Friends of the Earth Middle East

Good Water Neighbors

Identifying Common Environmental Problems and Shared Solutions

February 2007

EcoPeace / Friends of the Earth Middle East
Amman, Bethlehem, and Tel Aviv

Supported by:
EU Partnership for Peace Program
Richard and Rhoda Goldman Fund
British Government's Global Opportunities Fund

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Foreign & Commonwealth Office


Good Water Neighbor Communities
Haifa
Nazareth
Sea of Galilee
Mediterranean Sea
Jordan Valley RC
Muaz Bin Jabal
Beit Shean
Tabkat Fahal
Baka al Gharbiya-Jat
Wadi Abu Nar
Alexander Zomar River
Baka al Sharkiya
Emek Hefer
Tulkarem
Nablus
Jordan River
Deir Alla
Tel Aviv
Salt
Amman
Ramallah
Auja
Jericho
Jerusalem
Tzur Hadassah
Bethlehem
Fukin Springs
Wadi Fukin
Dead Sea
Gaza
Hebron
Wadi Gaza
Abasan
Eshel Hanasi
Be'er Sheva
South Ghors
Tamar RC
Partner Communities
Israeli
Palestinian
Jordanian

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Note of Gratitude

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Emek Hefer- **Ayelet Tapiro**/ Tulkarem- **Mohammad Tanbouz**
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The views expressed in this report are those of FoEME and do not necessarily represent those of our donors.

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Introduction

During the year 2006, local residents, businesses, municipal representatives and other stakeholders from seventeen Jordanian, Palestinian and Israeli communities involved in the Friends of the Earth Middle East (FoEME), Good Water Neighbors Project, met on a regular basis to discuss and define the primary environmental concerns faced by their communities. With the assistance of a local planner hired by FoEME, community residents worked cooperatively to map out environmental threats and start developing first ideas that could constitute sustainable solutions.

This publication, the first in a series, is a reflection of the ongoing efforts made by FoEME's Good Water Neighbor communities to overcome the environmental challenges they face with a particular focus on cross border solutions. Each community is developing a "Green Plan", that details the environmental problems faced by each community and depending on the progress reached with in the community, identifies initial ideas for possible projects and initiatives that could improve the welfare of the neighboring residents and their shared environment. Over the next months FoEME will continue this process of public participation in planning and problem solving in an effort to raise envirinmental awareness and to further develop, and in some cases refine, the very creative project ideas born out of the GWN process.

The Good Water Neighbors (GWN) Project

The innate scarcity of water resources in the Middle East amplifies the necessity of cross-boundary cooperation on water issues. Friends of the Earth Middle East believes that as opposed to acting a catalyst for increased conflict, that it is the mutual dependence on scarce water resources, that can serve as the foundation for cross-border dialogue, cooperation and mutually beneficial problem solving.

In this spirit, the Good Water Neighbors Project was established in 2001 with two primary goals:

1. To advance cross-border cooperation by focusing attention on shared water concerns and the need to protect shared water resources.
2. To foster peace and cooperation through long term trust building based on the shared interests of neighboring communities.

To achieve these goals, the GWN project selected neighboring communities on opposite sides of the national border or political divide, and located in close proximity to a shared water resource. In each community FoEME hired a local staff person coming from within the community to lead activities. Designed as a holistic model for community partnership, the project involves youth groups, adult residents and local government representatives. Within each sector emphasis is placed on interaction with the neighboring community. The project undertakes joint youth group activities, adult forum visits to their neighboring community and Mayors' bilateral and regional gatherings. The GWN project fosters personal interaction that naturally develop into relationship building overtime. No less important, due to the fact that water issues are linked to community development options and that water issues are shared, the project helps foster the understanding that addressing and solving many of the local problems requires cross border cooperation. The GWN project goes on to demonstrate the ability of local community partnerships to resolve environmental hazards through mutually beneficial cross-border cooperation.

Green Plans and Cross-Border Projects

In 2006, FoEME conducted a series of 6 public seminars / workshops in each of the seventeen Good Water Neighbors' communities. The seminars, led by professional town planners, aimed to identify and map water resource and other environment related challenges. To this end, the seminars were designed to integrate the residents' local knowledge with professional expertise. The seminars included work groups, site tours, peer reviews of existing and proposed plans and expert presentations. Community members raised concerns about local and cross border environmental problems. The "Green Plans" appearing in this publication are the first attempts at mapping these concerns in each participating community for the purpose of better understanding both the impact that they have on the shared water resources and identifying creative ways to solve them.

In this report FoEME has grouped together the nine GWN communities that live along the lower Jordan River and around the Dead Sea; the six GWN communities that are located on the Mountain Aquifer and the two Gaza Negev communities. This report, and the regional events associated with its publication, is designed to highlight to both residents and community leaders the similarity of the problems at hand, the severity of the compounded cross border impact, but no less importantly, the potential for improved livelihoods based on a healthy environment should the communities work together on common solutions.

Next Steps

To date the mayors of five pairs of partnering communities have taken the bold step of signing Memorandums of Understanding committing their municipalities to work with their cross border neighbor to solve shared water and environmental concerns. In this past year **Memorandums of Understanding** were signed by Tabket Fahal Municipality (Jordan) and Beit Shean City and Regional Council (RC) (Israel); Muaz Bin Jabal Municipality (Jordan) and Jordan Valley and Beit Shean RC (Israel) and South Ghors Municipality (Jordan) and Tamar RC (Israel). In earlier years, Baqa Al Sharkiya (Palestine) and Al Gharbiya-Jat (Israel) and Tulkarem (Palestine) and Emek Hefer RC (Israel) also signed similar memorandums.

Based on these municipal commitments, representing political will and outstanding leadership, FoEME aims to build on the work carried out to date and led by the mayors and participating residents to improve on draft "Green Plans" produced and advance select project initiatives.

In addition to the many national level projects such as improving sewage and waste management, required in almost every community, first draft proposals exist for cross border projects. These include; **the Abdullah Rotenberg Peace Park**; the **Ziglab / Harod streams** rehabilitation; **Pella - Beit Shean** cultural tourism cooperation; **Wadi Auja** and **Wadi Qelt** eco-tourism trails; expanding the **Deir Alla Archeological Park**; the **Baptism sites**; reducing the **house fly infestation** and a peace park at the southern basin of the **Dead Sea**; rehabilitating **Wadi Abu Nar**; linking **sewage network** of the two Baqa communities; creating a cross border peace park on the **Zomar (Nablus) / Alexander River**; common treatment / **compost of agricultural waste** and preserving the cultural landscape of the **Fukin Valley**.

Advancing these and other projects now requires greater financial and technical support. FoEME invites our own governments, international donor agencies, private sector foundations and the business community to join in this grassroots peace enterprise by contributing resources and expertise. Project implementation is essential to both solving pressing environmental problems and cementing cooperative cross border relationships needed for creating conditions to support long term peace.

Jordan River Valley / Dead Sea Communities: Since Time Immemorial

The Jordan River Valley is culturally important to billions of people from diverse religions and countries worldwide: the River Jordan is mentioned in key stories of the Old Testament; Jesus Christ is traditionally believed to have been baptized in the Jordan; and several of the venerable companions of the prophet Mohammed are buried near its banks. The Valley has been the path way for civilizations since humankind first left Africa. The Jordan Valley is also a lush, wetland ecosystem that is the biological heart of the region at large. In addition to the flora and fauna on the ground, the valley is one of the world's most important migratory pathways for birds.

The Dead Sea is the lowest place on earth and the world's saltiest large water body, rich with a wide variety of minerals that gives the Sea its extreme buoyancy and therapeutic qualities for which it is so famous. The area is rich in history, with sites such as Masada, Makhwar, Karak and Jericho, to name but a few, flanking its sides. Despite the lack of life in the Dead Sea itself, the region around it is blessed with unique flora and fauna, its shores dotted with springs and oases. At sunset, the deep blue water of the Sea against a backdrop of pink colored desert mountains is a breathtaking sight not to be missed.

Sadly, today these ecosystems are endangered. The Lower Jordan River is almost dry. It has seen over 90% of its water sources diverted, with dams and pumping stations installed along its route, and in place of fresh water, sewage, diverted saline springs and agricultural runoff are discharged. With the River Valley being a military / border zone and off limits to the public, too few people know that a problem exists…. until one comes to the Dead Sea. That is where the consequences of 50 years of upstream diversion are now in plain site. The Dead Sea is receding at an alarming rate of over 1 meter a year. A third of its surface area has been lost. The southern basin today is composed entirely of industrial evaporation ponds. Sinkholes have appeared all along the coastline, a dangerous phenomenon threatening the tourism industry, as well as the inhabitants themselves.

Nine of FoEME's Good Water Neighbor communities share the lower Jordan River and Dead Sea. FoEME believes that only through cooperative efforts generated from within the local communities, can pressure be placed on decision makers to rehabilitate the River Jordan and the Dead Sea. FoEME believes that initiatives, such as cross border sustainable tourism projects described in this catalogue, can provide the economic and political justification to repair and reverse the current demise.

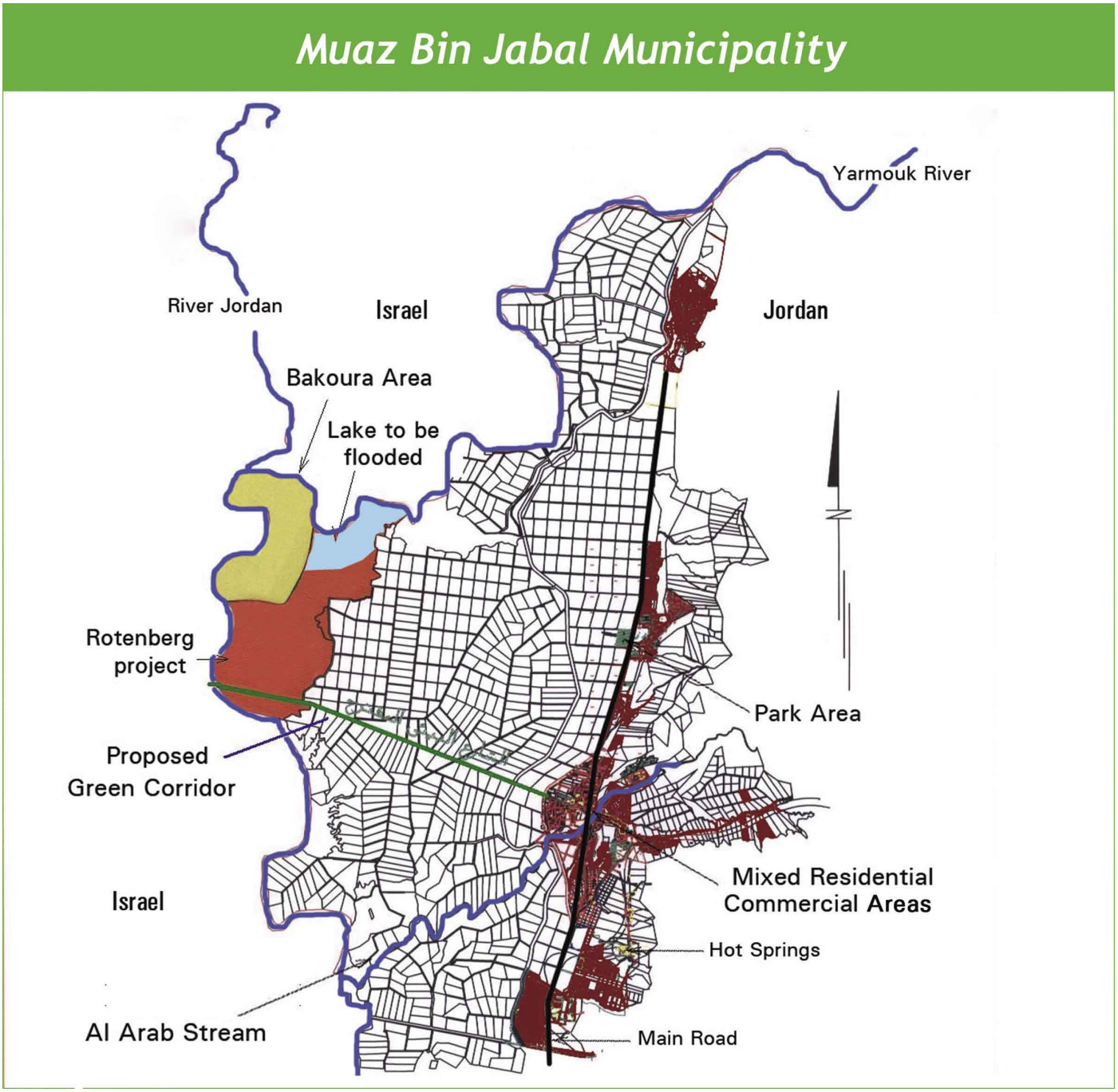
Muaz Bin Jabal Municipality

Partnering Communities: **Muaz Bin Jabal Municipality (Jordan) - Jordan Valley Regional Council (Israel)**
Shared Water Resources: **Jordan River/ Yarmuk River**
Planner: **Mahmoud Abu Jabber**

General Overview

Muaz Bin Jabal is a medium sized cluster of towns and villages incorporating the communities of Shouneh, Adassieh, Al Amnshieh, Waqas, Bakoura, Murshid and Al Fadain totaling 25,000 residents. Located in the heart of the Jordan River Valley, Muaz Bin Jabal sits at 215-150 meters below sea level.

Currently, Muaz Bin Jabal suffers from a range of critical environmental problems, some of which urban plans have not addressed or have been unable to resolve. Many of the problems result from poor urban planning and a lack of municipal resources to resolve the issues.



Sewage overflow - Muaz Bin Jabal

Sewage in streets - Muaz Bin Jabal

The Muaz Bin Jabal communities have identified the following areas of urgent environmental concern:

1. Parks and Open Spaces

To date, few public spaces have been allocated for parks or gardens, and green areas open to the general public are in short supply. Public green spaces that are available are in disrepair, inappropriately located or in the building phase.

A. The municipality owns 40 dunums of land located on the site of natural hot springs. However, since the land was leased to a private operator it has deteriorated.

B. Plans for the "Al-Arab Garden," have been developed including a playground for young children. However, the 2.1 dunum area selected for the garden is located between two main highways making access to the park dangerous.

C. Friends of the Earth Middle East received 20 dunums of land for use as an ecological garden. However, this land is located outside the municipal planning zone.

D. The Municipality currently plans to establish a bird garden.

E. The Abdullah- Rotenberg Peace Park has been agreed to at the Municipal level as a cross border regional park and bird sanctuary

Proposed Solutions

A. Existing and planned parks and gardens within the municipal boundaries need to be reviewed to ensure that they meet needs of residents and confirm that investments are made effectively.

B. The Abdullah – Rotenberg Peace Park is the most promising project, establishing large tracts of green areas, a bird sanctuary, cultural heritage nature trails and a visitor's center. A tree lined avenue representing a 'green corridor' connecting the Muaz Bin Jabal city of North Shuna to the proposed park has been conceived to include pedestrian and bicycle lanes. See map on page #7 and detailed proposal on page #12.

2. No Sewage Network or Treatment Facility

Due to the lack of a municipal-wide wastewater collection system, the majority of Muaz Bin Jabal's residents maintain open cesspits. These cesspits, located throughout residential areas, are prone to overflow. Consequently, particularly during the rainy season, waste water floods the city and village streets, much of it reaching the Al Arab stream, which in turn drains into the Jordan River. Small industries in the municipal area also lack sewage facilities. One particularly bad source of large scale industrial contamination is the unlicensed Muaz Bin Jabal slaughter house, which currently discharges its waste directly into Wadi Al Arab, which in turn drains into the Jordan River.

Proposed Solutions

There is an urgent need to invest in a sewage network for the residential and industrial areas of the municipality. Industry should be required to build pre-treatment sewage plants. Creating a constructed wetlands sewage treatment plant possibly in the area of the Abdullah- Rotenberg Peace Park needs to be further investigated as one possible option that could be a source of water for the proposed bird sanctuary.

(Bottom row from left to right) Mayor of the Jordan Valley RC, Mr. Yossi Vardi, Mayor of Mu'az Bin Jabal municipality, Eng. Abdullah Salman, and Mayor of the Beit She'an Valley RC, Mr. Dani Tamari, sign MoU.

Adults meeting in Muaz Bin Jabal

3. Limited Socio Economic Opportunities and Revenues

The communities of Muaz Bin Jabal are heavily dependent on revenues from agriculture. The high level of dependency on a single industry with consistently low returns results in a low diversity of skills and expertise, relocation of individuals seeking employment outside the agricultural sector and endemic poverty levels. Poor economic opportunities prevent the municipality and residents from having the capital required to solve the environmental problems that they face.

Proposed Solutions

The Abdullah – Rotenberg Peace Park would generate employment opportunities related to eco-tourism and income from the park's development and eco-lodge facilities would open the communities to the possibilities of international tourism revenues. A feasibility study is needed for the park that would estimate job creation possibilities.

Other environmental issues of concern include:

4. No Industrial Zoning

The Municipality has not specified an industrial area to accommodate the area's wide range of small cottage industries. Consequently, the city's varied industrial activities are distributed haphazardly throughout the city resulting in a wide range of environmental and residential problems. The unlicensed Muaz Bin Jabal slaughter house, mentioned above is located within residential areas, directly exposing the public to odors and carcass waste.

5. High Traffic Density

The Jordan Valley Highway passes directly through the center of the communities resulting in a high density of traffic in close proximity to population centers. This problem is exacerbated due to the location of the primary commercial market on both sides of the highway.

6. Agricultural Practices

Poor agricultural practices, including the use of raw manure has led to a plague of rodents and pests; the overuse of pesticides threatens agricultural produce and poses a health risk to farmers; and both inappropriate choice of crops and lack of water saving incentives contributes to the misuse of scarce water resources by the agricultural sector.

Jordan Valley Regional Council

Partnering Communities: **Jordan Valley Regional Council (Israel) - Muaz Bin Jabal Municipality (Jordan)**
Shared Water Resources: **Jordan River/ Yarmuk River**
Planner: **Aviad Sar Shalom**

General Overview

The Jordan Valley Regional Council consists of numerous rural communities on both sides of the Jordan River between the southern tip of the Sea of Galilee (Lake Kinneret) and to Kibbutz Ashdot Ya'acov further south. The area is rich in important archeological sites documenting the wealth of human history in the Jordan River Valley; dating from the prehistoric period, to the archeological remnants of the Canaanite culture, Roman, Byzantine, Muslim, Crusader, Ottoman and British periods.

Furthermore, this area played a significant role in Modern Jewish history, particularly during the second wave of immigration with the first kibbutz founded in Degania and the construction of the Pinchas Rotenberg hydroelectric power station. The rapid speed of development during this period led to several major projects whose environmental impacts were not fully considered, including the building of the Degania Dam and the Israel National Water Carrier which led to the diversion of waters from the Jordan River and the redirection of saline springs into the River.

During the last year, the Good Water Neighbors forums have brought together community members from various sectors of the Jordan Valley Regional Council, including environment experts, tourism developers, and concerned citizens to suggest changes to benefit the River and their communities. The forum participants believe in the fundamental right of the Jordan River and its flora and fauna to a healthy ecosystem by ensuring quality and sustainable quantities of fresh water. The forum participants also recognize the close connection between the river's health and the long-term prosperity of their communities.

The community members of the Jordan Valley Regional Council have identified the following obstacles and challenges of urgent concern:

1. Fresh Water Diversion

Throughout modern history, a tacit policy of large scale diversion has been practiced by Israel, Jordan and Syria leading to the demise of the Jordan River. During the British Mandate a dam was constructed at the southern exit of the Sea of Galilee at Degania. In the 1960s, Israel diverted waters from the Jordan River basin into the National Water Carrier, completely blocking the flow of fresh water out of the Sea of Galilee into the lower Jordan River. Subsequently, Syria built dams on the Yarmuk River and Jordan constructed the King Abdullah Canal, and Jordan and Syria joined together in the recently completed "Unity Dam" capturing the remaining waters of the Yarmouk River. All three countries have built significant dams on the streams flowing into the Jordan River and its major tributaries. This policy of seizing and diverting has resulted in a dramatic decrease in water flow in the Jordan River, from 1.3 billion cubic meters per annum to an estimated 50 to 100 million cubic meters per annum today.

