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**Project in Development and the Environment**

SCOPING SESSION REPORT

**ENVIRONMENTAL ASSESSMENT--INDUSTRY SURVEY**

**RAMALLAH WASTEWATER SYSTEMS PROJECT  
(USAID Project Number 294-0014)**

**AMERICAN NEAR EAST REFUGEE AID (ANERA)**

**Jerusalem and West Bank/Gaza Strip**



July 28, 1994

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The objective of the Project in Development and the Environment (PRIDE) is to help the U.S. Agency for International Development (AID) design and implement programs that foster the agency's environmental and natural resources strategy for sustainable economic growth in the Near East and Eastern Europe.

PRIDE provides AID and participating countries with advisory assistance, training, and information services in four program areas: (1) strategic planning, (2) environmental policy analysis, (3) private sector initiatives, and (4) environmental information, education, communication, and institutional strengthening.

The project is being implemented by a consortium selected through open competition in 1991. Chemonics International is the prime contractor; subcontractors include RCG/Hagler, Bailly, Inc.; Science Applications International Corporation; Capital Systems Group, Inc.; Environomics, Inc.; Industrial Economics, Inc.; Lincoln University; and Resource Management International, Inc. In addition, AID has entered into a cooperative agreement with the World Environment Center to support implementation of PRIDE.

The opinions expressed in this paper are those of the author(s) and do not necessarily reflect the positions of the sponsoring agency or contractors.

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## 1.0 INTRODUCTION

The U.S. Agency for International Development (USAID) is funding an Environmental Assessment (EA) of the proposed Ramallah Wastewater Systems project by the American Near East Refugee Aid (ANERA) (USAID Project Number 294-0014). As an initial component of the assessment process, and in accordance with the USAID Environmental Procedures (22 CFR 216), a Scoping Session was held on July 27, 1994, in the Municipality of Ramallah building, Ramallah, West Bank. The purpose of the scoping session was to inform interested parties, particularly PVOs, NGOs and local village community residents, where the treated wastewater would be reused for irrigation, the purposes of the proposed scope of the ANERA project's EA, including the Industry Survey--to evaluate potentially detrimental effects of toxic material discharges upon the upgraded wastewater system and to recommend pollution prevention alternatives--and to solicit their assistance in identifying any significant environmental or social issues concerning the proposed project.

A Scoping Statement summary was prepared and submitted to the USAID Asia/Near East Bureau's Environmental Coordinator (BEC) for review and approval. This report summarizes and documents issues and concerns raised as a result of the scoping session. (On May 24, 1994, a PIO/T was approved, which included a Scope of Work for Environmental Assessments for West Bank/Gaza PVO Community Development and Environmental Infrastructure Activities.)

The purpose for preparing and distributing this report is formally to maintain the critical review process, which is deemed essential to the conduct of an appropriate and comprehensive EA for the Ramallah Wastewater Systems project.

The need to conduct an EA was established as a result of the evaluation of the West Bank/Gaza Strip Infrastructure and Core Working Groups, conducted in Washington, DC, on December 7, 1993, which recommended an Initial Environmental Examination (IEE) with a positive threshold decision. The IEE with a positive threshold was prepared and submitted to the BEC for approval, which was obtained on February 3, 1994. Such an IEE thus recognized that the Ramallah Wastewater Systems project could result in potentially significant environmental impacts due to concerns about certain of the project's conceptual designs and monitoring ability. Furthermore, areas of intended intervention include a) irrigation or water management projects, and b) sewerage projects, and both are designated in USAID's Environmental Procedures, 22 CFR 216.2(d), as Classes of Actions Normally Having a Significant Effect on the Environment. Moreover, the intended employment of pesticides--even USEPA- or WHO-approved--requires additional examination of potential adverse impacts.

## 2.0 DESCRIPTION OF THE RAMALLAH WASTEWATER SYSTEMS PROJECT

The project entails assistance to the Municipality of Ramallah, located in the West Bank, northwest of Jerusalem, for the engineering design and construction of a sewage collection, treatment and treated water recycling/reuse system both for the benefit of the city and nearby agricultural communities. The Ramallah Agricultural Marketing Cooperative will purchase the treated wastewater from the city and, in turn, will sell the water for irrigation purposes to farmers in the villages of Al-Jeeb, Al-Jdeirah, Betunia and Rafat.

The major purpose of this project is to improve the environment and economy of the Ramallah environs. The objectives include:

- Furnishing more than 665,000 m3 of treated wastewater per year as irrigation water to four villages to service an area of more than 2000 dunums for readily marketable crops
- Testing and evaluating a novel system of water conservation and recycling/reuse for West Bank communities
- Facilitating the improvement of sanitary conditions in Ramallah and nearby villages, which, in turn, should help protect groundwater quality in the impacted watershed
- Strengthening the financial self-sufficiency and institutional capacity of the Ramallah Municipality
- Increasing the technical capacity and experience of Palestinians regarding wastewater treatment and reuse, including operations and maintenance (O&M) and reuse/irrigation systems among consulting engineers and support contractors, the impacted communities and agricultural cooperatives

## 3.0 PRELIMINARY FINDINGS

### 3.1 Pre-Scoping

Pre-scoping was accomplished in USAID/W during March 28-30, 1994, among Near East Bureau environmental and West Bank/Gaza Strip staff, in order to develop a preliminary list of perceived adverse environmental impacts that would require further discussion:

- Odors and groundwater contamination due to improper household solid waste disposal
- Soil erosion and stormwater runoff
- Environmental effects of pesticides (insecticides and herbicides) planned for use

- Destruction/disruption of aquatic and terrestrial habitats
- Collection, treatment and disposal of wastewater (municipal and industrial) and solid waste/debris
- Potential effects of toxic industrial waste discharges into the upgraded municipal treatment system
- Effectiveness of liquid vs. gaseous chlorine as a disinfectant for treated wastewater
- Use of disinfection techniques other than chlorine
- Improper siting of municipal solid waste landfills or proposed stabilization reservoirs
- Increased establishment of point sources for wastewater discharges other than for reuse
- Increased use of electrical energy (aerators, pumps, etc)
- Worker accidents during construction and operations
- Potential seismic and flooding hazards of interventions
- Health-related effects of reused, treated wastewater on agricultural communities

### 3.2 Site Visits

On July 22, 1994, site visits were conducted to Ramallah to inspect the current location of the wastewater treatment plant (WWTP) to be upgraded, the industrial facilities, the future locations of two stabilization reservoirs and the four adjacent agricultural communities that will receive and reuse treated wastewater for irrigation purposes.

The following is an excerpt from a telephone conversation of July 25, 1994, with Dr. Kaz Kawata, USAID consultant, responsible for design review of the Ramallah treatment system upgrade. Engineering plans/designs for the Ramallah WWTP require the following approvals, which are contingent upon a given set of conditions being met, according to Micha Blum, Environmental Health and Engineering for the Ramallah District, a member of the Water Commission:

#### 1. Anaerobic basins odors

Dr. Shelef of Technion advocates that anaerobic ponds, when properly operated, pose no odor problems; however, on the small chance of upsets, he suggests covers (floating or quonset types).

## 2. Design criteria

Dror Gilad, also on the Water Commission, and on staff at the Hydrological Service of the Ministry of Agriculture, offered the following conditions--

- a. Effluent must meet the 20/30 (BOD/TSS) requirements;
  - b. Detention time must give NMT 200 fecal coliforms/100 ml (Israeli standard = NMT 250 fecal coliforms/100 ml); and
  - c. Detention time, minimum, is 100 days (WWTP is designed for 200 days).
3. Lining required for all ponds (clay of  $10^{-7}$  cm/sec vs. 1.5 mm HDPE)
- a. Maturation ponds and stabilization reservoirs (HDPE lined);
  - b. Anaerobic ponds, 5+ meters deep (concrete in lieu of HDPE).
4. Use of effluent approved ONLY for KCY map, i.e., for the Yatta formation only, due to the sensitivity of the geological formation; irrigation limited to NMT 5 mm/day (5 m<sup>3</sup>/dunum) in summer and 3 mm/day (3 m<sup>3</sup>/dunum) in winter.

## 4.0 RESULTS OF THE SCOPING SESSION

The abbreviated minutes of the scoping session and commentary from participants are provided in Appendix C. As previously described, the actual scoping session was preceded by a number of activities, including:

- preliminary discussion with West Bank/Gaza Strip staff in Washington, D.C.;
- literature and design reviews;
- identification of attendees (Appendix A);
- pre-scoping meetings held in Washington, D.C., February 18/22, March 14/22, June 8, and July 5/8, 1994; and
- additional briefings and meetings among USAID/Jerusalem, USAID consultant, Dr. Kaz Kawata, and ANERA staffs.

The basic agenda for the scoping session used as a reference for discussion is included in Appendix B. The scoping session was attended by 28 persons representing USAID, ANERA, Municipalities of Ramallah and Al-Bireh, Bir Zeit University, GTZ (German donor), Palestinian Hydrology Group, Palestinian Council of Health, Jerusalem Water Undertaking, Arabtec-Jordan, Environmental Protection and Research Center of Gaza, a Betunia village representative, an industrial consulting engineer and PRIDE (see Appendix A).

The significant issues raised and explored during the scoping session concerned:

- odors and groundwater contamination as a result of improper solid waste disposal and siting
- collection, treatment and disposal of wastewater and household and industrial solid waste/debris
- soil erosion and stormwater runoff
- environmental effects of pesticides planned for use (herbicides and insecticides)
- destruction/disruption of aquatic and terrestrial habitats
- potential for toxic industrial waste discharges into the municipal wastewater treatment system
- disinfection options when treated effluent quality exceeds prescribed standards for fecal coliforms and helminths
- improper sitings for solid waste landfills or proposed stabilization reservoirs
- increased use of electricity
- worker accidents during construction and operations
- potential seismic and flooding hazards of interventions
- health effects of reuse of treated wastewater on agricultural communities
- acceptance of treated wastewater for irrigation of crops by farming communities; crop quality may require monitoring
- conduct of educational campaigns through extension services
- availability of sufficient land for drying of sludge
- quality of dried sludge for soil amendment purposes; sufficient nutrient content available
- regional planning for water and wastewater and related siting issues
- regulation and enforcement of industrial wastes at the municipality and regional level
- sampling and analysis requirements for industrial waste surveys
- cost recovery: pricing of water/wastewater treatment to cover O&M and depreciation
- treatment facility design is based on current not expected population extrapolation

## **5.0 SCOPE OF WORK FOR ENVIRONMENTAL ASSESSMENT FOR WEST BANK/GAZA PVO COMMUNITY DEVELOPMENT AND ENVIRONMENTAL INFRASTRUCTURE ACTIVITIES**

### **BACKGROUND**

As a result of prolonged neglect by authorities and increasing poverty, the rural areas of the West Bank and Gaza Strip suffer from underdevelopment of their physical, economic, and social infrastructures. In an effort to improve the social and economic well-being of communities in the territories, the U.S. Agency for International Development (USAID) has decided to support programs of cooperative municipal development, water/wastewater systems, institutional development, and rural development.

