


Water, Cooperation, and Peace

American University School of International Service
Summer 2013 Practicum

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Acronyms and Abbreviations

AIES	Arava Institute for Environmental Studies
CA	Israeli Civil Administration
CIS	Center for Israel Studies
CTWM	Center for Transboundary Water Management
DC	District of Columbia
FOEME	Friends of the Earth Middle East
GDP	Gross Domestic Product
GEP	Global Environmental Politics
IPCRI	Israel/Palestine Center for Research and Information
JWC	Joint Water Commission
MCM	Million Cubic Meters
NGO	Non-Governmental Organization
PPI	Positive Peace Index
PWEG	Palestinian Wastewater Engineers Group
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WRAP	Water Resources Action Project

Acknowledgements

The practicum team would like to recognize and thank the Center for Transboundary Water Management of the Arava Institute for Environmental Studies and the Palestinian Wastewater Engineers Group for their expertise and support.

Appreciation is also expressed to all the partner staff, project beneficiaries, technical experts, mayors and municipal staff, government representatives, and the many other individuals involved in making this practicum a success.

Financial support has been provided by:
American University School of International Service
American University School of International Service Global Environmental Politics (GEP) Program
American University Center for Israel Studies (CIS)
Water Resources Action Project (WRAP)
Lea Shabat, Artist, Montreal, Canada

Special thanks to the Practicum advisors:
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Executive Summary

Study Background Information

This report presents original research carried out as part of a graduate practicum organized by the American University School of International Service. The practicum brought together eight graduate students from a range of academic backgrounds to investigate shared interests in water, cooperation and peace. Its primary objective is to assess the peacebuilding significance of a cooperative Israeli-Palestinian wastewater management initiative between the Arava Institute for Environmental Studies (AIES), an Israeli-based environmental organization, and the Palestinian Wastewater Engineers Group (PWEG), a Palestinian-run organization working in the water and solid waste sectors.

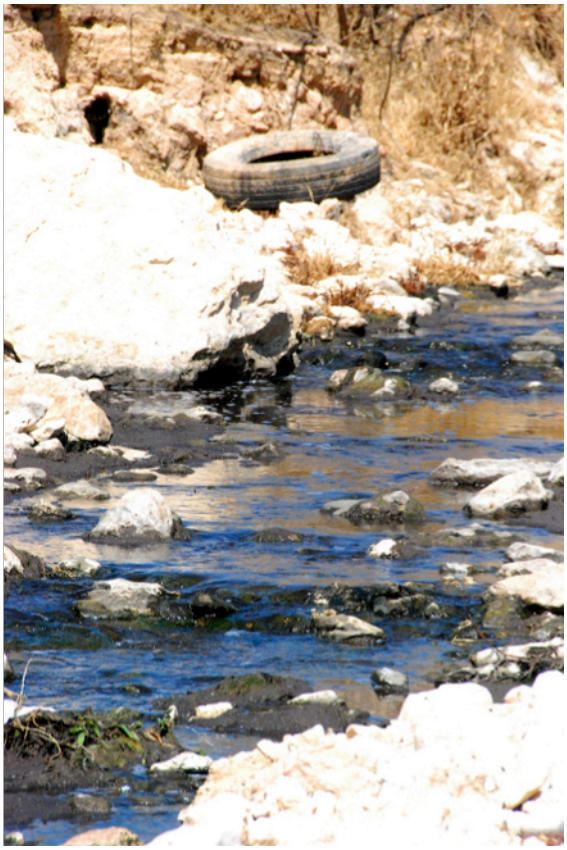
Roman-era water conveyance system in Battir (photo credit: Moses Jackson)

Chapter 1

Section 1.1 outlines the context within which AIES and PWEG are engaging in their work. The AIES/PWEG initiative operates in an asymmetrical conflict environment characterized by Israeli hydro-hegemony. Israel, the downstream riparian in a shared aquifer system, disproportionately controls scarce water resources. The Joint Water Committee (JWC) established during the 1995 Oslo Accords is criticized for reproducing rather than reducing Israeli hydro-hegemony, effectively hindering the development of Palestinian water infrastructure. By all accounts, wastewater infrastructure is sorely lacking in the Palestinian West Bank.

Transboundary flows require transboundary cooperation, as untreated or inadequately treated wastewater can have significant environmental and public health impacts on both sides of the Green Line. The AIES/PWEG initiative is designed to address this concern by providing a decentralized, collaborative model for sustainable wastewater infrastructure in the Palestinian West Bank. The initiative brings together Israelis, represented by AIES, and Palestinians, represented by PWEG, to facilitate low-cost graywater recycling technology in Palestinian households that are not connected to centralized wastewater treatment facilities.

Section 1.2 details the study's theoretical foundation and methodology. In order to assess the peacebuilding significance of the AIES/PWEG initiative, a multidisciplinary approach was adopted that incorporates a range of methodologies and theoretical perspectives developed by the practicum team's eight members. Environmental peacebuilding serves as the theoretical basis for the study. Environmental peacebuilding theory argues that management of ecological resources creates an opportunity for cooperation that is distinct from the economic and political spheres,[1] and that environmental cooperation has the potential to build communities based around shared resources, cutting across geographical boundaries and moving past a "mutually exclusive, politically defined identity."[2] The practicum team designed an overarching analytical framework that grounds the study in environmental peacebuilding theory while integrating team members' divergent research areas into a cohesive whole. Each research area constitutes a different subsection of this report, from which findings are collectively synthesized.



Contamination near Jerusalem
(photo credit: Moses Jackson)

Research consisted of three weeks of preliminary desk study (including a week of intensive research training), ten days of field research in Israel and the Palestinian West Bank, and three weeks of post-field data analysis and report writing. Field data was gathered through formal and informal interviews with forty-nine individuals. Respondents included AIES and PWEG staff, project beneficiaries, technical experts and staff from other organizations in the region, and various Israeli and Palestinian government actors. Field research was conducted in eight sites in the Palestinian West Bank and four sites in Israel. Sites included AIES/PWEG project locations, wastewater treatment facilities, government offices, and environmental contamination sites.

Chapter 2

Section 2.1 outlines the wastewater situation in the Palestinian West Bank as a contextual backdrop for the remainder of the report. Wastewater infrastructure in the Palestinian West Bank is widely regarded as inadequate: only 31% of Palestinians in the region were connected to sewerage networks in 2009[3] and only 10% of Palestinian wastewater is reportedly treated.[4]

Section 2.2 examines the AIES/PWEG initiative from the vantage point of the development and peace nexus, situating it for further analysis in subsequent chapters of the report. The AIES/PWEG partnership should be understood as a development initiative first and a peacebuilding initiative second. While centralized treatment facilities are the preferred wastewater solution in the Palestinian West Bank, onsite graywater recycling systems are more feasible. Conflict-related barriers to centralized treatment facilities include permitting, Israeli settlements, and Israeli-imposed bureaucratic hurdles. The hydro-political implications of the Israeli-Palestinian conflict affect the operational realities that AIES and PWEG must confront. The practice of development and the practice of peace can have divergent objectives, and complications can arise when international development aid targets peacebuilding activities. Development practitioners involved in peacebuilding must consider conflict actors' disparate priorities both in terms of development and in terms of peace, and project partners must remain cognizant of one another's potentially contradictory agendas.

Chapter 3

The remainder of the report analyzes the peacebuilding significance of the AIES/PWEG initiative in terms of three criteria that represent potential pathways to peacebuilding: the initiative's ability to promote equity, foster sustained relationships, and change perceptions.

Section 3.1 emphasizes the importance of equity promotion in addressing conflictual asymmetry. Three potential avenues to equity promotion are introduced: poverty reduction, benefit sharing, and gender.

Sludge discharged from a Palestinian wastewater treatment plant (photo credit: Moses Jackson)

Section 3.2 employs development theory to analyze the AIES/PWEG initiative's potential to promote equity by reducing poverty among Palestinians. Evidence shows that the initiative is currently impacting middle class families and is not making major efforts towards poverty reduction. Onsite graywater recycling does offer opportunities to reduce poverty and inequality, however, and AIES and PWEG should seize this opportunity.

Section 3.3 evaluates the benefit sharing potential of transboundary wastewater management by considering the benefits and consequences of the AIES/PWEG initiative. Research suggests that both intended and unintended benefits are creating spillover effects, the most notable of which is peacebuilding.

Section 3.4 describes the gender dynamics and impacts of the AIES/PWEG initiative. It was determined that women benefit directly from the project, but that neither AIES nor PWEG currently have a gender strategy. This represents a missed opportunity in terms of both community support and long-term financial sustainability.

Chapter 4

Section 4.1 acknowledges the existing body of literature on relationship building strategies used to promote peacebuilding in Israel and the Palestinian West Bank. Section 4.2 discusses the ways in which the AIES/PWEG initiative are creating and cultivating relational networks and proposes ways these efforts can be further leveraged. Overall, evidence suggests that AIES and PWEG are strengthening existing relationships but are not cultivating new relationships to extend their relational network outside of the epistemic community. A network map of the AIES/PWEG initiative (Figure 4.1) illustrates parity between project partners and demonstrates how each organization serves as a gateway for information exchange.

Chapter 5

Section 5.1 investigates ways in which the AIES/PWEG initiative can potentially alter conflict actors' perceptions a means of building peace. Three frames of perception are addressed: discursive change, changes in perceptions of "the other," and changes in perceptions of the natural environment.

Section 5.2 explores how AIES and PWEG perceive their organizational role as peacebuilders and the extent to which they can affect a shift in the existing hydro-political discourse. While AIES and PWEG object to the identity of "peacebuilders," research suggests that their joint graywater recycling initiative is indeed a tool of discursive peacebuilding. AIES's involvement in the initiative challenges the perceived necessity of Israeli hydro-hegemony, and PWEG's involvement challenges the perceptions that Palestinians are unwilling or unable to effectively manage their own water resources. Such discursive engagement is vital in weakening structural violence and thus promoting positive peace. Both organizations can be more effective in this arena by acknowledging their peacebuilding capacity and further embracing their ability for discursive resistance.

Section 5.3 seeks to determine whether the initiative promotes a positive shift in perceptions regarding the role of the "other." Evidence suggests that space is being created for changes in Israelis' and Palestinians' perceptions of one another to occur, but that it is currently limited to mid-level technical actors.

Aeration tanks at the Israeli wastewater treatment plant in Soreq (photo credit: Moses Jackson)

Section 5.4 investigates whether the AIES/PWEG initiative reinforces the political narrative that categorizes water resources as either Israeli or Palestinian, or if it fosters a regional water community. It was determined that a shared water community identity is still absent, as project participants' sense of place remains tied to territory-based identities. Despite this challenge, the AIES/PWEG initiative has been successful in raising awareness of the transboundary nature of water, thus representing an important effort in changing perceptions of the natural environment.

Chapter 6

The concluding chapter summarizes major findings and outlines opportunities to strengthen the peacebuilding significance of the AIES/PWEG initiative. Overall, the initiative promises significant, tangible impacts in the development sphere by addressing urgent wastewater needs in the Palestinian West Bank. The initiative is also

contributing to peacebuilding, though on a small scale and in limited ways.

While AIES and PWEG do not lay claim to peacebuilding and do not explicitly engage with the broader Israeli-Palestinian conflict, they are nevertheless establishing avenues for peace by promoting equity, sustained relationships, and changes in perception.

The AIES/PWEG initiative is not currently reducing poverty, though it does improve economic well-being in middle-class households where pilot projects have been installed. Onsite graywater recycling has the potential to reduce poverty and inequality, and AIES and PWEG should work to exploit this potential.

The initiative is successfully achieving its intended benefits, but its unintended benefits remain hidden or unapparent to project partners and beneficiaries. AIES and PWEG should recognize and seek to maximize unintended benefits in order to strengthen positive spillover effects.

With no gender strategy, AIES and PWEG are missing valuable opportunities to ensure project sustainability. A gender impact assessment should be conducted and a subsequent gender strategy should be developed and implemented.

The initiative is strengthening existing relational connections, but it is not establishing new ones. A lack of public awareness about the initiative makes it difficult to identify new project participants and partners, but coordinated outreach may help address this concern.

AIES and PWEG challenge the narrative that has traditionally justified Israeli hydro-hegemony by demonstrating that Palestinian actors can manage transboundary water resources effectively and sustainably. This has significant, positive implications for future peacebuilding.

Piping is added to separate graywater from black water at the household level (photo credit: Moses Jackson)

The AIES/PWEG partnership creates space for positive change in individuals' perceptions of the other to occur, but only among mid-level technical actors. The grassroots level is not being reached due to physical and political barriers that hinder community mobilization, and the policy level is not being reached due to politicians' low prioritization of transboundary environmental cooperation.

Sense of place remains tied to territory-based identities in project communities, but outreach efforts have the potential to change this by building a shared community identity around water resources.

All told, the environmental peacebuilding efforts carried out through the AIES/PWEG initiative represent a valuable contribution to both Palestinian wastewater development and the Israeli-Palestinian peace process. While much can be done to improve the peacebuilding significance of the initiative, it nevertheless promises to reduce transboundary environmental degradation while at the same time creating the potential for more peaceful relations between Israelis and Palestinians. AIES and PWEG are "building peace slowly, working to place stone upon stone – it cannot be rushed."[5]

Endnotes

[1] Alexander Carius, "Environmental Peacebuilding - Environmental Cooperation as an Instrument for Crisis Prevention and Peacebuilding: Conditions for Success and Constraints," *Adelphi Report* 3(2006): 12.

[2] Ibid.

[3] World Bank, *West Bank and Gaza: Assessment of Restriction on Palestinian Water Sector Development* (Washington, DC: World Bank, 2009).

[4] Interview with Informant 1, June 25, 2013.

[5] Interview with Informant 6, June 25, 2013.


Chapter 1

Introduction

1.1 Context

Water Issues in Israel and the Palestinian West Bank

The growing scarcity of water in the arid and semi-arid areas in and around Israel and the Palestinian West Bank ensures that hydro-politics remain at the forefront of regional concerns. The region's transboundary waterscape both affects and reflects the ongoing Israeli-Palestinian conflict, with water playing a critical role in evolving power relations.[1] Conflictual asymmetry between the two parties was heightened with the 1967 occupation of the Palestinian West Bank. This asymmetry is particularly evident in the water sector, as strict water access regulations imposed by Israeli authorities early on have had lasting repercussions.[2] Today, Israel continues to disproportionately control shared surface and groundwater, and a growing body of academic literature characterizes the Israeli state as hydro-hegemonic.[3] Palestinian per capita access to water resources in the Palestinian West Bank is significantly lower than in Israel, and water costs amount to 8% of Palestinian household income.[4] Water is one of the "final status" issues in Israeli-Palestinian negotiations, meaning that any future peace agreement must address the cooperative management of shared water resources.

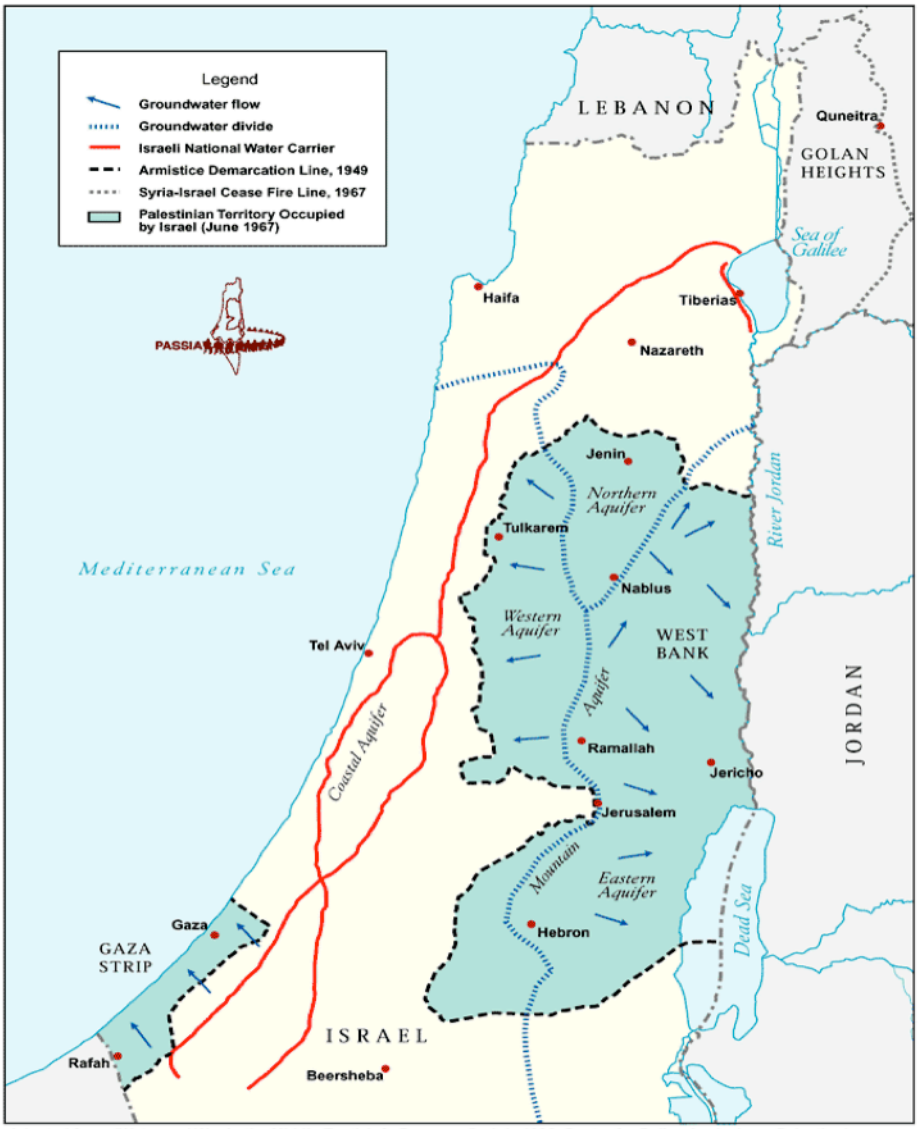
Israel and the Palestinian West Bank are highly dependent on groundwater. Roughly 90% of the region's groundwater comes from the Mountain Aquifer (see Figure 1.1), which underlies both Israel and the Palestinian West Bank.[5] The Mountain Aquifer serves as a major source of freshwater for key Israeli population centers and is the only water source for most Palestinians in the Palestinian West Bank. Israel abstracts approximately 80% of the aquifer's estimated potential and the Palestinian West Bank abstracts the remainder. The Mountain Aquifer's recharge area lies primarily in the Palestinian West Bank, with two of its three sub-aquifers flowing into Israel.

