PN-ADJ-337

PRIDE Project in Development and the Environment

FY 1995- 1 - WBG

Programmatic Environmental Assessment for Save the Children Federation (SCF) on Institutional Development

October 1994

Submitted to:
USAID/ANE
Submitted by:
PRIDE

USAID Contract Number:
ANE-0178-Q-00-1047-00
USAID Project Number:
398-0365

Sponsored by:
USAID/ANE
Implemented by:
Chemonics International
and its associates

2000 M Street, NW, Suite 200, Washington, DC 20036
Telephone: (202) 331-1860 • Fax: (202) 331-1871

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.

FY 1995-1-WBG

Programmatic Environmental Assessment for Save the Children Federation (SCF) on Institutional Development

By:

Jack Farmer	Team Leader, Water Engineer/Water Resources Management Specialist
Joseph Karam	Environmental Engineer/Waste Management Specialist
Nader Al-Khatib	Municipal/Industrial Water-Wastewater Engineer
Ramez El Titi	Water Resources Management Specialist
Lena Dajani	Project Administrator
Stuart Wollman	Agricultural Water Engineer/Resource Management Specialist

With additional contributions by:

Anne Patterson
Tina Rouse
Phil Roark

October 1994

PREFACE

USAID's Asia/Near East Bureau requested that the Project for Development and the Environment (PRIDE) conduct an Environmental Assessment (EA) for the Ramallah Wastewater Systems project—American Near East Refugee AID (ANERA) as well as three Programmatic Environmental Assessments (PEAs) for (1) West Bank Integrated Rural Development/Capacity Building project— Catholic Relief Services (CRS), (2) Institutional Development project—Save the Children Federation (SCF), and (3) Cooperative and Municipal Development project—ANERA.

The team included:

Jack Farmer	Team leader, water engineer/water resources management specialist
Joseph Karam	Environmental engineer/waste management specialist
Nader Al-Khatib	Municipal/industrial wastewater engineer
Ramez El-Titi	Water resources management specialist
Lena Dajani	Project administrator

A scoping session for CRS' Institutional Development project was conducted in September 1993. The PRIDE team implemented three remaining scoping sessions for SCF and the two ANERA projects on July 25 and 27, 1994, with the assistance of Paul des Rosiers of the ANE Bureau of USAID. The scoping statements were approved by USAID, allowing the PRIDE team to proceed with the EA and the three PEAs.

The four assessments were conducted from July 13 through September 30, 1994. This was during the transfer of limited authority for many government departments by Israel to the new Palestinian National Authority (PNA) in the West Bank and Gaza. During this period, as well as when this report was being written, the West Bank and Gaza environmental department was still under Israeli control. Due to various political factors, it is uncertain when, and to what degree, environmental authority will pass from Israel to the PNA and what the new institutional structure will become. As a result of these conditions, this report will reflect the status at that time.

Data Collection

Some of the information and data collected was still in the form of Jordanian (for West Bank) and Egyptian (for Gaza) policies, rules, and regulations. The costs of water, services, etc., were converted to new Israeli shekels. Much of the Israeli data were very sparse, sometimes incomplete, and of little hard statistical value. It was sufficient in most cases, however, to confirm the need to continue various programs and start new programs and activities while putting into place substantive monitoring and data collection activities.

To help offset the lack of hard data, the PRIDE team developed a large photographic file as an additional reference base. This file also reflects the magnitude of the existing environmental status.

Workshops

Five workshops were conducted. The first was an Overview Workshop on USAID Environmental Procedures. The results indicated that most private voluntary organization (PVO) personnel were not familiar with USAID general requirements or with the technical aspects of the word "environment."

Therefore, the four individual PVO project workshops were revised to a more "open hearing" type format. These workshops were conducted mostly in Arabic, with both English and Arabic translations written on flip charts for complete understanding and acceptance of impacts, mitigation, monitoring, and management related to environmental issues and concerns.

The workshops were facilitated by Joseph Karam with support from other team members, Nader Al-Khateeb and Ramez El-Titi and the PRIDE home-office project administrator, Lena Dajani.