Grants to private voluntary organizations have been provided for implementing the following projects: 1) West Bank Integrated Rural Development-Capacity Building Project/Catholic Relief Services (Project No.294-0159.48); 2) Institutional Development Project/Save the Children Federation (Project No.294-0159.53); 3) Ramallah Wastewater Systems Project/ANERA (Project No.294-0014); and, 4) Cooperative and Municipal Development Project/ANERA (Project No.294-0004).

In accordance with USAID's regulation 22 CFR 216.3(a)(4) (ii), Environmental Assessments (EAs) and Programmatic Environmental Assessments (PEAs) will be carried out for each project. Implementation of the EAs/PEAs will be based on the Initial Environmental Examinations (IEE) which have already been completed. The IEEs resulted in positive threshold decisions stating that the above listed projects could result in potentially significant environmental impacts in light of the diversity of both types of projects/sub-projects to be funded and geographic locations of communities where interventions will occur. Consequently, in-country scoping sessions will be carried out and a scoping session report with scoping statement and a scope of work (SOW) will be prepared for the Near East Bureau Environmental Coordinator's (BEC) review and approval. Implementation of the PEAs/EAs will be implemented upon receiving the BEC's approval. In the case of the West Bank Integrated Rural Development-Capacity Building Project/Catholic Relief Services (Project No.294-0159.48), the scoping activity has been completed, the scoping statement prepared, and the SOW approved by the BEC.

### **PURPOSE**

For all the activities, the goal of the program is to improve the economic and social well-being of Palestinians in the West Bank and Gaza. A brief description of the projects and their primary and secondary purposes are outlined below:

Task 1 - PEA for Integrated Rural Development/Capacity Building (IRD/CB) (CRS)

The IRD/CB Project's activities will take place in 20 villages in the West Bank. The main areas of intervention will be in potable water networks, spring water development, water catchments, land reclamation, agricultural roads upgrading and installation, and women's enterprise development. The primary purpose of this activity is to improve health in rural communities, to increase productivity of the agricultural/economic sector, and to increase income to women. The secondary purpose will be to increase the capacity of local Palestinian NGOs to plan and manage rural development activities in a participatory manner. PRIDE will evaluate the CRS activities, make recommendations for technical assistance and training programs designed to improve CRS' institutional capacity to perform environmental reviews of projects. PRIDE will also develop a preliminary system for assessing and monitoring environmental issues within a program context.

Task 2 - Institutional Development Project (SCF)

For this three-year project, the SCF will partner with ten national level organizations to implement community development activities, strengthen 40 local institutions and facilitate the formation of at least 6 grassroots/area committees. Areas of intervention will be in: water resource development (drinking and agricultural purposes); sanitation (small-scale sewage collection and treatment, household solid waste collection and disposal); agricultural development (land reclamation, crop diversification, construction of earth or gravel access roads, fencing of cultivated areas); environmental awareness through campaigns; and, women's activities (management and technical training, small-scale income generating projects, promotion of credit models for loans, basic literacy, job related skills training). The primary purpose of this activity is to enhance the management and administrative capability of Palestinian development institutions. The secondary purpose is to improve health in rural communities and to increase productivity of the agricultural/economic sector. PRIDE will develop a scoping session report and a PEA to outline direct and indirect effects of the project on the environment and address environmental concerns associated with water/wastewater activities USAID intends to fund.

Task 3 - Ramallah Wastewater Systems Project (ANERA)

This project entails assistance to the Municipality of Ramallah in the West Bank for the engineering design and construction of a sewage collection, treatment and recycling system for the benefit of the city and nearby agricultural communities. One of the main objectives will be to increase the

technical capacity and experience of Palestinians regarding wastewater treatment and recovery, and operations and maintenance of such treatment and reuse/irrigation systems among consulting engineers and contractors, the impacted communities and the agricultural cooperatives. The primary purpose of this activity is to improve the environment and economy of the Ramallah environs. The secondary purpose is to improve health in rural communities and to increase productivity of the agricultural/economic sector. PRIDE will review issues concerning irrigation/water management and potable water and sewerage. This will include reviewing the use of pesticides and their impact on the environment, and surveying the local industrial sector for types of production, raw materials used, estimation of effluent flow rates and quality of specific pollutants of concern.

#### Task 4 - Cooperative and Municipal Development Project (ANERA)

This is the only ongoing project in question that will be implemented both in the West Bank and Gaza. It will focus on increasing the marketed production of agricultural and manufactured goods and services. Activities include developing irrigation systems with West Bank/Gaza Strip cooperatives and municipal development through the construction of industrial zones and agricultural produce markets. The primary purpose of this project is to strengthen the capacity of selected Palestinian cooperatives and municipalities to deliver and maintain economy-stimulating services. The secondary purpose is to increase productivity of the agricultural/industrial sector. PRIDE will define the direct and indirect effects of the project on the environment, and address the following areas of intervention: development of water sources, including springs, wells and small reservoirs, land reclamation for workshops and markets, agricultural access roads repair, sewage and solid waste collection and disposal, industrial waste disposal, and pesticide and fertilizer activities. An environmental training course entitled, "Principles of Environmental Assessment" will be offered to the US PVO community in the fall of 1994.

#### **ACTIVITIES**

Each of the above-mentioned tasks will be coordinated among the offices of AID/ANE, AID/West Bank-Gaza, the BEC, and PRIDE. Each activity will be backstopped and monitored by PRIDE staff to ensure the timely completion of tasks (before the end of 1994). The activities and their requirements are described below. A summary of activities is outlined in Table I (attached).

Task 1 - PEA for Integrated Rural Development/Capacity Building (CRS)

The team will attend a two-day briefing at the PRIDE office in Washington, DC, will meet with USAID/Washington, and will review all relevant documentation in preparation for the PEA. While in the field, site visits will take place in northern part of the West Bank, including Jenin, Nablus, Tulkarem, Ramallah, and the Jordan Valley. Following is a list of activities to be performed under Task 1:

1. Review all documentation pertaining to the IRD/CB Project and related materials.
2. Study the Catholic Relief Services-U.S. Catholic Conference (CRS-USCC) related materials prior to projects supported by USAID.
3. Conduct up to eight site visits considered representative of the twenty to be selected by CRS-USCC. A few sites may include successful past activities. The team will meet with USAID at the U.S. Consulate in West Jerusalem and CRS-USCC officials to gather background information for these activities and the PEA in general.
4. Evaluate the Participatory Rapid Appraisals (PRAs) technique to be employed by CRS-USCC, which will be used to assess the needs and priorities of the communities and select the final twenty villages to be targeted by the IRD/CB program. Recommend improvements as necessary.
5. Develop recommendations for technical assistance, interventions and training programs designed to improve CRS-USCC's institutional capacity to perform "environmental reviews" of projects and sub-projects (recall project goal, purposes, and monitoring component outlined above).
6. A major environmental issue raised by the Project Review Committee and elaborated upon during the scoping session concerns the treatment and disposition of septage removed from pit latrines and septic tanks by village-owned special vehicles. Therefore, the team will discuss applicable approaches with USAID staff in West Jerusalem in concert with CRS-USCC staff and a selected Palestinian sanitary/civil engineer skilled in this area. NB: It is recommended that the team visit with USEPA (Cincinnati, Ohio) expert, J. Kreissl, to obtain his professional input regarding applicable, small community wastewater treatment options in semi-arid areas that are capable of reducing high BOD/high TSS (suspended solids) strength waste to acceptable levels.

Furthermore, the draft of the PEA should consider the following issues:

1. Multiple activities of a typically similar nature.
2. Cumulative and irreversible impacts and how these can be avoided/mitigated through proper and early design, siting adaptations or reductions in number.
3. Supportive or contradictory policies, institutional

constraints including management and maintenance capability, and cross-sectoral impacts.

The PEA should encompass the following (Annex I provides a sample outline of a PEA):

1. Recommendations on whether or not each CRS-USCC activity is managed in an environmentally responsible manner.
2. Recommendations on design, administrative, policy and other adjustments that can be made to the project to address site-specific "environmental review" requirements.
3. Address major environmental issues identified and agreed upon during the scoping session.
4. Develop a preliminary system for assessing and monitoring environmental issues within the program context.
5. Summarize/abstract CRS-USCC's environmental procedures and monitoring needs.
6. Provide a workable scheme to assure adequate monitoring of mitigative activities and reporting to the USAID/Jerusalem Affairs Officer.
7. Include photographs of sites visited.

#### Task 2 - Institutional Development Project (SCF)

The team will attend a two-day briefing at the PRIDE office in Washington, DC, will meet with USAID/Washington, and will review all relevant documentation available on projects previously implemented by Save the Children Federation (SCF). While in the field, site visits will take place in the West Bank. The following activities will be performed under this task:

1. Preliminary discussion with USAID West Bank/Gaza Strip staff in Washington, DC
2. Literature and design reviews.
3. Identification of participants in scoping session, including, PRIDE team members, USAID representatives, PVO representatives, local organizations, and municipalities.
4. Pre-scoping meetings to be held in Washington and Jerusalem with USAID and SCF staff.
5. Organize and facilitate scoping session meeting in Jerusalem.
6. In scoping session meeting, identify environmental issues, technical assistance needs, training needs, and sub-projects throughout the region.
7. Identify sites for PEA and local entity (university or private entity) to conduct an environmental review of the sites.
8. Write up scoping session report which summarizes the scoping session and presents scoping statement with a SOW for PEA.
9. Present report and scoping statement to the USAID Affairs Officer for review and submission to the Bureau Environmental Coordinator (BEC) for his/her review and approval.
10. Upon receiving BEC approval, implement PEA. Guidance for implementing the PEA is outlined under Task 1.

### Task 3 - Ramallah Wastewater Systems Project (ANERA)

During its two-day briefing at PRIDE and USAID/Washington, the team will review all relevant documentation available on activities previously implemented by ANERA. While in the field, site visits will take place in Ramallah area to include the villages of Al Jeeb, Betunia and Rafat. The list of activities required under this task will be the same as those listed above under Task 2, except that an EA (rather than a PEA) will be implemented to include an industrial survey. The industrial survey will consist of an examination of industrial effluents (their type and quantity including DO, pH and temperature) discharging into the wastewater system and the implications regarding the assimilative capacity of the newly designed wastewater treatment system.