The failure of groundwater to heed political borders means that a transboundary approach is necessary for effective and sustainable water resource management. The Oslo Interim Agreement of 1995 sought to facilitate cooperative water management by establishing the Israeli-Palestinian Joint Water Commission (JWC). However, like many initiatives implemented throughout the peace process, the JWC has not lived up to expectations. It is criticized on a number of

grounds, most notably for "dressing up domination as cooperation," effectively reproducing Israeli hydro-hegemony.[6]

Population growth and agricultural and industrial expansion are increasing water demand throughout the region, necessitating a corresponding increase in water supply. Israel is able to close its own water supply/demand gap through costly technical solutions like desalination, but the Palestinian West Bank lacks the financial and institutional capacity to do the same. Wastewater plays a critical role in this dynamic. Treated wastewater can be used for irrigation and other non-potable purposes, thereby reducing pressure on other freshwater supplies, including drinking water. Israel has invested heavily in wastewater treatment and reuse as a means of increasing its own water supply. Israel currently treats an estimated 90% of its wastewater, of which 80% is reused. By contrast, only 10% of wastewater is treated in the Palestinian West Bank, and very little is reused.[7] Untreated or inadequately treated wastewater discharged upstream on one side of the Green Line can have significant, long-

Figure 1.1: Aquifer Map



Adapted from: 'Water and War in the Middle East' Info Paper no.5 , July 1996, Centre for Policy Analysis on Palestine/ The Jerusalem Fund, Washington D.C.

Palestinian Academic Society for the Study of International Affairs (PASSIA)

term environmental and public health impacts on the other side. Israel's position as the downstream riparian provides an incentive for Israelis to take an active interest in wastewater management within the Palestinian West Bank.

The Israeli-Palestinian conflict limits government-to-government wastewater cooperation. Though official cooperation is occurring in Ramallah, Hebron, and Jenin, efforts elsewhere are reportedly hindered by politicians' lack of understanding about the mutual importance of wastewater.[8] Limited or counterproductive government cooperation (as in the case of the JWC) means that transboundary wastewater efforts are often undertaken through civil society channels. The disparity in Israeli-Palestinian wastewater capacity has created space for internationally supported non-governmental organizations (NGOs) to address transboundary wastewater infrastructure development as a means of targeting broader environmental, health, economic, and conflict-related concerns. These organizations include Israeli-Palestinian NGOs and partnerships such as Friends of the Earth Middle East (FOEME), the Israel/Palestine Center for Research and Information (IPCRI), the Arava Institute for Environmental Studies (AIES), and the Palestinian Wastewater Engineers Group (PWEG). The specific goals and motivations of the actors involved in these initiatives vary. Some seek – either implicitly or explicitly – to address the Israeli-Palestinian conflict through cooperative wastewater development. There are practical and political reasons why these actors may not characterize their own work as "peacebuilding," as will be discussed, but for the purposes of this report their efforts are herein referred to as peacebuilding initiatives. One such initiative is a joint undertaking by AIES and PWEG, the Israeli-Palestinian partnership that serves as the subject of this report.

AIES/PWEG Project Overview

AIES is an Israeli-based institute that focuses on environmental education and research programs in the Middle East.[9] CTWM, one of six research centers at AIES, provides an institutional basis for developing projects that ensure equitable access to groundwater and surface water in the Middle East.[10] PWEG is a Palestinian-run nonprofit NGO dedicated to enhancing the water and solid waste sectors through professional development and capacity building.[11] CTWM has partnered with PWEG to provide a decentralized,

collaborative model for sustainable wastewater infrastructure in the Palestinian West Bank.[12] The initiative, herein referred to as the AIES/PWEG initiative, is designed to address environmental, technical, and social components of wastewater infrastructure.[13]

The initiative's key feature is a low-cost domestic graywater treatment and reuse system that protects shared groundwater by diverting wastewater from household cesspits and making it available for agricultural use. System installation and monitoring is a cooperative process meant to encourage transboundary communication between Israelis and Palestinians. The project is currently in its pilot phase, with two systems installed in the Palestinian village of Al 'Oja, northwest of Jericho. A second system is planned for the village of Battir, just west of Bethlehem. Project partners hope to scale up the initiative.

Al 'Oja has approximately 4,500 residents, the majority of whom are farmers. The AIES/PWEG initiative is designed to meet the priority needs of this population by focusing on protecting groundwater, increasing water availability, encouraging economic growth through increased agricultural productivity, and increasing food security.[14] Project beneficiaries in Al 'Oja expressed realization of these benefits and were most pleased with the economic benefits associated with increased agricultural water. Graywater recycling can increase household income in two ways. First, surplus agricultural water can increase yields and allow for agricultural diversification; a project beneficiary was able to expand into small-scale date production, a crop with high market demand that is relatively water intensive. Second, reducing the volume of wastewater entering household cesspits reduces costs associated with cesspit pumping, freeing up financial resources for other uses.[15]

The AIES/PWEG graywater system does have known limitations, however. As a decentralized system it only produces localized benefits, representing a tactical rather than strategic approach to wastewater management. A reported low willingness to pay for onsite graywater systems inhibits the initiative's long-term financial viability. System operation and maintenance presents challenges, including mechanical failures and household energy needs. Social and technical factors make the system inappropriate for many communities; some Palestinian communities will not partner with Israeli organizations like AIES, and urban communities with higher population

densities typically require centralized treatment plants.[16] The technical components of the AIES/PWEG graywater system are described in Box 1.1.

1.2 Research Framework

Study Objective

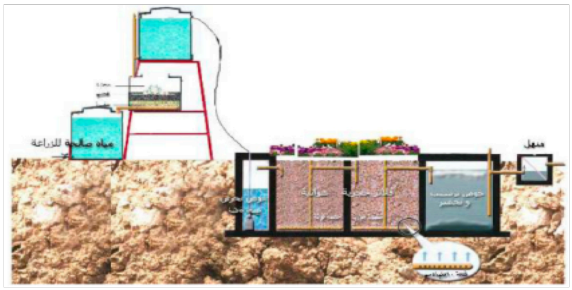
The primary objective of this practicum is to assess the peacebuilding significance of the AIES/PWEG initiative. To that end, we adopt an interdisciplinary approach that incorporates a range of methodologies and theoretical perspectives. The practicum's eight team members examine eight distinct but complementary research areas, each of which addresses the primary research objective from a different angle.

Theoretical Foundation: Environmental Peacebuilding

This study investigates the peacebuilding significance of an environmental initiative, making environmental peacebuilding a logical foundation for our collective research framework. While a range of theoretical

Box 1.1: Graywater System Technical Components

The graywater recycling system's technical components are designed to be low-cost and easy to install and maintain. Household plumbing fixtures are modified to separate blackwater (wastewater from toilets) and graywater (wastewater from showers, sinks, and washing machines). Graywater is diverted into the treatment system while blackwater continues to flow to the household cesspit. Graywater first enters an underground septic tank, where grease and solids naturally separate. It then flows through two consecutive, graduated gravel filtration chambers. Water exits this first filtration stage and enters a balancing tank equipped with a submerged pump. Filtered water is pumped back above ground to a multi-tiered aerobic filter. Treated water passes through this second filtration phase and is deposited into a storage tank, where



is it now available for irrigation[1]. The treatment system is complimented by two additional infrastructure components: existing cesspits are lined in order to prevent blackwater from percolating into the aquifer, and greenhouses are provided as means of optimizing graywater reuse[2].

[1] AIES and PWEG, "Decentralized Wastewater Treatment and Reuse: A Transboundary Approach to Environmental, Social and Technical Issues of Wastewater Infrastructure Development. A Pilot Project in Al 'Oja Village, Palestine," (2012)

[2] Ibid.

perspectives inform each of the study's individual research areas, environmental peacebuilding serves as the study's theoretical anchor.

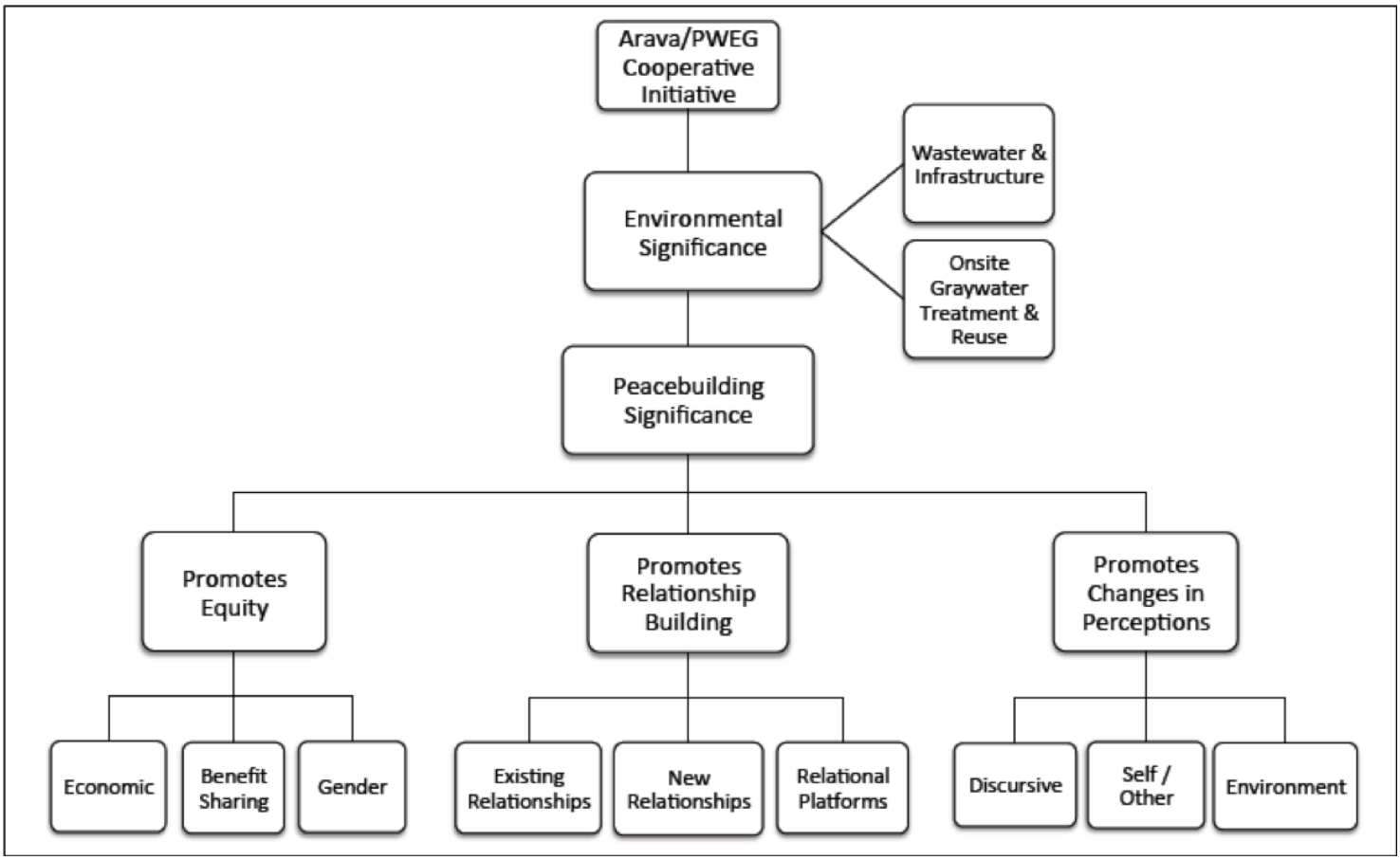
Environmental peacebuilding theory argues that the sustainable management of ecological resources creates an opportunity for cooperation that is distinct from the economic and political spheres.[17] Environmental cooperation has the potential to build communities that are based around shared resources, cutting across geographical boundaries and moving past a "mutually exclusive, politically defined identity."[18] Transboundary cooperation can transform the larger understanding of communities and geographical spaces.[19] Natural resource management at the community level presents an opportunity to engage local stakeholders and create space for dialogue, eventually leading to the development of a constituency for peace.[20] The AIES/PWEG initiative thus embodies the goals of environmental peacebuilding both in terms of its specific development objectives and the Israeli-Palestinian partnership it represents. The eight research areas presented in this report draw on a diverse body of theories and approaches to build on this theoretical basis, using environmental peacebuilding theory as a departure point from which to assess the peacebuilding significance of the AIES/PWEG initiative.

Methodology

Our analytical framework (Figure 1.2) consists of two dimensions: the AIES/PWEG initiative's environmental significance as a development project and its peacebuilding significance within the Israeli-Palestinian conflict. Environmental significance is examined through an analysis of the initiative's role and impacts against a backdrop of conflict-related wastewater infrastructural challenges and evolving development paradigms. This provides a contextual basis to further investigate the initiative's peacebuilding significance.

Peacebuilding significance is examined through an analysis of three peacebuilding criteria: the ability of the AIES/PWEG initiative to promote equity, foster sustained relationships, and change perceptions. Equity is studied through the lenses of poverty reduction, benefit sharing, and gender. Relationship building is analyzed by using a network analysis to study new relationships, existing relationships, and relational platforms. Perceptions are investigated in terms of

Figure 1.2: Research Framework



discourse, perceptions of "the other," and perceptions of the natural environment. Each of these individual analyses constitutes a different subsection of this report, from which findings are collectively synthesized.

Research was carried out in three phases: three weeks of preliminary desk study including one week of intensive research training, ten days of field research in Israel and the Palestinian West Bank, and three weeks of post-field data analysis and report writing. The pre-departure desk study took place in Washington, DC and consisted of research design and planning activities, training workshops, independent research and literature reviews, and lectures. Topics included wastewater infrastructure, the Israeli-Palestinian water conflict, environmental peacebuilding theory, and research in conflict zones. Field research consisted of a ten-day rapid appraisal. Eight sites were visited in the Palestinian West Bank and four in Israel. Field data was collected via interviews, focus groups, and informal meetings with forty-nine research participants. Participants included AIES and

PWEG staff, project beneficiaries, staff from other organizations working in the Palestinian West Bank, Palestinian and Israeli government representatives, community members, and technical experts. Site visits included AIES and PWEG's on-site graywater system pilot sites, large- and small-scale wastewater treatment plants, various government offices, and key transboundary environmental contamination sites. Fieldwork was followed by three weeks of intensive post-field data analysis and report writing in Washington, DC. Additional methodological information can be found in the Appendix.

Endnotes

[1] Mark Zeitoun et al., "Hydro-Hegemony in the Upper Jordan Waterscape: Control and Use of the Flows," *Water Alternatives* 6, no. 1(2013): 86-106.

[2] World Bank, *West Bank and Gaza: Assessment of Restriction on Palestinian Water Sector Development* (Washington, DC: World Bank, 2009).

[3] Mark Zeitoun, *Power and Water in the Middle East: The Hidden Politics of the Palestinian-Israeli Water Conflict* (New York: I.B. Tauris, 2008), 145.

[4] World Bank, *West Bank and Gaza*.

[5] World Bank, *West Bank and Gaza*.

[6] Jan Selby, "Dressing up Domination as 'Cooperation': The Case of Israeli-Palestinian Water Relations," *Review of International Studies* 29, no. 1(2003): 121-138.

[7] Interview with Informant 1, June 25, 2013.

[8] Interview with Informant 19, June 27, 2013.

[9] "About the Arava Institute," *The Arava Institute for Environmental Studies*, accessed November 3, 2013, http://arava.org/about-our-community/about-arava/.

[10] "Center for Trans-boundary Water Management," *The Arava Institute for Environmental Studies*, accessed November 3, 2013, http://arava.org/arava-research-centers/center-for-transboundary-water-management/.

[11] "Mission," *Palestinian Wastewater Engineers Group*, accessed July 20, 2013, http://www.palweg.org/index.php/en/.

[12] Center for Transboundary Water Management at Arava Institute for Environmental Studies and Palestinian Wastewater Engineers Group, *Decentralized Wastewater Treatment and Reuse: A Transboundary Approach to Environmental, Social and Technical Issues of Wastewater Infrastructure Development – A Pilot Project in Al 'Oja Village, Palestine* (2012).

[13] Ibid.

[14] Ibid.

[15] Interviews with Informants 6 and 8, June 25, 2013.

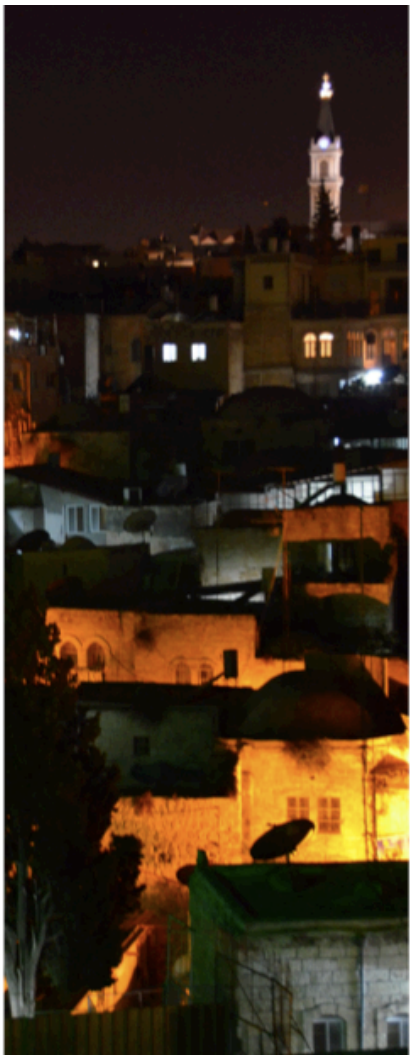
[16] Interviews with Informants 1 and 3, June 25, 2013.

[17] Alexander Carius, "Environmental Peacebuilding - Environmental Cooperation as an Instrument for Crisis Prevention and Peacebuilding: Conditions for Success and Constraints," *Adelphi Report* 3(2006): 12.

[18] Ibid.

[19] Ibid.

[20] Michael Warner, *Working Paper 135 - Conflict Management in Community-Based Natural Resource Projects: Experiences from Fiji and Papua New Guinea* (London: Overseas Development Institute, 2000), 11.

Chapter 2

Wastewater Development and Peace

2.1 Introduction

Chapter Overview

Environmental peacebuilding practitioners do not work in a vacuum. The political and social realities of the region in which they operate greatly impact the nature and scope of their work. Within the Palestinian West Bank these practitioners must navigate the hydro-political implications of Israeli-Palestinian conflict. This chapter examines how conflictual asymmetry between the two parties affects the development of water infrastructure in the Palestinian West Bank in general, and how AIES/PWEG graywater recycling systems address this asymmetry in particular. This chapter also highlights the tension between the potentially divergent objectives of peace and development and the complications this raises for field practitioners. First, a summary of wastewater infrastructure in the Palestinian West Bank provides context.

Wastewater Realities in the Palestinian West Bank

Wastewater infrastructure in the Palestinian West Bank is widely regarded as inadequate. Though contradictory data exists and politically opposed actors dispute the credibility of various data sources,[1] few argue the general state of the wastewater situation. According to the most recent comprehensive study carried out by the World Bank, only 31% of Palestinians in the Palestinian West Bank were connected to sewerage networks in 2009 and only four major towns had wastewater treatment plants.[2] Existing sewerage networks are over 50 years old and are poorly managed, resulting in high losses from leakage and other inefficiencies.

