interdependency related to turning point



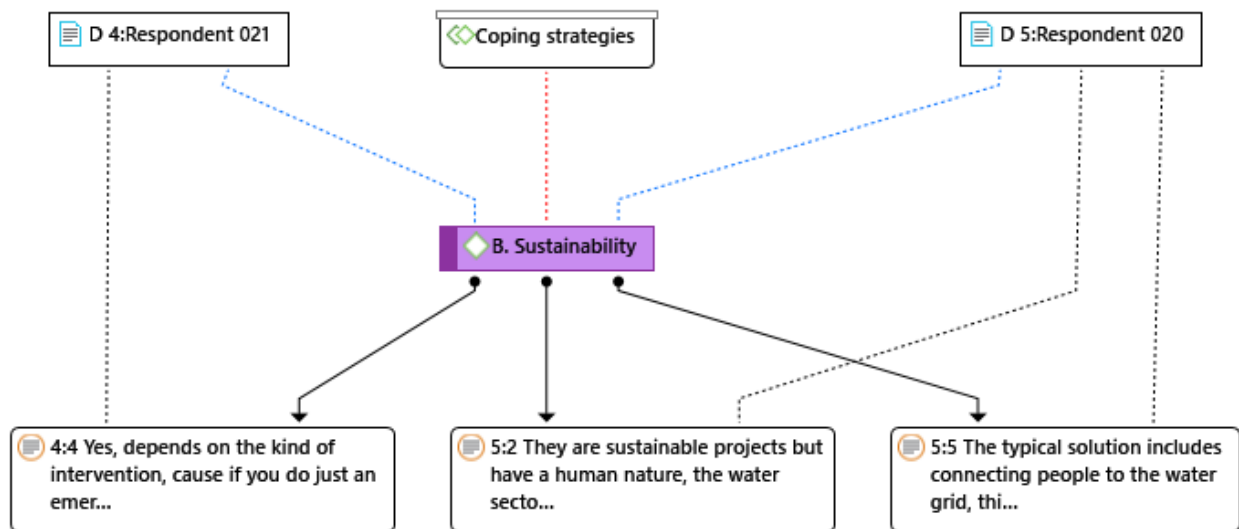
13. The Network of Group code of Coping Strategies related to management and sustainability



14. The Network of Group code of Coping Strategies related to management



15. The Network of Group code of Coping Strategies related to sustainability



16. The Network of Group code of Coping Strategies related to technology