### Task 4 - Cooperative and Municipal Development Project (ANERA)

During its two-day briefing at PRIDE and USAID/Washington, the team will review all relevant documentation available on activities previously implemented by ANERA. While in the field, site visits will take place in the West Bank (including Jericho) and Gaza. The list of activities required under this task will be the same as those listed above under Tasks 2.

#### **SPECIALISTS AND LEVEL OF EFFORT**

- Configuration of the expatriate and local team members with their level of effort (LOE) is outlined below and summarized in Table II (attached).
- All expatriate members must have approximately 10 years of professional experience, have experience working in a developing country, be sensitive to the political, economic and social conditions in the region, and have worked with USAID.
- Ability to speak Arabic and previous experience working in the Middle East is preferred.
- Qualification requirements for the local consultants will be the same for each task: the local water supply specialist must be knowledgeable about water transport/supply in rural/urban areas, including irrigation practices in agriculture use of treated wastewater and springs; the civil/sanitary engineer must be knowledgeable about irrigation in rural/agricultural communities and wastewater treatment and disinfection practices.

### Task 1 - PEA for Integrated Rural Development/Capacity Building (CRS)

- Two expatriate consultants, agricultural/water engineer and

environmental engineer; and two local consultants, water supply specialist and civil/sanitary engineer, are required for this task.

- Each expatriate team member will have 38 days LOE: 6 days preparation in the U.S. before traveling to the field; 4 days roundtrip travel including a stopover in Europe; 4 6-day workweeks in the field; and 3 days to finalize reports and debrief USAID after returning to the U.S.

- Each local team member will have 24 days LOE to work with the expatriate team members during 4 6-day workweeks. Qualifications additional to those mentioned earlier for all expatriate experts are as follows:

1. Agricultural/water engineer - Expert in the field of water reuse, wastewater treatment, and water conservation. Familiarity with agricultural cooperatives and the finance and construction of irrigation systems in a rural setting are required. Experience working with a wide variety of terrains and soils (semi-arid, mountainous, below sea level).

2. Environmental engineer - Professional training and experience in environmental engineering planning and the production and maintenance of basic infrastructures (roads, sewerage, potable water supply and solid waste disposal). Expert in small-scale community development, able to provide low-cost/low-technology solutions such as upgrading/replacing roads, cisterns and springs.

#### Task 2 - Institutional Development Project (SCF)

- Two expatriate consultants, agricultural/water engineer and environmental engineer; and two local consultants, water supply specialist and civil/sanitary engineer, are required for this task.

- Each expatriate will have 44 days LOE: 6 days preparation in the U.S. before traveling to the field; 5 days roundtrip travel including a stopover in Europe; 5 6-day workweeks in the field; and 3 days to finalize reports and debrief USAID after returning to the U.S.

- Each local team member will have 30 days LOE to work with the expatriate team members during 5 6-day workweeks. Qualifications additional to those mentioned earlier are the same as those for Task 1 (above).

#### Task 3 - Ramallah Wastewater Systems Project (ANERA)

Two expatriate consultants, municipal/water-wastewater engineer and industrial water/supply effluent specialist; and two local consultants, water supply specialist and civil/sanitary engineer, are required for this task. Each expatriate will have 44 days LOE: 6 days preparation in the U.S. before traveling to the field; 5 days roundtrip travel including a stopover in Europe; 5 6-day workweeks in the field; and 3 days to finalize reports and debrief USAID after returning to the U.S. Each local team member will have 30 days LOE to work with the expatriate team members during 5 6-day workweeks. Qualifications additional to those mentioned earlier are as follows:

- Municipal/water-wastewater engineer - Professional training and experience in the design, repair, and maintenance of small city water/wastewater treatment facilities.
- Familiarity with water reuse options and issues such as post-treatment disinfection to decrease pathogens, disinfection alternatives, and water/wastewater reuse applications in agriculture.
- Industrial water supply/effluent specialist - Experience in a wide range of manufacturing sectors, analyzing effluents from small industries and recommending pre- and post-treatment options as a basis for detailed planning of water/wastewater treatment facility.
- Familiarity with the use of pesticides (EPA-approved and/or registered pesticides and non-EPA approved) and their effect on aquatic reservoirs, groundwater and agriculture.
- Hands-on experience performing industrial surveys in regards to raw materials use, general manufacturing operations, and wastewater characteristics and flows (e.g., slaughterhouse, leather tanning, soap, paints, etc.)

#### Task 4 - Cooperative and Municipal Development Project (ANERA)

Two expatriate consultants, agricultural/water engineer and sanitary engineer; and two local consultants, water supply specialist and civil/sanitary engineer, are required for this task. Each expatriate will have 50 days LOE: 6 days preparation in the U.S. before traveling to the field; 5 days roundtrip travel including a stopover in Europe; 6 6-day workweeks in the field; and 3 days to finalize reports and debrief AID after returning to the U.S. Each local team member will have 36 days LOE to work with the expatriate team members during 6 6-day workweeks. Qualifications additional to those mentioned earlier are as follows:

- Agricultural/water engineer - same as Task 1 (above), except that consultant must have familiarity with the use of pesticides

and integrated pest management (IPM) techniques and their application and used pesticide container disposal methods.

- Civil/sanitary engineer - Undergraduate degree in civil/sanitary engineering with experience conducting environmental assessments in hilly and semi-arid terrain. Experience in the design and planning of roads, water/wastewater systems, landfill/solid-waste issues, and small-scale infrastructures. Sensitivity to cultural heritage of the region (Roman archeology and artifacts).

### PRIDE Project Management

Management of the tasks will require support from the PRIDE project management staff. PRIDE will act as the prime coordinator/liaison between USAID/ANE and USAID/West Bank-Gaza, and the office of the BEC, to ensure flexibility, responsiveness, and adaptability to changing circumstances and requirements both in Washington, DC, and in the field. A number of scenarios for fielding and implementing the activities are described (see "schedule" below) whereby the tasks will either overlap or follow one after the other. The PRIDE Team Leader and Project Administrator will need to ensure that necessary logistical and technical support are provided to the team. As resource economist, the PRIDE Team Leader will provide technical input on the macro- and micro-economic and developmental analysis of the activities. The PRIDE Project Administrator will assist in identifying and contacting local institutions and local consultants in preparation for the scoping session meetings and will assist in drafting scopes of work and researching information for the consultants such as discharge standards for industrial effluents, as needed.

### DELIVERABLES

Due dates for all deliverables are outlined in Table IV (attached) and have been presented according to three different scenarios. PRIDE will aim to complete all tasks by December 31, 1994, however, contingencies are made in case any of the activities are delayed by circumstances in the field or in Washington, DC.

### Task 1 - PEA for Integrated Rural Development/Capacity Building (CRS)

The team will produce a report detailing both the process by which the PEA was conducted and the results of the PEA. This activity, and hence this report, will serve as a prototype for environmental reviews that will be conducted during the design of future projects in the West Bank/Gaza Strip. The team will complete and submit its report jointly to the USAID Affairs

Officers in Jerusalem and Tel Aviv.

Task 2 - Institutional Development Project (SCF)

In preparation for the PEA under this task, the team will produce a scoping session report detailing the outcomes of the scoping session, a scoping statement, and scopes of work for the PEA, which will be submitted by USAID/Jerusalem to the BEC for approval. A PEA report, detailing both the process by which the PEA was conducted and the results of the PEA, will also be submitted jointly to the USAID Affairs Officers in Jerusalem and Tel Aviv.

Task 3 - Ramallah Wastewater Systems Project (ANERA)

In preparation for the EA under this task, the team will produce a scoping session report detailing the outcomes of the scoping session, a scoping statement, and scopes of work for the EA and industrial survey. Upon approval by the BEC, the EA will be prepared. The EA report, detailing both the process by which the EA was conducted and the results, will also be submitted jointly to the USAID Affairs Officers in Jerusalem and Tel Aviv. A report detailing the means by which the industrial survey was carried out and its findings will also be prepared and submitted to those offices.

Task 4 - Cooperative and Municipal Development Project (ANERA)

In preparation for the PEA under this task, the team will produce a scoping session report detailing the outcome of the scoping session, a scoping statement, and scope of work for the PEA. Upon approval by the BEC, the PEA will be prepared. The PEA report, detailing both the process by which the PEA was conducted and the results of the PEA, will also be submitted jointly to the USAID Affairs Officers in Jerusalem and Tel Aviv.

**SCHEDULE**

Because of the uncertain political situation in the territories and potential delays caused by curfews, riots, and strikes, there may be delays. Four illustrative scenarios are presented in Table III (attached) for implementing Tasks 1-4. In all scenarios, team members must be available for briefings in Washington, DC, prior to departure, with work scheduled to begin in Jerusalem on July 18, 1994. Scenario A assumes that Tasks 2 and 3 would follow immediately after Task 1, followed by Task 4. Scenario B is a worst case option in which tasks are scheduled sequentially. In scenario C, Tasks 1, 2, and 4 would begin simultaneously on July 18, with Task 3 following immediately after Task 1 and 2, and overlapping with Task 4 as it comes to completion. Scenario D is presented as the best case option whereby all tasks are implemented simultaneously by a three-

member expatriate team and two local consultants. In Scenario D, there would occur a singular scoping session at the onset of the activity to cover Tasks 2-4, followed by roughly simultaneous implementation of the three PEAs and one EA/industrial survey for Tasks 1-4, with the three PEAs and EA/industrial survey presented in two separate documents. Tentative timeframes (assuming no unforeseen delays) for completing the deliverables under each task are outlined in Table IV (attached).

For Tasks 2-4, the USAID Affairs Officers in Jerusalem and Tel Aviv (Task 4) will submit the scoping statements to the BEC for review and approval. For Tasks 1-4, the PEA/EA should begin immediately upon receipt of approval from the BEC. A draft PEA or EA/industrial survey should also be submitted to the ANE/NE BEC for his review. Final editing will take place between the submission of the draft PEA/EA and due date of final draft of the PEA/EA which will be submitted for ANE/NE BEC final approval.

#### **PACD**

Project Action Completion Date is set for September 30, 1995, allowing for unexpected delays and problems in the field.