2. Untreated or Partially Treated Sewage Discharged into the Jordan River

Of the estimated 50 - 100 million cubic meters of water per annum currently flowing in the Jordan River a significant percentage is sewage from Israeli, Jordanian and Palestinian communities including residential and industrial wastewater, agricultural run off, ground water seepage, and brackish water flow discharged from salty springs surrounding the Sea of Galilee and diverted into the Lower Jordan River.

Specific sites of pollution into the Jordan River within the jurisdiction of the Jordan Valley Regional Council include; the Saline Carrier Canal (SCC) which routes high temperature and highly conductive water together with partially treated sewage from Tiberias and the town of Kinneret into the Jordan River; sewage from the Beit Zera oxidation pools,

and the Bikat Kinorot's Institute; residential wastewaters from the communities of Ashdot Yaakov, Shaar Hagolan, Menachemiya, Mesada, Yavniel, Hazorim, and the Alumot Pools, which discharge waters of poor quality. Agricultural waste from the fish ponds in Afikim and runoff from the cowsheds in Afikim, Degania and Yavniel is discharged into the Jordan River alongside semi-treated industrial wastewater from the Safan and Kalat plants in Afikim.

These grave problems are further amplified by the location of several solid waste sites in close proximity to the Jordan River including the dump sites of Um-Juni, Beit Zera and Menachemiya.

3. Access to the Jordan River

Environmental mismanagement is more easily allowed to occur when the residents of the area are unable to witness the demise of the River due to greatly limited access. While recognizing legitimate security concerns, the residents feel that access to the River would raise awareness concerning the unacceptable state of the river and help promote new tourism opportunities greatly benefiting the Jordan Valley communities.

Opposite Kibbutz Gesher, along the border with Jordan, a new tourism project, educating the public about the history and natural beauty of the River, and its crossing, was recently opened at the historic "Three Bridges" site. This important and welcomed precedent illustrates that access to sites along the river can be balanced with security concerns.

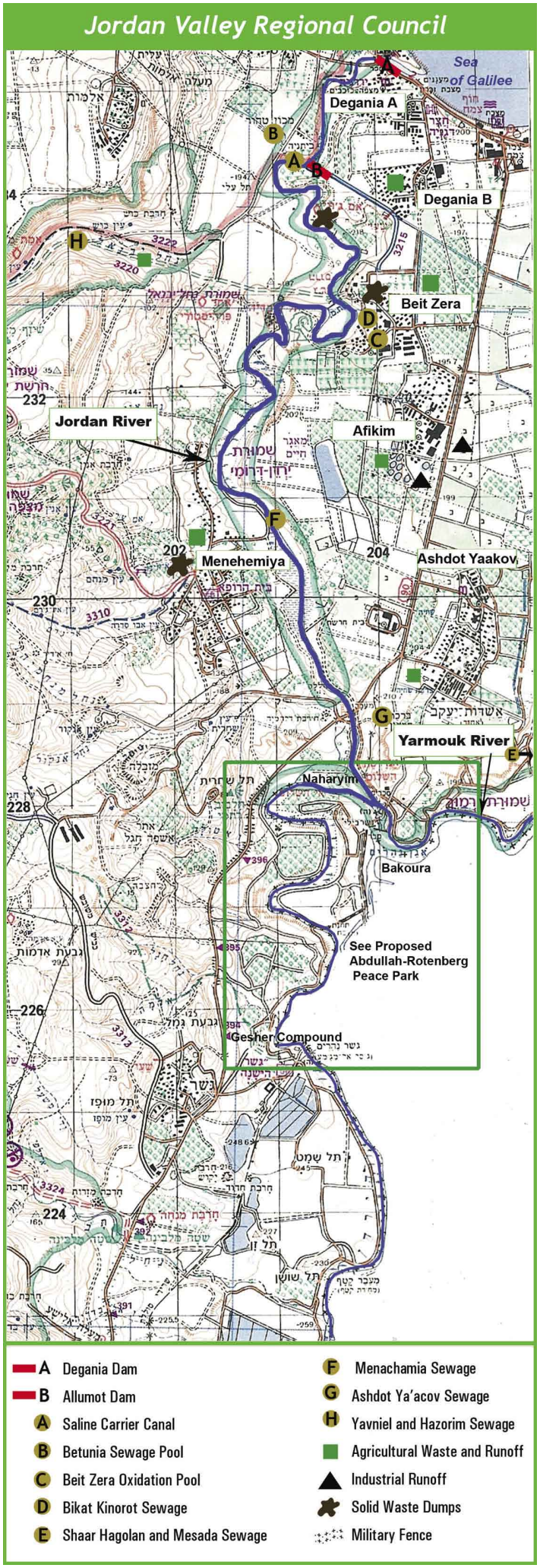
Controlled access to the River is crucial to raise public awareness and gather support for the rehabilitation of the River and the revitalization of the River Valley.

Proposed Solutions

The community members recognize that the issues of water diversion, sewage discharge and access to the Jordan River are all intricately entwined. A proposed plan developed by the community in coordination with the professional planners from the Tzamir Landscape Architect office addresses all three issues accordingly.

The primary objectives of the communities are to remove all polluting sources, treat them and utilize treated waters for irrigation, replenish the flow of clean water in the river, and ensure a quality of water to meet health regulations for recreational use.

The plan examines various alternatives of replenishing the flow of saline water alongside fresh water from the Sea of Galilee. Governmental commitments to ecological




Ottoman railway bridge

rehabilitation will ensure a minimum annual amount of 50-70 million m3 of fresh water plus 15 million m3 of saline water to the Jordan River by 2020.
From Degania dam to Alumot dam fresh water is currently allowed to flow. From Alumot dam to Naftol Ovadia, the Jordan River is currently being used as an open sewage canal, into which sewage, partly treated sewage, and saline water is being dumped. The community's plan requires the replenishing of clean water flow along this segment. To that aim, the Bitanya sewage treatment plant must be upgraded to treat sewage from the entire area to a standard acceptable for agricultural irrigation and solid waste sites located along the river's banks must be relocated and rehabilitated.

Several sites in this area have been proposed for tourism development projects including establishing a reservoir designed for water sports and recreation pool and constructing an ornamental dam near Bet Zera for tourism activities.


Alumot Dam - holding back fresh water flow of the Jordan River

Where the Jordan River becomes the border between Jordan and Israel, issues of rehabilitation of the river go hand in hand with creating points of access to the river. To date, several parallel plans focused on the development of the Abdullah – Rotenberg Peace Park in cooperation with the Beit Shean Valley Regional Council, Jordanian Muaz bin Jabal Municipality have been developed.

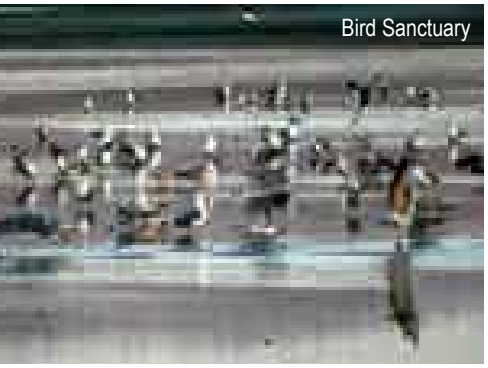
Three Municipalities Cooperative Project: Muaz Bin Jabal, Jordan Valley RC, Beit Shean RC

The Abdullah – Rotenberg Peace Park (see Map on page #13) is centered on a small island formed where the Jordan and Yarmouk rivers meet. In 1927, Pinchas Rutenberg, a Russian immigrant and founder of the Palestine Electric Company (PEC), reached a unique agreement with HRH King Abdullah I of Jordan to use this area to build the company's main hydroelectric power station. To this aim, three dams were built and by 1932 the hydroelectric power plant began supplying electricity to both sides of the border.

Naharayim / Al Bakoora: In 1994, with the signing of the Peace Treaty by Jordan and Israel, the island was returned to Jordan but was leased with special usage and crossing status to Israeli and international tourists. Thus far the tourism infrastructure is limited to the Israeli side. Facilities include a small information center where one can find information on the history of the hydroelectric power station that existed some 60 years ago. A tour is offered at Naharayim where one can enter the island, catch a glimpse of the river beneath and see the remnants of the power station. Military personnel schedule and coordinate opening of the fences on both sides, allowing tens of thousands of visitors per year to enter the island without the need for a visa. This is an excellent example of a transboundary park, that the municipalities and FoEME propose to extend down the meandering river to the Three Bridges/ Gesher site.

The Gesher / Three Bridges site serves as a visual example of the Valley's historical crossing point and is of equal cultural importance to both countries. A Roman Bridge, built over 2000 years ago, was erected by Roman rulers connecting the cities of that period; Beit Shean (today in Israel), Pella and Um Quais (today in Jordan). An old Khan (inn) from the Middle Ages stands at the site, and represents a place where merchants and travelers passing on their way from east and west used to cross the river at this point, stopping for a place to rest and feed their animals. During the Ottoman Empire a railway bridge was built, connecting the Mediterranean port of Akko with Damascas. The Ottoman Turks also built a customs house and police station at the site. In the 1920s, the British Mandate authorities added a third bridge, for motor vehicles, linking the area with Tiberias on the Sea of Galille and Damascus in Syria.

Today, on the Israeli side of the **Gesher/ Three Bridges** site, the area has been developed as a major tourist attraction with the uncovering of the old Khan, the placing of a train on the old tracks and the restoration of a bus that historically traversed the bridge daily. A boardwalk down to the riverbank has been built for easy viewing and learning


Bird Sanctuary


Rotenberg hydroelectric power plant

Peace Park Abdullah-Rotenberg map

about the history of the three bridges site. Over $250,000 has thus far been invested at the site. The local Kibbutz operating the tourist site opens the military fence for individual and group access to the site. In 2005 alone, the newly opened site had approximately 40,000 visitors.

Plans for the Peace Park include the re-flooding of the "Abdullah /Rotenberg Lake" and creating a bird sanctuary. The lake will serve to attract the more than 500 million migratory birds that cross the Jordan River Valley twice annually. Developing **bird watching facilities** has great potential to bring a share of the estimated 60 million people in Europe and North America who spend time and money on this hobby to the region.

Moreover, the old workers homes located ajacent to the power plant, which were abandoned with the closing of the plant in 1948 and have a magnificent view of the Jordan River and the lake could be renovated as an **eco-lodge** and the old power station converted into a **visitors center**. Furthermore, a **nature trail** could be developed discreetly hidden on a side of the river bank enabling hikers, bikers and bird watchers to explore the 3 kilometer path of the valley from the island to the **Gesher compound**. It is proposed that the park be developed in stages with phase 1 of a park being wholly in Jordan.

The creation of a protected area on both sides of the river will provide greater opportunities for biodiversity protection, cooperative management, joint research programs, education and collaboration on nature-based tourism. Although a border zone is understandably necessary, both Jordan and Israel have already created the precedent of opening the border fence for controlled guided tourism at several locations.

The Mayors of the **Jordan Valley RC, Beit Shean Valley RC** and **Muaz Bin Jabal Municipality** have signed a **Memorandum of Understanding** to create the Peace Park that would restore pride of place to the river valley, create new opportunities for the local populations and promote peace between the two countries.

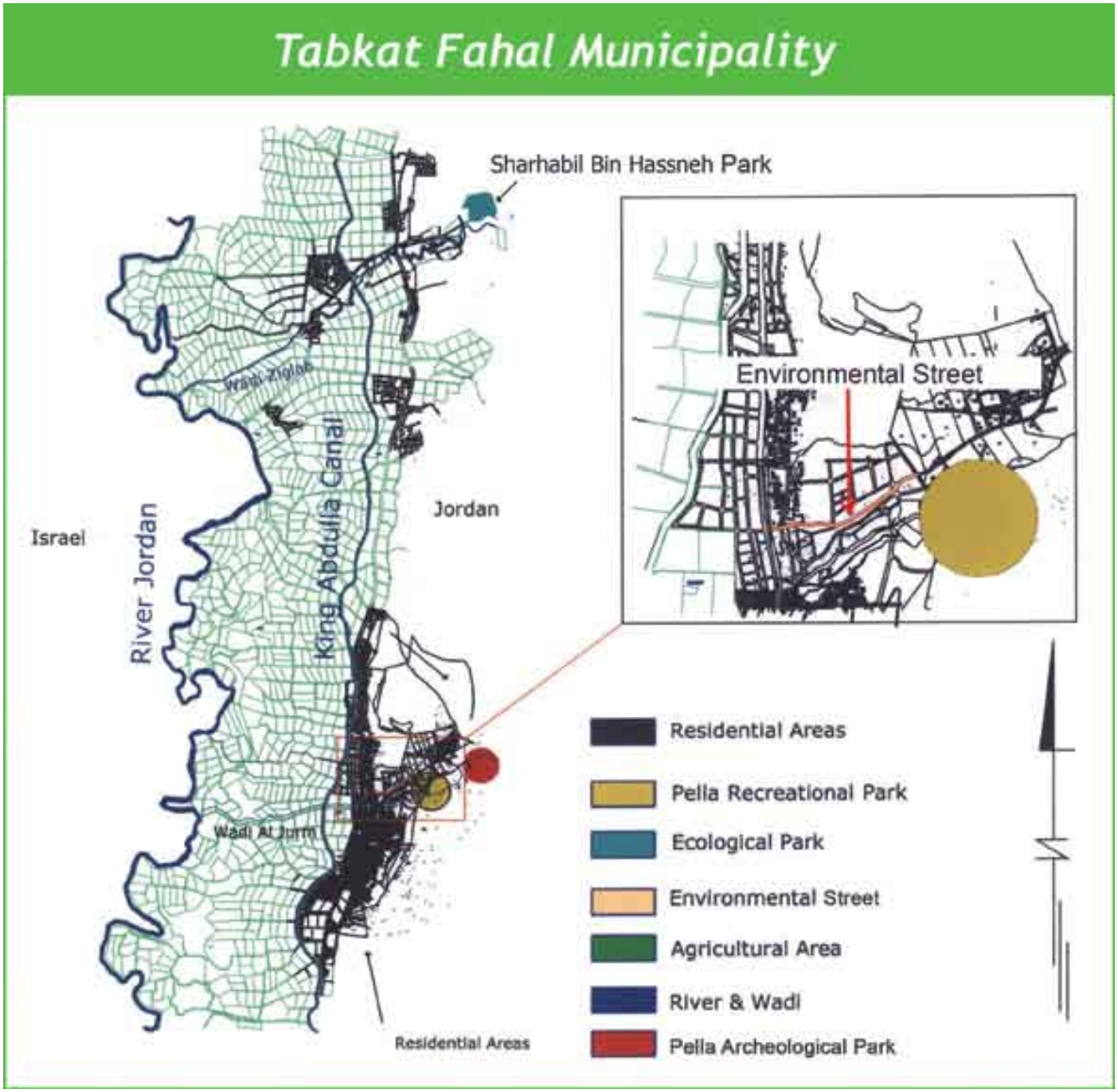

Old workers homes to be refurbished as eco - lodges

Tabkat Fahal Municipality

Partnering Communities:
Tabkat Fahal Municipality (Jordan) - Beit Shean Valley Regional Council and Beit Shean City (Israel)
Shared Water Resources: **Jordan River and its tributaries: Ziglab Stream (Jordan)/ Nahal Harod (Israel)**
Planner: **Mahmoud Abu Jabber**

General Overview

Tabkat Fahal municipality is a medium sized cluster of towns and villages incorporating the communities of Al Masharea and Sheikh Hussein, in addition to the smaller villages of Tel Arbain, Gleaat, Al Harawieh, Al Jessoura, Sheikh Mohammed, Zumalieh, Busseleh and Azaba, totaling approximately 25,000 residents. The area is home to the important archeological site of Pella, one of the great Roman Decapolis cities. Additionally, the northern Jordanian-Israeli Sheikh Hussein border crossing, inaugurated following the 1994 Peace Treaty, is located in the area.



The Tabkat Fahal communities have identified the following areas of urgent environmental concern:

1. Parks and Open Spaces

The Tabkat Fahal Municipality is rich with important archeological sites surrounded by beautiful natural landscapes. However, due to inadequate investment these valuable areas have not been fully developed resulting in limited accessibility and untapped cultural tourism revenues.

A. Foremost among the area's undeveloped sites of significant cultural heritage is the impressive archeological site of the Decapolis City of Pella. The three Decapolis cities built by the Romans in the valley including Beit She'an to the west of the Jordan River, and Gadara and Pella to the east of the River were central to the Jordan River Valley civilization. The Romans built numerous temples and public buildings in all the Decapolis cities.
The Decapolis city of Pella is the site of one of Christianity's earliest churches. Many of the site's remains date back to the time of the Pax Romana including the 1st Century CE Odeon, a 400-seat covered theatre located just below the Civic Center Complex; the public baths; a number of tombs and family mausoleums; and a Byzantine basilica from the 6th century CE known as the Byzantine Cathedral Church.

Pella's archeological site is currently operated by a private company with limited resources. However, given the appropriate investment and development, Pella has the potential to become a major tourist site.

B. Due to the lack of a properly managed wastewater system through the municipality the Ziglab Stream and Jurum Stream, potential green areas that both drain directly into the Jordan River, are presently used as solid waste and sewage dump sites. The severely polluted streams could become important green areas for the benefit of residents but presently only attract vast numbers of rodents and pests.

C. Friends of the Earth Middle East established the 110 dunun Sharhabil ben Hassneh Park. In order to meet the needs of the Tabkat Fahal Municipality the park's size and resources should be significantly expanded.

Proposed Solutions

A. The Municipality of Tabkat Fahal seeks international partners to invest in the development of the archeological site of Pella and its surrounding tourism infrastructure and seeks to develop cultural tourism with the Beit Shean archeological site.

B. The Municipalities of Tabkat Fahal and Beit Shean have signed a Memorandum of Understanding to rehabilitate the major streams that flow through their communities down to the Jordan River and turn then into green areas with walking trials. Upon solving the wastewater issues, the Ziglab Stream and Jurum Stream should be fully rehabilitated by forbidding further dumping of wastewater, solid wastes or agricultural wastes. To this aim, the banks of the wadis should be reconstructed using indigeonous vegetation and natural and cultural heritage trails could be developed linking the stream and wadis with the Pella archeological site.

3. No Municipality Wide Sewage Network and Treatment Facilities

Due to the lack of a municipal-wide wastewater collection system the residents of Tabkat Fahal are primarily dependent upon cesspits for their sewage management. In some areas, such as Sheikh Hussein, most houses have their own cesspits which are by and large well maintained. Conversely, in the city of Al Masharea the sewage management conditions are extremely problematic leading to significant public health hazards and environmental pollution. These problems primarily stem from inadequately sized cesspits which regularly flood the residential streets, or worse, no cesspits at all, which leads residents to dispose wastewater directly into the streets. Furthermore, for those residents with their own cesspit, the cost of regular pumping is an expensive cost born with difficulty.

Proposed Solutions

A. In urgent response to the emergency situation whereby residents are exposed to high levels of sewage in residential areas, the municipality should partner with the Jordan Valley Water Authority to purchase agricultural lands for the construction of large capacity wastewater collection pools able to accommodate the wastewaters from the area's residents and end the practice of dumping sewage into residential streets.

B. At a later stage, plans should be developed to transfer wastewater to the sewage treatment facility in Deir Alla or build a local treatment plant.

Sewage - Tabkat Fahal

Other environmental issues of concern include:

3. No industrial zoning,

The Municipality does not have an industrial area to accommodate the area's wide range of small cottage industries. Consequently, the city's varied industrial activities are distributed haphazardly throughout the city resulting in a wide range of environmental and residential problems. Furthermore, there is no slaughter house in the Tabkat Fahal area resulting in widespread unsupervised butcher in unsanitary conditions leading to prevalent environmental and health problems.

4. Agricultural Practices

Poor agricultural practices, including the use of raw manure, has led to a high occurrence of rodents and pests, the overuse of pesticides threatens agricultural produce and poses a health risk to farmers and both inappropriate choice of crops and lack of water saving incentives contributes to the misuse of scarce water resources by the agricultural sector. Furthermore, upstream from the Ziglab Stream and Jurum Stream, farmers have pumped dry the fresh waters of both resources.

5. High Traffic Density

The Jordan Valley Highway passes directly through the center of Al Mashara resulting in a high density of traffic in close proximity to population centers. This problem is aggravated due to the location of the primary commercial market near the highway. Furthermore, there are currently no public bus terminals, causing people to congregate along the highway, resulting in frequent accidents. Finally, due to the area's location near the Sheikh Hussein border crossing with Israel, there is heavy truck traffic on a separate road which passes directly through the villages of Tel Arbain, Gleaat, Al Harawieh and Al Jessoura.