Unconnected households discharge wastewater into cesspits that require periodic pumping. Cesspit pumping can cost $55 to $84 (or 200 to 300 shekels)[3] per household per visit, representing a significant economic burden given the Palestinian GDP per capita of $2,900.[4] The majority of cesspits are unlined, allowing wastewater seepage to contaminate ground and surface water, introducing water-borne illnesses into drinking water supplies and damaging ecosystems in both Israel and the Palestinian West Bank. Because there are few cesspit pumping companies and few wastewater treatment facilities, raw sewage is often collected at the household level only to be discharged directly into the environment elsewhere. The World Bank

estimates that 25 MCM of raw sewage is discharged from 350 locations annually,[5] and Israeli sources estimate annual discharge rates at up to 64 MCM.

Graywater, or non-toilet wastewater, plays an increasingly important role in the water sector in the Palestinian West Bank. Treated (or "recycled") graywater can supplement non-potable water supplies, reducing pressure on household cesspits and treatment facilities and providing environmental, economic, and health benefits. A number onsite graywater recycling programs have been initiated throughout the Palestinian West Bank, but there is reportedly little knowledge about graywater recycling in the region.[6] Onsite graywater systems are often installed in households, businesses, schools, mosques, or community centers. Such systems typically involve separating graywater from blackwater (toilet wastewater) near the source, treating the graywater using low-cost, gravity-fed filtration systems, and utilizing the output for irrigation, toilet flushing, construction, and other non-potable applications.

Previous studies show that graywater recycling is generally socially acceptable among Palestinian West Bank populations but that few people are willing to share in project costs.[7] While many Palestinian West Bank residents accept the idea of graywater recycling, not many are willing to accept graywater recycling systems in their own households.[8] Moreover, many previously implemented graywater systems have fallen into disuse or failed altogether, making some communities hesitant to embrace new projects.[9]

2.2 Wastewater Development and Peace

The research presented in this section investigates the AIES/PWEG initiative from a development perspective that emphasizes the relationship between development and peace. Its purpose is to examine the development significance of the initiative in order to better understand its peacebuilding significance. Drawing on key informant interviews and secondary literature, this section contextualizes the AIES/PWEG initiative within the theoretical framework of the development and peace nexus; discusses wastewater "solutions" in terms of preferred interventions and feasible interventions; identifies key barriers that hinder the development of centralized wastewater infrastructure in the Palestinian West Bank; offers two divergent perspectives on cooperative graywater

Settling tanks at the Israeli wastewater treatment facility in Soreq (photo credit: Moses Jackson)

initiatives; and analyzes the AIES/PWEG initiative in terms of its role in development and in peace.

Theoretical Framework

The "peacebuilding significance" of the AIES/PWEG initiative may be interpreted in different ways. Both AIES and PWEG project leaders are clear that the initiative's primary objective is environmental protection, not peacebuilding: it is a development initiative above all else. However, AIES' secondary objective is to foster Israeli-Palestinian cooperation,[10] and partnerships between conflict actors inherently offer peacebuilding potential. The project can thus be equally understood as a peacebuilding initiative. This duality positions this and similar initiatives within the development and peace nexus, an emergent theoretical perspective concerned with the evolving relationship between the distinct but increasingly overlapping spheres of development and peace.

Peace was not perceived as part of the development mandate until the early 1990s, but since that time "the nexus between development and peace has become a central focus of development thinking and practice."[11] Given that peace is perhaps the newest addition to a growing list of development concerns, its place among the

others has yet to be fully understood. Development work in conflict environments brings a set of responsibilities and sensitivities distinct from those found in non-conflict environments, and development practitioners and donors must carefully navigate the politically charged, often violent environments in which they operate. Development practitioners are not politically neutral actors, despite the claims of some, and development aid can affect conflict dynamics in unforeseen ways that run counter to practitioners' goals.[12] Interpreting the AIES/PWEG initiative in this context allows for critical, constructive analysis that sheds light on its role in terms of both development and peace.

Preferred vs. Feasible Wastewater Solutions

More and better wastewater infrastructure is clearly needed in the Palestinian West Bank, but the type and scale of infrastructure needed depend on site-specific factors. Given Palestinian funding constraints and the limitations of official Israeli-Palestinian cooperation discussed above, the identification and implementation of technically appropriate wastewater solutions in the Palestinian West Bank falls largely to NGOs like FOEME, IPCRI, AIES, and PWEG. Smaller NGOs dependent on external financial support are more likely to focus on low-cost, small-scale interventions. Yet all engineers and NGO technical staff interviewed during the course of our research indicated that what is needed most in the Palestinian West Bank are centralized wastewater treatment plants that allow for large-scale wastewater reuse. Centralized plants are generally preferred because they provide a major source of agricultural water, are strategically designed and located, are more efficient and cost-effective due to their scale, offer greater regulatory control of inputs and outputs, benefit entire communities instead of individual sites, and significantly reduce costs paid to the Israeli government for the treatment of Palestinian wastewater flowing into Israel.[13] According to several Palestinian respondents, centralized plants also contribute directly to Palestinian autonomy – a goal shared by many Palestinians. As one respondent put it, "Israel has their hands on the source of the water, and we want our own source."[14]

However, centralized plants require funding and government-to-government coordination that are difficult to achieve in practice. Decentralized, "off the grid" graywater solutions, by contrast, allow civil

society development practitioners to circumvent intractable high-level politics and major funding constraints. Though centralized treatment and reuse is generally preferred, onsite graywater recycling is more feasible.

Conflict-Related Barriers to Wastewater Infrastructure

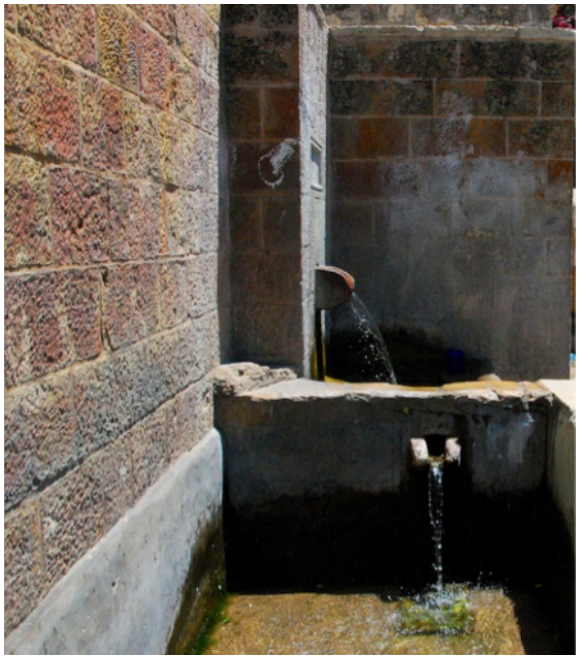
The politics of the Israeli-Palestinian conflict manifest themselves in ways that hinder the development of centralized wastewater infrastructure in the Palestinian West Bank. Field research indicates that permitting, Israeli settlements, and security-related bureaucracy are three such ways.

Permitting was the most oft-cited barrier to wastewater infrastructure development among both Israeli and Palestinian respondents. The 1993 Oslo Accords split the Palestinian West Bank into non-contiguous administrative Areas A, B, and C, with area C falling under full Israeli control. Area C encompasses approximately 60% of the land in the Palestinian West Bank, and its geographic and demographic characteristics generally make it the most appropriate location for centralized wastewater treatment plants.[15] However, all water infrastructure in Area C requires permitting by the JWC and the Israeli Civil Administration (CA), and unpermitted infrastructure risks destruction by the Israeli military. All Palestinian respondents viewed the JWC as Israeli-controlled in practice, and nearly all technical respondents, including Israeli and Palestinian engineers, indicated that wastewater infrastructure permitting is a major problem in the Palestinian West Bank. Many expressed frustration at the apparent unwillingness of the JWC to grant permits for legitimate, much-needed wastewater projects. Several respondents relayed anecdotes and figures that spoke to the JWC's ostensibly systematic refusal to grant permits.[16] These claims are supported by the academic literature[17] and the fact that twelve centralized wastewater treatment plants were awaiting approval by the JWC in 2009 – some since 1999.[18] A recurring concern among Palestinian respondents was that the JWC advances the Israeli government's purported goal of denying water access in the Palestinian West Bank as a means of limiting Palestinian populations and strengthening Israeli control. Valid technical or regulatory considerations may play a role in JWC permitting decisions. However, Israeli government representatives declined to comment on permit-related issues when

asked, leaving no clear explanation as to why so few permits have been granted.[19]

Numerous Palestinian respondents indicated that Israeli-imposed conditionality regarding Israeli settlements prevents the development of centralized wastewater treatment facilities in the Palestinian West Bank. The Israeli government has reportedly supported such facilities on the condition that they connect to Israeli settlements located near proposed project sites.[20] Palestinians regard Israeli settlements as both illegal and "highly problematic."[21] "For Palestinians, dealing with settlers is taboo," and Palestinians who break this taboo are perceived as collaborators and risk negative repercussions from within their communities.[22] While conventional wisdom dictates that centralized wastewater treatment plants should be designed to maximize benefits by servicing as many households as possible, in this case political considerations trump technical considerations. All Palestinian respondents refused to entertain the notion of Israeli connections to Palestinian treatment facilities on the grounds that such concessions contribute to the legitimization of existing settlements and encourage Israel's expansionist agenda. The Palestinian Authority generally refuses to negotiate on any settler-related issues, particularly in the water sector (though past exceptions have been made). Israeli conditionality regarding settlements thus limits the scope of possible wastewater interventions in the Palestinian West Bank.

Numerous technical experts expressed that the Israeli government may block or delay centralized wastewater infrastructure projects in the Palestinian West Bank even when no permitting objections or Israeli conditionalities are raised. The Taybeh-Ramoun treatment plant, a European Union-funded project intended to serve two Palestinian communities, exemplifies how bureaucratic hurdles imposed by the CA can further hinder



Community water access point in Battir (photo credit: Moses Jackson)

development efforts. Both the JWC and Israeli Ministry of Finance have granted permission for the project, and construction was nearly complete at the time of research. However, the project incorporates German rotating biological contactor technology that must be imported, meaning it falls subject to Israeli border security under the purview of the CA. A respondent involved in the project indicated that Israeli authorities had been holding the shipment for over two months at the time of research, presumably due to security concerns.[23] Such delays are costly and can deter future foreign investment in wastewater infrastructure or sideline projects already underway.

Trade-offs: Onsite Graywater Recycling

Small-scale, decentralized wastewater interventions like the AIES/PWEG initiative naturally bring both advantages and disadvantages. The political challenges associated with centralized wastewater treatment facilities demonstrate the value of such "off-the-grid" projects. From a development perspective, one of the clearest advantages of the AIES/PWEG initiative is that it is politically and financially feasible; it allows development practitioners from both sides of the conflict to address pressing development issues that may otherwise go unaddressed. AIES and PWEG project partners and participants viewed political avoidance positively, repeatedly expressing that "politics are only a problem between politicians, not normal people."[24] In this sense onsite graywater recycling was regarded as empowering in that it shifts wastewater development from the political realm to the practical realm. According to a representative from another NGO involved in graywater recycling projects, "We just wanted to *do* something here, even if it has a very small impact."[25] While the impact of a few, scattered onsite graywater systems may be limited, project designers hope that scaling up such initiatives will significantly reduce environmental degradation throughout the region.

One of the AIES/PWEG initiatives' greatest disadvantages, on the other hand, is that it does not necessarily address Palestinian development priorities. Onsite graywater recycling systems are only appropriate under specific circumstances, and immediate environmental and health benefits are localized and difficult to discern. Economic, food security, and other benefits are limited mainly to individual households, and the potential for scaling up

is constrained by low willingness to pay. Moreover, recipient households must already possess an adequate water supply, sufficient space to accommodate treatment infrastructure, sufficient land and agricultural capacity to make use of recycled graywater, and sufficient income to contribute to project costs, including initial investment and long-term operation and maintenance. AIES/PWEG project sites are currently determined based on project partners' existing relationships rather than on recipient needs,[26] making projects subject to elite capture and possibly corruption. Given the scope and urgency of needs throughout the Palestinian West Bank, such interventions target a very narrow development area. A Palestinian municipal official in Battir charged that onsite graywater recycling is simply "not a solution."[27]

The AIES/PWEG initiative's development potential, while significant, has notable limitations. The initiative's overall value may be substantially enhanced by its peacebuilding potential, however, as will be explored in subsequent chapters of this report.

Analysis

Theoretically situating the AIES/PWEG initiative within the development and peace nexus requires an examination of its advantages and disadvantages in terms of both development and peace. Advantages in the development sphere can be disadvantages in the peacebuilding sphere and vice versa. From a development perspective, a clear advantage of onsite graywater recycling initiatives is that they skirt intractable political arenas. But this is not necessarily an advantage from a peace perspective. While a development perspective sees politics as a barrier to development, a peace perspective recognizes that development can interfere with political processes necessary for future peace. A peace perspective also recognizes that unofficial Israeli-Palestinian cooperation in the Palestinian water sector threatens to undermine the Palestinian Authority's political position and further erode Palestinian sovereignty, possibly reproducing Israeli hydro-hegemony. A Palestinian respondent captured this notion by expressing that onsite graywater recycling systems are "trying to make life better under occupation" rather than addressing the occupation – the real priority

One of few large-scale wastewater treatment plants in the Palestinian West Bank (photo credit: Moses Jackson)

– directly.[28] Conversely, multiple Israeli respondents insinuated (though did not explicitly state) that Palestinians intentionally exaggerate the severity of the wastewater situation in the Palestinian West Bank for political gain. Such claims not only call attention to underlying power asymmetries but also demonstrate the all-encompassing nature of Israeli-Palestinian politics: development practitioners seeking to avoid politics are in fact thoroughly enmeshed in politics.

Divergent conceptions of peace further complicate the issue. Peace for an Israeli may mean a lack of direct violence, while peace for a Palestinian may mean freedom from Israeli control. Peace for international donors may mean something else entirely. The majority of Palestinian respondents, including project partners and project beneficiaries, were very hesitant to discuss peace or peacebuilding in any context, even when asked directly. Many Israelis respondents spoke abstractly about peace but avoided linking it directly to the AIES/PWEG initiative, particularly when Palestinians were present. Similarly, AIES claims peacebuilding as a secondary goal, while PWEG lays no claim to peacebuilding.

Peacebuilding activities may be more attractive to international donors than strict

development activities, and it was evident that AIES wishes to leverage peacebuilding as a mechanism to access international development funding. This does not directly effect the peacebuilding significance of the AIES/PWEG initiative, but given that project priorities are at least indirectly influenced by donor priorities, it highlights the discursive power of "peacebuilding" in shaping regional development trajectories and, by extension, conflict dynamics. Development aid can have negative implications that fall outside the development sphere – particularly in conflict environments and particularly when development and peacebuilding activities are combined.

Development aid can affect conflict dynamics in various ways, two of which are especially pertinent to the AIES/PWEG initiative. First, "The distributional impacts of aid affect inter-group relationships, either feeding tensions or reinforcing connections."[29] Aid directed toward Israeli-Palestinian transboundary wastewater efforts like the AIES/PWEG initiative reinforces connections between project partners, but it also simultaneously feeds intergroup tensions by "making life easier under occupation" and undermining the Palestinian (and perhaps Israeli) political position. Second, "aid legitimises people and their actions or agendas, supporting the pursuit of either war or peace."[30] In this case aid legitimizes the AIES/PWEG agenda in favor of peace, but because Israeli project partners see peace differently than Palestinian partners, it effectively supports two distinct, possibly contradictory conceptions of peace.

Conclusion

The AIES/PWEG initiative plays an important role in protecting the environment through strengthening the Palestinian wastewater sector. As a development initiative it promises significant, tangible impacts, even if its development potential is somewhat limited. The cooperative dimension of the AIES/PWEG initiative may add value to project outcomes, but it also brings greater responsibility and accountability for project leaders who envision themselves as development practitioners rather than peace practitioners. AIES and PWEG have received relatively little training in peacebuilding,[31] yet their commitment to transboundary cooperation requires them to carefully manage the discourse and practice of peace in a volatile conflict environment fraught with political challenges. It is therefore vital that they critically examine the real and potential

impacts of their work outside of the comparatively narrow development sphere in which they may perceive themselves.

Endnotes

[1] Interview with Informant 9, June 26, 2013.

[2] World Bank, *West Bank and Gaza: Assessment of Restriction on Palestinian Water Sector Development* (Washington, DC: World Bank, 2009).

[3] Interview with Informant 6, June 25, 2013.

[4] "The World Factbook," *Central Intelligence Agency*, accessed July 23, 2013, https://www.cia.gov/library/publications/the-world-factbook/.

[5] World Bank, *West Bank and Gaza*.

[6] Interview with Informant 1, June 25, 2013.

[7] Hafez Q. Shaheen, "Wastewater Reuse as Means to Optimize the Use of Water Resources in the West Bank," *Water International* 28, no. 2(2003): 201-208.

[8] Rashed Al-Sa'ed & Sana' Mubarak, "Sustainability Assessment of Onsite Sanitation Facilities in Ramallah-Albireh District with Emphasis on Technical, Socio-Cultural and Financial Aspects," *Management of Environmental Quality: An International Journal* 17, no. 2(2006): 140-156.

[9] Interview with Informant 19, June 27, 2013.

[10] Interview with Informant 2, June 25, 2013.

[11] Peter Uvin, "The Development / Peacebuilding Nexus: A Typology and History of Changing Paradigms," *Journal of Peacebuilding and Development* 1(2002): 5-24.

[12] Mary Anderson, *Do No Harm: How Aid Can Support Peace – or War* (Boulder: Lynne Rienner Publishers, 1999), 39.

[13] Interviews with Informants 1 and 3, June 25, 2013; Interview with Informant 15, June 27, 2013.

[14] Interview with Informant 15, June 27, 2013.

[15] Interview with Informant 9, June 26, 2013.

[16] Interview with Informant 9, June 26, 2013; Interview with Informant 15, June 27, 2013.

[17] See for example Jan Selby, "Joint Mismanagement: Reappraising the Oslo Water Regime," *Water Resources in the Middle East* 2(2007): 203-212.; Mark Zeitoun, *Power and Water in the Middle East: The Hidden Politics of the Palestinian-Israeli Water Conflict* (New York: I.B. Tauris, 2008), 149.

[18] World Bank, *West Bank and Gaza*.

[19] Interview with Informant 33, June 30, 2013.

[20] Interview with Informant 9, June 26, 2013.

[21] Interview with Informant 3, June 25, 2013.

[22] Interview with Informant 15, June 27, 2013.