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

ACRONYMS

ANERA	American Near East Refugee Aid
ARIJ	Applied Research Institute of Jerusalem
AWCSW	Association of Women's Committees for Social Work
BEO	Bureau Environmental Officer (USAID)
BOD	Biochemical Oxygen Demand
CARE	Cooperative for Assistance and Relief Everywhere
CBS	Central Bureau of Statistics
CDP	Cooperative Development Project
CEOHS	Center for Environmental and Occupational Health Sciences
CIDA	Canadian International Development Agency
CIVAD	Israeli Civil Administration
CRS	Catholic Relief Services
EA	Environmental Assessment
EC	European Community
ECPD	Engineering Center for Planning and Design
FC	Fecal Coliform
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNP	Gross National Product
HDPE	High Density Polyethelyene
HTH	High Test Hypochlorite
IA	Impact Areas
IDA	International Development Agency
IEE	Initial Environmental Examination
IMP	Integrated Pest Management
IRD	Integrated Rural Development
JD	Jordanian Dinar
JWU	Jerusalem Water Undertaking
MCM	Million Cubic Meters
MOI	Ministry of the Interior
NGO	Non-Governmental Organization
NIS	New Israeli Shekel
NPA	National Palestinian Authority
O&M	Operations and Maintenance
PARC	Palestinian Agricultural Research Center
PEA	Programmatic Environmental Assessment
PHG	Palestinian Hydrology Group
PRA	Participatory Rapid Appraisal
PRIDE	Project for Development and the Environment
PVC	Polyvinyl Chloride
PVO	Private Voluntary Organization

SAR	Semi-Annual Report
SCF	Save the Children Federation
SDT	Subsurface Draining Techniques
SS	Suspended Solids
TC	Total Coliform
TDI	Toluene Diisocyanate
TDS	Total Dissolved Solids
UAWC	Union of Agricultural Work Committees
UNDP	United Nations Development Program
UNRWA	United Nations Relief and Works Agency
USAID	United States Agency of International Development
USEPA	United States Environmental Protection Agency
VAD	Village Affairs Department
VDC	Village Development Committees
WHO	World Health Organization
WRAP	Water Resources Action Programme
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

A. Background

This report concerns U.S. Agency for International Development (USAID) funding for Save the Children Federation (SCF), which intends to institute a three-year Institutional Development Project for the West Bank and Gaza Strip in the amount of $6,156,785. For this project, SCF will collaborate with 10 national-level organizations to implement community development activities, strengthen 40 local institutions, and facilitate the intervention of at least six grassroots/area committees. Areas of intervention will be water resource development (domestic and agricultural purposes), sanitation (small-scale sewage collection and treatment, household sanitation collection, and disposal), agricultural development (land reclamation, crop diversification, cultivated areas), environmental awareness campaigns, and women's activities (management and technical training, models for loans, basic literacy, job-related skills training). The primary purpose of the project 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.

As a prerequisite for funding, a Programmatic Environmental Assessment (PEA), defined in USAID's Environmental Procedures 22 CFR 216.6, must be carried out. These procedures identify potentially significant impacts on natural resources, social and economic parameters, and cultural resources. The objective is to avoid or minimize potential adverse environmental impacts of the projects by considering project alternatives, modifying project elements, or instituting other mitigative measures.

PRIDE provided a six-person team to carry out the PEA for the SCF project as well as for three other proposed nongovernmental organization (NGO) projects. The assessment took place from July 13 to September 30, 1994.

B. Environmental Impacts

B1. Water Resources

Based on past SCF experience, water resource development projects in West Bank villages not served by piped water will have a positive impact by helping their populations:

- Meet domestic and agricultural water needs.
- Improve personal hygiene and household sanitation practices, thereby improving public health (e.g., add new flush toilets).
- Lower the cost of water supply.

- Reduce labor expended to secure water.
- Reduce dependency on unsanitary and expensive water delivered by tank truck.
- Provide low-cost backup water supply to household cisterns.