Sharhabil Bin Hassneh Park - Tabkat Fahal

Ziglab Dam - Tabkat Fahal

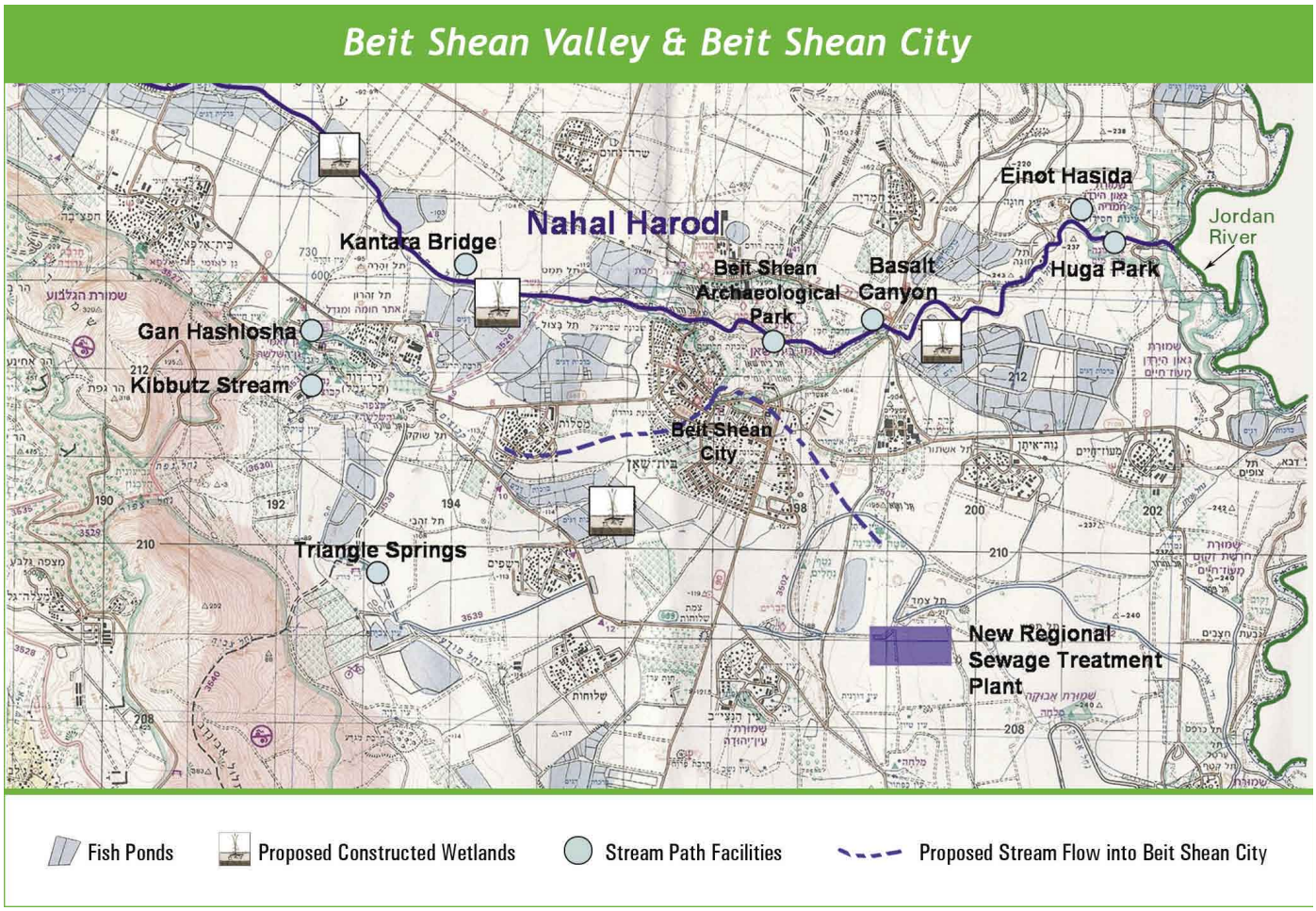
Cesspit overflow - Tabkat Fahal

Beit Shean Valley Regional Council and the City of Beit Shean

Partnering Communities:
Beit Shean Valley Regional Council and Beit Shean City (Israel) - Tabkat Fahal Municipality (Jordan)
Shared Water Resources: **Jordan River and its tributaries Nahal Harod (Israel)/ Ziglab Stream (Jordan)**
Planner: **Aviad Sar Shalom**

General Overview

Throughout history the fertile agricultural land and abundant waters in the Beit Shean Valley have drawn nations to settle in this picturesque area along the Jordan River. The 3rd century Talmudic Sage Rish Lekish describing the Valley wrote, "If paradise is in the holy land, Beit Shean is its door step." Beit Shean was the capital of the great Roman Decapolis cities. Still blessed with much natural beauty, the 16,000 residents of the Beit Shean area confront a wide variety of environmental challenges, most significantly wastewater management and the rehabilitation of the area's rivers and streams, particularly Nahal Harod, one of the Jordan River's main tributaries. Beit Shean area residents involved in the Good Water Neighbors project believe that the "paradise" of the past can be restored through building community awareness and cross-border cooperation.



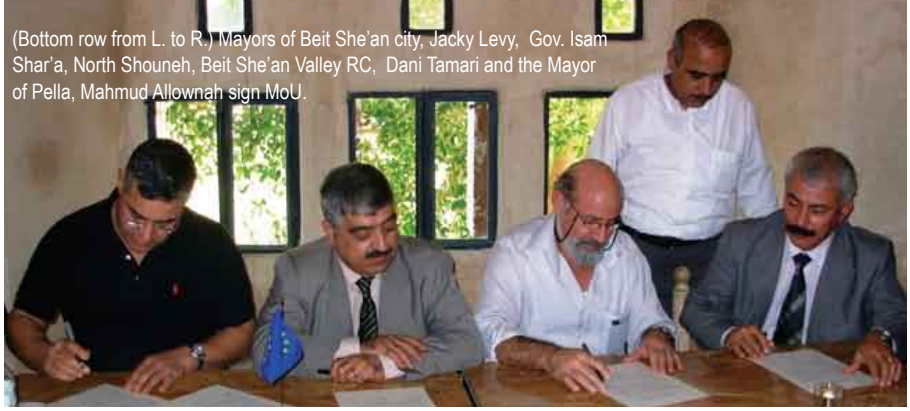
Beit Shean has identified the following areas of urgent environmental concern:

1. Wastewater Management

The primary environmental problem in the Beit Shean region is wastewater management. Currently, Nahal Harod is a dumping site for industrial, agricultural and residential wastewaters including wastewater from the following sources:

A. A 150,000 m3 water reservoir is dumped quarterly into Nahal Harod from Kibbutz Bet Hashita.


Harod Stream


(Bottom row from L. to R.) Mayors of Beit She'an city, Jacky Levy, Gov. Isam Shar'a, North Shouneh, Beit She'an Valley RC, Dani Tamari and the Mayor of Pella, Mahmud Allownah sign MoU.


Raw sewage - Jordan River

B. Primary-level treated sewage is discharged from Geva, Gidona and Kfar Yehezkel communities.

C. Household sewage from Bet She'an north and center, Hamadia, Hefziba, Shata prison, Mesilot, Nir David, Ein Harod, Sade Nahum, and Tel Yosef all flow into Nahal Harod.

D. Industrial sewage is discharged from Bet She'an, Nir David and Tel Yosef Tnuva factory.

E. Cow shed waste from Hefziba, Mesilot, Ein Harod, Sade Nahum, Tel Yosef, Geva, Gidona and Kfar Yehezkel communities run into the stream.

F. Used water from fish ponds is dumped regularly into Nahal Harod, creating major nitrate pollution.


Mayors' Kayak event on Jordan River

Proposed Solutions

The current environmental state of Nahal Harod stands in stark contrast to the potential the beautiful area has as an ecotourism site. The River's cascading waters and beautiful waterfalls course through unique landscapes running past ancient ruins including Roman bridges, mills, and aqueducts. The Beit Shean communities wish to rehabilitate the river and support the continued development of the surrounding area as a nature park.

A. To that aim, a sewage treatment plant and reservoir designed to treat household sewage originating from the city and the regional council is under construction. The collection and treatment of all sewage to standards sufficient for agricultural irrigation will provide a solution to some of Nahal Harod's pollution problems.

B. The resident's of Beit Shean involved with the Good Water Neighbors Program affirm the right of the River and its ecosystem to clean fresh waters. Upon completion of the new sewage treatment facility, fresh water should be allowed to flow through the Nahal in place of the waters redirected to the treatment facility for use in irrigation.

C. Sections of the Nahal Harod have already been developed to include grassy areas with picnic tables and benches and pedestrian and bicycle paths known as the "Stream Path." These facilities should be extended further along the Nahal.

D. The residents of Beit Shean City support the diversion of fresh water through Bet She'an city to benefit visually and environmentally from the flowing water inside the city.

E. Prior to discharging fish pond waters into the Nahal Harod it is suggested that they pass through constructed wetlands with bio-filters as a sewage treatment alternative. Several wetlands could be constructed at the fish pond drainage areas, which will constitute a relatively inexpensive solution for water treatment that will furthermore attract birds for the developing bird watching tourism in the Beit Shean valley.

F. Rehabilitation of Nahal Harod should be coordinated with the rehabilitation of the Ziglab and Jurum Streams in Tabkat Fahel Municipality in Jordan, with all streams flowing into the Jordan River. The mayors from both Israel and Jordan signed a Memorandum of Understanding committing to cooperate in this endeavor.

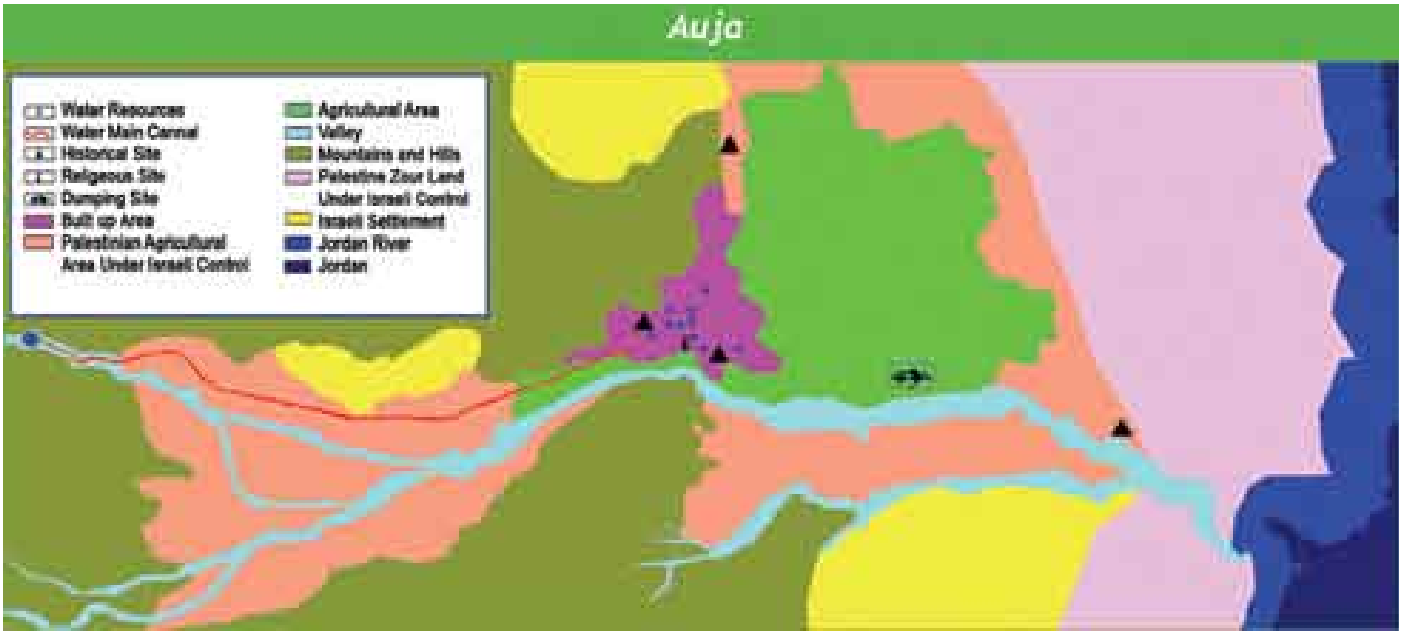
See also The Abdullah – Rotenberg Peace Park and Gesher Compound on pages #12 & #13.

Auja

Partnering Communities: **Auja (Palestine) - Deir Alla (Jordan) - Jericho (Palestine)**
Shared Water Resource: **Jordan River**
Planner: **Wisam Qarout**

General Overview

The village of Auja is located in the Jordan River Valley 12 kilometers north of the city of Jericho, along the Jordan Valley's main road. The town dates back to the Roman Period, when it was part of the Roman city of Archillas. The total area of the village is 120,000 dunums with a population of approximately 4500 people. This number includes the original residents of Auja who own most of the land and the water shares to the Auja spring (the rest of the land and water shares are owned by people from the major cities, primarily Jerusalem), refugees who fled or were displaced in 1948 and 1967, and the Bedouins who choose to live in the outskirts of the village. Agriculture is the main source of revenue in the village.
Prior to the closure of Auja's western entrance, which connects it to other West Bank cities, the area attracted local tourists drawn by the beautiful canyon surrounding the spring renowned for its refreshing cool waters in the summer and the mild climate in the winter. The area has a large potential for eco-tourism due to its stunning landscapes rich in wildlife and the ancient remains of the Roman city of Archillas.



The Auja community has identified the following areas of environmental concern:

1.Water Supply

The water network in the village is supplied with water bought from the Israeli National Water Company (Mekorot), which taps groundwater via wells in the village. The network is undersized and currently in a state of decay with a large number of leaks, which greatly contributes to water shortages, especially in the summer months. Furthermore, the supply is inadequate for the size of the current population.
Auja's agriculture is heavily dependant on irrigation from the El Auja spring, one of the largest springs on the Palestinian side of the Jordan Valley. In good rain years, the spring yields 2000 cubic meters of water per hour.
The spring waters are channeled through open channels to the agricultural fields where the water is distributed among the farmers based on ancient community laws for water distribution. Due to evaporation and leakage, a large percentage of water is lost in this process.

Proposed Solutions

A. The water supply network is in critical need of rehabilitation, including the installation of new, larger pipes to prevent water loss and increase supply.

B. The El Auja stream used to be one of the most important tributaries to the Jordan River. Today, the diminishing water quantity, high evaporation and leakage from the irrigation network results in little to no water reaching the Jordan River. Rehabilitating the irrigation system, utilizing brackish water from the area's wells, mixed with the fresh water from the spring would provide enough water for the farmers to irrigate their fields and leave a notable amount of water to flow in the now dry Auja stream bed and back to the River Jordan.

2.Wastewater Disposal

Currently, there is no wastewater collection network in the village and all residents depend on cesspits for their wastewater disposal. Cesspits usually serve a single family house or a group of houses, depending on the available space, the type of soils, and the economic condition of the family. The cesspits need to be emptied regularly by vacuum tankers, which dump the sewage in the nearby wadis. Particularly during the winter, this wastewater is flushed directly into the Jordan River. Clearly, this situation results in numerous dangers including, grave health risks to Auja's residents, pollution of the groundwater resources, and health hazards to pilgrims baptized in the Jordan River a short distance south of the dump sites.
Additionally, sewage from the Israeli Settlement of Yitav is disposed of in the recharge area of the aquifer and percolates into the groundwater resulting in high levels of coliform and other pollutants.

Proposed Solutions

The Japan International Cooperation Agency is working in the Palestinian Jordan Valley communities to improve sanitation services.


Solid Waste - Auja


Polluted open spaces - Auja


Greenhouse plastic sheeting - Auja

3. Solid Waste

In Auja, the solid waste collection and disposal is the responsibility of the village council. Some 3 tons of municipal solid waste is generated daily in Auja. The collected waste is then dumped into random open dump sites located east of the village. Of particular concern is the large amount of organic waste from agriculture, and the large quantity of non-decomposable plastic sheeting used in agriculture.

Proposed Solutions

A. Currently the Japan International Cooperation Agency is working in the Palestinian Jordan Valley communities to improve the solid waste collection and disposal services.

B. Any development in Auja should take into consideration the regional nature of the Jordan Valley communities. Some of the development projects should be planned and implemented as one component with the other communities in the valley. Recently, a Joint Solid Waste Management Council was formed for all the Palestinian Communities in the Jordan Valley including Auja. A plastics recycling program alongside a composting site for agricultural waste, with a comprehensive awareness campaign for all the farmers including owners and workers in the fields would greatly reduce solid waste in the whole region.


Garbage - Auja Stream

4. Agriculture and Livestock keeping

As previously mentioned, agriculture is the primary economic sector in Auja and the surrounding areas. Farmers use intensive pesticides to improve crop yields resulting in serious health risks for the farmers and their families who spray the pesticides, in addition to air and groundwater pollution, and destruction of micro-organisms in the soil.

Furthermore, there are approximately 15,000 sheep in stables spread haphazardly throughout the village. These animals create heavy odors and bring insects and other unwanted pests into residential areas, causing health risks to the area's residents. The animals occupy large tracts of pastures leaving no green areas for the public's recreational use.

Proposed Solution

The farmers of Auja and the village council, in cooperation with other Jordan Valley communities support the implementation of a program to assist area farmers to better organize their farms by providing alternative solutions including organic agriculture production of economically viable crops suitable for an arid climate and alternative measures for pest control.

5. Wadi Auja

Wadi Auja gets its main water supply from the Auja spring. The catchment area of the valley drains from the hills east of Ramallah and down towards the Jordan Valley. In addition to the beautiful nature and archaeological sites mentioned earlier, as the primary source of irrigation waters, Wadi Auja is a potential eco-tourism site for the people of Auja.

Proposed Solution

The Wadi has great potential to be developed into a rich ecotourism site. An integrated master plan needs to be developed to formulate a permanent solution to the many environmental and health concerns in the Wadi. Solid waste and wastewater pollution needs to be systematically addressed and fresh water resources need to be better managed. Nature trails could be designed along sections of the Wadi to diversify revenue opportunities for local residents and create economically viable linkages to the village in terms of accommodation, food and other services. The women in the community, in particular, see an opportunity to strengthen their role by taking an active part in this project.


Auja Spring

Deir Alla

Partnering Communities: **Deir Alla (Jordan) - Auja (Palestine) - Jericho (Palestine)**
Shared Water Resource: **Jordan River**
Planner: **Mahmoud Abu Jabber**

General Overview

Deir Alla Municipality is composed of several small communities including: Abu Obideh, Al Balawneh, Khzmah Dirar, Twal Al Shamali, Twal Al Janoubi and Deir Alla. The area's population is approximately 25,000 inhabitants.

Through the GWN Program the Deir Alla communities have identified the following areas of urgent environmental concern:

1. Parks and open areas

Deir Alla and its surrounding areas are primarily agricultural areas. As such, its residential areas are encircled by large agricultural fields. Despite this, open spaces designed for public use are very limited. Currently, the area's urban plan is being developed, making this an opportune time to introduce pubic calls for additional green spaces, in contrast to agricultural fields which are privately owned with limited access to the public.

The area has many important sites such as the Deir Alla Archeological Park and locations of significant religious value such as the shrines of Abu Obideh and Dirar who were Companions to the Prophet Mohamed. The Deir Alla Archeological Park requires considerable work to develop the area to its full tourism potential and to accommodate the needs of visitors. Furthermore, the archeological sites suffer from damages resulting from the community's limited understanding of the cultural values associated with these sites.


Waste water plant - Deir Alla


Eco Park - Deir Alla


Shrine - Deir Alla

Proposed Solutions

A. The Municipality of Deir Alla seeks international support in the further development of the Deir Alla Archeological Park and the shrines of the Companion to the Prophet Mohammed. Green areas around these sites should be expanded and tourism infrastructure to meet the needs of visitors should be developed.

B. A cultural-values awareness campaign should be undertaken in the area to educate residents about the important heritage of the area. The campaign will both educate and give pride to residents to safeguard the area's important heritage.

2. Wastewater Management

Deir Alla is the only area in the Jordan Valley which has a wastewater treatment plant, built with the support of the Canadian government. Wastewater from all other communities in the Jordan River Valley goes untreated, often flowing directly into the Jordan River or other important shared water sources, polluting agricultural fields along the way, in addition to causing serious health hazards to the local population.