[23] Ibid.

[24] Interview with Informant 6, June 25, 2013.

[25] Interview with Informant 33, June 30, 2013.

[26] Interview with Informant 1, June 25, 2013.

[27] Interview with Informant 10, June 26, 2013.

[28] Interview with Informant 11, June 26, 2013.

[29] Anderson, *Do No Harm*, 39.

[30] Ibid.

[31] Interview with Informant 1, June 25, 2013.


Chapter 3

Promoting Equity

3.1 Introduction

The promotion and generation of equity between asymmetrically powerful groups is an important factor in peacebuilding. The Israeli-Palestinian conflict is characterized by an asymmetric power relationship in which Israel controls much of the Palestinian West Bank's finances, natural resources, and personal freedoms. The AIES/PWEG initiative presents opportunities to promote equity between Israelis and Palestinians, but these opportunities are not being exploited to their full potential. This chapter discusses three different avenues through which the promotion of equity can be addressed and further incorporated into AIES/PWEG projects: poverty reduction, benefit sharing, and gender.

3.2 Poverty Reduction and Peacebuilding

Poverty in the Palestinian West Bank

The economic differences between Israel and the Palestinian West Bank are obvious and stark. When crossing the Green Line, the shift is almost immediate. As one East Jerusalem resident pointed out, "There are no more side walks, no more trash collection. It is obviously poor." Data supports this observation. In 2008 the GDP per capita in the West Bank was $2,900, compared to $28,300 in Israel.[1] The economic imbalance is impossible to ignore, yet the occupation makes reducing poverty in the Palestinian West Bank an especially complicated and difficult task. According to a 2009 UN report, economic development in the Palestinian West Bank will not be possible until a comprehensive strategy for a "sovereign Palestinian State free of Israeli settlements and occupation" is established.[2] The establishment of a sovereign state will be a long and arduous process. Meanwhile, Palestinians remain impoverished and the environment continues to be degraded. Therefore it is necessary to address poverty reduction now, at the local level and on a small scale. The AIES/PWEG initiative has the potential to do just that.

Many respondents in the Palestinian West Bank were most interested in onsite graywater recycling projects because of their ability to lower water costs. A project leader indicated that lower water costs and the economic benefits of increased agricultural water were what drew participations to the projects.[3] According to a Palestinian

engineer, the main purpose of graywater recycling is to save families money.[4] Water costs are already very high in the Palestinian West Bank, and graywater recycling can help lower water costs by 30% after overhead.[5] Water is five to six times more expensive in rural areas without piped water, making it a major expense for families already living in poverty.[6]

"Selling" Graywater Recycling

AIES and PWEG should accentuate the money-saving potential of onsite graywater recycling systems in order to make them more appealing to prospective participants. Environmental protection is a low priority for many Palestinians in the Palestinian West Bank. Several respondents expressed that it seemed unrealistic to worry about the environment when basic human needs are not being met. Emphasizing graywater recycling as a mechanism to save money and achieve water autonomy may increase participants' willingness to pay for onsite systems. Participants are likely to be more willing to share in initial project costs if the potential for long-term savings is made clear. Participant buy-in is also likely to make graywater recycling systems more economically sustainable, as participants will feel a stronger sense of project ownership. Buy-in can include a financial contribution, such as participants covering 5% of the project costs, as is the case in the large-scale wastewater treatment plant intended to serve Taybeh and Ramoun. Because local government mismanagement can make the collection of these contributions difficult, local bureaucratic failures should be addressed in order to make participant buy-in as effective as possible. Families that currently have onsite graywater recycling systems can encourage other families to invest in such systems. As word spreads that the systems save money, more people will likely become interested in participating.

Conflict and Inequality: A Theoretical Grounding

Onsite graywater recycling has the potential to reduce poverty in Palestinian West Bank communities on a small scale. Poverty reduction, and thus inequality reduction, can be vital in mediating conflict between two economically unequal parties, such as the case with Israel and the Palestinian West Bank. This assertion is grounded in two theories.

Christopher Cramer posits that high inequality, when compounded by a lack of personal freedom and governmental failure,

Onsite graywater treatment infrastructure in Al ‘Oja (photo credit: Courtney Owen)

can lead to conflict.[7] Poverty reduction reduces inequality and may thus contribute to conflict reduction. The link between conflict and economic inequality is not always direct and causal however; inequality is only one factor in a complex and deeply embedded conflict.

Sustainable development theory considers economic security to be a pillar of peaceful communities. The influential 1987 report commonly known as the *Brundtland Report* argues that sustainable economic growth, environmental protection, and social equality are all part of a sustainable and developed community.[8] Though this theory is somewhat controversial, the interactions among these three areas are critical in the Palestinian West Bank. Social and economic inequality translate to infrastructural inequality; the infrastructure available to Israelis is not available to Palestinians. In particular, there is much more environmental infrastructure in Israel than in the Palestinian West Bank.[9] As a result, water resources and their management are both more expensive and more environmentally harmful in the Palestinian West Bank. Palestinians must pay high prices for water that is not consistently available, pushing them deeper into poverty. Untreated or inadequately treated wastewater contaminates existing water supplies, in turn reducing water availability and raising water costs even further. Poverty reduction and improved environmental infrastructure can break this cycle and lead to long-term improvements in the lives of Palestinians in the Palestinian West Bank. Onsite graywater recycling systems have the potential to achieve this goal. Following the theories of Cramer (2005) and the *Brundtland Report*, such systems can reduce poverty in the Palestinian West Bank,

thereby increasing equity and, ultimately, the possibility for peacebuilding.

Recommendations

The AIES/PWEG initiative is not designed to reduce poverty, and the pilot projects currently benefit only middle-class families. Significant, long-term poverty reduction can only occur if the poorest families in the Palestinian West Bank share in economic benefits of improved water infrastructure. AIES and PWEG can do two things to address this issue: they can work to ensure that onsite graywater recycling systems are installed in households with the greatest needs, or they can direct their energies toward the development of centralized wastewater treatment facilities that benefit entire communities, as PWEG is doing through its involvement in the Taybeh-Ramoun treatment plant.

Though the AIES/PWEG initiative is not currently benefitting Palestinians with the greatest needs, it is fostering important conversations about onsite graywater recycling and demonstrating its economic benefits to poorer families in project communities. Certain changes to the AIES/PWEG initiative can encourage participation by poorer families. Poorer families must be convinced that such systems can indeed save them money, and AIES and PWEG should therefore emphasize economic benefits over environmental benefits when seeking participant households. Another possible way to reach poorer families is to install shared onsite graywater recycling facilities that serve multiple households. Shared facilities could be installed where residences are located close together, thereby reducing overhead costs and increasing economic efficiency. Encouraging neighbors to share graywater and graywater infrastructure may raise social or cultural concerns under certain circumstances, but such concerns could be mitigated through careful planning and clear communication.

Large-scale wastewater treatment plants are the most economically efficient and effective way to serve Palestinian communities, as discussed above. AIES and PWEG can make significant contributions to poverty reduction in the Palestinian West Bank by leveraging their expertise and relational networks to help overcome the aforementioned barriers to the development of large-scale treatment plants. AIES and PWEG's efforts to facilitate onsite graywater recycling are vitally important on a number of levels, but concurrent, complementary efforts to facilitate

centralized wastewater treatment facilities would do much to promote equity and build peace in the region.

3.3 Benefit Sharing: Intended and Unintended Benefits

Introduction

The guiding question of the research presented in this section is "What is the peacebuilding significance of the intended and unintended benefits and unintended consequences of AIES/PWEG cooperation in transboundary wastewater management?" Benefit sharing, defined as "any action designed to change the allocation of costs and benefits associated with cooperation,"[10] is critical for transboundary water cooperation. The purpose of benefit sharing is to ensure that all parties gain benefits and/or absorb costs relevant to their cause or needs. Costs and benefits need not be the same for all recipients, though they should be mutually equitable. Benefit sharing theory argues that if both intended and unintended costs and benefits are distributed equitably, resultant trust can create progress toward peace.[11]

For purposes of this research, *benefits* are positive outcomes that have resulted from the AIES/PWEG initiative. *Intended benefits* are the benefits project participants expected to generate or receive as a result of their involvement with the initiative. *Unintended benefits* are benefits that were neither planned nor anticipated by project participants prior to project implementation but have since become apparent. *Consequences* are negative outcomes, or costs, that have resulted from the initiative. Similar to unintended benefits, *unintended consequences*[12] are those consequences that were neither planned nor anticipated by project partners prior to project implementation but have since become apparent. This section seeks to make visible the benefits and consequences associated with the AIES/PWEG initiative by investigating environmental peacebuilding through a benefit sharing lens. Importantly, benefits and consequences must be made known; "otherwise it is hard for the policy-makers to take the necessary steps to capitalize on the cooperation that is taking place."[13]

Theoretical Framework

The environment ignores political borders, necessitating cooperation between neighboring societies on pressing environmental issues. According to environmental peacebuilding theory, shared

natural resources present opportunities for environmental cooperation between parties even if those parties are in conflict in other arenas. This type of cooperation has the potential to build trust, provide mutual benefits, and serve as a platform for dialogue where politics and diplomacy may be limited. Further, environmental cooperation can reduce pressures on scarce resources, allowing benefits to be redistributed across a range of actors in ways that can reduce conflict at multiple levels and in economic, political, social and environmental spheres. Transboundary environmental cooperation through water management may establish relationships and institutions that serve as a foundation for "more difficult processes" like peacebuilding.[14]

There is no guarantee, however, that relationships and institutions established through cooperative transboundary water management will promote peacebuilding. To better understand how institutions can affect behavioral change, it is instructive to consider the work of Young and Levy and their study of international environmental regimes. International environmental regimes are "social institutions consisting of agreed upon principles, norms, rules, procedures, and programs that govern the interactions of actors in specific issue areas."[15] These social institutions can "play a role in setting the agenda for future deliberation, initiating dynamic processes that lead to institutional evolution and, more broadly, influencing the way we think about large-scale environmental problems."[16] Once the benefits and consequences of the AIES/PWEG initiative are made visible, the potential exists for project partners and beneficiaries to engage in an iterative process of redistributing benefits and consequences that can, over time, promote behavioral change. This process of redistributing benefits can serve as a basis for creating formal or informal institutions that are grounded in the principles of benefit sharing and are well positioned to demonstrate the types of social structures that promote peace.

The creation and development of social institutions that promote behavioral change is key to realizing the goals of benefit sharing and environmental cooperation. These institutions are critically important for encouraging large-scale change. However, it is equally essential to localize these institutions through the fostering of community-level participatory processes. Contextually grounded, locally driven, participatory processes can foster the

creation of formal and informal institutions that can promote peace. Participation can lead to

> …improved legitimacy for decision-making administrations because the increased responsiveness of decision makers to affected parties helps to take into account stakeholder values and create trust; more pertinent and lower-cost decisions because stakeholders add otherwise unavailable vital information, reframe problems, and contribute new ideas; better chances for decision implementation because people are less likely to oppose a decision that they have helped to shape; and increased civic competency and social capital because participant interaction may foster learning related to these aspects.[17]

Local involvement in the shaping of social institutions that support benefit sharing may increase the likelihood that these structures remain sustainable and adaptive over time. By encouraging the participation of locals in the process, the social institutions created will be tailored to the developmental needs of the locals in an environmentally sustainable way. Locals will be more likely to reinforce environmental practices if they are active and powerful stakeholders in the process. Critically, respondents[18] indicated that project partners associated with the AIES/PWEG initiative have continued to seek feedback from project beneficiaries over time. This feedback, coupled with the benefits and consequences made visible through this research, can potentially provide a foundation for locally relevant, transboundary, cooperative benefit sharing mechanisms.

Field Observations and Discussion

The field observations presented in this section consider the benefits and consequences of transboundary wastewater cooperation using a typology of benefits adapted from Sadoff and Grey.[19] Three types of cooperative outcomes are examined: outcomes *from* onsite wastewater infrastructure, the *reduction of costs because of* onsite graywater recycling, and outcomes *beyond* onsite wastewater infrastructure. The list of cooperative outcomes generated through the use of this typology is then divided into intended and unintended

Onsite graywater treatment infrastructure in Al ‘Oja (photo credit: Courtney Owen)

benefits and unintended consequences below.

Intended Benefits

AIES and PWEG are explicit about the intended benefits of their joint initiative. Intended benefits include increased water availability; increased income from reduced water costs, "cash savings on cesspits emptying and on drinking water cost,"[20] and greater agricultural productivity; "improve[d] food production for impoverished and vulnerable farmers"[21]; and "reduce[d] hygienic and environmental risks and to protect and to save the scarce water resources."[22] Project beneficiaries acknowledged receiving most of these benefits, noting that recycled graywater is specifically used to irrigate olive trees, date trees, and household plants.[23] Thus, on a small scale, the AIES/PWEG initiative demonstrates how both Israelis and the Palestinians have either directly or indirectly enjoyed mutual benefits from transboundary wastewater cooperation.

Unintended Benefits

Field research revealed unintended benefits associated with the AIES/PWEG initiative. In fact, the initiative has created a ripple effect of unintended benefits. First, the initiative catalyzed discussions about graywater recycling between Israeli and Palestinian NGOs and technical experts that have helped to create and expand a transparent knowledge base. One project beneficiary was enthusiastic about promoting the AIES/PWEG graywater system within his community, claiming that 30 community members had already visited his home to see and learn about the pilot project.[24] Visits from community members curious about the project suggest that AIES and PWEG would be wise to tap this potential by developing an outreach strategy, as promoting and educating communities about graywater recycling will open doors for future cooperation.

Second, intergenerational benefits were also evident in Al 'Oja. One young member of the beneficiary household explicitly expressed interest in installing a graywater system in her own home in the future. Another younger family member living elsewhere within the same community took it upon himself to construct a similar graywater system in his own home and in the home of another older family member. Intergenerational interest in graywater recycling bodes well for the sustainability of the AIES/PWEG initiative and, by

extension, increases the potential for future transboundary cooperation.

Third, AIES and PWEG's transboundary cooperation has produced unintended benefits related to gender roles. The graywater recycling system installed in Al 'Oja saves time and eases household burdens for women and empowers women to play a greater role in managing water resources,[25] as will be discussed in detail in section 3.4.

Unintended Consequences

Unintended consequences can include financial, institutional, political, and relational costs.[26] In this case, unintended consequences were not immediately identified or acknowledged by project participants. When asked about unintended consequences, beneficiaries at the Al 'Oja pilot site had difficulty articulating negative outcomes associated with the project. However, further questioning revealed that the graywater recycling system's electric pump had failed and that a replacement pump had been purchased with household funds. Though this was not perceived as a negative outcome,[27] it may be construed as such given that it represents an unforeseen financial burden for project recipients. The pump was relatively new when it failed, raising possible concerns about long-term project sustainability. Respondents also noted that the electricity required by the pump had increased household energy costs – another unintended consequence.[28] Such unforeseen costs may deter others from pursuing similar graywater recycling systems in their own homes.

Analysis

Evidence shows that the PWEG/AIES initiative is successfully producing its intended benefits, but that its unintended benefits remain largely hidden or unapparent to project beneficiaries. Unintended benefits should be recognized and further explored in order to strengthen positive spillover from transboundary wastewater cooperation. The expansion and promotion of unintended benefit sharing in other cooperative domains facilitates a multifaceted approach to peacebuilding in which different avenues toward peace can be explored.

A key unintended benefit of AIES and PWEG's transboundary water cooperation is peacebuilding. Peacebuilding, as defined by the United Nations Development Program (UNDP), is defined as "activities undertaken on the far side of conflict to reassemble the foundations of

peace and provide the tools for building on those foundations, something that is more than just the absence of war."[29] While practical and political concerns may discourage implementing organizations from highlighting peacebuilding as an explicit goal,[30] the intended sharing of benefits occurring through their activities spills over into other cooperative arenas that can in turn lead to peace.[31] The concept of "unstable cooperation" highlights the idea that water cooperation, despite limited resources, may open the door to "confronting other political disputes."[32]

Despite political and physical barriers such as the Green Line, cooperative wastewater dialogues and actions between groups and individuals create a foundation for future peace. Participatory processes build trust between Israelis and Palestinians by bringing them together in their respective communities. However, while cooperation is occurring on a technical level, this only represents one small area in the broad range of cooperation needed to achieve meaningful peace. Water cooperation evolves into broader forms of political cooperation only if it is integrated into an economic and political institutional context.[33] The continuation and further development of benefit sharing across multiple domains should thus be explored, as this can ultimately lead to the promotion of both formal and informal social institutions that can be leveraged to promote peace.

Conclusion

The primary objective of this research is to assess the peacebuilding significance of benefit sharing mechanisms associated with the AIES/PWEG initiative. Evidence suggests that, while the initiative is producing both positive and negative cooperative outcomes, these outcomes remain unacknowledged by project participants. Making these benefits and consequences visible is an important step in unlocking the benefit sharing potential that exists as a result of the project. While a number of intended and unintended benefits and consequences are identified here, efforts should be made to uncover additional benefits and consequences. Project partners are currently working to administer a survey to project beneficiaries,[34] which may serve as a valuable tool toward that end.

Once benefits and consequences have been identified, opportunities to capitalize on these cooperative outcomes through mutually equitable benefit sharing mechanisms can be developed and

implemented. For example, AIES and PWEG could further cultivate unintended benefits by explicitly incorporating them into future project goals. One such goal could involve directly engaging and expanding the network of individuals and groups who enjoy the unintended benefits of the initiative. This network could encompass schools, community groups, women, and other actors, all of whom should be encouraged to actively engage in the participatory processes associated with local environmental initiatives.

Benefit sharing can also be leveraged to promote information sharing within a community. Project participants who were indirectly benefiting from graywater projects did not fully understand the importance of graywater recycling.[35] Also, the cooperation occurring between Israelis and Palestinians was not broadly known throughout project communities or to indirect project beneficiaries. AIES and PWEG should thus increase their education and outreach efforts to encompass a greater variety of beneficiaries. Knowledge about ongoing cooperative efforts should be promoted within communities that have already accepted graywater recycling projects. The lack of communication regarding the AIES/PWEG initiative decreases the chance that transboundary wastewater cooperation will build trust that ultimately leads to peace.[36]

However, dialogue and information sharing do not necessarily lead to action. Talking about cooperative transboundary wastewater management, while important, is not enough. Onsite graywater recycling initiatives address environmental problems on a small scale, but more action is needed. AIES and PWEG's efforts are transcending political boundaries, but benefit sharing is hindered by the project's unintended consequences and by conflict-related challenges. Despite these obstacles, however, cooperative management of transboundary wastewater and the use of benefit sharing mechanisms present attractive alternatives to traditional distributive methods and can lay the groundwork for future participatory processes and social institutions.