Budget Category for West Bank/Gaza

Scenario B  
(high option)

Scenario D  
(low option)

**Salaries & Wages**

PRIDE Project Staff	\$ 44,000	\$ 26,000
Short-Term Expats Consultants	257,000	147,000
Short-Term Local Consultants	<u>106,000</u>	<u>37,000</u>
Subtotal	\$ 407,000	\$ 210,000

**Travel & Transportation**

PRIDE Staff	\$ 4,000	\$ 0
Short-Term Consultants	<u>34,000</u>	<u>12,500</u>
Subtotal	\$ 38,000	12,500

**Per Diem**

PRIDE Staff	\$ 4,000	\$ 0
Consultants	<u>83,000</u>	<u>45,000</u>
Subtotal	\$ 87,000	\$ 45,000

**Other Direct Costs**

Communications	\$ 2,000	\$ 2,000
Medical Insurance, etc.	7,000	3,000
Office Supplies/Clerical Support	2,000	400
Reproduction Costs	3,000	2,800
Office-Space Rental	20,000	7,500
Laptop Usage	<u>2,000</u>	<u>1,800</u>
Subtotal	\$ 36,000	\$ 17,500

Total Labor	\$ 407,000	\$ 210,000
Total Materials	<u>161,000</u>	<u>75,000</u>
TOTALS	\$ 568,000	\$ 285,000
	=====	=====

EA FOR WEST BANK/GAZA PVO COMMUNITY DEVELOPMENT & ENVIRONMENTAL INFRASTRUCTURE ACTIVITIES

TABLE I: ACTIVITIES

Task #	Required Activities						
	Prescoping Session	Scoping Session	Report	SOW	PEA	EA	Industrial Survey
Task 1					X		
Task 2	X	X	X	X	X		
Task 3	X	X	X	X		X	X
Task 4	X	X	X	X	X		

TABLE II: LOE (person days)

Task #	Expat Labor Category					Local Labor Category		PRIDE Staff		
	agnc/water engineer	environ't engineer	munic-w/ww engineer	ind/water sppl effluent spclst	sanitary engineer	water sppl spclst	civil/sanitary engineer	proj mgr	project res econ	editor administr
Task 1	38	38				24	24	5	20	5
Task 2	44	44				30	30	5	20	5
Task 3			44		44	30	30	5	20	8
Task 4	50				50	36	36	5	20	5
Total LOE	132	82	44		44	120	120	20	80	23

TABLE III: SCHEDULE OF ACTIVITIES

Illustrative Scenarios	Month of Activity				
	Jul 1994	Aug 1994	Sep 1994	Oct 1994	Nov 1994
A	Task 1	Task 1 & 2	Task 4		
B	Task 1	Task 1 & 2	Task 3	Task 4	
C	Task 1	Task 2	Task 3		
D	Task 1	Task 2	Task 3		

TABLE IV: SCHEDULE OF DELIVERABLES (due dates)

Task #	Scenario A				Scenario B			
	Start Date	Scoping Report	Draft PEA/EA	Final PEA/EA	Start Date	Scoping Report	Draft PEA/EA	Final PEA/EA
Task 1	Jul 18	N/A	Aug 8	Aug 15	Jul 18	N/A	Aug 8	Aug 15
Task 2	Aug 15	Aug 29	Sep 9	Sep 16	Aug 15	Aug 29	Sep 9	Sep 16
Task 3	Aug 15	Aug 29	Sep 9	Sep 16	Sep 18	Oct 2	Oct 14	Oct 21
Task 4	Sep 18	Oct 2	Oct 21	Oct 28	Oct 23	Nov 6	Nov 24	Dec 2

Task #	Scenario C				Scenario D			
	Start Date	Scoping Report	Draft PEA/EA	Final PEA/EA	Start Date	Scoping Report	Draft PEA/EA	Final PEA/EA
Task 1	Jul 18	N/A	Aug 8	Aug 15	Jul 18	N/A	Sep 5	Sep 19
Task 2	Jul 18	Aug 1	Aug 15	Aug 22	Jul 18	Jul 25	Sep 5	Sep 19
Task 3	Aug 15	Aug 29	Sep 9	Sep 16	Jul 18	Jul 25	Sep 5	Sep 19
Task 4	Jul 18	Aug 1	Aug 19	Aug 26	Jul 18	Jul 25	Sep 5	Sep 19



U.S. AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT

**ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR THE BUREAU  
FOR ASIA AND THE NEAR EAST**

THRU: ANE/NE/ME, Frederick Machmer *Frederick Machmer*  
ANE/NE/DR/MENA, Zachary Hahn *Zachary Hahn*

FROM: ANE/NE/ME/WBG, Dorothy Young *Dorothy Young*

SUBJECT: Incremental Funding for Buy-in to Contract ANE-1078-C-00-1046-00, Project in Development and the Environment (PRIDE)

**ACTION:** Your approval is requested for \$285,000 for a buy-in to Contract ANE-1078-C-00-1046-00, Project in Development and the Environment (PRIDE). (PRIDE is an ANE/NE Regional Project designed to provide missions, host-country institutions and the Bureau with technical support.) The funding will cover a series of environmental assessments for West Bank/Gaza PVO community development and environmental infrastructure activities. Every effort will be made to minimize expenditures, according to the lowest cost (best case) scenario, which is estimated at \$285,000. WB/G PD&S funding will be used for this activity.

**BACKGROUND:** To improve the social and economic conditions in communities in the territories, USAID will support the following PVO programs: cooperative and municipal development; Ramallah water/wastewater; institutional development; and rural development/capacity building. USAID's environmental regulation 22 CFR 216 requires that Initial Environmental Examinations (IEEs) be conducted for each proposed project. Where positive threshold decisions are recommended due to perceived potentially significant environmental impacts of planned interventions, environmental assessments must be conducted. A positive threshold decision is recommended for each project.

**DISCUSSION:** The following four projects will require either Programmatic Environmental Assessments (PEAs) (items a-c) or an Environmental Assessment (EA):

- a) West Bank Integrated Rural Development/Capacity Building Project (Catholic Relief Services)
- b) Institutional Development Project (Save the Children)

- c) Cooperative and Municipal Development Project (ANERA)
- d) Ramallah Wastewater Systems Project (ANERA)

A PEA is called for due to the diversity of the types of activities and sub-activities and the geographic locations of the affected communities, which present a variety of environmental considerations. Consequently, in-country public "scoping" sessions must be convened. These entail organizing meetings with stakeholders such as the PVO/NGO community, representatives of municipalities and other interested parties. The scoping session synopsis or scoping statement will be forwarded to the ANE/NE Environmental Coordinator for review and approval prior to the commencement of the PEA/EA activity.

The attached scope of work (SOW) includes four tasks to cover the four projects. The tasks entail three PEAs and one EA, all to be accomplished in tandem. Every effort will be made to consolidate tasks, e.g., scoping sessions, field evaluations and review in order to minimize costs. (Recall that USAID's environmental regulation, when a positive threshold is advised, mandates a procedure for the conduct of the environmental assessment.) Considerable flexibility has been built into the schedule because of the uncertain situation in the territories and potential for delays caused by curfews, riots and strikes. Barring the unforeseen, all assessments should be completed before the end of September 1994.

**RECOMMENDATION:** That you indicate your approval by signing below and on the attached PIO/T to authorized \$285,000 for the buy-in to the Project in Development and the Environment (PRIDE) (ANE-0178-C-00-1046-00).

Approved: Margaret Carpenter

Disapproved: \_\_\_\_\_

Date: May 19, 1994

Attachment: PIO/T requesting obligation of \$285,000 for the buy-in

Clearances:

ANE/NE/DR/ENR:PdesRosiers  
 ANE/NE/DR/ENR:DWalker  
 ANE/NE/DP:TO'Keefe  
 ANE/NE/ME/WBG:DRhoad

[Signature]  
[Signature]  
[Signature]  
[Signature]

Date 5/16/94  
 Date 5/19/94  
 Date 5/19/94  
 Date 5-19-94

U\NEDR\DOCS:PdesRosiers:cw:x32492:05/13/94:ACTMEM2.PDR

APPENDIX A

July 27, 1994

ENVIRONMENTAL SCOPING SESSION

ATTENDANCE LIST

<u>NAME</u>	<u>AFFILIATION</u>	<u>TELEFAX</u>
1. Khalil Mousa Khalil	Mayor of Ramallah	2-954241
2. Abdel Rahman Tamini	Palestinian Hydrology Gr./Director	2-823358
3. Lance Matteson	ANERA, Middle East Rep.	2-894351
4. Jamal El-Aref	ANERA, Administrative Mgr.	"
5. Omar Zimmo	BirZeit U., Instructor	957656
6. Munif Traish	Al-Bireh Municipality, Engr.	954737
7. Erwin Schmechel	GTZ, Al-Bireh	952870
8. Sufian Mshasha	USAID/Jerusalem, Proj. Asst.	259484
9. Mohammad Sbeih	ANERA, Agricultural Cons.	894351
10. Abdelkarim Asad	Jerusalem Water Undertaking	954555
11. Hanna Kokaly	Independent Consultant	
12. Raji Zeidan	Ramallah City Engineer	956436
13. Salam Majaj	BirZeit U./Ramallah Municipality	956436
14. Dr. Ramzi Sansur	BirZeit U./CEOHS	957656
15. Dr. Samir Khatib	Palestinian Council of Health, Dir.	
16. Adel Shawar	Ramallah, Dept. of Agri.	956917
17. Hussain Saber Khalyfa	" " " "	"
18. Shawki Tamil	" " " "	"
19. Yusef Naji	Arabtec-Jordan, A. J.-Amman	009-626-824532
20. Ya'Qob Taher	Betunia	
21. Samir K. Shaath	Env. Prot. & Res. Ctr., Gaza	07-851304
22. Stuart Wollman	PRIDE	001-202-331-1871
23. Joseph Karam	PRIDE	001-202-331-1871
24. Nader Al-Khatib	PRIDE	02-828684
25. Ramez El-Titi	PRIDE	09-381088
26. Jack Farmer	PRIDE, Team Leader	001-202-331-1871
27. J.P.E.des Rosiers	USAID/ANE, Sr. Env. Spec.	001-202-663-2494
28. Rebecca Latorraca	USAID/AED, NE Analyst/Facilitator	

APPENDIX B

**AGENDA**

9:00 - 9:15

Welcome, Introductions, Opening Remarks - Paul des Rosiers/USAID

Why USAID Requires Scoping Sessions

- a. USAID Regulation 22 CFR 216
- b. Definition and scope of an Environmental Assessment (EA)

Background information on the American Near East Refugee Aid (ANERA)  
Ramallah Wastewater Systems Project

- a. Project Overview
- b. Past experiences and present proposal

Environmental Considerations

- a. Issues identified to date (see the attached ANERA Initial Environmental Assessment (IEE))
- b. Study methods and identified concerns
- c. Preliminary findings and observations - Why the Initial Environmental Examination recommended a positive threshold decision

9:15 - 10:15

Response to questions or statements

Questions and comments from the floor

10:15 - 10:45

**BREAK**

10:45 - 11:55

Continuation of discussion

11:55 - 12:00

Summary and conclusions

APPENDIX C

ABBREVIATED MINUTES OF MEETING

Project: Ramallah Wastewater Systems Project, ANERA

Moderator: J. Paul E. des Rosiers  
Senior Environmental Specialist - USAID/Washington

Facilitator: Rebecca Latorraca, Near East Analyst, AED Contract  
- USAID/Washington

Location: Municipality of Ramallah Building, Ramallah,  
July, 27, 1994

Duration: 9:00 am - 1:00 pm

Number of participants: 28

INTRODUCTION: Mayor Khalil Mousa Khalil

INTRODUCTION: J. Paul E. des Rosiers

The purpose of this meeting is to bring people together for a formal scoping session since the planned project will affect the environment. USAID requires that interested parties be invited to comment on potential effects and to suggest how to avoid these problems. With this information, USAID representatives will write a Scoping Session report which will recommend that an environmental assessment (EA) be carried out and which issues merit investigation.