Despite the building of a wastewater treatment plant there exists no collection system, leaving residents dependent upon cesspits for sewage collection. The stagnant waters of the cesspits and open sewers have resulted in a serious rodent and pest infestation amplified by the use of raw manure in agriculture. These cesspits are pumped at the citizens own expense and then transferred to the wastewater treatment facility.

Proposed Solutions

A. Deir Alla proposes to enlarge its sewage treatment facility to be able to treat the total wastewater produced by all the Deir Alla Municipality communities and some of the neighboring areas. Economic means to achieve this goal must be sought in partnership with the international community and the Jordan Valley Authority.

B. A wastewater collection network linked to the sewage treatment facility should be established in Deir Alla enabling residents to abandon their dependency on cesspits, thus reducing ground water contamination and eliminating a serious public health hazard.

C. The treated waters of the wastewater treatment plant should provide recycled water to irrigate public gardens and parks.

D. Polluted streams need to be rehabilitated.

3. Solid Waste Management

The community's solid waste dump site lacks proper management resulting in widespread ground water and soil pollution, attracting large swarms of flies and rodents, causing farmers to react with high pesticide use leading to additional ground water pollution.

Proposed Solutions

A. Due to low levels of public awareness regarding the repercussions of solid waste pollution, an awareness campaign to alert residents to the benefits of reusing and recycling wastes with particular emphases on the functional value

of composting organic waste as a safe alternative to chemical fertilizers would have immediate practical effects.

B. To reduce solid waste and minimize the use of raw manure in agricultural a feasibility plan to establish an organic waste composting facility in Deir Alla should be undertaken.

Other environmental issues of concern include:

4. No industrial zoning

Due to limited municipal zoning, hundreds of cottage industries are distributed throughout the Deir Alla Community's residential areas. The small industries are unregulated and do not meet a minimal level of environmental standards resulting in industrial wastewater and air pollution in the heart of residential areas. Of particular concern is the location of a recently expanded slaughter house in a residential neighborhood.

5.Heavy Traffic

The community suffers from constant traffic congestion along the main Jordan River Valley highway which runs directly through the Deir Alla communities. This problem is augmented by the highway's close proximity to the community's primary commercial market, narrow side streets not designed to accommodate high traffic density, and the lack of public bus stops resulting in the congregation of people along the highway.

Open Cesspit - Deir Alla

Poor urban environment - Deir Alla

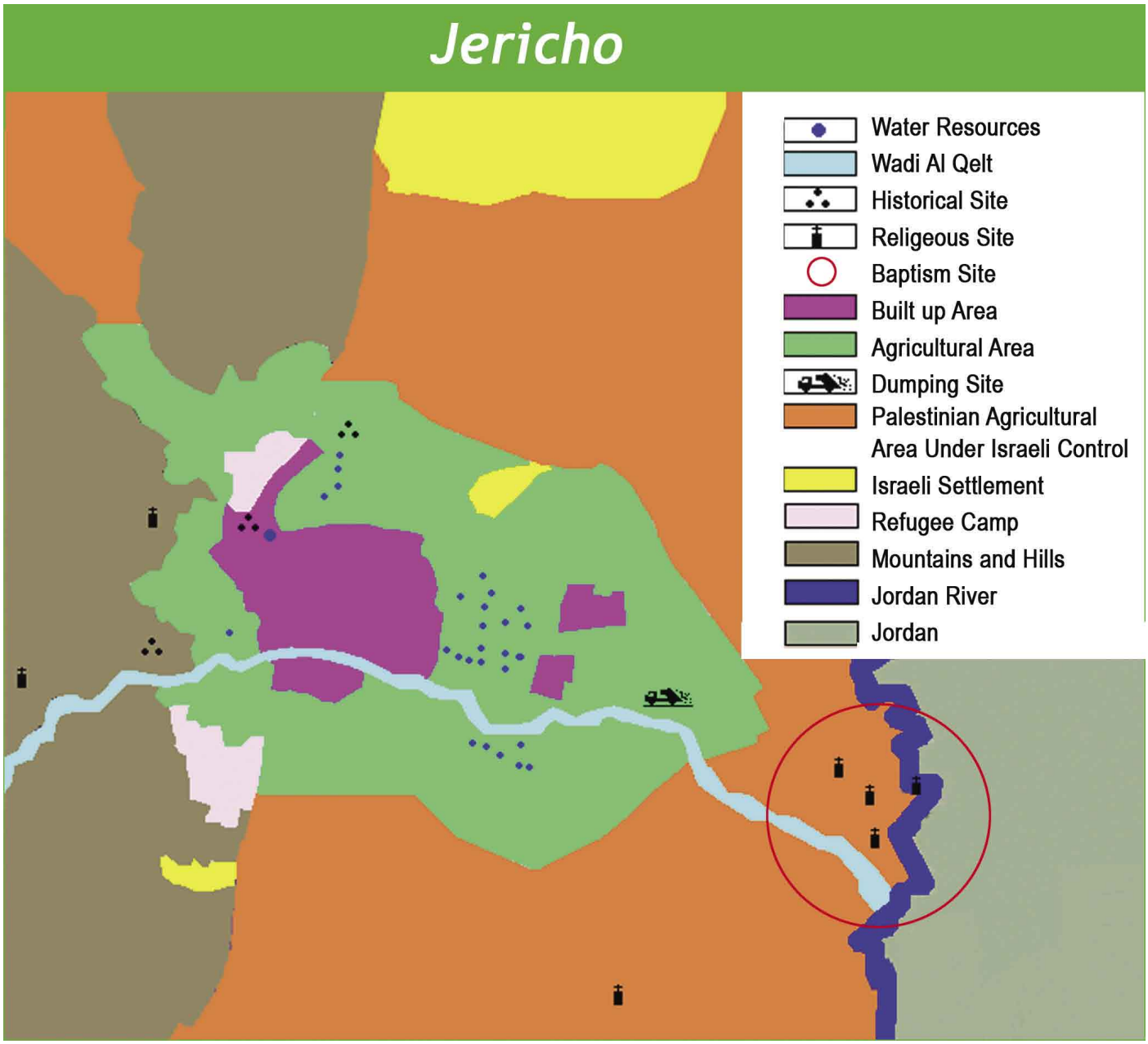
Jericho

Partnering Communities: **Jericho (Palestine) - Deir Alla (Jordan) - Auja (Palestine)**
Shared Water Resource: **Jordan River and Dead Sea**
Planner: **Abed al-Jabbar Abo-Halaweh**

General Overview

The city of Jericho is located in the Jordan Rift Valley approximately 8 km west of the Jordan River and 10 km north of the Dead Sea. At 250 meters below sea level, it is the lowest city on earth, and one of the world's oldest cities at 10,000 years old. The municipality extends over 45 square kilometers with an estimated population of 20,500. The majority of the population is engaged in the agricultural sector with a growing percentage employed in the tourism industry.

Jericho's strategic location at one of Palestine's major border crossings and home to some of the world's most important historical, geographical and religious sites, including the Dead Sea and the Kaser el Yehud baptism site attracts thousands of Christian pilgrims every year. Similar to other areas throughout the Jordan River Valley, Jericho has an arid climate generating hot summers and warm winters with a short rainy season during the winter months.




Waste dump site - Jericho

The Jericho community has identified the following areas of environmental concern:

1. Wastewater Disposal

The city of Jericho is completely dependent on cesspits for its wastewater disposal needs, the management of which is notoriously poor. To date there is no collection network in place either in the city of Jericho or any of the small communities in the vicinity.

Generally, cesspits range in volume from 10 to 120 cubic meters depending on whether they serve a single family house or a group of houses, the available space, the type of soils, and the economic condition of the people. Cesspits in Jericho are traditionally lined with concrete on all sides, except the bottom.

The cesspits are regularly emptied by vacuum tankers which dispose of the sewage in the Wadi Qelt, renowned for its breathtaking vistas, ancient aqueducts and St. George's famous cliff-hanging monastery. Particularly during the winter months, this wastewater flows through the valley into the Jordan River, just north of the Kaser el Yehud baptism site and on to the Dead Sea. This disposal method clearly results in many environmental dangers, particularly damage to the cultural landscape of Wadi Qelt, health risks for pilgrims baptized in the Jordan River and pollution of groundwater resources.

Proposed Solution

The Japan International Cooperation Agency is working in the Palestinian Jordan Valley communities and Jericho to improve sanitation services.

2. Solid Waste

Jericho Municipality is responsible for the solid waste collection and disposal in the area. Some 30 tons of municipal solid waste is generated daily in Jericho. The collected waste, including bio-hazardous waste from hospitals, is then dumped into a random site along Wadi Qelt. The site is then leveled by bulldozers. During the winter months, much of the solid waste is washed with the storm floods through Wadi Qelt and onwards into the Jordan River and the Dead Sea.

Proposed Solution

Currently, the Japan International Cooperation Agency is working in the Palestinian Jordan Valley communities and Jericho to improve the solid waste collection and disposal services.

3. Pesticide Usage

As previously mentioned, agriculture is the primary economic sector in Jericho and the surrounding areas. Farmers use pesticides intensivly to improve crop yields. However, this practice is the basis for many risks that farmers are

unaware of including, air and groundwater pollution, destruction of micro-organisms in the soil and health hazards for the farmers and their families who spray the pesticides.

Research has shown that Jericho district uses more pesticides than any other district in Palestine, totaling 70 tons annually. Of the 70 tons, approximately 28 tons are methyl bromide, used by farmers as a fumigant for controlling soil born pests. Although, banned in many countries for its negative effects on the ozone layer, Jericho area farmers continue to use it.

Proposed Solution

Jericho Municipality supports the implementation of a training program for farmers on integrated pest management and organic agriculture focused on economically viable crops for an arid landscape.

4. Wadi Qelt

Wadi Qelt drains from the hills East of Jerusalem and onward towards the Jordan Valley. In addition to notable religious and archaeological sites mentioned earlier, Wadi Qelt is rich in flora and fauna due to its many small streams. Indeed the Wadi is so rich in natural streams that it is considered a wetland, extremely unique in the arid climate of the Jordan River Valley.

Proposed Solution

The Wadi requires immediate rehabilitation and could be developed into a rich ecotourism site. An integrated master plan needs to be developed to formulate a permanent solution to the many sanitation issues that are currently polluting the Wadi. Fresh water resources need to be returned to the Wadi to maintain a healthy wetland area. Nature trails and heritage paths could be designed along sections of the Wadi which would diversify revenue opportunities for local residents including park wardens, guides, tour operators in addition to creating economically viable linkages with accommodation, food and other services in Jericho city.

5. Kaser el Yehud baptism site

The Kaser el Yehud baptism site just south of Wadi Qelt on the River Jordan is a major site for Christian pilgrims. Four churches of different denominations are located near the River bank including; Greek Orthodox, Coptic Orthodox, Armenian and Ethiopian. Unfortunately, visiting this important religious site is restricted to twice annually and only with special permission and coordination with the Israeli military, owing to the fact that the site is located on the border where the Israeli military maintains a closed military zone.

Proposed Solution

Kaser el Yehud baptism site: FoEME's strategy is to coordinate between the Jericho Municipality and the Israeli Authorities to permit organized tours to the Baptism site on the western side of the river bank. FoEME envisions the possibility of guided pilgrim tours coordinated by a Palestinian tour company. In the first phase, this company will run daily bus tours that will include a visit to the Mount of Temptation, other sites in Jericho, a visit to the Baptism Site and lunch in Jericho. The revenue earned will be a boost to Jericho's tourism and general economy. Furthermore, increased access to the Baptism site will help justify the need to rehabilitate the Jordan River. The long term vision is to allow crossing at the Baptism sites by demarcating a trans-boundary park in the area in full cooperation with Jordan.


Baptism on the Jordan River - photo credit Itamar Grinb


Adults meeting - Jericho

South Ghors Municipality

Partnering Communities:
South Ghors Municipality (Jordan) - Jericho (Palestine) - Tamar Regional Council (Israel)
Shared Water Resource: **Dead Sea/ Southern Dead Sea Springs**
Planner: **Mahmoud Abu Jabber**

General Overview

The South Ghors Municipality contains several smaller communities including: Ghor Safi, Ghor Mazraa, Ghor Haditheh, and Ghor Fifa. The total population of the South Ghors Municipality is approximately 40,000. The community is located on the southern coast of the Dead Sea in close proximity to the intensive mineral mining industry. The area is characterized by a desert landscape and arid climate.

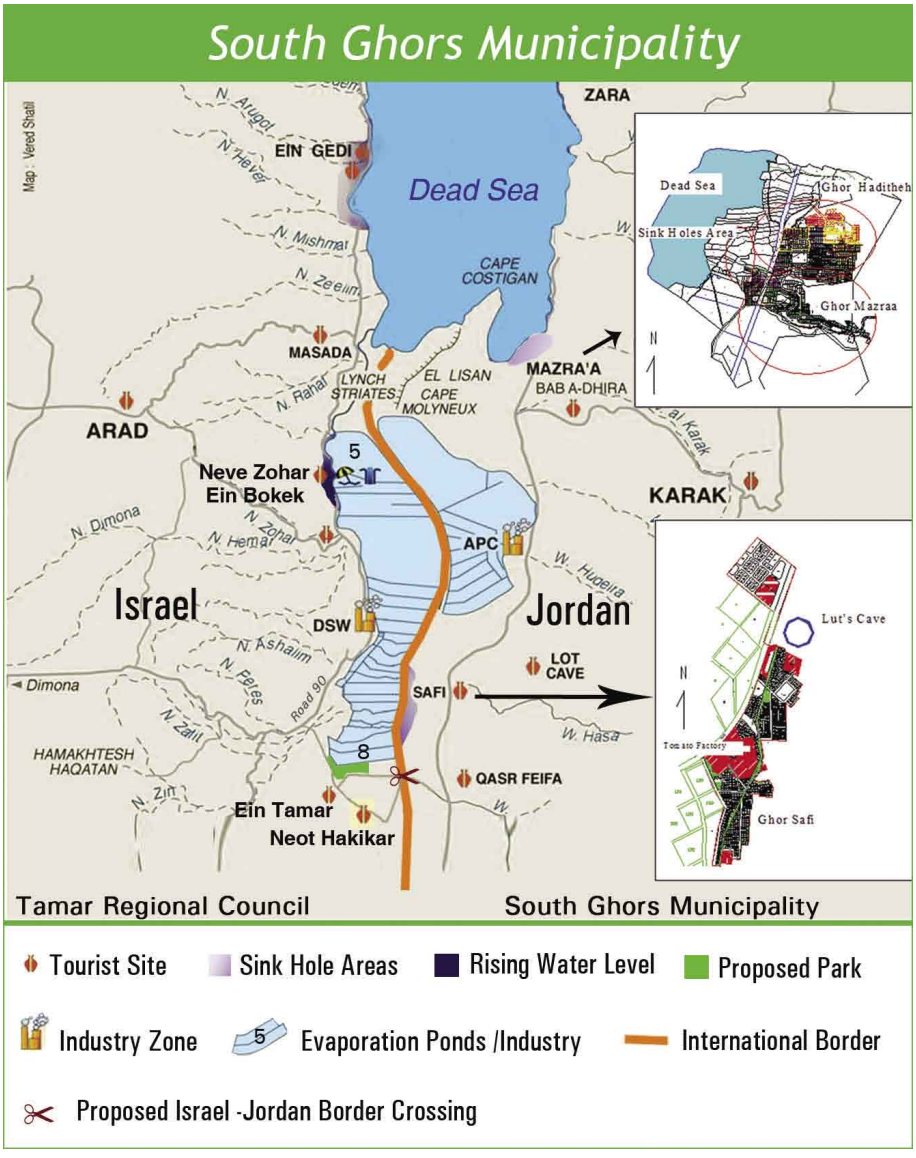
The South Ghors Municipality communities have identified the following areas of urgent environmental concern:

1. The Receding Waters of the Dead Sea

The South Ghors communities bear the direct consequences of the mismanagement of the Jordan River – Dead Sea ecosystem which has resulted in the massive receding of the Dead Sea's waters. The resulting sinkholes have rendered large tracks of agricultural lands untenable, threatened the budding tourism industry and damage the Arab Potash mineral mining facilities at Ghor Safi.

Proposed Solution

The solution is to restore the Dead Sea water level through better management of the water resources in the region. Residents believe that any study concerning the proposed building of the Red Dead Conduit must look at the alternative of returning partially the waters of the River Jordan. The community is looking forward to solve this issue through cooperative efforts that would compensate for resulting social and economical damages.



2. Public Gardens and Parks

Despite the extensive natural beauty of the South Ghors Municipality the area contains few public gardens or green spaces. The lowest museum in the world is nearing completion in Ghor Safi. The museum will serve as a tourism hub in the area by providing cultural and geographical history of the area.

Proposed Solutions

A. Friends of the Earth Middle East is coordinating with the South Ghors Municipality to build a small garden near the center of Ghor Mazraa.

B. A 60,000 square meter area on the shores of the Dead Sea for public beaches has been proposed.

C. Gardens featuring natural vegetation should be added to the museum grounds.

D. The Al Safi side of the southern Dead Sea Springs need to be surveyed, studied and considered to be declared a park, possibly a cross border park.


South Ghors Governor Mr. Ghaleb Al-Shamalyeh signing MoU with Mayor of the Tamar RC, Mr. Dov Litvinoff,.

3. Regional Cooperation

The South Ghors Municipality recognizes the advantages of cooperation with their Israeli neighbors in Tamar Regional Council to increase rural tourism opportunities, diversify employment opportunities and safe guard the unique Dead Sea environment. The municipality recently signed a Memorandum of Understanding in support of regional cooperation.

Proposed Solution

The communities propose to establish a regional and international tourist border crossing between Jordan and Israel at Al-Safi and Neot Hakikar. The border crossing would enable tourists to cross easily, to visiting historical, natural, religious and cultural heritage sites on both sides of the Dead Sea. Establishing a border crossing at this important juncture would also bring much needed revenue directly to the rural communities of the southen Dead Sea, thus increasing the number of people who would directly benefit from maintaining a healthy Dead Sea environment on both sides of the border.

4. Wastewater

The communities of South Ghors Municipality do not have a wastewater collection network or wastewater treatment plant. Consequently, they rely solely on open cesspits which are periodically emptied into the solid waste dump site. The wastewater is a serious source of groundwater and soil contamination. Wells in the area have been classified as unsuitable for human consumption as a result of this contamination. Furthermore, the open cesspits and wastewater attracts swarms of flies and rodents, increasing health hazards.

Proposed Solutions

A. The community requires a network to collect all domestic wastewater. A local organization, the Hashimite Center, is currently coordinating with the Municipality to advance a feasibility study of this proposal.

B. Likewise, a wastewater treatment facility should be established in the South Ghor Municipality to reduce environmental pollution caused by wastewater dumping and to recycle the wastewater for irrigation purposes.

5. House Fly Infestation

The lack of wastewater management has led to an insect infestation in the South Ghors Communities, as in many communities throughout the Jordan River Valley. This problem is greatly augmented by the fertilization of agricultural fields with raw manure. The intensity of the fly infestation in the Jordan River Valley has crossed borders, becoming a regional problem.

Proposed Solutions

In addition to the establishment of a wastewater collection system and treatment facility discussed earlier, the communities of South Ghors require the abolishment of the practice of fertilizing agricultural fields with raw manure. Alternative fertilizers should be promoted, primarily composted manure. To that aim, a compost and drying facility should be established in the area. Likewise a public awareness campaign promoting environmentally friendly

methods for combating the flies should be undertaken with the participation of area farmers.

6. Flooding

Located at the foot of the Moab Mountains, the communities of South Ghors suffer regularly from flash floods. The floods are very destructive, causing extensive infrastructure damage.

Proposed Solutions

A. The hills and slopes of the area, long damaged by the flash floods, should be replanted with suitable trees and bushes to reduce sediment from being washed down the hills during floods.

B. The community believes that a flood management plan needs be implemented.

7. Industrial pollution

The Jordanian Arab Potash Industry and the Israeli Dead Sea Works generate pollution that adversely affects the health and quality of the Dead Sea environment.

Proposed Solution

Environmental laws in both Jordan and Israel limiting emissions should be enforced to ensure that both companies meet the operational standards required by law.