3.4 Gender and Peacebuilding

This section discusses the gender dynamics and gender impacts of the AIES/PWEG initiative within the larger framework of environmental peacebuilding theory. Gender, a social construct differentiating women and men, determines

one's personal experience of conflict. Gender roles are culture-specific, evolving, and influenced by age, race, class, ethnicity, and other factors.[37] Power is fundamental to the construction of gender. In fact, women's and men's access to productive resources and decision-making authority are consistently asymmetrical because of underlying power inequities.[38] These power inequities define gender relations by influencing access to and control over resources, participation in society, and the realization of human rights.[39] Women's subordinate roles during times of peace make them particularly vulnerable during times of conflict,[40] meaning that unequal power structures in the Palestinian West Bank society make Palestinian women particularly vulnerable in the context of the Israeli-Palestinian conflict.[41]

A gender perspective "places women at the center of analysis because across history and cultures, women have been denied equality, autonomy, and power. Women as a group have experienced diverse forms of violence from men as a group, because they have lacked power and because states or communities have failed to protect them or have in fact punished them."[42] A gender analysis, on the other hand, illustrates that harmful forms of masculinity and femininity can be strengthened during the peacebuilding process.[43] Gender analysis is an important tool in ensuring that peacebuilding projects do not reinforce unequal power relationships by exacerbating unequal access to resources and unequal participation.[44]

Given the importance of gender in peacebuilding, this report would be incomplete without a gender perspective and analysis. This section thus employs theories of gender and peacebuilding to demonstrate the significance of gender to AIES and PWEG's goals, and provides a gender analysis of their joint graywater recycling initiative.

Undertreated effluent in the Palestinian West Bank (photo credit: Moses Jackson)

Gender and Peacebuilding Theory

Due to unequal power structures, cultural norms, and gendered codes of behavior, women and men have different roles and responsibilities during both conflict and peacebuilding processes. Women's roles in conflict have traditionally been characterized as "peripheral and insignificant" by policymakers and government bodies.[45] Historically, women's contributions to peacebuilding have been overlooked because they "take unconventional forms, occur outside formal peace processes, or are considered extensions of women's existing gender roles."[46] Women often fail to recognize their own peacebuilding activities because they are incorporated into tasks that women are already expected to fulfill, such as ensuring the safety of the family and accessing social services.[47] Women have been largely generalized as passive victims, while men have typically been associated with active hostility. Victimization is an important aspect of the female experience of conflict, but focusing solely on this point can result in a personification of women as "voiceless victims, often devoid of agency, moral conscience, and economic potential."[48] This tendency is problematic because it ignores women as a potential asset in building peace.

Recognizing this weakness, gender mainstreaming gradually entered conventional thought and policy in the latter half of the 20th century, culminating in the 1995 Fourth UN World Conference on Women.[49] In 2000, the importance of women in peacebuilding was identified in UN Security Council Resolution 1325.[50] Despite progress in international rhetoric regarding gender sensitivity, peacebuilding efforts continue to fail to address the power dynamics underlying gender roles. This failure creates the potential for institutionalized gender-based discrimination.[51] Equity and peacebuilding are inextricably linked, and peacebuilding must therefore address gender-based discrimination.[52] Women's potential as assets in the peacebuilding process should be utilized.[53] Little attention is currently paid to how gender norms are constructed, yet gender norms can be transformed to support more equitable gender relations, protect human rights, and lead to peacebuilding.[54] Improving gender sensitivity in peacebuilding will foster "gender equitable outcomes," a fundamental component of sustainable peace.[55]

Methodology

This section's research was designed to determine 1) how the AIES/PWEG initiative affects men and women differently, and 2) how this knowledge can help AIES and PWEG achieve their goals. Multiple modes of analysis were used to examine gender at the organizational level (within AIES and PWEG) and at the household level (within beneficiary communities). Program management, project implementation, and project beneficiaries were analyzed through a gender lens. Gender was investigated in terms of both participatory (i.e., who participates and to what extent) and distributional (i.e., who gets what) features.

At the organizational level, research assessed the extent to which the AIES/PWEG initiative incorporated gender concerns into program and project design. This was accomplished through interviews and informal conversations with AIES and PWEG representatives and a review of the organizations' websites and published literature. At the household level, research examined the initiative's impacts on gender dynamics at project sites. This was carried out through conversations with a range of actors in project communities. Household analysis explored project participants' gendered differences in motivations to engage in the initiative, participation levels, costs and benefits, and perceptions of the initiative's peacebuilding significance. Changes in women's and men's activity patterns and workloads were examined, as well as access to and control of the resources generated by the initiative.

Findings and Discussion

Organizational Level

The AIES/PWEG initiative lacks a gender strategy. Additionally, both partner organizations lack individual gender strategies. This represents a significant missed opportunity in terms of both project sustainability and funding. Gender strategies are widely recognized as critical for the success of development and peacebuilding efforts. Projects that incorporate gender equity and women's empowerment as pathways to development and peace are increasingly awarded sustained funding by international donors, and many donors perceive a lack of a gender strategy as a significant weakness in project design. As an example, UNESCO cited a lack of a gender balance strategy as a weakness in its evaluation of Battir's application to become a World Heritage Site.[56] One AIES/PWEG project leader emphasized that the joint

initiative strives to ensure women's participation despite its lack of an explicit gender strategy.[57] This is at least partially supported by AIES and PWEG discourse and the fact that both organizations are led by a team consisting of one woman and one man. The directors of both organizations are male, however.

Household Level

Field evidence suggests that women and men have different reasons for engaging in environmental projects, and that some of the benefits of participation in the AIES/PWEG initiative are more obvious to women than men. Because women are typically responsible for caregiving, they are more interested in the potential of projects to improve family health. A respondent involved in community assessments for Battir's UNESCO application indicated that women were most interested in participating in the project as a means of improving health and hygiene in the home, while men were more interested in logistical issues.[58] Similarly, a community assessment for an environmental project in Taybeh reportedly showed that women identified health, food, and hygiene issues as highly important for their involvement in the project.[59] Recognizing gender-specific motives for participation can allow AIES and PWEG to increase project sustainability and improve outcomes by targeting women specifically.

Project benefits accrue differently to men and women. A female engineer indicated that graywater recycling projects generate specific benefits for women by easing household responsibilities. Cesspits can overflow and spread illness through fecal contamination, but graywater recycling significantly reduces this concern. Women are largely responsible for caring for the sick and thus stand to benefit directly from improved health outcomes. When washing clothes and engaging in other activities that produce graywater, women worry less about overloading cesspits because the effluent is diverted for productive agricultural use. Excess household income is typically spent on food, and because women are largely responsible for family meals, they benefit directly from the cost savings associated with graywater recycling.[60]

A young female respondent in the Al 'Oja recipient household reported that the graywater recycling system reduces the time spent irrigating crops as well as the frequency (and thus cost) of cesspit pumping. She indicated that the system made housework for her mother and brothers easier and gave them more free

time. She also expressed a desire to have a graywater recycling system for her own home in the future.[61]

Though female respondents did report perceiving project benefits, it was evident that girls in beneficiary households were not educated on how the graywater recycling system functions or how its benefits can be optimized. This suggests that girls were largely excluded from project planning. There were no reported female-specific costs associated with the project.

Project beneficiaries perceived the AIES/PWEG initiative's peacebuilding significance as minimal. One respondent stated that she liked knowing that Israelis and Palestinians were working together, but that she had not interacted with any Israelis through her involvement with the project.[62] Most respondents recognized the initiative primarily for its ability to improve household well-being and did not link it with the broader Israeli-Palestinian conflict.

Graywater treatment system installed in Al 'Oja (photo credit: Moses Jackson)

Conclusions and Recommendations

The AIES/PWEG initiative's lack of gender strategy reflects a significant missed opportunity. The incorporation of a gender strategy and gender impact assessment at the organizational and household levels could increase project sustainability by helping to secure additional funding and fostering community support.

In terms of community support, men and women have different motives for participation. Women benefit from the initiative in ways that are underappreciated by men, as graywater recycling eases domestic burdens for which women are typically responsible. AIES and PWEG should recognize this discrepancy as an

opportunity. Highlighting the projects' gendered benefits will allow AIES and PWEG to specifically target women within project communities, thereby encouraging additional support of the initiative. A comprehensive gender strategy may also help AIES and PWEG secure additional funding and, in turn, allow other families to share in the benefits of graywater recycling. The international donor community considers gender strategies critical for the success of development and peacebuilding projects. The up-scaling envisioned by AIES and PWEG will require greater funding and more reliable funding sources, and demonstrating an effective gender strategy to international donors can help achieve this goal by opening doors to additional funding opportunities.

To that end, AIES and PWEG should conduct a gender impact assessment at both the organizational level and the household/community level. This assessment should detail the impacts of the project for men and women, acknowledging their differing roles and identifying gendered costs and benefits. This would also provide useful insight on how to further empower women through the initiative. From there, AIES and PWEG should develop a strategy for increasing gender balance. These efforts would make project up-scaling more feasible and help women by providing opportunities for meaningful participation, decreasing household burdens, and improving well-being. Taken together, all of these outcomes stand to significantly strengthen the initiative's peacebuilding significance.

Endnotes

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Chapter 4

Relationship Building

4.1 Introduction

Relationship building as a strategy for transforming conflict dynamics and promoting peace has received much attention in literature and research connected to the Israeli-Palestinian conflict. Much of this research has focused on the role that encounter programs, public peace processes, and a host of dialogic methods may play in diffusing tensions, creating a political environment that is ripe for Track 1 diplomacy efforts, and reimagining conflict situations as spaces for constructive rather than destructive engagement. This chapter seeks to add to this body of research by considering how environmental initiatives in the region can serve as platforms for cultivating sustainable relational networks capable of transforming conflict.

4.2 Relationship Building and Peace

This chapter examines the peacebuilding significance of the relationships being created, strengthened, and sustained through the AIES/PWEG initiative. A review of the organizations' literature suggests that both AIES and PWEG believe they are engaging in relationship building. As AIES notes, they provide "a platform whereby… real and long-lasting relationships built on trust and integrity are created among those who are responsible for the sustainable management of the region's fragile water resources."[1] Likewise, PWEG's brochure speaks to its ambitions to build technical and organizational capacity by connecting like-minded professionals.[2] A nuanced understanding of the quality and character of the relationships these organizations are building is critically important. Equally important is a working knowledge of how these relationships connect to broader peacebuilding aims, as regional dynamics necessitate conflict-sensitive project planning and implementation. Through an analysis of the relational networks and resultant information sharing occurring through the AIES/PWEG initiative, this chapter identifies ways in which relationship building is promoting peacebuilding and suggests ways to further leverage those relationships to deepen peacebuilding significance.

Theoretical Framework

The theoretical perspective employed herein focuses on how sustained relationships can be leveraged to transform

conflict dynamics and build constituencies for positive peace. Positive peace is recognized as the absence of structural violence[3] and the presence of institutions, attitudes, and behaviors that support socially just, equitable societies.[4] Peace constituencies can be activated within a community to facilitate the formulation and development of positive peace. Peace constituencies are "networks of people who act in concert to build sustainable peace… [They] are multisectoral and can include any social actor working for peace."[5] Peace constituencies can serve as "strategic anchor points that link different but necessarily interdependent constituencies, processes, and geographic localities"[6] as efforts to create sustainable, long-term change move forward. Relational centers that "hold, create, and sustain connections" are key to peacebuilding.[7] Understanding the peacebuilding significance of relationship building requires examining the quality and character of connections being built, as those connections can be leveraged later to mobilize peace constituencies in the creation of positive peace.

Methodology

The Positive Peace Index (PPI) is helpful in determining how to measure the peacebuilding significance of sustained relationships. PPI utilizes a systems approach to measure the strength of attitudes, institutions, and structures of individual nation-states in order to reveal their capacities to create and maintain a peaceful society.[8] It analyzes twenty-four indicators organized into eight distinct domains. One such domain is referred to as Free Flow of Information, which captures "how easily citizens within a nation-state can gain access to information, whether the media is free and independent, as well as the extent to which citizens are informed and engaged in the political process."[9] This domain – and particularly its attention to citizen engagement and access to information – informs this chapter's methodological approach. An analysis based on this domain emphasizes the importance of freely flowing information among institutions that promote positive peace, uncovers relational dynamics as expressed through the exchange of informational power, and investigates information sharing platforms[10] – an often-lauded outcome of environmental peacebuilding projects.

Informational power and its connections to social influence must be understood in order to establish the link between information sharing and

relationship building. Social influence is defined as "a change in the belief, attitude, or behavior of a person…which results from the action of another person."[11] Social power is defined as "the *potential* for such influence, the ability of the agent or power figure to bring about such change, using resources available to him or her."[12] Available resources, or bases of power, take many forms. One such form is informational power, or the ability of one actor to provide information to another actor that can cause him or her to think and/or act differently.[13]

The concept of informational power and its links to social power and influence align with concepts drawn out by John Paul Lederach. Lederach examines how the metaphor of voice relates to individuals' connections to a peace process:

> …*voice* constitutes a social geography mapped and measured by the distance needed to create a sense of engagement. More literally, voice is about meaningful conversation and power. *Meaningful conversation* suggests mutuality, understanding, and accessibility. *Power* suggests that the conversation makes a difference: Our voices are heard and have some impact on the direction of the process and the decisions made.[14]

Coupling the ideas of informational power and voice helps explain why information sharing is an appropriate proxy for relationship building. Information sharing, or the exchange of informational power, can signify changes in attitudes or behavior. It follows then that enhanced information sharing and improved relationship building can develop in parallel over time.

Network analysis and network theory provide a basis for modeling the flow of information through relational networks. In network analysis, nodes and connections between nodes represent the quality and character of relationships.[15] A network map of the AIES/PWEG initiative is depicted in Figure 4.1. In this particular network map, the quality and character of the connections between the nodes are based on respondents' answers to interview questions regarding the free flow of information between themselves and others in the relational network. Network analyses often use line weights and arrows to describe the strength and directionality of flows through a network. In this case, however, the relative strengths of relationships and their directionality were difficult to determine for all groups except AIES and PWEG. Strength and directionality are thus indicated only between the project partners, as many sources were able to independently verify an observable mutual strengthening of their

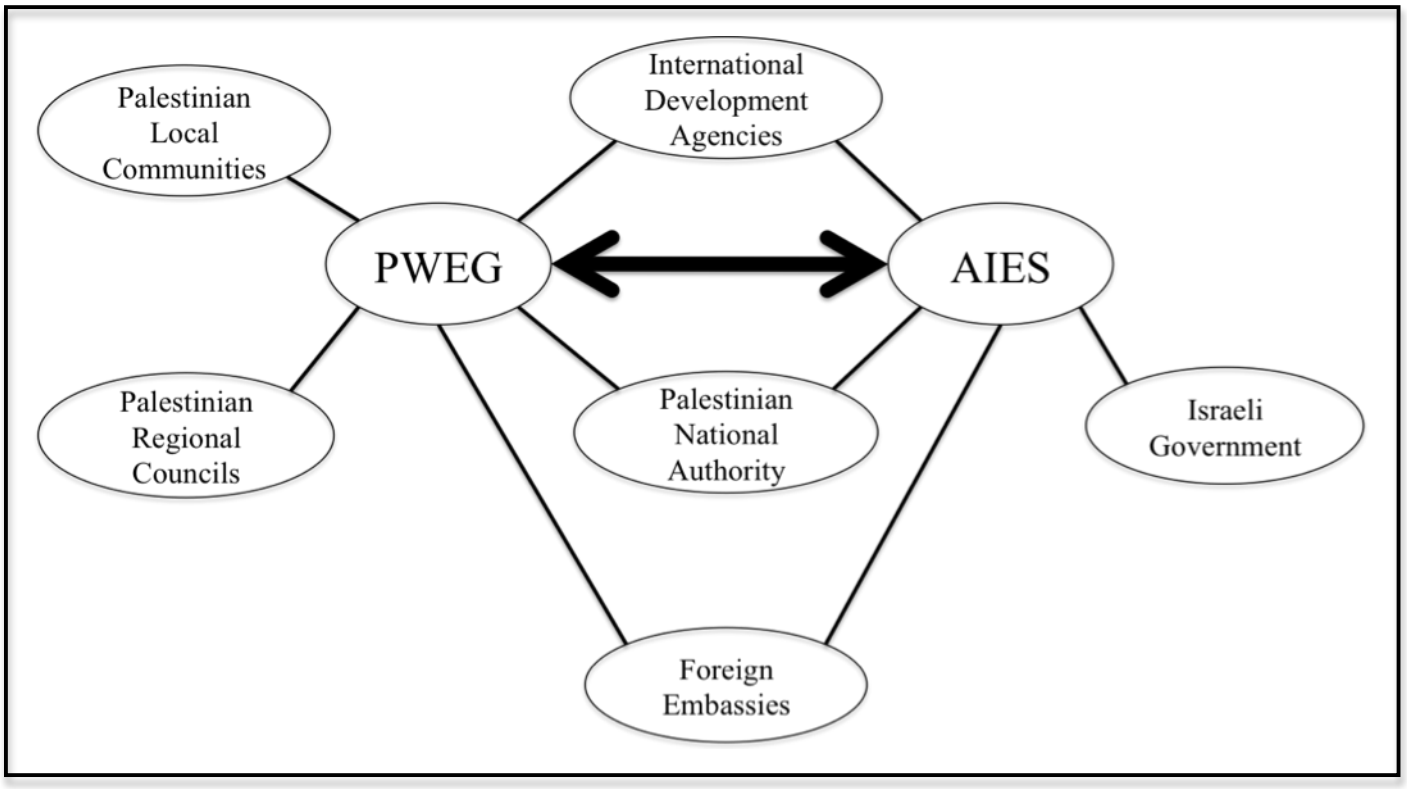
relationship. With these caveats in mind, Figure 4.1 highlights key insights about the relationship building process initiated by the AIES/PWEG partnership.

Key Findings

'Power With' Rather Than 'Power Over' Partnerships

A worldview grounded in the aspirations of conflict transformation is focused on interdependence[16] and "promotes an inclusive and cooperative attitude to relationships in which power is 'pooled' and becomes 'power with,' so that the question of symmetry or asymmetry is transcended."[17] This is in contrast to a 'power over' approach which "seeks and exploits asymmetries of power"[18] Applying a conflict transformation framework to peacebuilding sheds light on the power-sharing and joint participation dimensions of social relations.[19] This same framework, when applied to the network map in Figure 4.1, highlights qualities that make AIES and PWEG ideal candidates for a partnership that can demonstrate the potential available in 'power with' rather than 'power over' peacebuilding strategies.

Figure 4.1: AIES/PWEG Initiative Relational Network Analysis



First, there is observable parity in terms of access to international organizations and entities outside of the regional context. This parity allows both organizations to have unique and distinctive voices on the international stage without the help of an intermediary. This means that both organizations have access to funding streams and resources independent of one another, providing a level of symmetry at the international level. In fact, as several respondents indicated, the AIES/PWEG partnership began when both organizations were invited as equals to bid on a project sponsored by the World Bank.