Materials shared with participants of the session include a) an agenda with Initial Environmental Examination (IEE) threshold decisions attached; b) a collated version of legal writings of USAID's Environmental Procedures; and c) the Catholic Relief Services (CRS) Scoping Session Report the Integrated Rural Development/Capacity Building Project, dated October 14, 1993.

The ANERA Ramallah Wastewater Systems Upgrade received a positive threshold decision based on a review in USAID/Washington, in which the following issues were identified (see the IEE):

- Odors and groundwater contamination as a result of improper solid waste disposal and siting
- Collection, treatment and disposal of wastewater and solid waste/debris (solid waste meaning sludge)

- Soil erosion and stormwater runoff
- Environmental effects of pesticides planned for use
- Destruction/disruption of aquatic and terrestrial habitats
- Potential for industrial waste discharges into the municipal system (this arose in the preliminary review at the WB/G Core Working Group issues meeting in Washington)
- Effectiveness of liquid vs gaseous chlorine as a disinfectant
- Improper siting of solid waste landfills or proposed reservoirs
- Increased establishment of point sources for wastewater discharge
- Increased use of electrical energy
- Worker accidents during construction and operations
- Potential seismic and flooding hazards of interventions
- Health-related effects of reuse of treated wastewater on agricultural communities

The industrial survey will need to consider the 39 industries present in the drainage area. PRIDE/USAID would be willing to send some experts to do some industrial audits and recommend how to reduce the volume and concentration of the effluent. Also, they will recommend pretreatment at certain plants so that when the toxics are discharged, the levels are low enough to allow the system to operate. The reason for this concern is that the farming cooperative plans to use the treated wastewater.

Further, for both industrial or sewage discharge, we need to consider what will happen if the fecal coliforms level is higher than regulations allow. There is no disinfection option, right now.

MUNIF TRAISH (CITY ENGINEER OF AL-BIREH)

We should also compare the existing hazard with that which is being proposed. The idea behind this entire project is to improve the environment. Consider what the situation is if we do nothing.

Q. What is PRIDE?

A. Project in Development and the Environment, a USAID world-wide contract which includes components of environmental training and technical assistance. PRIDE hires local consultants, when possible, who know the region and the language.

Q. How are local consultants chosen?

A. Through a review process with USAID.

#### PROJECT OVERVIEW - Lance Matteson, ANERA

This project is a continuation and broadening of ANERA's municipal and urban infrastructure series of projects. ANERA has never done a sewage system, as such, before. The project's two purposes are to improve public health and the environment in the community, and to stimulate income and jobs through the use of the treated wastewater for irrigation.

The municipality and design teams all support the philosophy of the project which is to make the work as sustainable and practical as possible from all points of view - environmental, institutional, operational, maintainable and economical. ANERA is especially interested in the last. If it is not economical, it will likely become an environmental problem through disruption of facility operations. This may imply more capital investment at the beginning but, in the long run, will achieve lower ongoing operating costs. ANERA is trying to learn from other experiences.

The project area encompasses two sites: the existing treatment facility, and stabilization reservoirs near Betunia. This is one system with a connecting pipeline.

ANERA is trying to cooperate with all governing authorities, USAID, and the owner of the project, the Municipality of Ramallah. ANERA recognizes that the project may exceed the boundaries of the municipality. Other interested parties include the Ramallah Water Authority, various departments at Bir Zeit University (BZU), the political authority, PNA, PECDAR, etc. Working with all of these entities is confusing but critical, but ANERA is trying its best to coordinate with those who have the authority. This may be one of the first projects submitted to PECDAR for their review. Additionally, ANERA wants to hear from farmers and the cooperatives.

Q. At what stage is ANERA in the process?

JAMAL EL-AREF (ANERA)

The design of the project has been awarded to Bir Zeit's Center for Design (CFD), which has developed the general scheme of the project. ANERA is now at the final revisions of the design. BZU's CFD has formed a joint venture with Arabtec-Jordan, a well known firm with experience in design and supervision of sewage treatment plants. ANERA has had final revision sessions with USAID and hopes that by the end of August the detailed design and the project will be ready for approval. The next step will then be to contract builders and embark on the implementation stage.

Q. Has the project been approved?

A. The design stage has been approved and been paid for.

Q. Has there been initial feedback from USAID?

A. Yes

Prior to the implementation stage ANERA will hire a training contractor for at least six months to conduct initial commissioning of the plant and train people hired by the Municipality to be responsible for operating and maintaining the plant.

Not only is this an environmental project, but it is also an economic one. The effluent is being managed by the farmers cooperative, then sold to farmers for year-round irrigation. The year-round farming should increase productivity and thus income. The municipality will increase revenues from the wholesaling of the effluent water. The revenues can then be reinvested in O&M. Hopefully, this pioneer project will allow Ramallah to be a training center for other municipalities.

LANCE MATTESON

The environmental procedure is late in the process. However, this does not mean that ANERA or any one else considers this EA to be just a formality. This EA will determine whether there will be final project approval. The only reason that EA wasn't done earlier was partly because USAID's fiscal year deadline required that the project submission be done sooner rather than later.

The cooperative will take responsibility for the water after the treatment is complete. There are agreements in principal now between the municipality and the cooperative.

A project like this requires many assumptions about water quality, aquifers, population, etc. because all the data are not available. USAID, ANERA, and the Municipality of Ramallah hope that there are no big surprises.

JACK FARMER (PRIDE)

Normally, the environmental assessment (EA) would have been done a year in advance. The team is here to do a full professional and technical EA. Team is divided into areas of expertise related to activities to be undertaken. Joseph Karam will manage the Ramallah project and coordinate with ANERA and the Municipality. He will address all issues brought up today. I will oversee all projects. This is not a rubber stamp activity, PRIDE has high standards, and quality control on everything done. The team will document its work and stand behind its assumptions. The secondary responsibility of the team is to develop the ability do these assessments locally and in advance so that the donors will know what the environmental and economical effects of the project are.

PAUL DES ROSIERS

Our second reason for being here, and maybe the most important, is to prepare the PVOs, NGOs, consulting firms and universities, with the tools to comprehend USAID's regulations for doing environmental reviews of proposals. To that end, a USAID team will be here between October 1994 and March 1995 to conduct a four-day workshop on USAID procedures.

BREAK

MOHAMMAD SBEIH (ANERA) - (Map presentation showing the anaerobic pond, the maturation pond, and the stabilization reservoir.)

Q. The village has accepted this?

A. Yes

The waste will remain in the stabilization reservoirs for 100 days until the fecal coliform drops below 200 mm per ml. The plant is restricted to 250 fecal coliforms per 100 ml according to the Israeli standards, which is far below the World Health Organization's standard of 1000.

The irrigated area comprises more than 4000 dunums.

Q. Are there farmers in the area you plan to irrigate (Dr. Ramzi Sansur)

A. Yes

Q. What is proposed for the existing treatment plant?

A. It will be destroyed, but not until the new one is ready.

JOSEPH KARAM (PRIDE)

The team is here for two months. Please contact us with ideas or concerns.

Q. What will be done with the sludge?

A. There are drying pits which will be dredged annually.  
(Y. Najj)

Q. How much area does this require?

A. 3000 m<sup>2</sup>, which will be in the plant compound. (Y. Najj)

Q. For what size population is this planned?

A. The plant is for 40,000, Ramallah's expected population in 2020, but the plans allow for change, if needed.

Q. The thinking among wastewater people is to connect municipalities within the same region. Has this been taken into consideration?

A. Two suggestions: a) can connect municipalities; or b) can have another plant. (Y. Najj)

JAMAL EL-AREF

Regional Planning will take place under the Palestinian National Authority. The decision is theirs whether to group the systems together. There is a need for detailed studies of the regions in West Bank and Gaza including economic, environmental, and social factors. The Palestinian National Authority should establish a Master Plan to develop this since we don't want the treatment plants to spread like mushrooms.

DEPARTMENT OF AGRICULTURE - approves of these types of projects because it recognizes the income differences between irrigated and non-irrigated areas. It plans to remove most farmers without irrigation to irrigated areas. Those working in Israel will come back when irrigation infrastructure is completed.

Since this irrigation system is different from draw agriculture and planting, there should be a meeting with the farmers to explain the difference between the two systems and the types of agriculture that can be grown with it. ANERA has provided agricultural extension activities under their project and has had a statement on the fetwa from religious people on the use of treated water.

JAMAL EL-AREF (ANERA)

ANERA has had extension programs in the areas. The cooperative will implement extension to guide farmers on what to grow. The project is multi-faceted.

OMAR ZIMMO (BIR ZEIT UNIVERSITY)

Industrial Waste: There are problems detecting amounts of industrial effluent because the Municipality cannot force industries to open their doors for testing. Because of this, the BZU CFD could not determine effluent compositions. Some authority needs to find a method to open industries for investigation so that pretreatment of effluent can be recommended when necessary.

MAYOR KHALIL MOUSA KHALIL

This will continue to be a problem without a national government to implement rules and regulations on the industries. Ramallah, however, does informally enter factories for this purpose without any problems, but if some factories don't permit testing the Municipality cannot force them to open their doors.

OMAR ZIMMO

The Municipal regulations allow refusal of operation permits. This could be a form of leverage.

MUNIF TRAISH

1) Before the system is connected to industries, the Municipality can require that the plant managers open the plants for inspection.

2) Municipalities today probably do not have the testing capabilities since there are no laboratories. Perhaps the Municipalities' capabilities could be upgraded.

OMAR ZIMMO

There needs to be a program for public health awareness.

SAMIR SHAATH

1) Are there any tests for agricultural quality control with this treatment?