Sinkhole - South Ghors


Sinkholes - South Ghors

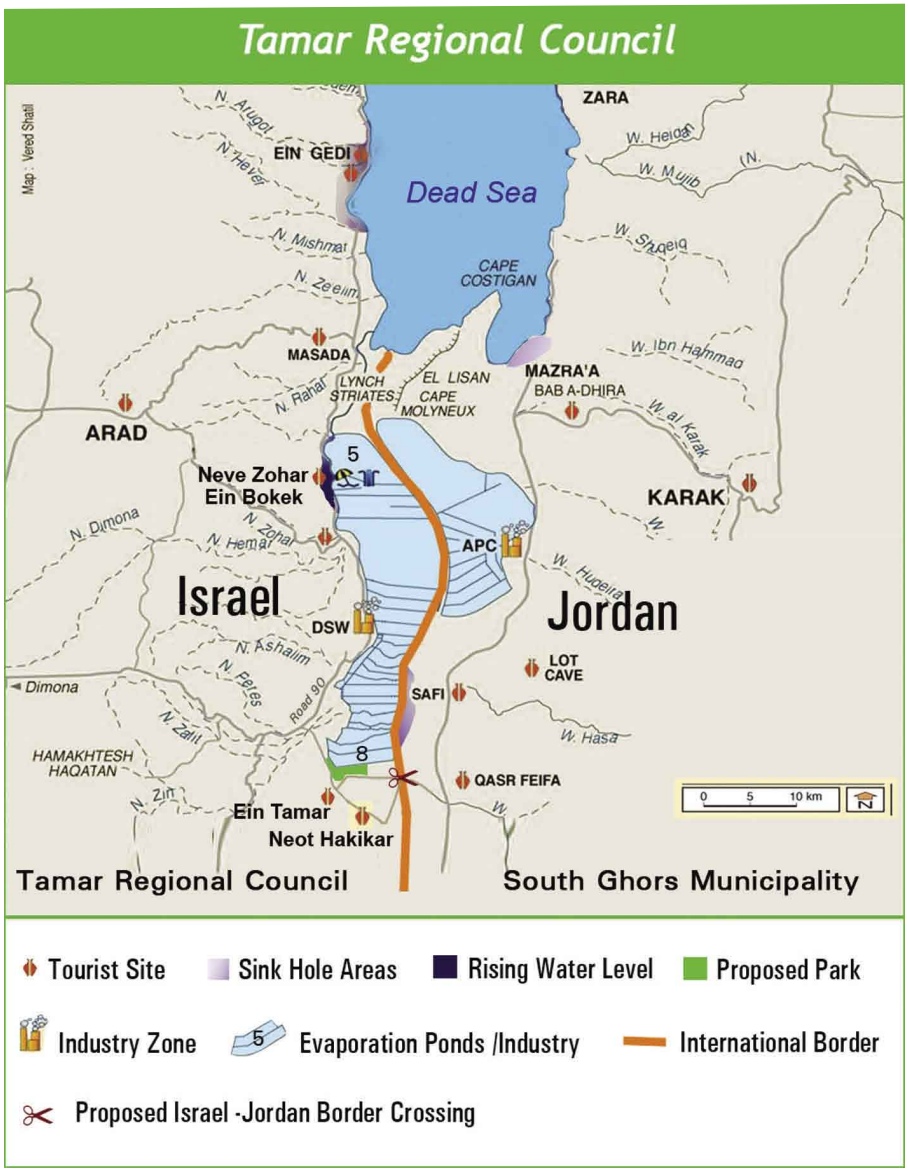

Polluted side wadi - South Ghors

Tamar Regional Council

Partnering Communities:
Tamar Regional Council (Israel) - Jericho (Palestine) - South Ghors Municipality (Jordan)
Shared Water Resource: **Dead Sea/ Southern Dead Sea Springs**
Planner: **Aviad Sar Shalom**

General Overview

The Dead Sea communities of Tamar Regional Council include Kibbuz Ein Gedi, Neve Zohar, Neot Hakikar and Ein Tamar and total approximately 1,200 residents.



Local residents were never asked nor involved in the decision making process that resulted in the diversion of fresh water that once flowed naturally from the Jordan River to the Dead Sea. They recognize that returning water to the Jordan River and the Dead Sea requires international support. Residents are committed to safeguarding the natural landscape and cultural heritage of the region and to make the area accessible to the public through responsible tourism, based on the principles of sustainable development. It is the community's belief that local community leaders should coordinate with the international community to pressure national governments and international institutions, to rehabilitate the Jordan River and the Dead Sea.

The Tamar Regional Council residents have identified the following areas of urgent environmental concern:

1. Receding Waters of the Dead Sea

The rapidly receding waters of the Dead Sea have led to serious environmental and economic problems that the residents of the area feel that they are alone to face. To date 1,500 sinkholes have developed and considerable infrastructure damage has occurred, particularly in the area of Road 90, the only access road along the shores to the Dead Sea. Within Tamar Regional Council sink holes have appeared in the Ein Gedi and Neve Zohar regions. Furthermore, the drying of the oasis' around the Dead Sea, particularly the salt marshes at Neot Hakikar, have caused extensive damage to the wildlife of the Dead Sea environment specifically impacting specie variety, population size, and habitat.

Proposed Solutions

A. The area residents question the feasibility and environmental impact of the proposed Red Sea – Dead Sea Conduit


Sinkhole near Road 90

and request that any action include the study of rehabilitating the Jordan River and returning its partial flow to the Dead Sea.

B. Establishing a park to conserve the salt marshes at Neot Hakikar would enable Tamar Regional Council to rescue part of the unique natural landscape of the southern tip of the Dead Sea. Rehabilitation of the fragile ecosystem could be undertaken using flood waters from Nahal Zin and constructing a dam from evaporation pool Number 8. The Proposed Park would include the remaining area of salt marshes to the East of the agricultural area to road 90. The Park will include walking paths at the boundaries of the protected area, creating an artificial pool at the "Hidden Spring," extensive tourism development at the Ein Arus Spring, elevation of underground water table and the creation of a winter water body by returning part of the flood water of Nahal Zin to the Salt Marshes, construction of look-outs and hiding places for bird watchers, and returning endemic fish and endangered animals to the area. The establishment of this park will assist in the area's development of rural tourism as a complementary economic sector for local residents, bringing revenue directly into their communities. Moreover, the establishment of a park would safeguard scarce habitat for endangered animals and plants, resting and hiding place for migrating birds, and rehabilitate the natural landscape. Investigation should be carried out to assess the value of a cross border peace park in the area of the springs.

C. Rehabilitation of the first site of settlement in Ein Tamar as a sustainable rural tourism center would encourage rural and ecological tourism in the Dead Sea area. The center would advance a calm desert atmosphere, in contrast to the large-scale hotels at Ein Bokek. Furthermore, the center would directly benefit local residents, providing employment in non-agricultural activities and attract the type of tourist sensitive to the call to save the Dead Sea.

2. Increased Regional Cooperation

The Tamar Regional Council recognizes the advantages of cooperation with their Jordanian neighbors in the South Ghors Municipality on issues dealing with sustainable tourism, a new border crossing, reducing an infestation of house flies and the World Heritage listing of the Dead Sea. To this regard the Mayors recently signed a Memorandum of Understanding that seeks to deal with common problems faced.


The Dead Sea

Proposed Solutions

A. Establish a border crossing between Jordan and Israel at Neot Hakikar and Al-Safi for international and local tourists and support rural tourism development. Establishing a tourist border crossing, prohibiting trucks and goods traffic, would strengthen Dead Sea tourism, on both sides of the border and bring much needed revenues to the Southern Dead Sea communities. Moreover, bringing tourists to the region, by increasing access to the Dead Sea, would expose regional and international tourists to the state of the Dead Sea and increase the number of Dead Sea residents who share in the benefit of the local tourism industry.

B. A study needs to be undertaken on the fly infestation problem due primarily to improper agricultural practices. The study should make concrete recommendations to solve the problem with possibilities for cross border cooperation and investments particularly as regards to the establishment of a compost factory in the Al Safi area.


The Dead Sea


The Dead Sea

3. Mineral Industry Practices Threaten Tourism in the Southern Dead Sea

Ironically at the Southern Dead Sea basin, hotels situated on the Ein Bokek beaches at Neve Zohar are threatened by the rising water level resulting from the mining industries practice of pumping Dead Sea water into the Southern Dead Sea's evaporation pools, mining the sea's valuable minerals and leaving sediment on the sea's floor. This practice has led to a 20 cm rise in the Sea's floor every year. Today, the situation has reached a breaking point whereby the foundations of hotels along the beach are being threatened by the rising waters.

Proposed Solution

The national government should enact legislation requiring the Dead Sea Works mineral mining industries to remove sediment from the evaporation pools on a yearly basis, thus safeguarding the tourism infrastructure at Ein Bokek.


Site visit


Field of sinkholes

The Mountain Aquifer
Life Support for Palestinian and Israeli Communities.

The Mountain Aquifer is the most important source of fresh water for both Palestinians and Israelis. Located under both the West Bank and Israel, it is the largest source of fresh water between the Mediterranean and the Jordan River.

Both Palestinians and Israelis have claimed their right to its waters, resulting in ongoing tensions between the peoples. However, while governments are entangled in a bloody conflict, both peoples continue to pollute this vital, shared water resource threatening its viability for all. The main pollution sources are household and industrial sewage and unsanitary disposal of solid waste. Should the waters of the Mountain Aquifer continue to be contaminated, water scarcity already felt by Palestinians and Israelis, will become an even greater cause of distress and further exacerbate conflict in the Middle East.

An important part of FoEME's work is concerned with promoting the protection of the Mountain Aquifer from ongoing pollution. Six of our Good Water Neighbor communities are geographically located on the Mountain Aquifer. Many of the projects proposed herein are specifically aimed at alleviating pollution, currently threatening the Mountain Aquifer. These projects have two related objectives: safeguarding water as a life-sustaining resource, and preventing conflict between Israelis and Palestinians over scarce water resources.


Youth tour

Baqa Al Sharqiya

Partnering Communities: **Baqa al Sharkiya (Palestine) - Baqa al Gharbiya-Jat (Israel)**
Shared Water Resource: **Wadi Abu Nar / Mountain Aquifer**
Planner: **Moayad Hussein**

General Overview

Baqa Al-Sharqiya is located on the green line about 16 kilometers north of Tulkarem city. The area of the town is about 4200 dunums, 1200 of which are included in the town plan. Baqa Al Sharqiya is home to approximately 4200 residents.

Since occupied in 1967, Baqa Al-Sharqiya's economy has become heavily reliant on trade with Israel and working inside Israel. This relationship was greatly disturbed in 2002 and 2003 when more than 300 businesses located on the green line between Baqa Al-Sharqiya and Baqa Al-Gharbiya-Jat were destroyed by the Israeli army, resulting in economic collapse for the town. This situation was further exacerbated in 2004, when the Security Barrier was built surrounding Baqa Al-Sharqiya, isolating it from the other West Bank communities and destroying more than 500 dunums of agricultural land. Following the construction of the Security Barrier and the isolation of the community from trading with neighboring communities, more than 70% of Baqa Al-Sharqiya's residents now depend solely on agricultural revenues for their livelihood.

In Baqa Al-Sharqiya agriculture is both irrigated and rain-fed. Irrigation waters are primarily drawn from four private wells in the town.

The Baqa Al-Sharqiya community has identified the following areas of urgent environmental concern:

1. Water Supply and Quality

The primary source of water for domestic and agricultural use are four privately owned wells. The four wells were drilled prior to the occupation in 1967. Since that time, the Israeli Civil Administration has not permitted additional wells to be drilled. The four wells are restricted by the quota detailed below, established by the Civil Administration.

Abu-Fuzi well: 250,000 cubic meter/year	**Saqr well:** 200,000 cubic meter/year
Abu Shams well: 600,000 cubic meter/year	**Raed well:** 225,000 cubic meter/year

During the last three years, within the framework of the Good Water Neighbors project, the Youth Water Trustees, designated by the project, have collected samples from each of these wells, in addition to area schools and mosques to analyze the water quality manually with the help of water laboratories in Tulkarem and Jenin Municipalities. Thus far, the results show that there is no biological contamination of the water, making it safe to drink.

A drinking water supply network including a water reservoir (3000 cubic meter) linked to the private wells was completed by Baqa Al-Sharqiya Municipality in the beginning of 2006. This network was funded by the United Nations Development Program in cooperation with the Palestinian Hydrology Group. Through this project, the municipality connected 70 homes to the drinking water network, however due to funding limitations the project was unable to connect the entire town.
Those residents not connected to the water network experience inadequate, irregular water supply at exorbitant prices. Furthermore, constant monitoring of the water's quality is not yet institutionalized.

Proposed Solutions

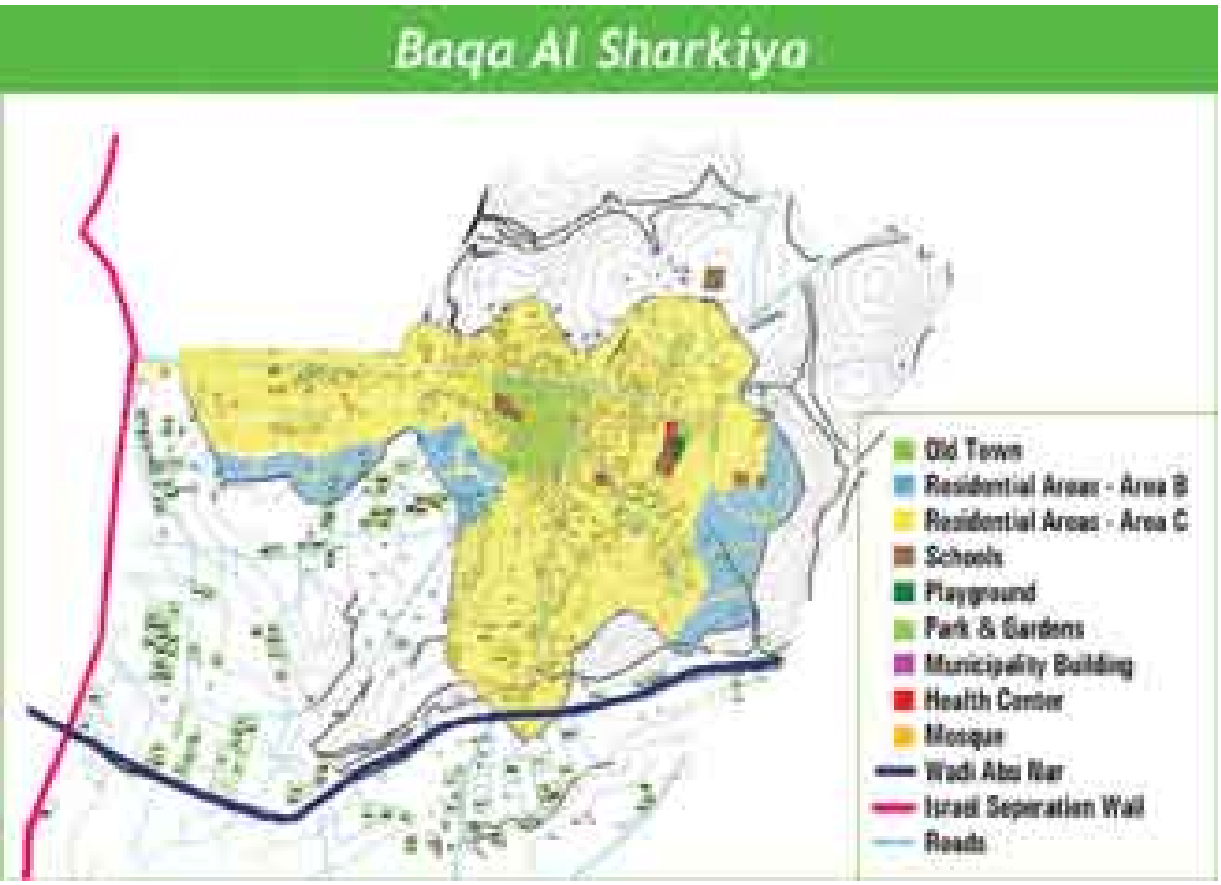
A. The water supply network in the town needs to be expanded. This is a high priority project both for the residents and the municipality. The successful expansion of the project to all Baqa al Sharqiya homes would require approximately 250,000 U.S. dollars.

B. The municipality supports the establishment of a monitoring program to continuously monitor the water quality.

C. The community recognizes that establishing domestic rainwater collection and residential grey water systems with a corresponding educational aspect would both provide an alternative water supply in times of shortage and increase awareness concerning the economic and environmental benefits of water preservation.

2. Wastewater Management

As in many communities throughout the West Bank there is no wastewater collection system in Baqa Al-Sharqiya. Currently, residents use cesspits or septic tanks to collect the wastewater from their homes. Due to the lack of a wastewater treatment facility in the area, the cesspits are emptied by vacuum trucks which dump the wastewater in nearby valleys, particularly Wadi Abu-Nar. The unregulated dumping of wastewater in nearby valleys has led to large-scale contamination of the soil and groundwater. Two of the four groundwater wells in Baqa Al Sharqiya are located in close proximity to the wastewater dump sites.




Site visit

Proposed Solutions

A. Through the Good Water Neighbor project a Memorandum of Understanding was signed in 2005 between the municipalities of Baqa Al-Sharqiya and Baqa Al-Gharbiya to cooperate on cross-border wastewater reuse and management. Baqa AlGharbiya-Jat has agreed to connect any pipe bringing residential sewage from Baqa Al-Sharqiya once the new sewage treatment plant is built in Baqa Al Gharbiya-Jat. In this way, the two GWN communities will be a model to other neighboring communities in finding cooperative solutions to environmental and health hazards associated with poor wastewater management.

B. To date several local NGOs have assisted a limited number of residences in establishing custom design domestic grey water treatment systems to recycle water for reuse in urban gardens. Increased awareness of the economic and environmental benefits of domestic gray water recycling systems would be of great benefit to the community.

3. Solid Waste Management

The residences of Baqa Al-Sharqiya suffer greatly from problems associated with domestic and agricultural solid waste collection, transportation and disposal. The municipality does not currently have the economic means to maintain a systematic waste management service. In the past the municipality attempted to standardize residential solid waste

collection and disposal but met economic shortages and a low degree of community awareness and cooperation. At the outbreak of the second Intifada, the residents stopped paying taxes to the municipality, consequently the municipal garbage collection and dumping service was halted replaced by a rented tractor used for the collection and transportation of the solid waste.

Furthermore, there is no sanitary landfill for solid waste disposal in the area. Prior to August 2006, waste was disposed of in Wadi Abu-Nar, thereafter an alternative site south-west of the town was located. There are also an inadequate number of solid waste collection containers available throughout the city. Finally, there is little or no enforcement of laws established by the Ministry of Health and Environmental Authority.

In addition to the problems of residential solid waste collection and disposal, agricultural solid waste greatly contributes to soil and groundwater contamination, particularly the wide-scale use of non-organic disposable plastic sheeting, chemical fertilizers and pesticides, all of which are responsible for soil and groundwater pollution.

Proposed Solutions

A. There is a need for a comprehensive awareness campaign targeting both residents and farmers to encourage simple composting techniques, creating rich compost for use as a natural fertilizer. The campaign should include an educational aspect concerning the hazards of chemical fertilizers and pesticides and their negative effects on the health and environment.

B. The municipality of Baqa Al-Sharqiya supports the establishment of a regional sanitary landfill in cooperation with the neighboring communities to solve solid waste disposal problems faced by the entire area.

C. The municipality also supports a plastic sheeting collection and recycling program to assist farmers in preventing soil contamination.

4. Wadi Abu-Nar

As previously discussed, Wadi Abu-Nar is a dump site for both solid waste and wastewater, making it an environmental hazard to Baqa al Sharqiya and the surrounding areas. Throughout history the Wadi, which flows for approximately 51 kilometers from the Nablus Mountains to the Mediterranean Sea, has played a central role in the area. During the rainy seasons, the Wadi is flushed with forceful seasonal floods uprooting trees and carrying away anything in its path. For this reason the Romans and Crusaders referred to the Wadi as the "Valley of Death." During the Turkish era, the residents in Baqa Al-Sharqiya marched towards the memorial of Al-Sheikh Hamdan Abu-Nar on the hill situated above Wadi Abu- Nar holding flags and drums asking Al-Sheikh to slow the waters of Wadi Abu- Nar.