Second, the interdependent aspects of their AIES/PWEG relationship are evident: both organizations serve as gateways to actors within their respective governments. AIES provides a gateway for the environmental interests of PWEG and other project affiliates to reach the Israeli government. PWEG, on the other hand, is an ambassador for the needs of Palestinian local communities and regional councils. Together, the two organizations have a wide range of potential influence in the region – far wider than either organization has alone.

In an interview, one respondent noted that AIES and PWEG seem to enjoy working with one another – not because they have to but rather because they want to – and expressed curiosity about how the two organizations will move forward in the future.[20] Both AIES and PWEG seem to understand the potential generated through pooling resources and are leveraging their individual and collective skills and influence to effect change in the region. In this way, they are highlighting the importance of building 'power with' rather than 'power over' partnerships.

Modeling Peacebuilding Relationships

The AIES/PWEG initiative not only demonstrates the benefits of recycled wastewater but also provides a model for the quality and character of sustained relationships that promote peacebuilding. Project partners demonstrate that they can change the conflict dynamics around them simply by being themselves.[21] According to noted peace practitioner Thich Nhat Hahn, "An oak tree is an oak tree. That is all it has to do. If an oak tree is less than an oak tree, then we are all in trouble… Without doing anything… the oak tree is helpful to all of us just by being there. Every time we look at the oak tree we have confidence."[22] The AIES/PWEG partnership is valuable as much for its wastewater outcomes as for its ability to demonstrate healthy relationship

building between Israelis and Palestinians. The ongoing partnership between AIES and PWEG embodies both realized and latent potential for cooperative efforts in the region. At least one respondent indicated that the project and the Israeli-Palestinian partnership give her hope for the future.[23]

Emphasis on Strengthening Existing Ties – Not Cultivating New Ones

Findings suggest that the AIES/PWEG initiative strengthens existing ties between individuals, organizations, and institutions but does less to cultivate new relationships and extend relational networks beyond the epistemic sphere. Two respondents indicated that primary project beneficiaries tend to have an existing relationship with one or both of the project partners.[24] Strengthening existing ties can build trust among partners and create opportunities for long-term planning, but failing to cultivate new ties may preclude meaningful engagement with new actors.[25] Failure to engage new actors can reduce the flexibility of the relational network and hinder its ability to overcome challenges that emerge over time.

Potential to Build Relational Platforms

Relational platforms allow for the continued, adaptive generation of creative ideas and solutions for the challenges that emerge in conflict settings.[26] Relational platforms that create ongoing change

> …are built by supporting constructive engagement of people who have been historically divided and who are or may remain in significant levels of conflict…are more important that the individual solutions they create…[and] generate processes that produce solutions and potentially transform the epicenter of relationships in context.[27]

Onsite graywater recycling projects can build relational platforms between Israeli and Palestinian stakeholders. In three separate interviews, conversations about graywater reuse evolved into conversations about human rights,[28] dignity,[29] and what it means to be human.[30] These interviews suggest that the AIES/PWEG initiative has the potential to create a platform for ongoing and systemic change that transcends strict environmental and development outcomes.

Significant challenges must be overcome to realize this potential, however. One recognized shortcoming of environmental peacebuilding is "its inability to transform environmental cooperation into broader forms of political cooperation and initiate a social and political dialogue going beyond environmental aspects."[31] This shortcoming is supported by field observations. In group settings where both

Israelis and Palestinians were gathered to discuss issues related to the AIES/PWEG initiative, several individuals shared insights about the human condition that extended into social and political spheres.

While these conversations effectively lay the groundwork for a relational platform for systemic change, anecdotal evidence suggests that the platform is being underutilized. To cite one example, when a respondent interrupted a conversation to give an impassioned soliloquy about the injustices and affronts to human dignity that he encounters daily, other respondents became silent and failed to comment directly on the issues he raised. Instead, after a brief pause, individuals returned to their conversations. In this way, the moment – and its potential – went largely unacknowledged by the group. The relational platform is thus being used as a space for facilitating dialogue and venting frustrations, but it is not being used to extend action beyond the scope of the project itself. This can be problematic given that dialogue without action can, in the long run, reinforce rather than transform conflict dynamics and existing oppression.[32] Perhaps if someone had employed dialogic strategies to make visible connections between the initiative, personal experiences of injustice, and the wider regional context, creative synergies may have been able to foster "movement toward a new horizon in order to redefine both the moment and the relationship."[33]

Sluice gate used to divert agricultural water in Battir (photo credit: Moses Jackson)

Conclusion

This chapter's key question is "What is the peacebuilding significance of the relationships cultivated through the AIES/PWEG initiative?" Analysis reveals that the initiative promotes peacebuilding in two critical ways. First, it showcases the type of relationship between partners that can encourage peacebuilding. AIES and PWEG demonstrate the important role of relationships in peacebuilding simply by leveraging their individual skills to work together in the region. Second, the initiative strengthens existing relationships among

project partners and beneficiaries. Strengthened relationships can foster trust building and increase the likelihood that partners will engage in long-term planning over time.

There are also areas where peacebuilding opportunities can be further leveraged. The initiative strengthens existing relationships but does less to cultivate new relationships beyond the epistemic community. This represents a missed opportunity to develop resilient, flexible relational networks capable of responding to new challenges. While the initiative creates new platforms for dialogue and action, these platforms are currently underutilized and may unintentionally reinforce rather than transform conflict dynamics. This represents a missed opportunity to connect the cooperative energy associated with the project to larger social and political issues in the region. Despite the missed opportunities, however, the AIES/PWEG initiative and the relational networks it has cultivated do contribute to and promote peacebuilding efforts in the region.

Endnotes

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[10] Alexander Carius, "Special Report - Environmental Peacebuilding: Conditions for Success," *Environmental Change and Security Program Report* 12(2006-2007): 59-75.

[11] Bertram H. Raven, "The Bases of Power and the Power/Interaction Model of Interpersonal Influence," *Analyses of Social Issues and Public Policy* 8, no. 1(2008): 1.

[12] Ibid.

[13] Ibid., 1-22.

[14] Lederach, *The Moral Imagination*, 56.

[15] John Scott and Peter J. Carrington, *The SAGE Handbook of Social Network Analysis* (Los Angeles: SAGE Publications, 2011), 9-54.

[16] Diana Francis, "New Thoughts on Power: Closing the Gap between Theory and Action," in *Berghof Handbook for Conflict Transformation*, ed. Beatrix Austin, Martina Fischer, and Hans J. Giessmann (Berlin: Berghof Foundation, 2011), 505-525, under "Section I: Concepts and Cross-Cutting Challenges," http://www.berghof-handbook.net/all.

[17] Ibid., 507.

[18] Ibid.

[19] Hannah Reich, *Berghof Occasional Paper No. 27 – "Local Ownership" in Conflict Transformation Projects: Partnership, Participation, or Patronage*? (Berlin: Berghof Foundation, 2006), accessed November 3, 2013, http://www.berghof-conflictresearch.org/en/publications/occasional-papers/.

[20] Interview with Informant 3, June 25, 2013.

[21] Thich Nhat Hanh, *Being Peace* (Berkeley: Parallax Press, 2005), 33.

[22] Ibid.

[23] Interview with Informant 8, June 25, 2013.

[24] Interviews with Informants 5 and 6, June 25, 2013.

[25] Lederach, *The Moral Imagination*, 48-49.

[26] Ibid.

[27] Ibid.

[28] Interview with Informant 16, June 27, 2013.

[29] Interview with Informant 11, June 26, 2013.

[30] Interviews with Informants 20 and 21, June 27, 2013.

[31] Carius, "Special Report - Environmental Peacebuilding," 66.

[32] Mohammed Abu-Nimer, "Education for Coexistence and Arab-Jewish Encounters in Israel: Potential and Challenges," *Journal of Social Issues* 60, no. 2(2004): 405-422.

[33] Lederach, *The Moral Imagination*, 40.


Chapter 5

Changing Perceptions

5.1 Introduction

Chapter Five explores ways in which the AIES/PWEG initiative can change perceptions through environmental peacebuilding. Peacebuilding efforts cannot be effective or sustainable unless they catalyze meaningful change in conflict actors' pre-existing conceptions of the conflict. The three studies presented in this chapter investigate three key avenues by which perceptual change can contribute to the peacebuilding significance of the AIES/PWEG initiative: discursive change, changes in perceptions of "the other," and changes in perceptions of the natural environment. Analysis draws from a range of theoretical perspectives including environmental peacebuilding, regime theory, contact theory, and Lederach's "peace pyramid." The goal of this chapter is to highlight the perceptual changes occurring through the AIES/PWEG and present ways in which perceptual change can be further integrated in project outcomes.

5.2 Discursive Change

Introduction

Across numerous domains, instruments of structural violence heavily impact interaction between Israel and the Palestinian West Bank. Structural violence is a codified social injustice[1] that promotes an "unequal exchange" of access and resources between groups.[2] Hydrological resources are not immune. Particular to the transboundary waterscape, the JWC stands as a tool of structural violence. As detailed earlier, the JWC apportions access to the basic human necessity of water in a discriminatory fashion resulting in prolonged Palestinian deprivation, forestalled Palestinian autonomy, and the preservation of the asymmetric balance of hydro-political power.[3] The theory of positive peace holds that peace is more than merely the absence of physical violence but also mandates the abolition of violent structures within a society.[4] Comprehensive peacebuilding, therefore, must address violence within this sphere.

Institutional reform is the prerogative of state actors who currently benefit from the asymmetric relation, however. These actors are not likely to make unilateral

alterations. If the prospect of internal state change is dubious then other options must be found. One option is to disrupt the ideational framework undergirding the systematized violence, i.e. discursive peacebuilding. In short, addressing structural violence necessitates challenging its legitimizing discourse.[5] Discursive peacebuilding as a point of entry is significant because altering the discourse represents an alteration to a perceived truth. At its heart a discursive frame separates "between 'right' and 'wrong' knowledge, between different constructions of reality, between that which is 'sayable' and that which is 'unsayable.'"[6] Moving forward from this, peacebuilding is "understood as the discursive practice of critique, resistance to, desistance from, and alternative relational formations to violently conflictual relations."[7] Specific to this hydro-structural violent context, peacebuilding is "the pursuit of [a] discourse that specifically, critically and reflexively takes hydro-hegemony and its justificatory narrative to task."[8]

This section thus aims to examine the extent to which AIES and PWEG stand as bodies resisting or desisting from the validating discourse that sustains the structurally violent institutions currently governing the water sector. The graywater treatment and reuse system will be looked at in particular, as will the larger organizational mechanisms and motivations for change. A slightly more expansive focus is taken so as to understand the overall organizational discourse. This latter point amounts to an examination of how AIES and PWEG conceive of themselves as peacebuilders. Discursive peacebuilding takes place on an ideational level. It therefore has a greater propensity to go unrecognized. Examining both the specific initiative and the organizations as a whole brings to focus potential missed opportunities for discursive peacebuilding.

Methodology

Given this study's dual and adjoining aims, data is culled from various sources. Interviews with key informants aided in outlining the organizations' self-description concerning their role as peacebuilders. Primary informants were those individuals who worked directly for AIES and PWEG. Conversations with these individuals explored how they understood peacebuilding apropos to the graywater recycling system in particular as well as the mission of their respective organization as a whole.

Battir village landscape (photo credit: Moses Jackson)

Further research involved a discourse analysis of the literature in which Arava and PWEG self-describe their respective organizations and work. Documents reviewed included mission and objective statements, project descriptions, self-directed studies, and program reports. These documents pertained directly to the graywater project and to the respective organizational missions as a whole. All of the documents available on PWEG's website were reviewed. In the case of AIES, electronic publications reviewed were limited to those disseminated by the Center for Transboundary Water Management (CTWM). AIES is an extensive organization with a myriad of programs operating under different internal directives. CTWM is responsible for transboundary programs including, but not limited to, the joint PWEG project and maintains a complimentary yet distinct approach to peace compared to other AIES programs. Thus, restricting the discourse analysis to CTWM still allowed space for a specific graywater initiative analysis and one of a larger operational ethos.

All of these texts were read with an eye towards explicit mentions of peace, peacebuilding, and conflict resolution. A second layer of analysis was pursued wherein the texts were examined for implicit allusions to such topics. Additionally, unrecognized or latent potential for engagement on these fronts was catalogued.

Analysis from this last point informed the body of theory grounding of the study.

Finally, salient theoretical literature was leveraged in order to frame the work of AIES and PWEG with reference to the definition of discursive peacebuilding mentioned above. A large body of peer-reviewed theory was consulted during the pre-departure desk study. This corpus was refined in light of field observations and interviews. The resultant theoretical grounding pertains largely to the specific discourse of Israeli hydro-hegemony and more universal information regarding mechanisms of institutionalizing discourse.

Theoretical Grounding

Ostensibly, the JWC represents a regime.[9] In the theoretical literature regimes are cooperative, supranational bodies that author and acquiesce to a normative policy of behavior for a given domain.[10] Most often these transboundary institutions are formed in response to issues that states cannot address unilaterally due to their transgressive nature, such as nuclear proliferation or pollution.[11] The realist ambitions of states at times occlude communal responses to transboundary concerns. Regimes thus serve as productive mechanisms "for international learning that produce convergent state policies."[12] Given the necessity for superordinate coordination, regimes are ideally created at the behest of epistemic communities. Epistemic communities are affiliations of specialized professionals maintaining a corpus of domain-specific knowledge, i.e. technicians, medical practitioners, scientists, engineers, etc. Simply: non-state actors. These professional bodies coalesce around standardized practices and shared solutions to a singular problem.[13] It is by virtue of their recognized domain-specific knowledge-power that they are able to inform and appropriate the decision-making capacity of states. Having crafted a niche within the sphere of policy construction, the epistemic community defines and then institutionalizes innovatory procedures aimed at mitigating the collective hazard.[14] Institutionalization of new normative behavior requires high-level advocacy and deliberate lobbying measures.[15] If formalized, the ascendant procedures replace a single loop paradigm (whereby new policies are introduced in pursuit of the same end) with double loop (new policies are developed in pursuit of unconventional ends).[16]

The failure to meet the idealized qualities of reciprocal cooperation,

adherence to a common agenda, and double loop procedure renders the JWC an asymmetric regime. A justificatory narrative in which water is a securitized commodity shapes Israel's realist and singularly nationalistic pursuit: national survival is predicated upon access to a sustainable and unpolluted water supply. One of the perceived central threats to water security is the Palestinian other.[17] Inefficient water use and improper wastewater management within the Palestinian Territories menaces the quantity and quality of water available for Israeli consumption. This discursive narrative is, in part, based on a perception of Palestinian inability and/or unwillingness to be conscientious environmental stewards.[18] It is thus necessary for Israel to act as a benevolent power providing technical innovations and a centralized management system to an enfeebled Palestinian Territory.[19] Within this frame, the Israeli government acts akin to a metropole power.[20]

Self-reinforcing, the discourse has proven efficacious. Inadequate wastewater infrastructure is, by and large, the result of the JWC's bureaucratic lethargy and Israel's hermetic control over Palestinian borders. These restrictive interventions are the very measures that claim to be necessary in order to protect the securitized resource. The hegemonic power structure of the JWC ultimately produces the errant behavior it claims to address, namely insufficient (waste)water infrastructure. By reproducing the problem, the institutions of structural violence establish a self-sustaining discourse of utility.[21] Challenging the legitimating discourse, therefore, needs to target the cyclical quality of the structural violence-discourse relationship. This point of critique serves as the theoretical frame within which the analysis of the AIES/PWEG graywater initiative and its potential for discursive change is anchored.

Literature Analysis and Field Observations

The self-referential literature of both organizations rarely mentions peace or peacebuilding. No PWEG publication surveyed explicitly qualifies their work as such; AIES, likewise, almost completely avoids using the term. In only one instance did AIES reference the process: the graywater system pilot project report noted that transboundary cooperation between Israelis and Palestinians "will encourage peace building."[22] This lacuna in the self-conception of purpose was reiterated during personal interviews.[23] When asked about the

general absence of language referencing *peace*, several respondents indicated that terms like *peace* and p*eacbuilding* are often associated with larger political processes taking place within the region – not the day-to-day efforts of those living and working within the region.[24] Rather than emphasizing peacebuilding as a primary objective of their work, both organizations stressed the technical capacity and professional skills they possess as engineers and hydrologists as being utilized to improve the beneficiaries' quality of life.[25] Common in their abstention, AIES and PWEG articulate, and indeed actualize, distinct processes and accompanying rationales. Out of deference for AIES and PWEG's reluctance to label their work as "peacebuilding" this section will use the terminology "discourses of change."

In their literature, AIES conceives of their work as providing an institutionalized, formal space for the cultivation of a collaborative network of individuals dedicated to transboundary water management. AIES operates under the assumption that relationships build partnerships that in turn reduce conflict; this is the core of their discourse of change.[26] Relationship building is designed to be interpersonal in nature and among water professionals and specialists. These then organically evolve into cooperative partnerships around specific, practical wastewater concerns. The final connection between addressing practical transboundary issues and reduced conflict is largely assumed.[27]

Indeed, in practice AIES has established a network of cooperative partnerships – the joint AIES/PWEG graywater project is evidence of this fact. The leap from technical projects to reduced conflict is less clear. There is a distinct possibility that mitigating contamination of the waterscape will attenuate tensions between neighboring Palestinian and Israeli towns. However, the relations-cum-partnerships approach has a greater peacebuilding potential on a discursive

View of Al 'Oja Spring (photo credit: Moses Jackson)

level. Time in the field revealed a community of transboundary water professionals from a variety of professions, all of whom were familiar with AIES and their work. In meaningful ways this body of professionals represents an un-codified epistemic community. Vis-à-vis transboundary water cooperation, all of the parties who knew of AIES possessed domain-specific knowledge, maintained a shared set of normative beliefs, and advocated for an alteration to the single loop rhythm of the JWC. Theory holds that epistemic communities forge regimes; an Israeli-Palestinian water regime currently exists. Thus what this affiliation represents is more accurately a *counter-hegemonic* epistemic community in-waiting. This cadre is un-codified insofar as they are not organized as an active, coordinated body. Mentioned earlier, theory states that for epistemic community to wrest policy-power from established bodies they need to "exert power on behalf of the values and practices" they hold.[28] Nothing observed in the field or indicated by AIES literature points to high-level advocacy and collective lobbying as a current organizational goal.