A. There is a pilot farm in Al-Bireh.

2) Law enforcement

The new Ministry of Health has 10 units, including one for the environment. Authorities are also preparing for enforcement of factory effluent and irrigation legislation.

SUFIAN MSHASHA (USAID/JERUSALEM)

Will lands near the wastewater treatment plant be green or will there be buildings around?

JAMAL EL-AREF

No buildings are allowed within 500 meters. Some landscaping is considered in order to hide the plant.

ABDEL RAHMAN TAMINI (PALESTINIAN HYDROLOGY GROUP)

1) In the first draft of the project document, it says that a 4500 dunum area will be irrigated. Is this correct?

2) The first draft of the proposal stated that the average water consumption is 160 liters/capita without any justification. Please comment on this.

3) Please comment on plant management.

NADER AL-KHATIB (PRIDE)

1) Recognize scarcity of water in the occupied territories; look at the long term.

2) Palestinian Authority - people are involved in it, some people here may be involved.

3) Capacity building of the Ramallah Municipality can insure good operations and maintenance (O&M).

4) Providing better sewage treatment is a service. How will municipalities get revenue for this? Also, the farmers could pay something for the water.

5) Public Awareness: Tell people how the produce is grown.

6) Bir Zeit University: Soil study and what will be built up in the soil from reusing the water. How will it affect the aquifer?

7) Design: The design should be flexible in order to cope with a changing population.

8) Cost recovery of capital is critical in order to renew the plant.

EDWIN SCHMECHEL (GTZ)

GTZ is building an entirely different system in Al-Bireh than ANERA is building in Ramallah. Since these are two different systems, GTZ, USAID and ANERA should meet together to talk about each project.

HANNA KOKALY (INDEPENDENT CONSULTANT)

In Germany, (where he worked for 7 years) the plant he worked in was too small after ten years. Consider population growth.

Sludge: Sludge takes time to dry. Think about it.

DR. RAMZI SANSUR

I want to be positive. I worked in Al-Bireh with GTZ but have not seen the Ramallah design so I am negative.

1) Doesn't believe in small plants. USAID and GTZ don't have the answer. USAID has forced this technology on the Palestinians. The design did not stem from Palestinian needs. Maybe Al-Bireh should have been coordinated better.

What is sustainable? I saw in Amman what foreigners have done - and I saw the worst technology for an arid region. It is an environmental disaster. But, we can't influence those with money.

2) There is no have effluent control, but the design is still set up to reuse water. Even in Bir Zeit, the university has no control over what is dumped into their own system.

3) The occupation regulations say that treated wastewater cannot be used for edible produce.

4) Did anyone explain how to use the wastewater to people? The people may not accept treated wastewater. For every treated liter of wastewater we are using, our people are saying "Ah, then another liter of water is going to the Israelis. Why should I give them the fresh water and I use the shit? I prefer the fresh water."

5) Are there farmers in the areas ANERA is planning to irrigate? They're going to work in Israel because of the water regulations.

Did we sit with committees? Talk to them about the water?

The cost per liter is going to burden the municipalities. But over the long term, it is better to spend more.

We have to accept foreign designs because USAID and GTZ have the money.

Wastewater reuse is a debate worldwide. It is hazardous. How do you make sure it is not hazardous? Others consider ozonation and chlorination.

Look at the problems that the greater Amman region of Jordan is facing now because it accepted funding and designs from foreign donors. The agriculture is totally destroyed in Jordan from use of the treated wastewater.

ANERA and USAID need to make further studies.

PAUL DES ROSIERS

Would you put everything you just said in writing and so that we can address them point by point?

DR. RAMZI SANSUR

No. Because you did not ask me before. You did not consult with me. You did not come to me before.

PAUL DES ROSIERS

I do not want to get into a political argument with you but I have worked for 21 years with the EPA, and do not believe everything that EPA says as gospel truth either. They make mistakes. Anyway, I take your points with concern and I really appreciate your comments because they are worthy of further discussion.

ABDELKARIM ASAD (JERUSALEM WATER UNDERTAKING - JWU)

- 1) There are no regulations concerning pretreatment from municipalities. I have noticed that dye companies are consuming immense quantities of water and sometimes the discharge overflows onto the streets.
- 2) Population projections for Ramallah are low because many people may be coming from Europe, the United States, and other Arab countries. 40,000 people is an underestimate.
- 3) Sludge/Landfills. These should be located and included in the design and later tested according to national and international rules.
- 4) Institution/Managers - sustainability. The accounting systems don't allow for depreciation or O&M cost recovery. Part of the problem is that the Municipality bills for only 19.5% of the cost and collects only 8-9% of the billing amount.

5) There needs to be a regional study concerning a master plan for sewage treatment, and possibly unification of segregated water schemes and sewage. The study has been done and submitted to the UN, which will drill a well of 500 m next month in the main aquifer.

At a meeting on the 17 th of April in Muscat with Palestinian authorities and the World Bank present, among other organizations, four legislative and operational bodies were proposed: the National Water Council, which will have legislation, monitoring and regulatory powers; the Bulk Water Authority, a national level hardware utility; a service company, dealing with accounting; and the regional utilities, run by the municipality water councils.

4) In another meeting on 21-24 April, the Palestinian Technical Committee met at Bir Zeit University with IBRD, GTZ, and UNDP representatives. A paper was issued and accepted by an IBRD proposal. This has been submitted to the PNA.

6) JWU through the UNDP with FINNIDA (FINNIDA competed with GTZ) contracted for a regional master plan.

MUHAMMAD SBEIH (ANERA)

Farmers opposition: Rafat, Betunia - the crops that will be planted are for trees, seed production, etc. not edible crops. If they are edible, they are crops that will be cooked.

Per design of the treatment plant, Mr. Shelef, from Haifa University, approved the idea of the project.

Management of the plant is not complicated. There is a similar treatment plant in Ashdod, Israel, which ANERA visited twice.

An instructor should be hired before construction of the operating and training center begins. The Municipality will hire regular staff for maintenance.

The farmers will pay for the water and this will cover some of the capital costs as well as the operations and maintenance.

There will be a lining for the stabilization reservoir.

Mr. Ramzi, you said that you did not know about the project, but BZU is the designer of the project and you are the signer of the project.

STUART WOLLMAN (PRIDE)

- 1) Sludge: Maybe consider reuse of sludge for fertilizer. This practice is used in the United States and other countries. Environmental problems must be considered and managed including the accumulation of heavy metals and other toxics.
- 2) This project possibly may pollute the groundwater with irrigation of wastewater, but, this practice has worked in many places. The hydrology must be carefully considered. We have to think about the depth to groundwater at the sites and the location of nearby drilling wells. The largest potential pollutant is nitrates.

ANERA RESPONSE - Lance Matteson

- 1) ANERA met with people and the farmers were receptive to the project and to reusing treated wastewater. The farmers are concerned first with what they can gain practically. The fact that some farmers are using raw sewage indicates that there is already receptivity to this.
- 2) Management issues have been touched upon. ANERA apologizes that everyone can't have complete studies. ANERA coordinated feasibility studies that take into account the management issue seriously and does provide a generous budget for management support, training etc. There haven't been such systems before in West Bank and Gaza.
- 3) The issues with the dunums is well received. I have no doubt that the demand for the water will be there.

There are no secrets here - ANERA is willing to share copies of the studies with anyone who would like to see them.

- 3) There are threshold questions about pumping from one watershed to another, with respect to pumping from the western to the eastern slope.
- 4) On the revenues issue, we feel there is a need for user-fee reform and we have discussed this with the Municipality. Depreciation has been taken into account. We may reduce the initial charge of hooking up to the system and increase the ongoing charges. People are willing to pay more for septage to be picked up from their homes so increased rates shouldn't be a major issue.
- 5) Public Awareness: The last scoping session (July 25) touched on this issue. ANERA agrees that it is a good idea to use the new media for public education and information.

6) Munif suggested that we should consider the status quo in terms of the impact on the aquifer. Doing nothing pollutes the aquifer.

7) Al-Bireh project through GTZ. ANERA is happy to discuss the treatment plant with GTZ. ANERA worked on Al-Bireh with GTZ at the beginning. ANERA is open to continuing the dialog.

8) Personnel Training: ANERA has budgeted generously for this. USAID and Arabtec-Jordan both have seen successes and failures and have lots of experiences upon which ANERA can draw.

9) Sludge: Has received a lot of attention and will continue to receive attention. ANERA is open to new ideas on the subject.

10) Dr. Ramzi, Thank you for being here. We do take very seriously your criticism. You did sign the original conceptual study and there was a difference between the engineering center and your lab at Bir Zeit. Let's be honest and fair: neither is it ANERA's fault or USAID's fault. The opportunity was there for you to have input on this proposal. No one is imposing anything on the Palestinians. Donors have the right to set standards on those using their funds. To say that projects are "imposed" suggests that Palestinians say "you must do this." If the municipalities or national government does not want to agree to this, no one is saying they are bound to it. But, if they want to use these particular funds, then they have to go along with it.

11) Specifics: Lack of enforcement and data are a problem. We have to deal with this as best we can. The PRIDE team asked ANERA for suggestions of standards we should use. USAID and ANERA both want to hear of other data sources though it plans use the World Bank sources, which we are willing to change, if people have issues with it.

12) High Technology versus Low Technology: Appropriate technology is neither high nor low. It is what is optimal for a given community. There is room for different opinions on this. There are differences between Al-Bireh and Ramallah, including topology and land availability. It is not necessarily a bad thing to try different approaches in different situations.

12) If JWU is named as the regional water and wastewater planning authority, ANERA is happy to abide by their requirements. Authorities must be organized ASAP. ANERA wants to be held to Palestinian regulations.

13) Land availability, and land purchase is a critical issue. Because this affects the western aquifer, this will be of interest to the Israelis. There is a convergence here on what both peoples want.

PAUL DES ROSIERS

USAID is not going to be involved in large infrastructure projects. There are dollar constraints and USAID won't support high cost, high maintenance treatment plants. We still need more information and help from BZU on the industrial plants - what's the problem, how large is it, which of these plants pose the greatest risk to the facility, etc.

RAMZI SANSUR

Visited a PVC pipemaking plant which uses high lead contents to produce the piping. Also, the pharmaceutical industry uses solvents and drugs go into sewage treatment plant. Further, the stone processing factories emit emulsifiable liquids in treatment plants. Auto garages dispose auto fluid residues, except oil, which is recycled, into the sewage system.

Also, you cannot reuse of treated wastewater for edible crops. This is the law. There is a military order allowing reuse. Inside Israel, can't use treated water for edible crops. Its the law. Some companies supply treated wastewater to companies. Reuse of treated wastewater is high technology. It may require diluting summer sewage. The quality of the wastewater must be monitored.