5. Public Green Spaces

The pollution problems associated with Wadi Abu –Nar are particularly unfortunate considering the need for public recreational space. Like other Palestinian rural communities, Baqa Al-Sharqiya lacks public lands allocated for gardens and public parks. Because of the shortage of public spaces, residential homes in Baqa Al-Sharqiya have their own private gardens planted with trees and plants. Some of the residents plant specific types of trees designed to absorb gray water discharged from their homes, and black water from cesspits.

In 2005, the Baqa Al-Sharqiya municipality established a small garden near the Municipality Building for children. Unfortunately, the garden is limited to one dunum due to the shortage of public lands. Additionally, the town map of Baqa Al-Sharqiya shows two small public spaces that can be developed as green areas. The first one is located near the municipal building and the second area located near Wadi Abu- Nar near the bridge bordering Baqa Al-Gharbiya. Indeed solving the sewage and solid waste issues of the town are necessary before rehabilitation of the Wadi as a green area / park can take place.

Baqa Al Gharbiya-Jat

Parnering Communities: **Baqa al Gharbiya-Jat (Israel) - Baqa al Sharkiya (Palestine)**
Shared Water Resource: **Wadi Abu Nar/ Mountain Aquifer**
Planner: **Mahmud Kadan**

General Overview

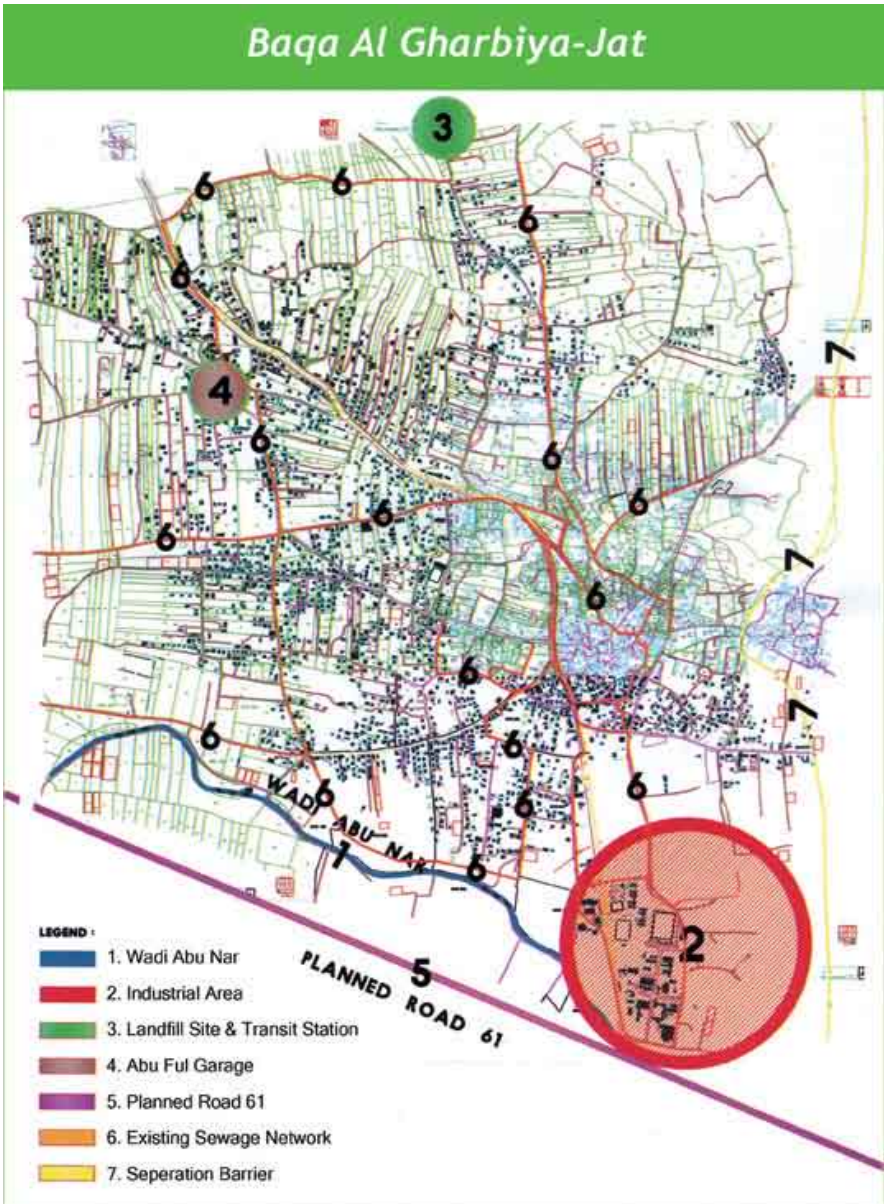
Baqa Al Gharbiya-Jat is an Israeli Arab city positioned between Israel's primary North-South motor way - Highway 6, and the separation barrier. The city's overall area is approximately 15,000 dunams, of which 6,000 dunams are built-up areas. The city includes 8,000 households, approximately 33,000 people. Topographically, Baqa Al Gharbiya-Jat is situated in an area considered highly sensitive to ground water pollution due to its location above the Mountain Aquifer, the principal fresh water drinking resource for Israel and the Palestinian Authority.

Baqa Al Gharbiya-Jat suffers from a wide variety of environmental problems that have been overlooked by the local and national governments for decades. An additional source of pollution comes from the neighboring West Bank village of Baqa Al Sharqiya. Overall neglect has resulted in environmental degradation and endemic health risks for the city's citizens.

In response to the prevailing negligence, the Baqa Al Gharbiya-Jat community has identified the following critical issues:

1. Wadi Abu Nar

The Wadi Abu Na'ar (Hedera River) runs from the Shomron Mountains in the West Bank to the Mediterranean Sea, passing by the city of Baqa Al Gharbiya-Jat. The Wadi was identified as the number one health and environmental hazard in the community due to its general state of neglect and poor management. For years the Wadi has been used as a dump site for household, agricultural and livestock waste (including animal carcasses), untreated household and industry raw sewage, as well as a burning site for used tires. Winter flood waters carry the sewage and solid waste of Baqa Al Sharqiya down Wadi Abu Nar to Baqa Al Gharbiya-Jat and the Mediterranean Sea.



Proposed Solutions

A. Rehabilitation of Wadi Abu Nar as a public park on both sides of the 'Green Line' featuring native plants and trees, a handicap accessible trail for pedestrians and bicyclists, as well as benches and picnic grounds.

B. Connecting the entire city's population and that of Baqa Al Sharqiya to the new sewage treatment plant.

C. Increasing environmental education programs in order to promote future preservation.

D. Supervision and enforcement of environmental protection laws.

Budget Assessment

The project budget for the Israeli side of the public park is estimated at 2.5 million NIS (600,000 USD) and includes:
A. Solid waste collection and removal from Wadi Abu Nar in the area between Highway 6 and the separation barrier.
B. Reinforcement of the Wadi's banks using native plants.
C. Development of a public park along Wadi Abu Nar.

2. The Garbage Dump

Currently, the waste disposal infrastructure available to the city of Baqa Al Gharbiya-Jat is limited to an unauthorized dump site located outside the city, on forested and agricultural lands. This unauthorized dump site and waste transfer station is not equipped with infrastructure to protect the fragile environment in the area, resulting in serious environmental damage including:
A. Ground water pollution caused by seeping of toxins.
B. Air pollution caused by the regular burning of garbage.
C. Strong odors which attract stray animals who pose a danger to the area's residents.


Unsanitary waste dump


Poor urban zoning

Proposed Solutions

A. Rehabilitation of the garbage dump site.
B. Relocating the garbage transfer-station to the south eastern part of the city.
C. Transforming the entire site into a park.

Budget Assessment

The overall project budget is estimated at 1.2 million NIS (300,000 USD) and includes:
A. Relocating the transfer-station, reinforcing the dump site embankments and leveling of the upper section.
B. Removal or burial of some of the waste.
C. Development of a park with playgrounds, picnic grounds and indigenous vegetation.

3. Lack of Sewage and Drainage Infrastructure

Large quantities of untreated sewage pour directly into Wadi Abu Nar from both households connected to the town's sewage network and the overflow of sewage cesspits from those unconnected to the sewage network.

To date, forty percent of the city's built up area is connected to the sewage network. A sewage treatment plant is under construction which will reduce sewage flow into Wadi Abu Na'ar, but the plant will only provide a solution for those already connected to the existing sanitation network.

The remaining sixty percent of the population currently use open sewage cesspits for lack of a better, safer alternative. The widespread use of cesspits allows pollutants to seep directly into the Mountain Aquifer, in addition to causing widespread health hazards to the population. Moreover, as the ground is already highly saturated with sewage, the cesspits must be drained increasingly more frequent, resulting in rising maintenance costs. This situation creates an uneven economic burden between households that are connected to the sewage network and the majority which are not.

Proposed Solutions

Connect the whole city and that of Baqa Al Sharqiya to a sewage system and complete construction of the new treatment plant that would treat the sewage of both communities.

Budget assessment

The overall project budget is estimated at 4.8 million USD and includes the entire city, as well as lots allocated for residential buildings in the near future.

Donor states to the Palestinian Authority should consider building a sewage network for Baqa Al Sharqiya and connecting the network with the sewage treatment plant currently being built in Baqa Al Gharbiya-Jat. A Memorandum of Understanding has been signed by the two municipalities supporting a common solution to their sewage.

In addition to the three primary environment and health obstacles faced by the residents of Baqa Al Gharbiya-Jat many other issues remain unresolved within the existing urban planning schemes including:

4. The Industrial Zone

The Baqa Al Gharbiya-Jat industrial zone is located at the southeast end of the city, adjacent to the separation barrier and Wadi Abu Nar. The industrial zone lacks basic environmental safety infrastructure and oversight. The area is primarily used to manufacture plastic greenhouses and ceramics, in addition to industrial services such as automobile garages and meat processing. Environmental hazards resulting from unregulated industry include:

I. Toxin seepage into the ground water due to the lack of sewage and road infrastructure.

II. The lack of garbage receptacles and a systemized municipal garbage collecting system leads to garbage being piled up and burnt daily at random locations.

5. Neglected Open Areas

Baqa Al Gharbiya-Jat suffers from a lack of public green spaces. The entire city does not have a single public garden or park.

6. Abu Ful Garage

The Abu Ful Garage is located at the north entrance of the city in the residential neighborhood of Al Dardas. The garage generates excessive noise and air pollution, and attracts rodents and reptiles endangering the residents of the neighborhood.

7. Route 61

Route 61 is designed to connect Highway 6 to the Baqa Al Gharbiya-Jat interchange, the Shomron Mountains and the West Bank. The road will pave over agricultural land south and adjacent to Wadi Abu Nar. The foreseen consequences of the construction include increased noise pollution, the creation of a physical barrier between Baqa Al Gharbiya and the neighboring residential area of Jat, in addition to being an unsightly scar on the otherwise beautiful landscape.


Wadi Abu Nar


Wadi Abu Nar


Street litter


Waste dump

Tulkarem

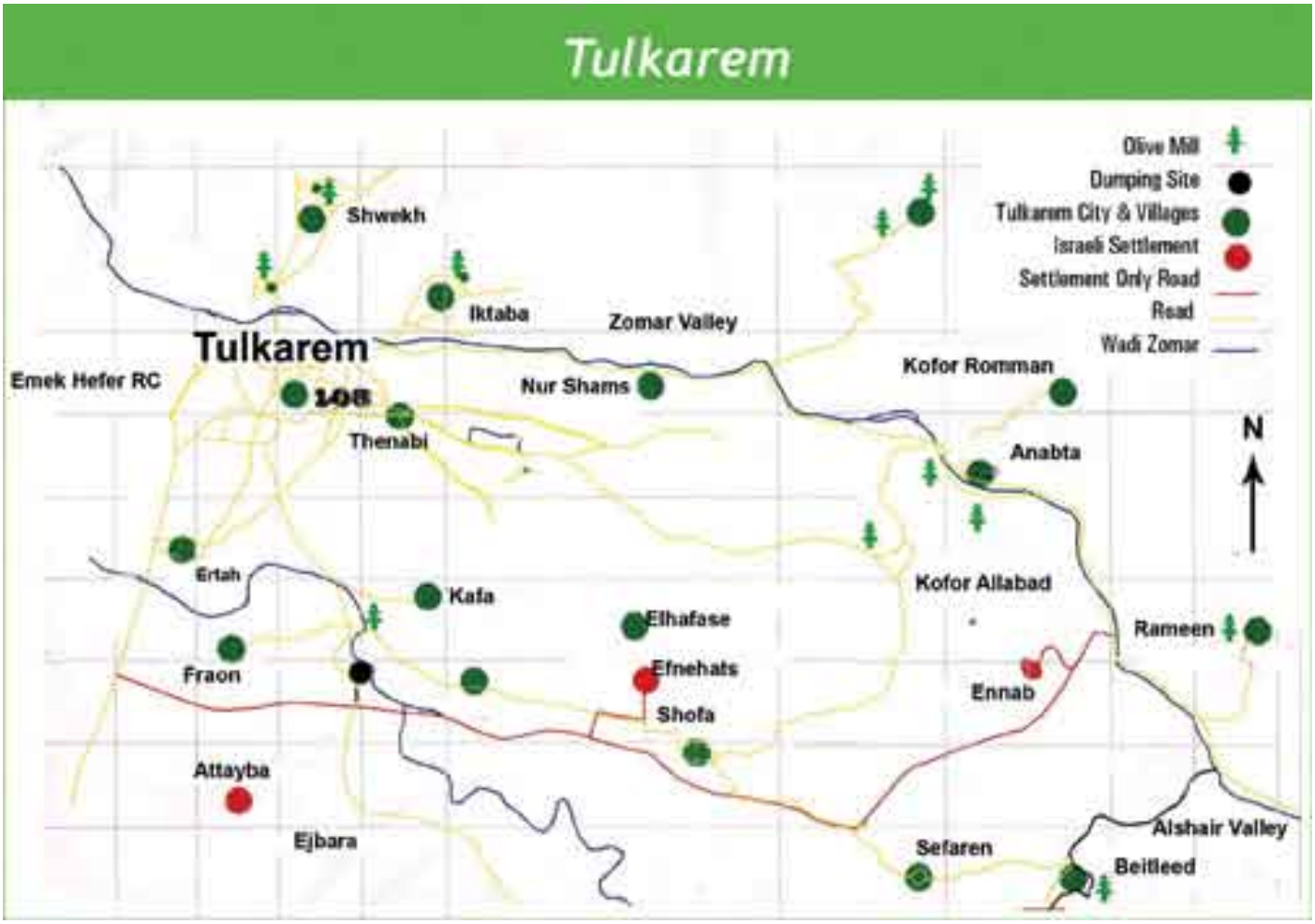
Partnering Communities: **Tulkarem (Palestine) - Emek Hefer Regional Council (Israel)**
Shared Water Resource: **Wadi Zomar (Nablus) / Alexanedr River/ Mountain Aquifer**
Planner: **Mahmoud Jallad**

General Overview

Tulkarem city is located in the Northern West Bank. The area has an estimated population of 80,000 people, including the residents of the surrounding villages of Shweikah, Thenabah, Irtah and Tulkarem Refugee Camp. Tulkarem is directly located on the western groundwater aquifer (Mountain Aquifer) , within the Auja-Tamaseeh drainage basin, which supplies water for the area's domestic, industrial and agriculture sectors.

The area of Tulkarem, whose name is rooted in the Aramaic Tur Karma (Vine Yard Hill), which was used by the Samaritan inhabitants of the Middle Ages and later by the Crusaders, has a long agricultural tradition. During the British Mandate, an agricultural school was founded in Tulkarem with a monetary contribution by the philanthropist J.S. Kadorie. At present, the agricultural school is part of the Al Najah National University in Nablus.

Tulkarem's successful agricultural tradition is founded on the area's fertile soils, suitable climate, and relatively high rainfall. These factors result in prosperous rain-fed farming, supplemented with seasonal irrigation. Despite these environmental advantages, Tulkarem suffers from sever environmental mismanagement, resulting in increasingly dangerous health hazards for the local population and long term environmental degradation, particularly for the area's water resources.




Raw sewage - Wadi Zomar

The Tulkarem communities have identified the following areas of urgent environmental concern:

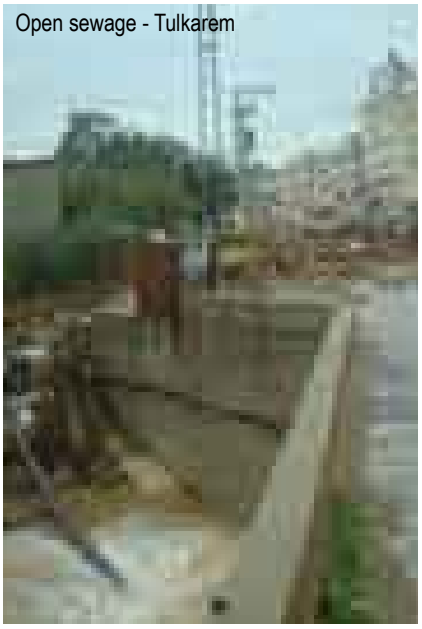
1. No Sewage Network or Treatment Facility

Like many urban centers throughout Palestine, Tulkarem does not have a municipal-wide wastewater collection and disposal system. Consequently, wastewater is collected and dumped, along with the sewage of western Nablus, in surrounding wadis, primarily Wadi Zomar (Nablus) which traverses Tulkarem area from Nablus on its way to the Mediterranean Sea via the neighboring community of Emek Hefer. In addition to residential wastewater, sewage from tanneries, olive mills, and stone cutting industries are also discharged into the Wadi with no treatment. This dumping system greatly increases sewage permeation into the groundwater aquifer, and together with its contents of pollutants, bacteria and viruses, results in dangerous environmental health hazards.

Proposed Solutions

A. Recently, the old Tulkarem sewage treatment facility was upgraded in partnership with the German Development Bank (KFW) as a cross-border cooperation effort between Tulkarem Municipality and the neighboring Israeli community of Emek Hefer. The cooperation plan stipulates that Tulkarem's wastewater will receive first treatment in a lagoon system and then the primary effluents will be transferred to the Emek Hefer sewage treatment plant for secondary treatment.

B. Efforts are being undertaken primarily in cooperation with the German Government to build an additional sewage treatment facility to treat the sewage dumped in Wadi Zomar (Nablus) from Nablus which crosses into Tulkarem and over the green line into Emek Hefer.


Open sewage - Tulkarem


Stone cutting factory


Stone cutting factory

2. Solid Waste Disposal

In addition to wastewater disposal problems, solid waste disposal is one of the major environmental challenges faced by Tulkarem Municipality. Currently, all solid waste is collected and disposed of in open dump sites south-east of Tulkarem Municipality and burned, resulting in heavy air pollution in close proximity to residential areas. Nearby neighborhoods constantly complain of bad odors and thick smoke emitted from the burning garbage. Leachate (a highly concentrated organic contaminant produced as sewage seeps through the Earth's layers) generated at the dump sites represent another major threat to groundwater pollution of the Mountain Aquifer.

Proposed Solution

Construction of a modern solid waste disposal site equipped with impermeable liners able to greatly mitigate the negative environmental damage caused by leachates.

3.Pesticides

More than 60 tons of pesticides are used annually in Tulkarem area, resulting in major health concerns for both farmers and consumers, in addition to sever groundwater pollution and environmental degradation. Furthermore, the harmful pollutants emitted by the Gishory pesticides factory in the neighboring Israeli community, west of Tulkarem, expose the residents of the surrounding areas, including Tulkarem, to harmful contaminates.

4. Public Awareness

The neighboring communities east and west of the green line in Tulkarem area lack awareness and understanding of sound environmental management practices, particularly concerning shared water resources.