For their part, PWEG focuses their efforts less on cultivating transboundary communities in favor of Palestinian capacity building. Capacity building is a blanket phrase that denotes enhancing technical and managerial expertise as well as fundraising.[29] Technical capacity building efforts primarily target the municipal level, domestic graywater recycling notwithstanding. Project objectives include developing a plastic recycling program, addressing food security through agricultural development, establishing sanitation advisory teams, and identifying funding sources.[30] Believing Palestinian West Bank communities to be extensively marginalized, the organization aims to act as a conduit for inward flowing information about best environmental practices and techniques as well as outward flowing information detailing the Palestinian water reality. The organization seeks to be a mechanism through which Palestinian West Bank communities can access the resources necessary for creating a self-reproductive society. Accordingly, PWEG's discourse of change is one of Palestinian autonomy and self-resilience. Ultimately, these objectives hope to increase the quality of life of Palestinians.

On the ground observation demonstrated that PWEG had in fact been acting upon its discourse of change: domestic and municipal projects, either fully

implemented or near completion. These projects had resulted in or had the potential to increase personal well-being and environmental quality for select Palestinian West Bank residents. Much like AIES, however, there is a larger potential left ungrasped. This discourse of change represents a direct challenge to the hydro-hegemonic justificatory narrative. Sustaining the need for the structurally violent apparatus is the notion of Palestinian water sector incompetence; cultivating water sector autonomy undercuts this assertion. The graywater system – designed, maintained, and up-scaled by Palestinians[31] – bucks the patriarchal discourse of Palestinian inability to be responsible stewards. Our definition of discursive peacebuilding frames desisting from the hegemonic narrative as a defiant act of peace. PWEG's programming is engaging in this very discursive abstention. What needs to also be engaged in is a wider public awareness of their desistance. Discourse is internalized by individuals in society and reproduced through their speech and actions, which in turn sustains the structures of violence. Repudiation of the hegemonic narrative must be visible for this cycle to be broken. By making the fallacy of the discourse more widely known, PWEG will highlight the JWC as a structurally violent apparatus. The assumption is that the more people who understand the hydro-hegemony as violent, the more bottom-up pressure there will be to rearrange the system in a more peaceable fashion.

Conclusion

Though neither AIES nor PWEG lay claim to the peace process (lowercase "p"), taking their graywater initiative as emblematic of their larger operations it is clear that they are in fact engaging in peacebuilding measures. The two organizations are participants in a practice that is positioned to affect a change in the discourse of water and cooperation apropos to structurally violent mechanisms. The operative word is "positioned." As currently pursued, AIES and PWEG are not fully realizing their discursive peacebuilding potential. AIES's latent epistemic community needs to amend their current practice of quiet transboundary work. To appropriate the power of policy, epistemic communities must be mobilized in the direction of high-level advocacy. This seems even more acute in the case of a counter-hegemonic community. If the end goal is a shift in systemic norms they must interface with the system through direct action,

Community water access point in Battir (photo credit: Courtney Owen)

leveraging their knowledge-power and positing their normative frame. PWEG, too, must become more visible. They maintain a praxis of Palestinian capacity building that undercuts the Israeli state discourse. While their work done in quiet may produce on-the-ground benefits, it will be not erode the mainstream discourse if it does not increase its public profile. This is the necessary realm of engagement. It is advisable for PWEG to broadcast their work more widely to the Israeli citizenry and abroad. AIES and PWEG maintain the fundamental mechanisms to resist and desist; thus the ultimate factor occluding actualizing peacebuilding is not skill but organizational will.

5.3 Perceptual Change and the 'Other'

Intractable and protracted conflicts such as the Israeli-Palestinian conflict are defined by the "long-term nature of the conflicting groups' animosity, perception of enmity, and deep-rooted fear."[32] They are driven by "perceptions, emotions, and subjective experiences, which can be wholly independent"[33] of the original causes of the conflict. As a result, traditional diplomacy often lacks the capacity to effectively address such conflicts and create sustained peace. It is therefore crucial that peacebuilding activities occur across different domains. The AIES/PWEG initiative does this by operating primarily in the environmental domain, using shared environmental challenges as a means of addressing the broader conflict.

Previous sections of this report discuss relationships in terms of building networks. This section focuses on relationships in terms of perceptions of "the other." Israelis' and Palestinians'

perceptions of one another are a critical factor in assessing the peacebuilding significance of the AIES/PWEG initiative. Given the proximity of Israeli and Palestinian populations, their transboundary water resources, their "common histories," and "the dynamic of severe stereotyping coupled with radically differing perceptions of the other,"[34] a positive shift in perceptions of the other is necessary for sustainable peacebuilding to occur. This section analyzes the ability of the AIES/PWEG initiative to create space for such a shift to happen. The objective here is not to determine whether perceptual change is in fact occurring, but rather if, in theory, the conditions for perceptual change to occur are being created.

Theoretical Framework

Peacebuilding theory emphasizes that creating peace requires interactions and meaningful contact between conflict actors. According to Lederach, "*relationship* is the basis of both the conflict and the long-term solution."[35] Lederach's reconciliation framework stresses the need to "engage the sides of a conflict with each other as humans-in-relationship,"[36] and to use different types of encounters and activities to "find ways to address the past without getting locked into a vicious cycle of mutual exclusiveness inherent in the past." Ideally, by encountering the other, past perceptions are changed for the benefit of a shared future.

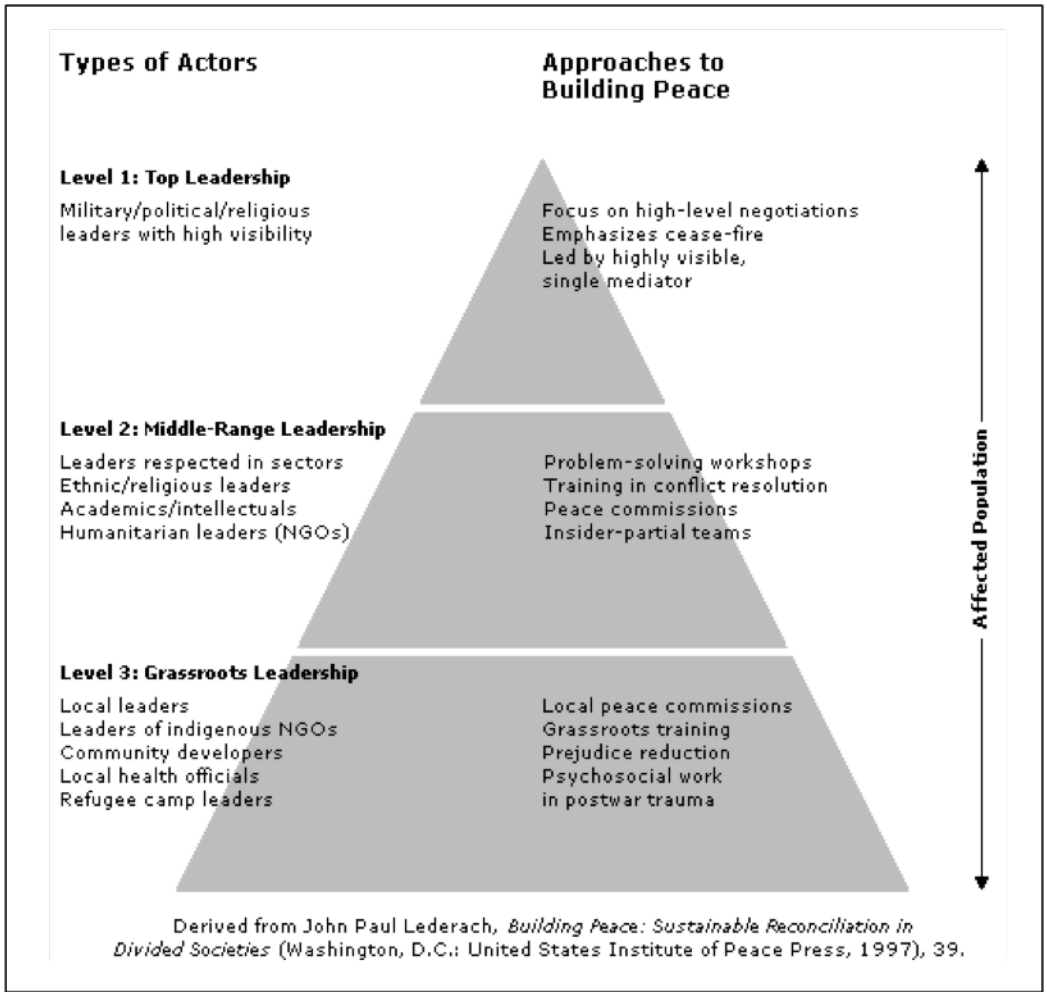
Lederach's theory includes a "peace pyramid" in which various types of actors are delineated (see Figure 5.1). The top, narrowest section of the pyramid represents the elite decision-makers who comprise a very small, albeit important, portion of society. The middle section of the pyramid represents mid-level leaders who are not a part of the formalized state authority. These include religious and ethnic leaders, humanitarian leaders, sector leaders, and academic and intellectual leaders. The base of the pyramid represents the grassroots, or societal level. AIES and PWEG can both be categorized as mid-level actors given their specialized knowledge, leadership in the environmental and water sectors, and connections to both the top and bottom levels of the pyramid.

The unique position of mid-level actors in the conflict allows them to serve as a conduit, influencing both policy makers at the top and grassroots actors at the bottom – a dynamic Lederach terms "middle-out."[37] Mid-level actors, "if integrated properly, might provide the key to creating an

infrastructure for achieving and sustaining peace."[38] Though AIES and PWEG do not claim to engage in peacebuilding, their positions as mid-level actors, along with the transboundary partnerships and relationships they have created, present opportunities for peacebuilding. Lederach's peace pyramid thus serves as a useful framework for identifying the space where perceptual change could occur through the AIES/PWEG initiative.

This study couples Lederach's theory with contact theory. Contact theory argues that positive interpersonal contact between members of different groups reduces prejudice. Reducing prejudice can lead to cooperation and ease conflict. Generalization, or the transferring of feelings, is an important component of contact theory. Thomas Pettigrew outlines

Figure 5.1: John Paul Lederach's Pyramid



Derived from John Paul Lederach, *Building Peace: Sustainable Reconciliation in Divided Societies* (Washington, D.C.: United States Institute of Peace Press, 1997), 39.

three levels in which generalization can occur. The first is situational, where changes generalize across situations. The second is individual to group, where changes translate to other members of a group. The third is uninvolved outgroups, where outgroups generalize changes to other outgroups not involved in the contact.[39] This study focuses on individual to group level generalization to investigate whether mid-level contact can create a space for perceptual change that can be expanded to reach other levels.

Field Observations and Discussion

A key respondent expressed that parity is a major obstacle to meeting the region's environmental challenges and ameliorating the broader conflict. The respondent added that Palestinians need more help in terms of creating infrastructure and services, and that "Israeli perceptions must change."[40] According to the respondent, perceptions can be changed by facilitating contact between Israelis and Palestinians. To that end, the respondent leads environmental tours in which Israelis interact with Palestinians and learn about shared environmental challenges. These tours effectively create the space for perceptual changes that can lead to peacebuilding.

The AIES/PWEG initiative, positioned in the middle tier of Lederach's peace pyramid, is structured in a way that facilitates interpersonal interaction only at the technical level. A project leader confirmed that "cooperation and relationships are at the technical level right now."[41] Following contact theory, this means that the initiative creates space for perceptual change of the other to occur only at the technical level. AIES understands that reaching the grassroots level is important but is a much longer process. Interviews with AIES/PWEG project beneficiaries in Al 'Oja illustrate the limited grassroots-level interaction occurring through the project. The head of the beneficiary household had some contact with Israelis through the project, but only with those on the project team. Gordon Allport argues in another version of contact theory that group representatives must share equal status in order for positive inter-group contact to occur.[42] While AIES and PWEG project partners may have equal status, project beneficiaries and project team leaders likely do not. As a result, the AIES/PWEG initiative is limited to creating space for

perceptual change only among mid-level technical actors.

In Battir, communication and relationships between AIES and PWEG staff and village municipal actors was strong. Observations of group interactions suggest that all actors respected each other's differing viewpoints. Numerous respondents in Battir and elsewhere agreed that Israeli-Palestinian cooperation is not problematic at the grassroots level. As one Palestinian project leader put it, "civilians have no problem cooperating."[43] Issues connected to the broader conflict were seen as problematic on a political level but not on a grassroots level, and grassroots actors were perceived as willing to cooperate in order to address transboundary environmental challenges.

Very little generalization of perceptual change of the other was observed. This draws into question the ability of the AIES/PWEG initiative to create space for perceptual change of the other to occur on a broader scale. One project beneficiary said the AIES/PWEG partnership gave her hope for future peace, suggesting the possibility of generalization.[44] However, her statement may not be representative of Palestinian society given the very limited number of project beneficiaries with whom we spoke. Hewstone and Brown argue that generalization only occurs when group membership is salient and the members who interact are seen as representative of the group.[45] This suggests that the respondent's statement is likely not indicative of broader perceptual change.

A respondent who is a prominent academic indicated that there is little societal interaction occurring around transboundary wastewater management because there is little grassroots work being done in the region in general. If societal mobilization is occurring, space for change in perception of the other can be created. Societal mobilization currently appears to be divided, with Palestinians advocating for Palestinian issues and Israelis mobilizing for their own concerns: there is no transboundary societal push.[46]

Conclusion and Areas for Further Research

There is evidence that the AIES/PWEG initiative creates space for perceptual change of the other to occur, but it is limited to mid-level actors. Though the aim was not to measure if perceptual change is occurring, there was limited evidence of generalization. One reason for this may be

that like-minded individuals are most likely to engage in intergroup contact, yet are also "the least likely to evoke changes that generalize to their groups."[47] This suggests that more active outreach into other levels of society is necessary to create additional space for perceptual change. The apparent lack of grassroots work being done in the region provides an opportunity for AIES and PWEG to develop much-needed outreach activities and other opportunities for inter-group contact that can create such space. Further outreach efforts will effectively increase AIES and PWEG's collective peacebuilding potential.

Al 'Oja Spring and adjacent canal system
(photo credit: Christina Kehoe)

5.4 Perceptual Change and The Role of the Natural Environment

Introduction

Whether on Israeli or Palestinian sovereign territory, communities connected to the same transboundary watershed are inextricably bound both ecologically and symbolically. Watershed systems have inherent cultural significance; they are not only physical places but also socially constructed settings instilled with symbolic and historical meaning.[48] The colloquial phrase "sense of place" is increasingly used to describe a complex relationship between people and their surrounding natural environments. Sense of place goes far beyond nationalistic conceptualizations of geopolitical boundaries, however.[49] Transboundary environmental cooperation efforts such as the AIES/PWEG initiative have the potential to change perceptions about the natural environment and create a sense of place distinct from territorial boundaries.

While perceptions are discussed earlier in this chapter in terms of discursive

change and the role of "the other," this section examines perceptions of the natural environment – an equally critical factor in environmental peacebuilding. Understanding how participants perceive their ecological communities is essential in assessing transboundary environmental cooperation, as mutual dependence on shared water resources has the potential to create a shared sense of place that cuts across conventional borders.[50] Accordingly, this section investigates whether the AIES/PWEG initiative supports a perceptual change from a territory-based sense of identity to one based on shared water resources.

Theoretical Framework

Environmental peacebuilding theory holds that shared regional identities relate to the way people identify with geographical spaces and communities.[51] Transboundary environmental cooperation has the long-term potential to replace mutually exclusive, territory-based identities with identities conceived by a shared ecological community around water resources.[52] Shared water identities can transcend the nationalistic identities that have been shaped by Westphalian principles over the last century.[53]

Place-based identity implies an emotional and spiritual sentiment that influences how people perceive, experience, and value the natural environment.[54] As J.B. Jackson maintains, "It is a place, permanent position in both the social and topographical sense, that gives us our identity."[55] Sense of place is fundamental not only to individual identity but also to community dynamics: "individuals may come to see commonalities in their experience. They may come to consider themselves members of a community and view themselves in collective terms."[56] Therefore, developing a common place-based group identity around water resources can provide a basis for Israelis and Palestinians to act collectively despite political boundaries.

Proponents of environmental peacebuilding believe that its focus on collective understanding and problem solving has the potential to bring conflict actors toward a shared common identity, thereby altering conflictual communication and interests.[57] Wastewater is a useful mechanism for environmental cooperation because "focusing on common environmental harms (or aversions) is psychologically more successful at producing cooperative outcomes than focusing on common interests."[58] Anecdotal

evidence supports this claim. For example, when speaking about wastewater cooperation, an official from the Palestinian Water Authority expressed that "We [Palestinians] must take what is national from the mind, as water has no flag. We are obliged to find ways to cooperate with the other side."[59] Respondents from the Israeli Nature and Parks Department expressed similar views, noting that wastewater cooperation is necessary given that "pipes cross borders, same as pollution."[60]

In successful environmental cooperation, the development of shared values, norms, and practices facilitates the establishment of a regional identity.[61] Transboundary environmental cooperation can begin building shared water identities by creating awareness of the transboundary nature of water and of commonality between communities. According to Alcali and Antonsich, this environmental perspective is "seen to generate a 'we' feeling inclusive of the whole population, beyond ethnic or religious divides, thus confirming the discursive strategy of using the environment to foster a common identity."[62]

Territory-Based Identities

Both Israeli and Palestinian communities have historically self-identified with geopolitical and territory-based boundaries: "[t]he idea that Palestine and Israel refer to a bounded territory with homogenous people emerged in the nineteenth century and contiues to shape the conflict into the twenty-first century."[63] Accordingly, "territory remains a central component of national identity in the contemporary political discourse between Israelis and Palestinians, both populations opposing power sharing within the same space."[64] Rupert Emerson emphasizes that this politically defined self-conception is a reflection of current societal norms of national allegiance.[65]

The Israeli-Palestinian conflict has manifested in territory-defined boundaries that drastically affect those living in the region: "[a]t the heart of the current Palestinian-Israeli struggle lies the question of territorial parition and the establishment of soveignty."[66] The Green Line, security checkpoints, separate Israeli and Palestinian identification cards, and the delineation between Palestinian Areas A, B and C, all serve as everyday reminders of Israeli occupation, effectively reinforcing dominant territory-based identities. The Israeli-imposed barrier separating Israelis from Palestinians – which many consider to be illegal under international law – is

constantly changing and growing.[67] It currently spans over 1000 km, cutting across Palestinian West Bank communities and exacerbating conflictual relations between Israelis and Palestinians.[68] According to a 2012 UN survey, "field teams documented and mapped 542 obstacles blocking Palestinian movement within the West Bank. These include 61 permanently staffed checkpoints (excluding checkpoints on the Green Line), 25 partial checkpoints (staffed on an ad-hoc basis) and 436 unstaffed physical obstacles, including roadblocks, earthmounds, earth walls, road gates, road barriers, and trenches."[69]

Transformation in favour of a shared water community is also hindered by Israelis' and Palestinians' historic relations and fundamentally different perceptions of water. Water has a symbolic role in Zionism and is central to the creation of the Jewish state of Israel. Zionism explicitly calls for pioneers to "settle the land" and "make the desert bloom," meaning that the success of the Zionist movement depends on water resources.[70]A sufficient water supply "thus became a value in and of itself, a symbolic practice and a vital condition for Jewish-Israeli identity."[71] Due to deep-rooted Zionist ideology and the region's arid climate, many Israelis perceive natural water scarcity as an existential threat.[72]

Many Palestinian respondents directly linked water scarcity, and associated contamination in the Palestinian West Bank, to Israeli dominance. To some, this dominance is reflected in lower standards of living and a lack of human dignity. One Palestinian relayed a personal anecdote in which his daughter responded to the Zionist "make the desert bloom" imperative by saying, "You can make the desert bloom green, but you will make my skin dry."[73]

The Palestinian narrative perceives certain key water resources as "rightfully Palestinian"[74] and blames the Israeli occupation for water scarcity in the Palestinian West Bank. "Palestinians regard the natural water resources as sufficient in principle and the existing scarcity as entirely politically induced."[75] A Palestinian respondent invoked the concept of "environmental occupation" when referring to Israel's dominant presence and control over natural resources in the Palestinian West Bank.[76] From both Israeli and Palestinian points of view, the control of water resources is a zero-sum game: "giving up control over water is perceived as real water loss; at the same time, a lack of control equals… an existential threat."[77]

Field Observations

It became evident through field research in the Palestinian West Bank that the symbolism of water resources has been central in the historical narrative that reinforces community identity in both Al ‘Oja and Battir. A respondent who is a prominent archaeologist noted that environmental heritage is synonymous with cultural heritage and is linked to identity creation.[78] Al ‘Oja’s community identity is tied to Al ‘Oja Spring, which originates west of the village as part of Samia Springs.[79] The community relies heavily on the spring for household and agricultural water and has constructed a canal system to optimize its use. The spring is well known throughout the Palestinian West Bank and evokes a strong sense of place for area residents. AIES/PWEG project beneficiaries in Al ‘Oja recognize that Al ‘Oja Spring is on the verge of environmental collapse due to water shortages, over-pumping of nearby artesian wells, and contamination. The issue is an urgent concern for the entire community.