To the Israelis, what we are doing in Ramallah, the environmentalists in the government are laughing at the primitive technology being employed in Ramallah. Now, communities need to have compact systems.

PAUL DES ROSIERS

The US has spent billions on high technology for small communities. The high technology fails. Now we are going to low technology and low cost systmes.

RAMZI SANSUR

I'm very irritated that the Municipalities of Al-Bireh and Ramallah and the donors aren't coordinating.

NADER AL-KHATIB

Management: JWU is providing a service for Ramallah and Al-Bireh. Maybe assign all water and wastewater authority to JWU in the future for better coordination. But, for now, we cannot completely solve these issues to everyone's satisfaction. The decision now is to reduce the harm. This is better than using raw sewage. There will always be advantages and disadvantages.

## APPENDIX D

### Sample Outline of an Environmental Assessment

EA reports should be concise and focussed on the significant environmental issues. The detail and sophistication of the report should be commensurate with the potential impacts. The target audience should be project designers, implementing agencies, proponents and the local communities. The EA report should include:

- (a) Executive Summary: Concise discussion of significant findings and recommended actions.
- (b) Policy, legal, and administrative framework within which the EA is prepared. The environmental requirements of USAID should be explained (can be included under (c) Project Description).
- (c) Project Description in a geographic, ecological, social, and temporal context, including any off-site investments that may be required by the project (e.g., dedicated pipelines, access roads, electricity, water supply, housing, and solid waste and disposal).
- (d) Baseline Data: Dimensions of the study area and description of relevant physical, biological, and socio-economic conditions, including any changes anticipated before the project commences. Current and proposed development activities within the project area (but not directly connected to the project) should also be taken into account.
- (e) Environmental Impacts: The positive and negative impacts likely to result from the proposed project should be identified and assessed. Mitigation measures and the residual impacts that cannot be mitigated should be identified. Opportunities for environmental enhancement should be explored. The extent and quality of available data, key data gaps, and uncertainties associated with predictions should be identified/estimated. Topics that do not require further attention should be specified.
- (f) Analysis of Alternatives: Proposed design, site, technology, and operational alternatives should be compared systematically in terms of their potential environmental impacts; suitability under local conditions; and institutional, training, and monitoring requirements. To the extent possible, for each of the alternatives, the environmental costs and benefits should be quantified, and economic values given where feasible. The basis for the selection of the alternative proposed for the project design must be stated. The "no action" alternative must also be considered.
- (g) Mitigation Plan: Feasible and cost-effective measures which may reduce potentially significant adverse environmental impacts to acceptable levels should be proposed, and the potential environmental impacts, and institutional and training requirements of those measures estimated. The plan should provide details on proposed work programs and schedules, to ensure that the proposed environmental actions are in phase with engineering and other project activities throughout implementation. The plan should consider compensatory measures if mitigation measures are not feasible or cost-effective.
- (h) Monitoring Plan regarding environmental impacts and performance. The plan should specify the type of monitoring, who would do it, how much it would cost, and what other inputs (e.g., training) are necessary.
- (i) Environmental Management and Training: The existence, role, and capability of environmental units at the on-site, agency, and ministry level should be assessed, and recommendations made concerning the establishment and/or expansion of such units, and the training of staff, to the point that the EA recommendations can be implemented.

#### Appendices

List of EA preparers: Individuals and organizations.

References: written materials used in study preparation. This is especially important given the large amount of unpublished documentation often used.

Record of Consultation Meetings: Include lists of both invitees and attendees. The record of consultations to obtain the informed views of the affected people should be included.

## APPENDIX E

### **Example of Information Useful for Evaluation of Solid Waste Landfills**

1. Topographical maps showing area of solid waste sites, surface water drainage pathways, nearby bodies of water, and roadways in and around the landfills;
2. Current photographs of the solid waste sites;
3. Types and estimated quantities of industrial, hazardous, and liquid waste in the solid waste sites;
4. Distances of solid waste sites to the nearest freshwater intakes (both surface and groundwater);
5. Depths to uppermost groundwater aquifers underlying solid waste sites;
6. Type(s) of access control, scavenging restrictions, and proximity to populated areas;
7. Extent of open burning;
8. Measures used to control disease vectors;
9. Data from soil borings and groundwater samples;
10. Results of any recent inspections; and
11. Location(s) and descriptions of soils available for cover.

## APPENDIX F

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APPENDIX G

**General Information on ANERA: Wastewater Treatment Facility  
and Industry List and Locations, Ramallah Industrial Survey  
Questionnaire and Organizational Chart**

1984/01/01



**LIST OF INDUSTRIES IN RAMALLAH**

TYPE OF INDUSTRY	COMPANY		COMMENTS (to be added)
	#	NAME	
Foods and Drinks	2	Al Nasr Industrial Commercial Co.	Soft drinks
	6	Sylvana Co.	Sweets and chocolates
	12	The National Dairy Co.	Dairy products
	16	Halva Co.	Halva
	18	Abu Al Itham Factory	Halva
	20	Animal Feed Factory	Animal food
	25	Al Mahseeri Co.	Food
	26	Al Qaisi Canning Factory	Canning food items
	29	Club Factory	Soft drinks
	35	The Poultry Coop Society	Feedplant products
	36	Sunukrot Sweets Industry Co.	Sweets
	37	Al Sha'rawi Food Industry Co.	Lollipops
Plastics	1	Rabah Plastic Company	Plastic bags
	7	Ramallah Co. for Plastic Pipes	Plastic pipes
	13	United Production Co.	Plastic boxes
	17	Plastic Boxes Co.	Plastic boxes
	27	Ramallah Industrial Plastic Co.	Plastic fittings
	33	The Arab United Plastic Industry Co.	UPVC pipes
Stone and Concrete	3	Samir Karam factory	Concrete blocks
	22	Modern Saw	Stone cutting
	30	Modern Saw Co.	Local marbles and tile
	32	United Concrete Industry Co.	Concrete mixes
	34	Izmekna Co.	Stone cutting

**LIST OF INDUSTRIES IN RAMALLAH**

TYPE OF INDUSTRY	COMPANY		COMMENTS (to be added)
	#	NAME	
Paper and Carboard	4	Tako factory	Toilet paper
	9	The National Co. for Paper	Manufacturing and marketing paper
	14	Dalia Carton Manufacturing Co.	Cardboard boxes
Furniture	5	Nasco Co. for Sring Mattresses	Mattresses
	8	Al Jolani Co. for Sponge	Sponge
	28	Global Sponge Industry Co.	Sponge
	39	Al Ameen Furniture Co.	Furniture
Metals	10	Engineering Manufacturing Co.	Electrical boards
	11	Ma'ayah Manufacturing Co.	Electrical boards
	19	Abu Nahleh Factory	Solar boilers
Pharmaceu-ticals	31	Balsam Pharmaceutical	Pharmaceuticals
	38	Birzeit/Palestine Co.	Pharmaceuticals
Misc.	21	The Middle East Co.	Cosmetics
Misc.	15	Surda Detergents Co.	Detergent
Misc.	23	Rabah Ceramics Co.	Ceramic tiles
Misc.	24	The Arab Manufacturing Co.	Cleaning Items
Car Repair			
Hospitals / Clinics			
Olive oil			
...			
..			
.			

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**RAMALLAH INDUSTRIAL SURVEY QUESTIONNAIRE**

Prepared by: \_\_\_\_\_  
Date:        /        /

Industry Name: \_\_\_\_\_  
 Plant Location: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_  
 Contact Position: \_\_\_\_\_  
 Contact Phone #: \_\_\_\_\_

1. What are the products made at your plant? and in what quantities?

Products	Quantities (units, such as tonnes/year)
A.	
B.	
C.	

2. What are the raw materials used by your plant? and in what quantities?

Raw Materials	Quantities (units, such as tonnes/year)
A. Water	
B.	
C.	
D.	

3. How many people are employed by your plant?  
       \_\_\_\_\_ persons full-time        \_\_\_\_\_ persons part-time

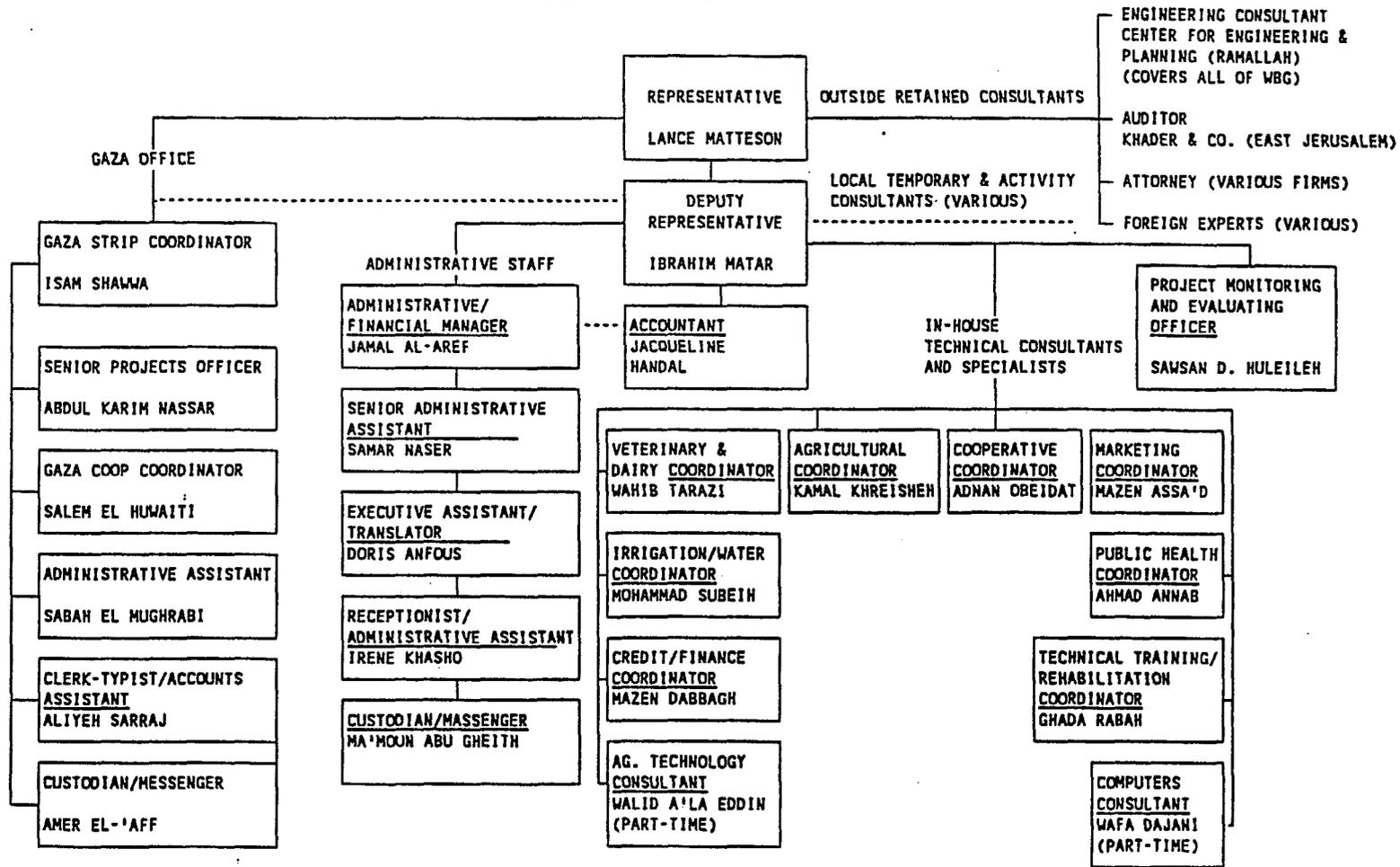
4. Please describe the process used by your plant.  
 \_\_\_\_\_  
 \_\_\_\_\_