Wadi Zomar - Tulkarem


Tulkarem dump site

Emek Hefer

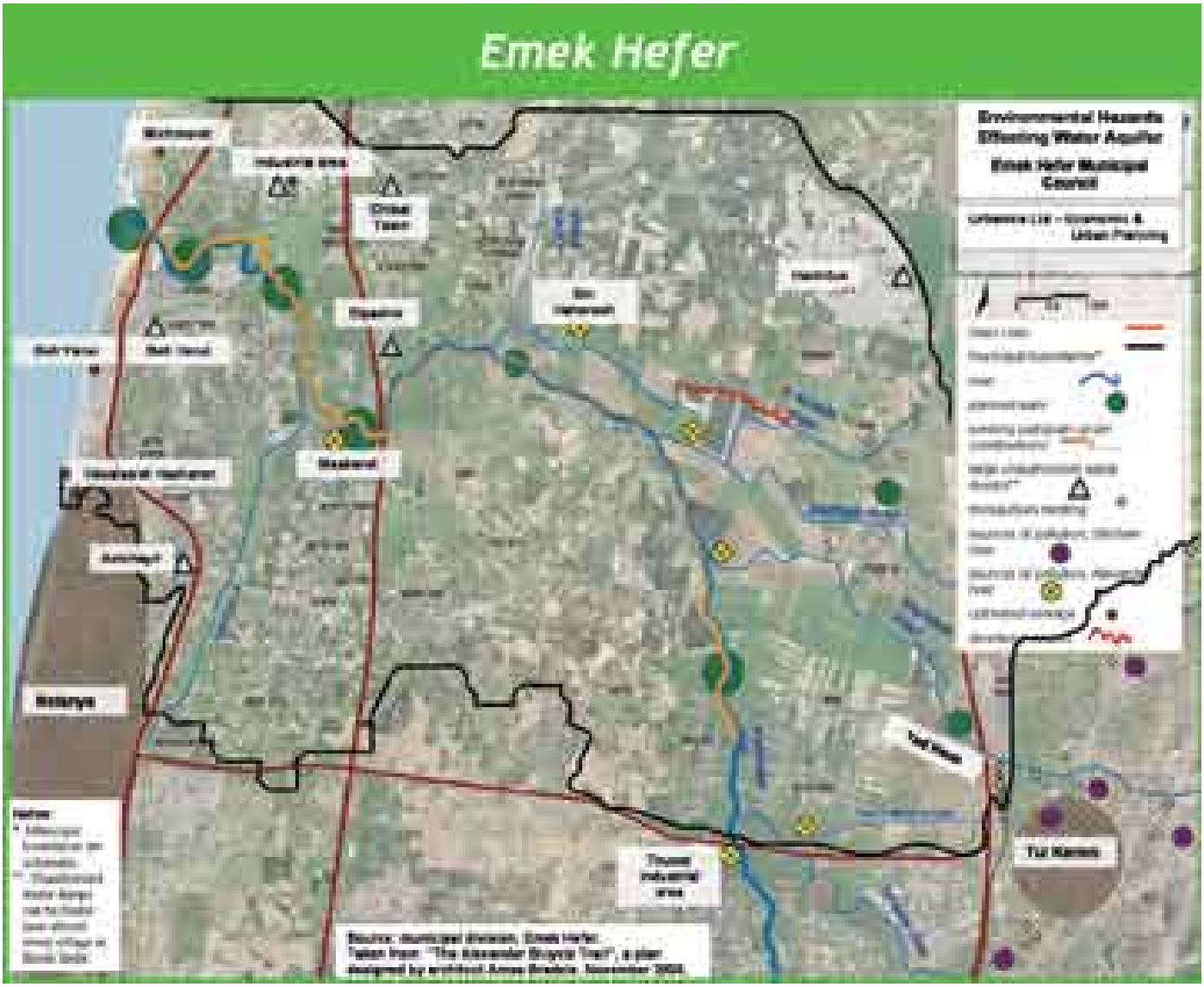
Partnering Communities: **Emek Hefer Regional Council (Israel) - Tulkarem (Palestine)**
Shared Water Resource: **Wadi Zomar (Nablus) / Alexandra River/ Mountain Aquifer**
Planner: **Noa Gecht for Urbanics**

Emek Hefer regional council is located in Israel's central region comprising 30,000 citizens in various communities totaling 130,000 dunums of land.

Through numerous discussions organized by Friends of the Earth Middle East Good Water Neighbors Project the residents of Emek Hefer regional council have identified three primary environmental issues that have a direct and dangerous impact on ground water resources including:

1. Untreated wastewater disposal and the resulting pollution problems in the Nablus and Alexander Rivers.
2. Untreated solid waste dumping, particularly agricultural waste, and the resulting pollution problems.
3. Mosquito outbreaks and their resultant health hazards.

Additionally, in cooperation with their partner community, Tulkarem, possible solutions are being advanced for inclusion in a combined sustainable development master plan for the area.




Industrial waste - Emek Hefer

1. Untreated Wastewater disposal

In recent years a comprehensive rehabilitation program of the Alexander River has been undertaken resulting in a dramatic improvement in the quality of the water, reintroduction of wildlife, resulting in a large numbers of visitors to the area. Unfortunately, due to the lack of wastewater collection infrastructure and treatment center in neighboring Palestinian communities, residential, agricultural and industrial sewage is disposed of in the Nablus (Shchem) River, which runs directly into the Alexander River, threatening the ecological rehabilitation of the river and polluting the Mountain Aquifer, the primary source of fresh water for both Israeli and Palestinian communities.

The Nablus River flows from the Shomron Mountains through the Palestinian cities of Nablus and Tulkarem. The building of a sewage treatment plant in 2002 at Yad Hana on the Israeli side of the stream and the rehabilitation of Tulkarem's oxygenation pools next to the border improved the state of Nablus River and significantly contributed to efforts to rehabilitate the Alexander River. Despite these improvements several pollution sites still operate, primarily in the Palestinian territories, including household sewage unconnected to wastewater collection systems and industrial sewage from stone cutting and olive oil production. This pollution prevents the full rehabilitation of the Alexander River and its surroundings.

Proposed Solutions

A. In cooperation with Nablus and Tulkarem, the communities of Emek Hefer propose to conduct joint social-educational activities at the Nablus sewage treatment plant. Proposed activities include construction of water treatment facilities and water testing.

B. A park has been constructed next to Kibbutz Yad Hana along the banks of the Nablus River. A "Green Basin Cross Border Park" linking Emek Hefer with the Tulkarem Municipality would contribute to educational activities of school children and youth, as well as provide an open public space for the communities. This proposal requires the replenishing of the stream's water or the diversion of sewage pipes to treatment plants. The estimated cost for a 10 dunam park is 710,000 USD. This plan is already being promoted by Tulkarem, the Alexander River Administration and the German Government.

2. Solid Waste Disposal

Emek Hefer's household and agricultural wastes are transported to the Kallanswa's regional dump site. Only to a small extent, waste is being recycled including paper, cardboard, drink bottles, metal scraps, plastic scraps, batteries, and animal manure is being collected at a special bio-gas facility. To date, a small number of households compost biodegradable wastes.

Alexander River model park

The main solid waste disposal problems faced by the communities of Emek Hefer are:

I. Unauthorized garbage dumps in the countryside in close proximity to residential and industrial areas. These dumps cause visual and ground water pollution.

II. The burning of organic and plastic wastes causes air pollution resulting in health risks for the area's residents.

Proposed Solutions

A. Systematic collection and separation of household waste for recycling to increase greater environmental awareness by:
I. Increasing the number of industrial facilities for separation and collection of wastes.
II. Creating a public awareness campaign concerning waste hazards targeting youth movements and schools.
III. Forming an incentive system, for the reduction of household waste.

Realization of the project is dependant on many factors, primarily economic feasibility and the establishment of facilities to dispose of the collected waste. The budget for this proposal is to be derived from the cost of the recycling companies for installing collection facilities and the regional council costs for maintenance and transport, incentives and campaign.

B. In cooperation with Tulkarem regional council, Emek Hefer proposes to establish a joint Israeli-Palestinian corporation to treat agricultural waste located between the two communities to reduce solid waste and produce mulch, compost, and organic fertilizers for use in local agriculture. The cost of a business plan for such a project is estimated at 12,000-18,000 USD.

3. Mosquito Outbreaks

In addition to fish ponds, reservoirs, sewage treatment plants, and winter puddles, untreated sewage running from the Nablus River down into the Alexander River attracts large swarms of mosquitoes. Pest control efforts are being undertaken in Emek Hefer including the reintroduction of mosquito eating fish. Limited cooperation between Tulkarem, Nablus and Emek Hefer further exacerbates the situation.

Proposed Solutions

The mosquito problem is directly linked to finding a solution to wastewater disposal and treatment. Undertaking a cross border study of the mosquito problem would create a cooperative framework surrounding the issue while establishing bonds between the two neighboring communities. The cost of this study is estimated at 35,000 USD.

Tzur Hadassah and Wadi Fukin

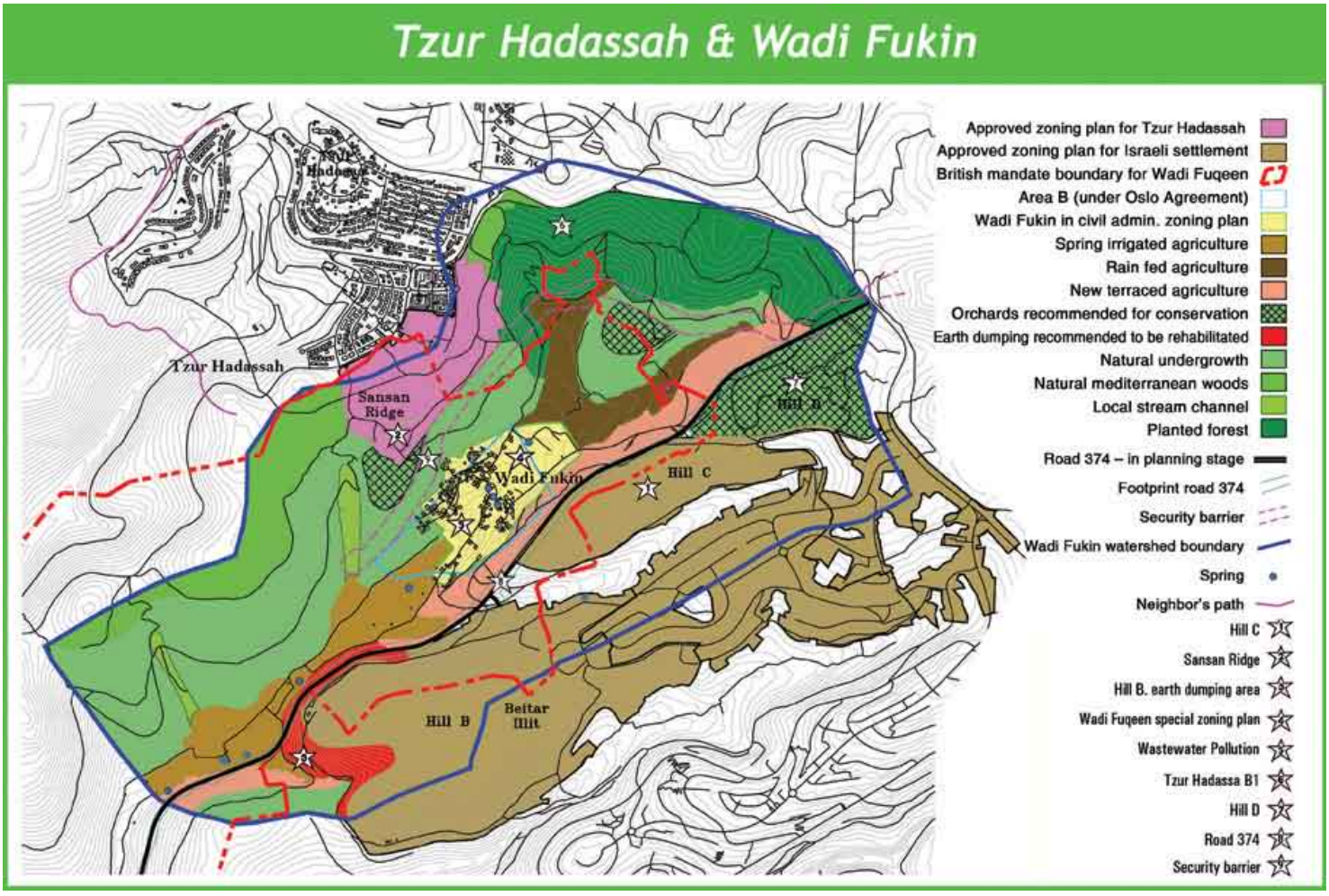
Partnering Communities: **Tzur Hadassah (Israel) - Wadi Fukin (Palestine)**
Shared Water Resource: **Fukin Springs/ Mountain Aquifer**
Planners: **Anat Sade and Tomer Goldstein**

General Overview

The Palestinian Village of Wadi Fukin has approximately 1,200 residents mostly farmers, selling their produce daily to the Bethlehem area. Tzur Hadassah has a population of approximately 4000 residents. The Israeli community is considered middle class with most residents working in the service sector in the Jerusalem area.

The Fukin Valley is one of the Judean Hill's most impressive natural landscapes.The village of Wadi Fukin is an outstanding, well preserved model of a traditional agricultural way of life, which developed in the area over the last 10,000 years. Indeed, the village illustrates techniques first developed in the revolutionary transition to an agricultural lifestyle and early irrigation systems. For thousands of years the community of Wadi Fukin has harnessed the water flowing from the valley's eleven springs to nourish their fields. Kilometers of aqueducts direct the spring water to storage pools and onwards to agricultural plots. The northwestern slope of Wadi Fukin is part of the Sansan ridge, a karstic landscape covered with natural forests typical of the Mediterranean region, supplemented by pine woods planted by man.

Currently, the agricultural way of life and natural landscape in the Fukin Valley is endangered by massive urban development. Expansive zoning plans for the settlement of Beitar Elite on the southeastern side of the valley and Tzur Hadassah on the Sansan ridge have already been approved.



Traditional irrigation system - Fukin Valley

The Tzur Hadassah and Wadi Fukin communities have identified the following areas of urgent environmental concern:

1. Hill C, within the city limits of the Beitar Elite settlement, is zoned for urban development although detailed plans have not yet been approved. We recommend limiting urban development to the south side of Hill C to protect Wadi Fukin's aquifer recharge area and enable limited residential expansion of Wadi Fukin.

2. Part of the Sansan Ridge is within the city limits of Tzur Hadassah and has been zoned for urban development. We recommend limiting urban development to the North in order to protect the Wadi Fukin aquifer recharge area and conserve a green buffer zone between the two communities.

3. Massive quantities of dirt and stone unearthed on Hill B have been illegally dumped on the slopes of Wadi Fukin in blatant contradiction to existing zoning regulations. This area must be rehabilitated as it causes great damage to the valley's unique landscape and potential landfalls endanger the valley's farmers.

4. The Wadi Fukin Special Zoning Plan was unilaterally approved by the Civil Administration in 1993 in opposition to the position of Wadi Fukin's leadership. This plan fails to designate any building reserves for population growth. Consequently, Wadi Fukin residents are forced to expand into the traditional agricultural center of the valley, causing adverse affects on the Wadi's spring system and damage to the unique agricultural landscape. We recommend developing a new zoning plan for Wadi Fukin which would enable limited urban expansion on the valley's embankments, thereby preserving the valley's traditional agricultural center.

5. The wastewater of households in Wadi Fukin is disposed of into cesspits without any treatment, penetrating directly into the local aquifer. Given the highly vulnerable hydrological structure in the valley, several of the natural springs are polluted by sewage as a result, rendering their water unfit for consumption.

6. Plans for urban development in the Tzur Hadassah B1 area have not been approved yet. We recommend conserving the pine woods and olive groves in this area in order to protect the Wadi Fukin aquifer recharge area and protect the North-South ecological corridor.

7. Hill D serves as the entrance to Wadi Fukin and is currently covered with traditional groves of non irrigated fruit trees grown on terraces. However, the Beitar Elite Settlement has planned to develop the area as an Industrial Zone. Based on the landscape survey and hydrological study we recommend the area should remain agricultural lands for the continued benefit of the local farmers, to preserve its landscape value and to protect the Wadi Fukin aquifer recharge area.

8. As it is currently planned, Road 374 causes great damage to the valley. We recommend that if the road is approved then its route should be moved east of Wadi Fukin's built up area and bridges be integrated into the plan to minimize landscape and hydrological damage to the valley.


Hill D terraces


Youth camp


Fukin Valley


Earth dumped in Wadi

9.The construction of the Security Barrier, currently underway, is extremely close to the village and creates a feeling of imprisonment. Moreover, the current route of the Security Barrier encloses the valley between the Security Barrier and Road 374, greatly damaging the valley's aquifer recharge zone. We recommend replacing the Security Barrier with alternate less physically invasive security measures.

Proposed Projects

A. We recommend developing a joint landscape project on the south west slope of the Sansan Ridge which will incorporate terraced agriculture, natural wooded groves, walking paths and look out points.

The natural area will serve a number of specific social and environmental functions including:

I. Creation of a green buffer zone between the two communities and limit urban expansion.

II. Help advance the good relations existing between the two communities.

III. Maintain a north-south ecological corridor.

IV. Conserve the natural and cultural identity of the region.

V. Increase rainwater infiltration into Wadi Fukin's localized aquifer.

VI. Decrease the rainwater runoff, which contributes to downstream flooding.

VII. Decrease soil erosion.

VIII. Expand Wadi Fukin's agricultural and grazing area and help strengthen its economical base.

IX. Tzur Hadassah and Wadi Fukin will enjoy accessible, quality open spaces with minimum maintenance costs.

The plan will be guided by great sensitivity for this exceptional environment.

The map on page #47 presents specific threats to the Wadi Fukin- Tzur Hadassah environment. FoEME is leading a team of stakeholders including all relevant nature conservation authorities in order to finalize a set of planning recommendations and detailed maps.

B. A proposal for the alleviation of sewage pollution through local treatment was developed by FoEME in association with the Palestinian Wastewater Engineers Group. The proposed scheme aims to solve the pollution problem in Wadi Fukin, as well as provide treated wastewater for irrigation, at particularly low running costs.

Proposed project costs: $600,000


Traditional irrigation system - Fukin Valley

Negev / Gaza Communities on the Nabatian Trail

Since the 4th Century BCE the Nabatian caravans traversed the Negev desert trading their merchandise from Petra to Gaza along the ancient spice and perfume route. Despite the harsh hot climate the Nabatians knew how to live with the environment, harnessing the best that nature had to offer but always leaving enough for the caravans to come.

Today too much of the Negev in Israel has been turned into the dumping ground of waste from central Israel and the location of polluting industries. The smell of chemical industries often saturates the desert winds. Nevertheless, there are many attempts to live with and learn from nature in the Negev and one example is the Eshel Hanasi community, a youth village that could be the model for the region as a whole.

In the Gaza strip where the Nabatian trail ended and ships would carry their goods onto one of the most ancient Mediterranean ports, life is now particularly difficult. Of the 1.5 million residents of the Gaza Strip two thirds are descendants of refugees from the 1948 Arab Israeli war. Being only 40 kilometers long and 10 kilometers wide the strip is one of the most densely populated places on earth. Population pressure has left little open spaces and key environmental concerns include desertification; salination of fresh water; lack of sewage treatment; water-borne disease; soil degradation; and depletion and contamination of underground water resources. These are the issues that the community of Abasan in Gaza has to contend with.

FoEME has only two communities in the Negev – Gaza area and would like to expand its cross border community involvement. Linking the Hebron Stream which flows down the West Bank and becomes the Beersheva Stream in the Negev of Israel and then Wadi Gaza before reaching the Mediterranean Sea would make sense from the Good Water Neighbors perspective. Financing is needed to expand cross border cooperation at the community level in the Negev Gaza area so that some of the results witnessed in the other partnering communities can be achieved here as well.