The second proposed site for the AIES/PWEG pilot project, Battir, also has a deep historical and cultural connection to water. Battir residents have relied on an extensive Roman-era water network of man-

Roman-era agricultural terraces in Battir (photo credit: Christina Kehoe)

made terraces and sluice gates for millennia.[80] Battir also has a unique water allocation system in which each of the village's eight main families is assigned a particular day to withdraw water for irrigation. As a result, a local saying in Battir is that "a week lasts eight days, not seven."[81] Battir's distinctive water system is a source of pride for community members and has generated international recognition as part of the village's cultural heritage. In 2011, UNESCO awarded Battir a $15,000 prize for "Safeguarding and Management of Cultural Landscapes."[82]

Despite this recognition, Battir's water system suffers from severe water shortages and contamination that jeopardize community health and livelihoods. A municipal official in Battir expressed that without improvements in wastewater infrastructure, the environment would be destroyed and the community would cease to exist due to migration.[83]

Findings

AIES and PWEG's transboundary environmental cooperation has built upon the water symbolism in Al 'Oja, and Battir, by creating greater awareness of the villages' respective ecological communities. The AIES/PWEG initiative illustrates how onsite graywater recycling can improve the natural environment by fostering a greater appreciation of water's transboundary nature. Project beneficiaries learned through the initiative how reducing pressure on water demand at the household level can minimize negative impacts on the broader transboundary environment. Participants recognized that "issues that impact Israel impact Palestine, and vice versa."[84]

Al 'Oja and Battir's deep historical and symbolic connections to water make them ideal sites for transboundary environmental cooperation. Yet despite the significant achievements of the AIES/PWEG initiative, it has so far been unsuccessful in transforming residents' sense of place and creating a shared regional water identity that connects Israelis and Palestinians. Evidence indicates that project participants have not (yet) moved away from territory-based identities. Though connected physically by a transboundary watershed, water is still largely perceived as belonging to either Israel or Palestine.

The geopolitical implications of separate Israeli and Palestinian identities were central to many discussions in the field. Most respondents, including the son of a project participant, repeatedly referred to ostensibly shared water resources as being

either Israeli or Palestinian.[85] There are many challenges involved in shaping conceptualizations of transboundary environments. Unfortunately, the territory-based identities of Israelis and Palestinians are composed of interrelated political, economic, and social dimensions that are not easily addressed. Current identities may in fact take decades to transform.

The expansion of Israeli settlements presents a critical challenge in creating a regional identity. The majority of Palestinian respondents were adamantly opposed to any Palestinian involvement in transboundary environmental cooperation related to Area B Israeli settlements. Many respondents expressed that accommodation of Area B settlers is a threat to the Palestinian state and were unwilling to discuss inclusion of Israeli settlements in any way – particularly in terms of water resources. Water thus "functions as one medium amongst many others which are being utilized to communicate Palestinian overall rejection of Israeli dominance."[86]

For Palestinians, openly condoning a shared water community that includes Israeli settlements may be interpreted as legitimizing the settlements' existence and, by extension, encouraging future Israeli expansion into the Palestinian West Bank. Yet regardless of the real or perceived legality of Area B settlements, transboundary water resources connect all communities in the region. From an environmental standpoint, settlements must be taken into account.

Conclusion

This section's objective was to determine whether the AIES/PWEG initiative supports a perceptual change from a territory-based sense of identity to one based on a shared community around water resources. Though such a shared identity has not yet been realized, the AIES/PWEG initiative represents an important and necessary effort toward that end. Perceptions of placed-based identity have not changed, but there is evidence of a shared understanding of the interconnectivity of the transboundary environment. AIES and PWEG project staff recognize that mutual dependence on natural resources requires transboundary cooperation.[87] More importantly, project participants are aware of the impacts of wastewater on the broader hydrological system and appreciate that the improvement of the transboundary environment provides benefits to both Israelis and Palestinians.

Analysis shows that major obstacles must be overcome in order to change peoples' perceptions of their natural environment, and that the AIES/PWEG initiative is not currently suited for such a task. AIES and PWEG were wise to select Al 'Oja and Battir as pilot sites, however, as both communities have strong historical connections with water.

AIES and PWEG can further encourage a shared identity around water by conducting educational outreach and public awareness campaigns in both Israel and the Palestinian West Bank. Such campaigns should promote the ecological and symbolic importance of water and explicitly emphasize the need to move away from territory-based perceptions of the natural environment.

Endnotes

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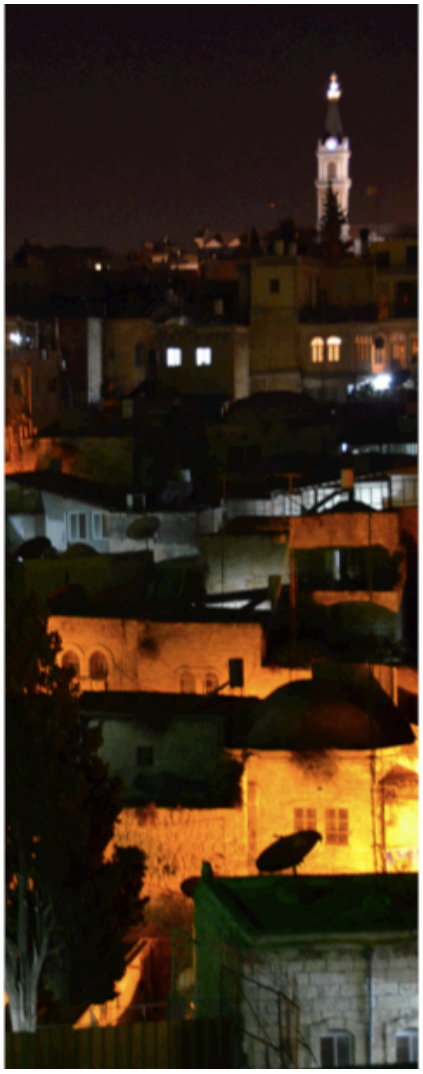

Chapter 6

Conclusion

6.1 Summary of Findings

We now return to this study's guiding question: what is the peacebuilding significance of the joint AIES/PWEG initiative? Our research reveals that the initiative is building peace on a small scale, laying the groundwork for future peacebuilding, and creating opportunities for peacebuilding to continue. The initiative creates valuable opportunities to promote equity, sustained relationships, and changed perceptions, but it is not exploiting these opportunities to the fullest extent. It fosters cooperation in limited ways, but more can be done. Major findings are summarized below.

Peace is not being openly discussed, nor is it an explicit goal. Israeli-Palestinian cooperation is not being overtly promoted among project beneficiaries. While this has both positive and negative implications, it translates to a lack of communication with a wider audience, meaning that shared conceptualizations of peace are not being encouraged within project communities. At the organizational level, however, the AIES/PWEG partnership serves as an important model for how Israeli-Palestinian cooperation can occur.

AIES leverages the cooperative aspects of its partnership with PWEG to access donor funds. Emphasizing cooperation brings politics to the fore despite project partners' professed political avoidance. Project discourse around peace, AIES' secondary objective, must be carefully managed lest it interfere with development, the AIES/PWEG partnership's primary objective.

AIES and PWEG challenge the narrative that has traditionally justified Israeli hydro-hegemony, demonstrating that Palestinian actors can manage transboundary water resources effectively and sustainably. This reduces conflictual asymmetry and has significant, positive impacts on Israeli-Palestinian power structures.

The AIES/PWEG initiative has no clear gender strategy, representing missed opportunities in terms of community buy-in and long-term financial sustainability. Women play key roles as both project partners and project beneficiaries. More should be done to include women in project decision-making processes and in wider conversations about transboundary water management.

The initiative does not necessarily address Palestinian development priorities. Palestinians are primarily concerned with

dignity, autonomy, and economic well-being. While the initiative's long-term environmental impacts may be significant if it is successfully scaled up, its economic benefits do not reach the Palestinians with the greatest needs. AIES and PWEG should focus more on reducing poverty and economic inequality.

AIES and PWEG's partnership creates space for positive perceptual changes to occur, but only among mid-level technical actors. The grassroots level is not being reached due to physical and political barriers that hinder community mobilization. The policymaking level is not being reached due to political avoidance on the part of project partners and a lack of appreciation for transboundary environmental concerns on the part of politicians.

Existing relational connections are being strengthened, but no new connections are being established. A lack of public awareness about the initiative makes it difficult to identify new project participants and partners. Coordinated outreach efforts can address this issue. Coordinated outreach may also help to build a shared community water identity, as sense of place remains tied to territory-based identities.

All told, AIES and PWEG's environmental peacebuilding efforts represent an innovative and valuable contribution to the Israeli-Palestinian peace process. At the same time, their efforts constitute a successful development intervention with the potential to substantially reduce transboundary environmental degradation. The initiative's merits are clear and its accomplishments should be lauded. Grand plans too often bring expectations that exceed practical realities, and the most humble efforts often have the greatest impact. AIES and PWEG harbor no unrealistic hopes that their partnership will bring immediate, absolute peace to the Middle East. They are dedicated professionals with practical skills that they use to achieve tangible goals on a day-to-day basis. As one Palestinian respondent put it, AIES and PWEG are "building peace slowly, working to place stone upon stone – it cannot be rushed."[1] Ultimately, a home is only as valuable as the stones from which it is built. AIES and PWEG are building a peaceful, ecologically healthy environment that Israelis and Palestinians can both call home for generations to come, regardless of its official political designation. The value in this effort cannot be denied.

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Appendices

Appendix A: Research Methodology

The practicum conducted research for this report in three phases: pre-departure desk study, field research, and post-field data analysis and report writing.

Pre-departure Desk Study

A three-week pre-departure desk study in June 2013 consisted of individual literature reviews, research design and planning activities, group workshops, and lectures. Drawing on information gathered through these activities, the group integrated team members' individual research objectives into a collective analytical framework with one overarching research question. This preliminary analytical framework was adapted over the course of research. The final version is included in Appendix D. Individual research questions are included in Appendix C.

Literature Reviews

Students compiled preliminary bibliographies and reviewed secondary literature related to their respective research interests. A full bibliography is included in Appendix D. Topics included the following:

- Current and historical context of the Israeli-Palestinian conflict
- Hydro-politics in the Middle East
- Environmental peacebuilding
- Wastewater management development and infrastructure
- Graywater treatment and reuse
- Development theory
- Transboundary water cooperation
- Water security

Group Workshops and Lectures

Topics included:

- Environmental Peacebuilding Theory (Prof. Eric Abitbol)
- Water and the Israeli-Palestinian Conflict (Prof. Eric Abitbol)
- Research: Theory and Methodology (Prof. Eric Abitbol)
- Peace and Conflict Impact Assessment (Prof. Eric Abitbol)
- Water, Integrated Water Resources Management, and Wastewater (Prof. Ken Conca)
- Research Techniques: Rapid Appraisal (Prof. Ken Conca)
- Research techniques: Interviewing/Focus Groups/Conversation (Prof. Ken Conca)
- Environmental Peacebuilding (Prof. Ken Conca)

Field Research

Field research consisted of a 10-day rapid appraisal that took place between June 24 and July 4, 2013. Formal and informal interviews were conducted in eight different sites in the Palestinian West Bank and four sites in Israel. Interviews were arranged by Prof. Eric Abitbol and by staff at both AIES and PWEG. A total of forty-nine respondents were interviewed. A complete list of interviews is included in Appendix B. Names are omitted to protect the identities of respondents. Interviews were not recorded in order to create an environment in which respondents felt comfortable speaking freely. Research questions were designed based on students' individual analyses of the collective research objective. Further information on specific interview questions can be found in Appendix C. Respondents also provided supplementary data including reports, websites, and brochures, which further informed the group's analysis.

All interview questions were asked in English and translated into Arabic or Hebrew by non-professional translators, as necessary and depending on the language of the interviewee. All non-english responses were then translated into English. Quotes included in this report may have been translated from their original language.

Analysis, Presentation, and Report Writing

Upon returning to the United States, the research team spent three intensive weeks analyzing findings, developing and giving a presentation, and writing this final report. Findings were analyzed using an adapted analytical framework. Analysis was conducted both individually and collectively, drawing on field data, preliminary literature reviews, and secondary literature collected throughout the course of the research process. The presentation was designed to summarize major findings. It was developed between July 7, 2013 and July 13, 2013 and was presented at the American University School of International Service to the American University community and guests on July 14, 2013. This final report was designed, developed, and written collaboratively, with each student's individual research area presented as a separate subsection of the report. It was written over the course of two weeks between July 14, 2013 and July 28, 2013, with final edits conducted later.

Appendix B: Research Initiatives

Interview information is provided below. A coding system is used to protect the identities of research informants. The table lists informants' affiliations, number, interview location, and interview date. Interviews lasted between one and three hours.

Organization	Informant #	Location	Date
Arava Institute for Environmental Studies (AIES)	1, 2	Kenyon Institute, Jerusalem	25 – June 2013
Palestinian Wastewater Engineers Group (PWEG)	3, 4, 5	Al 'Oja, Palestinian West Bank	25 – June 2013
Al'Oja Project Participants	6, 7, 8	Al 'Oja, Palestinian West Bank	25- June 2013
Battir Landscape EcoMuseum	9	Battir, Palestinian West Bank	26 – June 2013
Battir Council	10, 11, 12, 13, 14	Battir, Palestinian West Bank	26 – June 2013
Palestinian Wastewater Engineers Group (PWEG)	15, 16, 17, 18	Teybeh, Palestinian West Bank	27 – June 2013
Palestinian Water Authority (PWA)	19, 20 , 21, 22	Ramallah, Palestinian West Bank	27 – June 2013
Kidron, GPN, EWB, API	23, 24, 25, 26	Kidron Valley	28 – June 2013
Municipality of Al Ubiedyeh	27, 28	Al-Ubiedyeh, Palestinian West Bank	28 – June 2013

Organization	Informant #	Location	Date
Al-Afaq School	29, 49	Febal Mukaber, Palestinian West Bank	28 – June 2013
Friends of the Earth Middle East (FoEME), Tel Aviv Headquarters	30, 31	Tel Aviv, Israel	29 – June 2013
Israel Palestine Center for Research and Information (IPCRI)	38	Kenyon Institute, Jerusalem	30 – June 2013
FoEME EcoCenter	32, 33, 34, 35, 36, 37	Al 'Oja EcoCenter, Palesininan West Bank	30 – June 2013
Center for Transboundary Water Management, Arava	40	Kenyon Institute, Jerusalem	2 – July 2013
USAID	41	Al 'Oja, Palestinian West Bank	2 – July 2013
Israel Nature and National Parks Protection Authority, Environmental Unit, Science Division	43, 44, 45, 46	Israel/Palestinian West Bank Wastewater Treatment Tour	3 – July 2013
Soreq Wastewater Treatment Plant	47	Soreq, Israel	3 – July 2013
Bethlehem Joint Service Council for Solid Waste Management	48	Bethlehem, Palestinian West Bank	4 – July 2013

Appendix C: Research and Interview Questions

The research team began with one collective research objective determined by academic advisors at the outset: assessing the peacebuilding significance of the AIES/PWEG initiative. Each student then designed individual theoretical frameworks and methodologies to investigate different aspects of the overarching research objective. Each student began with a specific research question from which they derived interview questions. Interview questions were subsequently tailored for field interviews.

Team Research Objective

What is the peacebuilding significance of the small-scale transboundary graywater reuse projects implemented through a partnership between the Arava Institute for Environmental Studies (AIES) and the Palestinian Wastewater Engineering Group (PWEG)?

Individual Contributions to Team Research Objective

Dimension One: AIES/PWEG initiatives' environmental significance as a development project

- What are the major infrastructural factors involved in wastewater development in the Palestinian West Bank and how do they affect or reflect the peacebuilding significance of the AIES/PWEG initiative? *Reference Section 2.2*

Dimension Two: Peacebuilding significance within the broader Israeli-Palestinian conflict

- What impacts do AIES/PWEG graywater projects have on the economic livelihoods of project participants? *Reference Section 3.2*
- What is the peacebuilding significance of the benefits and detrimental effects (intended and unintended) from AIES/PWEG cooperation in transboundary wastewater management? *Reference Section 3.3*
- What are the gender dynamics of the AIES/PWEG initiative? Does the initiative incorporate a gender strategy? What are the costs and benefits of the projects for women and men? How can this knowledge aid in achieving project goals? *Reference Section 3.4*

- What is the peacebuilding significance of the relationships cultivated through the AIES/PWEG initiative? *Reference Section 4.2*

- What is the discursive peacebuilding potential of the AIES/PWEG graywater project specifically and of the organizations' discourse of change overall? *Reference Section 5.2*

- Does the AIES/PWEG project create space for perceptual change of the other to happen? *Reference Section 5.3*

- Does the AIES/PWEG environmental cooperation project support a perceptual change from a territory-based sense of identity to one of shared community around water resources? *Reference Section 5.4*

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