5. Is your plant connected to the sewer network?  
\_\_\_\_\_ Yes \_\_\_\_\_ No
6. How much liquid waste does your plant generate?  
Please specify unit  
\_\_\_\_\_
7. Could you describe the liquid waste generated by your plant  
(color, smell, density, water-like, etc.)?  
\_\_\_\_\_  
\_\_\_\_\_
8. How do you dispose of liquid waste generated by your plant?  
\_\_\_\_\_  
\_\_\_\_\_
9. How much solid waste does your plant generate?  
Please specify unit  
\_\_\_\_\_
10. Could you describe the solid waste generated by your plant  
(composition, dry or wet, bulky materials, etc.)  
\_\_\_\_\_  
\_\_\_\_\_
11. How do you dispose of solid waste generated by your plant?  
\_\_\_\_\_  
\_\_\_\_\_
12. Do you have any recycling or waste minimization program in  
place? Any other comments?  
\_\_\_\_\_  
\_\_\_\_\_

THANK YOU

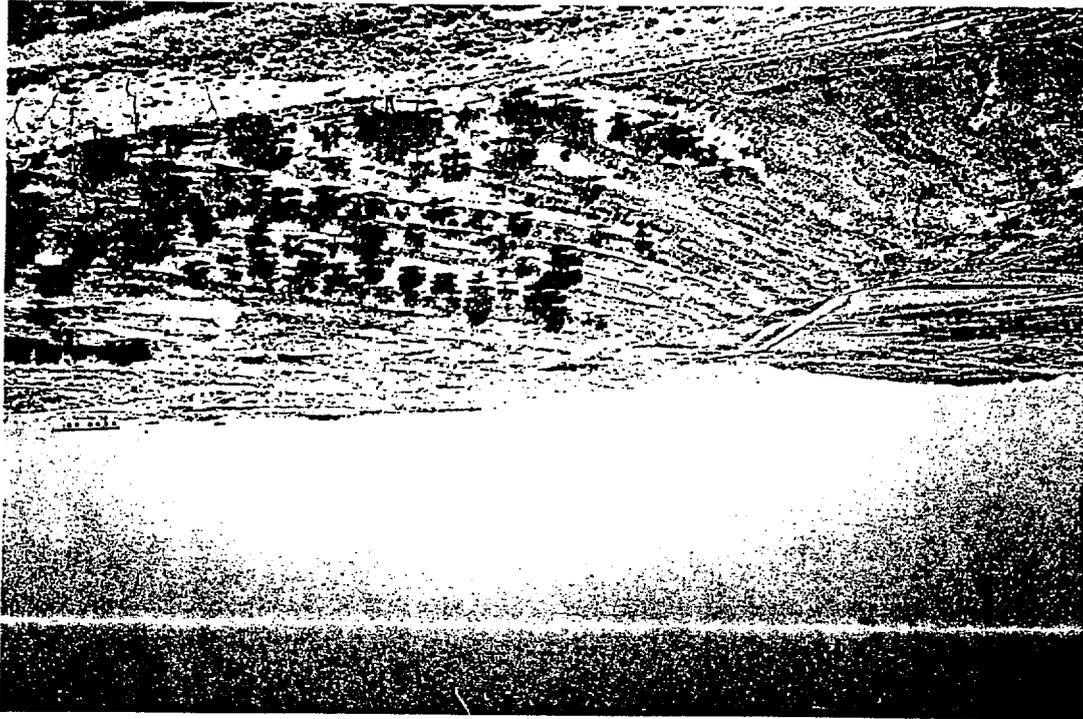
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ANERA WEST BANK AND GAZA STRIP ORGANIZATION CHART - 1 MAY 1993

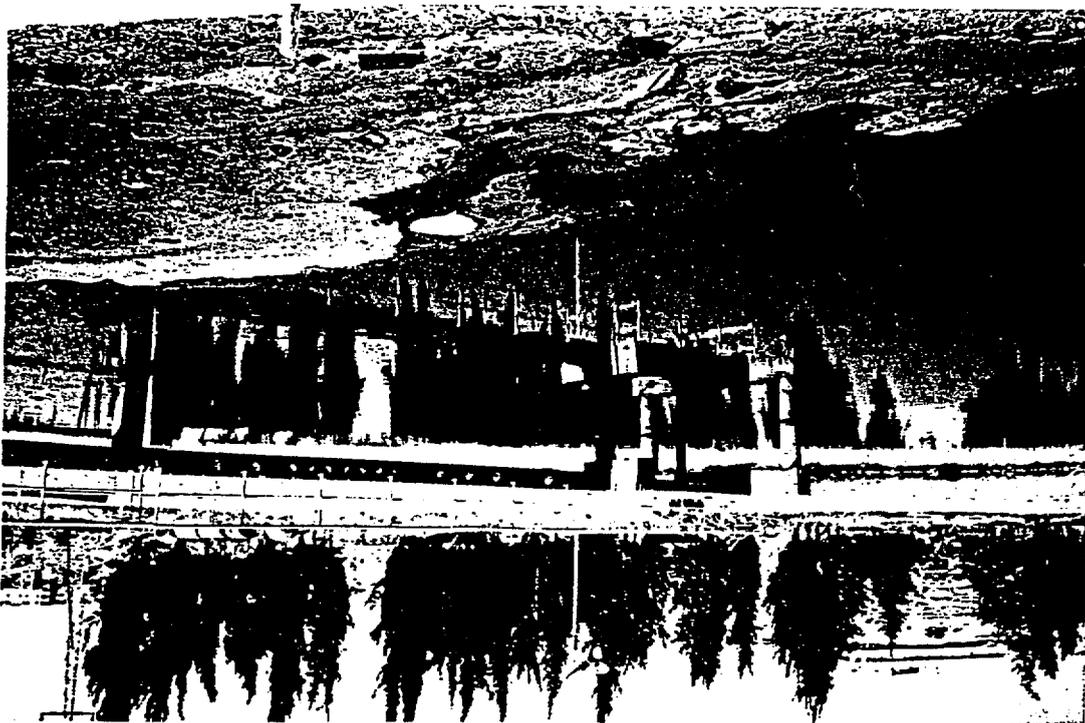


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Ramallah.  
Location of future stabilization reservoir (ANERA)



Ramallah.  
Aeration basin--current wastewater treatment plant (ANERA)





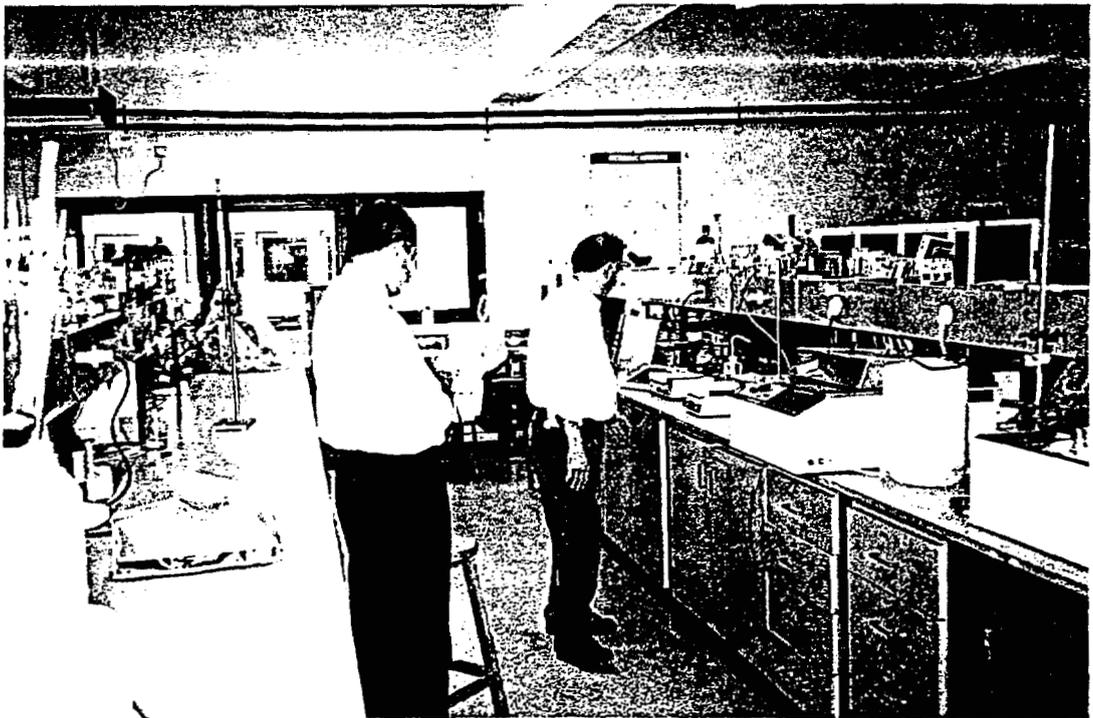
Ramallah.  
Location of future wastewater treatment facilities (ANERA)  
(note tonnage of rusting dumpsters)



Al Jeeb. One of the village communities to  
receive treated wastewater for irrigation (ANERA)



Bir Zeit University, Center for Environmental & Occupational Health Sciences. Dr. Ramzi Sansur, Deputy Director and Ramez El-Titi, PRIDE Team member



Bir Zeit University, CEOHS. Joseph Karam, PRIDE Team member