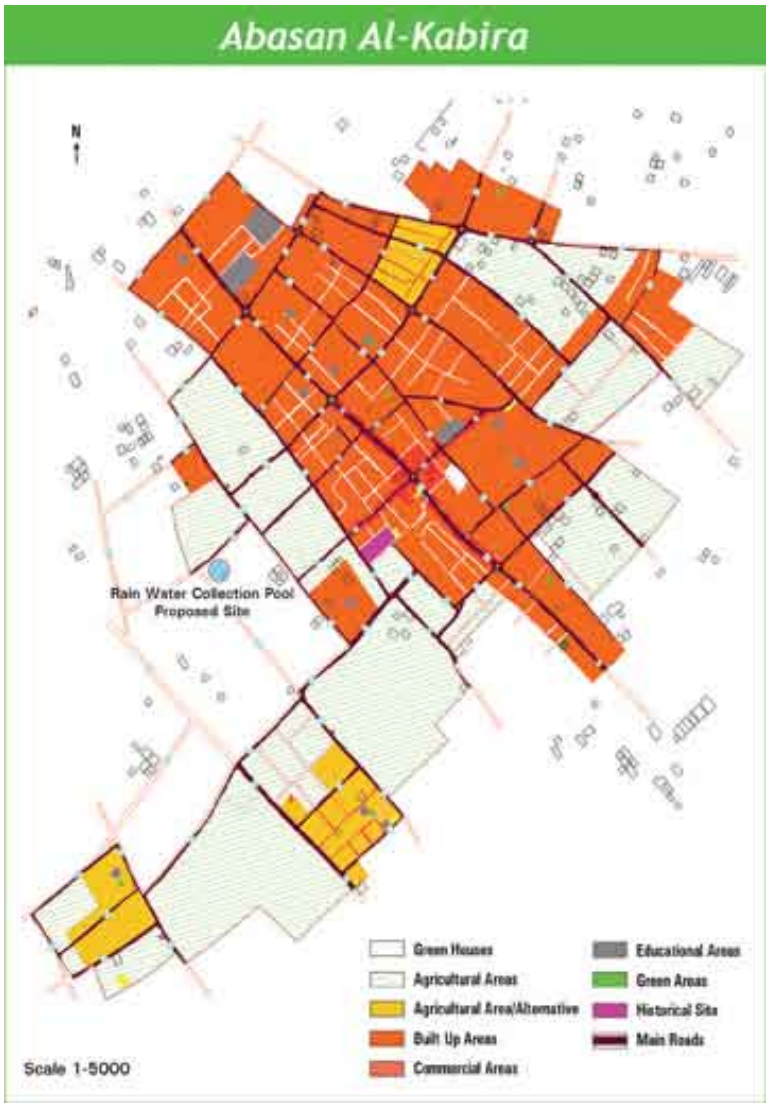
Abasan Al-Kabira

Partnering Communities: **Abasan (Palestine) - Eshel Hanasi (Israel)**
Shared Water Resource: **Wadi Gaza / Be'ersheva Stream**
Planner: **Moustafa Al-Shawaf**

General Overview

The municipality of Abasan Al-Kabira is part of a cluster of smaller municipalities located in the Khan Younis Governorate called the Eastern Villages. It is located in the south-east of the Gaza Strip, near the border between the Gaza Strip and Israel. The area is located about 78 meters above sea level and includes 19,000 dunums, 12,000 of which are agricultural fields.

Abasan Al-Kabira has experienced massive population growth over the last 90 years; from 695 people in 1922, to 3730 in 1967, to 13,362 in 1997. Today, the population numbers approximately 21,000 people, of which about 40% are children. The current population growth rate is estimated by the municipality at 5.5-6.0% annually, significantly higher than the 3.97 % natural growth rate average across the Gaza Strip [PCBS, January 2004]. Before the outbreak of the second Intifada the two main sources of revenue were working inside Israel, and agriculture. The possibility of steady employment in Israel disappeared with the increased restrictions on entry into Israel, generating large numbers of unemployed and consequently creating widespread dependency on agricultural revenues as the sole source of income for the majority of the area's residents.



The Abasan Al-Kabira community has identified the following areas of urgent environmental concern:

1. Water Resources Scarcity:

The rapid population growth in Abasan Al-Kabira has resulted in increasing pressure on the already scarce water resources available in the area. Furthermore, as the local residence's standard of living increases, water consumption per capita increases. The only available water source in the area is the Costal Aquifer which replenished by rainwater and the sub-lateral flow. Water from over-irrigation, residential and industrial wastewater, and flood waters during the winter months also percolate into the groundwater. Due to sever over-pumping of the limited groundwater, seawater intrusion into the aquifer has greatly increased. These factors coalesce to produce severely polluted groundwater, evident in high levels of pollutants, in particular salt and nitrates.

The residents of Abasan Al-Kabira further suffer from an undersized, inadequate water distribution network. The Municipality of Abasan Al-Kabira is responsible for the distribution of water for domestic and industrial consumption. Due to the deterioration of the distribution network, the unaccounted-for water loss is very high; estimated to range from 35% to 50%. All houses in Abasan Al-Kabira use roof tanks of one to two cubic meters to ensure water supply in

In addition to this large dump site, there are many small unregulated dump sites throughout the area. These dumps, primarily used for disposing solid wastes, are in dire condition, responsible for undetermined quantities of air, water, and soil pollution. Of particular threat are the risks associated from leachate seeping into the groundwater from un-sanitary hazardous waste dumps. Public health risks associated with direct exposure to hazardous or infectious waste are serious.

Proposed Solution

Recycling and reuse of solid waste are both conceps that are becoming more common in the discourse surrounding the issue of solid waste in Abasan. Agricultural waste is being composted on a larger scale than ever before, and the possibility of composting residential biological waste, estimated to be 83% of the total solid waste, is being explored. A municipality-wide project to compost biological decomposable solid waste with modern composting techniques at a communal composting center is estimated to cost 250,000 US dollars. Local women's groups have been particularly interested in establishing small-scale capacity building projects that promote the reuse of domestic waste.

4. Agriculture

The lands of Abasan Al-Kabira are approximately 80% agricultural fields and 20% built-up areas. The residents are heavily dependent on revenues from agriculture, particularly citrus and olive trees. Crops are irrigated by well water drawn from the seventeen wells located throughout the municipality, and purchased by the farmer at a cost of 0.50 to 0.70 US cents per cubic meter depending on the salinity rate. Wide-spread irrigation has greatly increasing the pressure on the limited groundwater resources.

Additional problems result from the methods used in cultivation. The cost of agricultural machines and vehicles is beyond the reach of most area farmers who are primarily dependent on manual labor. There is also excessive use of pesticides, including the dangerous methyl bromide gas. The farmers are willing to develop alternative methods of pest control. The area's residents would also like to become independent in food processing. The women in the community see this as an opportunity for them to strengthen their role in the main economic sector in the region.

Proposed Solutions

A. One of the most important environmental and agricultural projects in the region supported by the Abasan Municipality is the establishment of a pool for rainwater harvesting in the area of Wadi Saber. The system will collect water for irrigation, greatly decreasing the pressure on the diminishing water resources available in the region. This project is estimate to cost 450,000 US dollars.

B. The farmers association also promotes solar disinfection in place of pesticides. The proposed project will directly benefit 50 families and is estimated to cost 10,000 U.S. dollars including a 16 hours training course for the farmers.


Abasan Al Kabira


Abasan Al Kabira


Sewage flow - Abasan Al Kabira

case of a failure in the water supply system or interruption in the water distribution.

Proposed Solutions

A. The situation in Abasan Al-Kabira is critical and requires immediate concerted efforts to improve the water situation in terms of quality, quantity and accessibility. Water supplied by the distribution network can be saved for domestic use if an alternative source is made available for agricultural use. A systematic rehabilitation of the network to repair leaks in the system would make 35% -50% more water available to the public.

B. Due to high salinity levels in the drinking water Friends of the Earth Good Water Neighbors Program installed a desalination unit for drinking water in the Abdulla Abo Setta school in Khan Younis. There are eight schools in Abasan that would require such units. Each unit is estimated to cost 1,800 U.S. dollars.

2. Wastewater Collection and Treatment Services

Like the rest of Khan Younis Governorate, Abasan Al-Kabira is not connected to a sewage network resulting in sever wastewater and sanitation problems. Most significantly, the large scale discharge of untreated wastewater, approximately 5,000 m3 per month, as well as leakage from wastewater collected in septic tanks, pollutes the groundwater and soil while attracting large numbers of mosquitoes, flies and rats.


Flooded streets - Abasan Al Kabira

This grave negligence poses acute health risks to the local population. Diseases associated with the mismanagement of wastewater include cholera, dysentery, as well as hepatitis and yellow fever.

Proposed Solution

The Abasan Al Kabira municipality seeks international support to install a sewage network and sewage treatment facility. Investment in this system would address the environmental and health hazards due to wastewater dumping and, with the treatment of this water, could replace groundwater use in agriculture; the treated wastewater could be used to irrigate the area's orchards. The municipality of Abasan Al-Kabira has proposed a wastewater management project to test the suitability of small scale wastewater treatment plant and to motivate the use of low-cost wastewater treatment options. This project intends to introduce different treatment methods in rural areas in Abasan, by testing a pilot program and to enhance public awareness and participation. The project proposes to collect wastewater and construct a wastewater treatment plant that serves the whole area. This project is estimated to cost 150,000 US dollars.


Flooded streets - Abasan Al Kabira

3. Solid Waste Collection Service

In addition to the negative environmental and health hazards resulting from the lack of a sewage treatment facility, the improper disposal of solid waste in Khan Younis Governorate is a major cause of declining water quality, land degradation, and air pollution. In Abasan Al-Kabira alone the estimated average amount of solid waste per household for 2005 was measured to be approximately 387.66 tons per month.

Currently, waste collection and disposal for all 11 municipalities in Khan Yunis and Deir Al Balah Governorates is overseen by a single body, the Solid Waste Council. Garbage is collected within each municipality, then collected and disposed of by the Deir Al Balah Governorate at the dumping site within Deir Al Balah Governorate. For this reason, residents have to pay two types of taxes: one for municipal garbage collection, and one for using the land where the dump site is situated. As opposed to the prevailing situation in the West Bank, the Deir Al Balah dump site is located in area A, giving the Palestinian Authority full regulatory control.

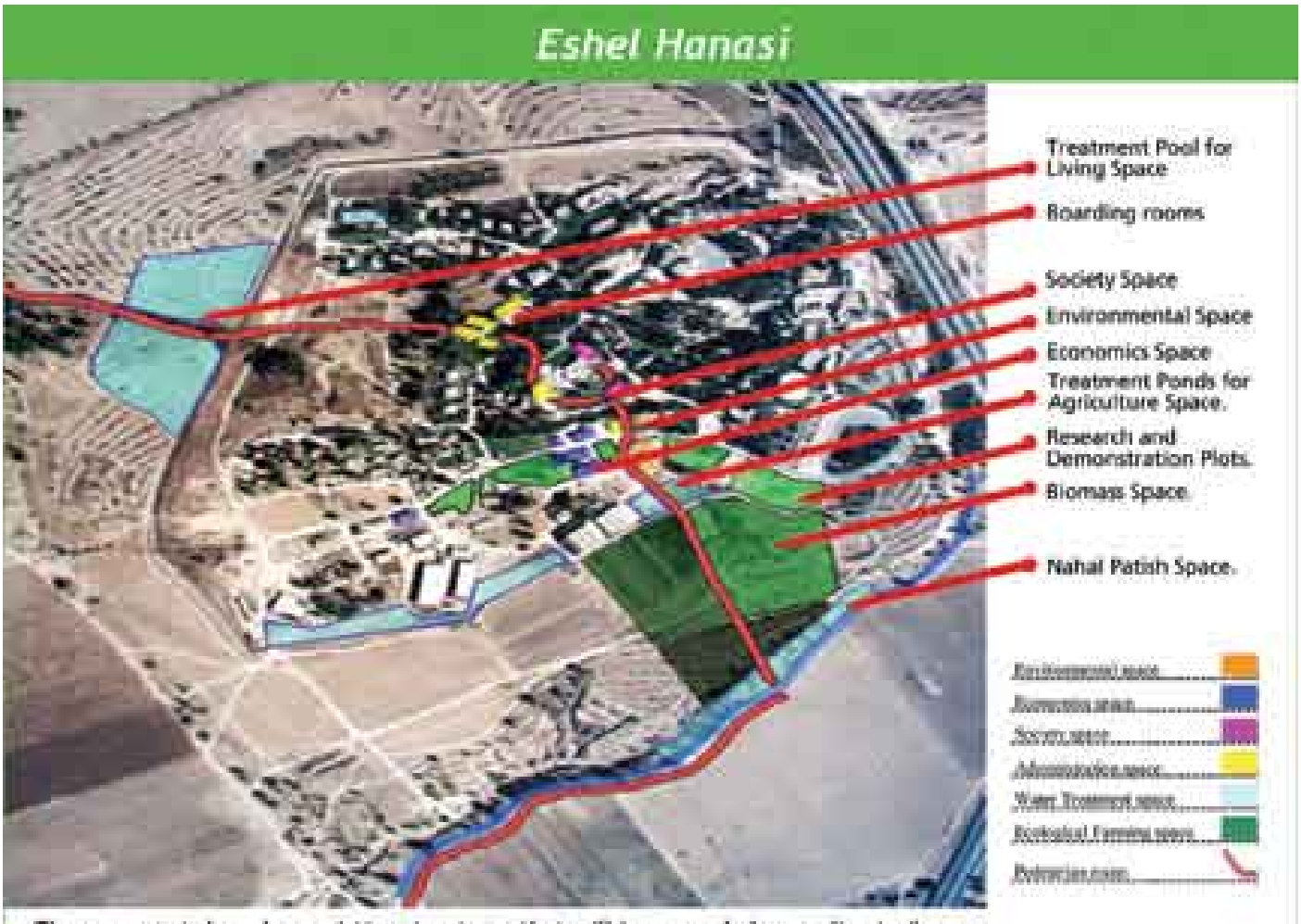
Eshel Hanasi

Partnering Communities: **Eshel Hanasi (Israel) - Abasan (Palestine)**
Shared Water Resource: **Wadi Gaza / Be'ersheva Stream**
Planner: **Rafi Raish**

General Overview

Eshel Hanasi youth village was established in 1952 in the north-western region of the Negev, near Beer Sheva. The village includes a Junior High School and High School, totaling 1500 students aged 12-18 and the boarding school with 250 residents, in addition to the adjacent agricultural farm. Currently, the village is being approved for ISO 14001 an international standard for management excellence. Eshel Hanasi attracts students from all over Israel resulting in a uniquely high cultural, socio-economic and educational diverse student body.

Eshel Hanasi youth village is dedicated to safeguarding the area's natural resources, recycling and energy conservation, as both an ideology and a practice. To that aim, students in grades 9 through -11 work one day a week in the village's agricultural farm in a wide variety of fields including, milking cows, tending to sheep and hens, and cultivating crops in greenhouses, large fields and gardens. This work is an integral part of the educational program, striving to develop a strong environmental awareness to preserve natural resources. This integrated study and work philosophy has demonstrated remarkable academic achievement measured in the students final exams. During the 2005-2006 academic year 85% of students proved eligible for the Bagrut (High School) certificate.



The program is based on existing structures that will be upgraded according to "green building" and sustainable developing principles. The structures were chosen by location and proximity to the different spaces.
Some of the structures are being used now, but in order to properly function as a part of the plan, they will be converted.

Eshel Hanasi community has identified the following areas of environmental concern:

1. Environmental Management

To date the Eshel Hanasi community strives to leave as little impact on the environment as possible. Through the Good Water Neighbors program several new strategies for managing our environment were developed. This plan is based on a three tiered division of space:
I. Environmental space: Designed for conducting experiments concerned with measuring and limiting the ecological footprint of the residents.
II. Economic space: To demonstrate the connection between environment, economic and social problems.
III. Social space: To visualize the way a society influences the environment.

The community's determined adoption of an environmental- ecological approach has led to the drafting of an environmental memorandum for the entire village. The first steps in its implementation was the organization of battery disposal containers, paper recycling containers and plastic bottle recycling facilities in addition to organic waste composting. Furthermore, a plan for recycling wastewater has been developed. The community is also operating fully organic greenhouses.

To advance the space management plan an Eco-Study Center was established bringing together representatives from Eshel Nanasi and the neighboring chemical industries. This program is still in an early stage of development.
Eshel Hanasi plans to establish the Sami Sham'un College of Applied Sciences specializing in Green Engineering and Environmental Studies. The adjoining research center will offer applied research opportunities to both its College students and the Eshel Hanasi Junior and High School students.

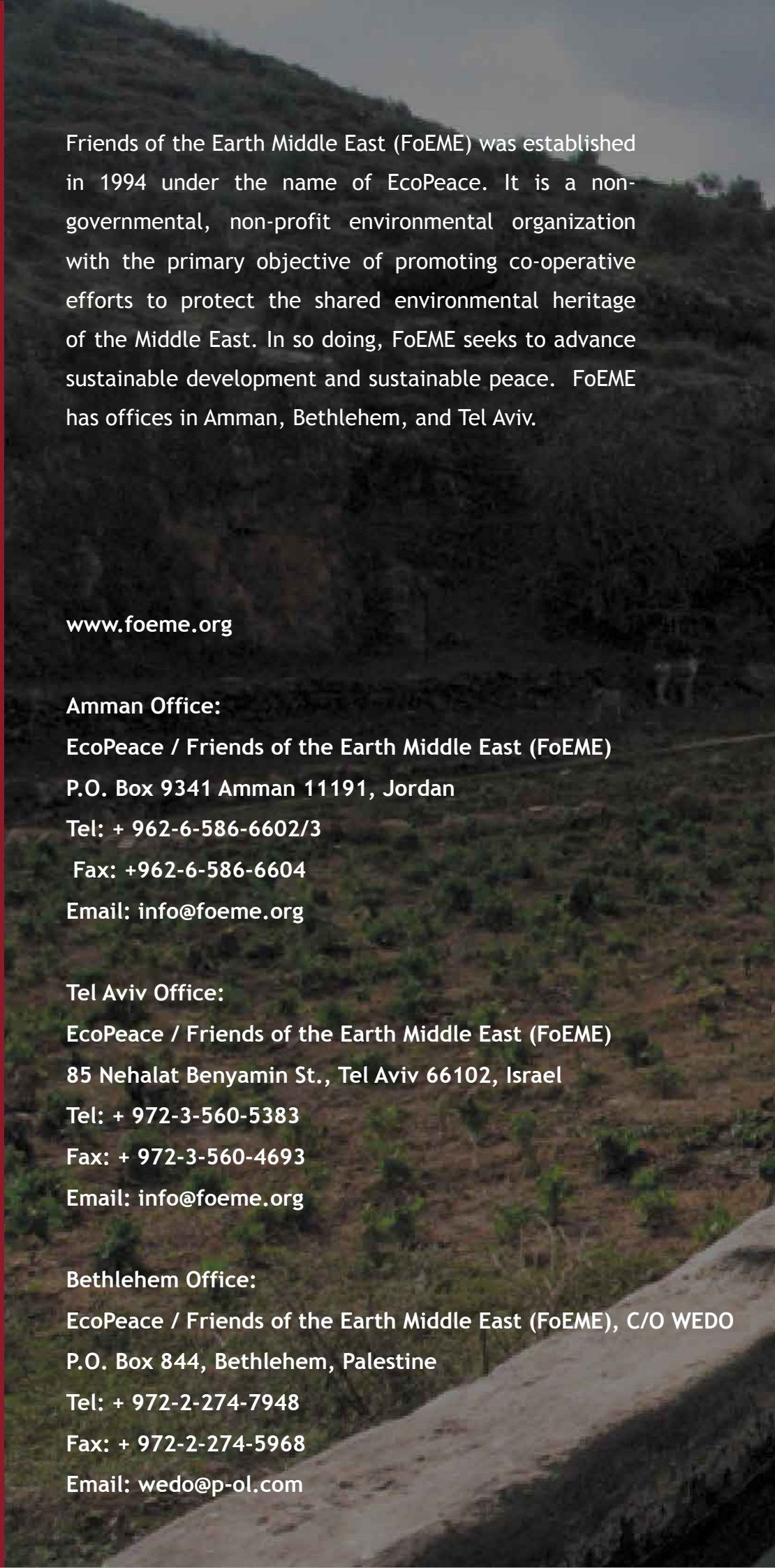
New Activities:
A. Expansion of the Eco-Study Center's activities to include meetings, tours etc.
B. Financial support for the Sami Sham'un College of Applied Sciences and research center would enable the community to develop many of its plans.

2. Wastewater Management

The Eshel Hanasi community is undertaking a water recycling program for residential use. Several of the boarding school buildings have been remodeled or are in the process of being remodeled to include a double plumbing system. To date 4 - 5 cubic meters of grey water is being processed daily. The water is used to irrigate carefully chosen water saving plants. A wetlands system designed in connection to the grey water system will be ready by May 2007.
The estimated cost of the construction and plumbing improvements and the constructed wetlands is about 30,000 USD. We believe that demonstrating this system will expose all pupils to an alternative way to treat waste water, a way that will be wide spread in the future

Proposed Solution

An expansion of the water recycling program requires the installation of the double plumping system in all residential and academic buildings.



Friends of the Earth Middle East (FoEME) was established in 1994 under the name of EcoPeace. It is a non-governmental, non-profit environmental organization with the primary objective of promoting co-operative efforts to protect the shared environmental heritage of the Middle East. In so doing, FoEME seeks to advance sustainable development and sustainable peace. FoEME has offices in Amman, Bethlehem, and Tel Aviv.

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