SCF recognizes the importance of ensuring water supply of adequate quality for both drinking and agriculture. SCF has documented the mitigation measures necessary to provide water supply of adequate quality from rainfed cisterns. In particular, SCF is developing household-level sand filtration as an alternative to chlorination, the traditional way to combat bacteriological pollution.

B2. Sanitation

Impacts from sanitation activities include the following:

- Public health is expected to improve by reducing odors, flies, and mosquito problems.

- Although some sanitation activities will reduce groundwater pollution, the potential for groundwater pollution is expected to be high unless appropriate mitigation measures are adopted.

- Proposed disposition of treated wastewater by reuse in agricultural irrigation may introduce harmful pathogens into the soil.

Mitigation measures should include:

- Groundwater protection measures should be applied, including lining of structures and landfill areas (clay, plastic, etc.).

- Wastewater reuse in irrigation should be applied after sufficient retention time in the septic tank-subsurface drainage technique (SDT) system.

- Soil and groundwater quality at the irrigation sites and solid waste disposal sites should be monitored regularly to check the buildup of biological or chemical contaminants.

- Septic tank-SDT systems should be restricted to areas with sufficient land areas to minimize change of land characteristics.

B3. Agricultural Development

SFC's agricultural development activities, through sectoral and block grants, are directly linked to its efforts in water development for agricultural purposes. These activities include land development, crop diversification, construction of earthen access roads for agricultural purposes, and fencing of cultivated areas for selected impact areas (villages).

No significant environmental impacts are foreseen for agricultural development activities proposed by SCF. These include any activities that would require mitigations and monitoring measures on endangered flora and fauna, migratory birds, and historical sites.

SCF does not promote the use of chemical fertilizers and pesticides and, in fact, discourages their use by advocating the use of natural and biological pest controls (i.e., integrated pest management techniques) and the use of natural fertilizers. However, there may be a secondary effect in SFC's agricultural development activities that will result in higher pesticide and chemical fertilizer usage.

SCF and its partners must be aware of USAID's policies, practices, and recommendations related to pesticide uses as well as local agricultural extension recommendations on type, usage rates, application methods, etc., which include the ultimate safe disposal of used pesticide and fertilizer containers.

B4. Environmental Awareness Campaigns

The proposed project will provide block grants to some institutions to conduct environmental awareness campaigns. These campaigns are environmentally friendly activities and require no mitigation measures.

B5. Women's Activities

The women's training activities planned by SCF in basic literacy, job-related skills, promotion of credit models for loans, and management are environmentally friendly activities and will require no mitigation actions.

C. Conclusions and Recommendations

The findings of this PEA indicate that the proposed SCF activities pose no significant negative environmental impacts except for those activities related to new water resources development and the potential use of pesticides.

If a new water resource is proposed for development, SCF must submit to USAID, in advance, an independent engineering and environmental study. However, at this time with no Palestinian national and regional environmental authorities in place, no further depletion of water resources is recommended. Exceptions may be made on a case-by-case basis in certain localized areas within the West Bank, but no exceptions should be made for the Gaza Strip area.

Unless waters in rain cisterns are regularly tested and monitored to meet drinking water quality standards, the water should not be used for drinking and cooking. No adverse impacts are foreseen on threatened flora and fauna nor archaeological and cultural sites under the development practices proposed. Any future indication of negative impacts would require a separate environmental assessment in accordance with USAID environmental procedures.

12

USAID plans to provide two (4 1/2-day) training workshops given by the Environmental Policy and Training Project on USAID's environmental procedures as planned. However, PRIDE should be considered for the next logical step, that is, to further develop field-level guidelines on assessing levels of environmental impacts related to commonly funded activities, especially those being undertaken by NGOs and others requesting funding from USAID.

SECTION I

INTRODUCTION

SECTION I
INTRODUCTION

A. Program Background and Objectives

The rural areas of the West Bank and Gaza Strip suffer from the 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 and wastewater systems, institutional development, and rural development. For all activities, the goal of the program is to improve the social well-being of Palestinians in the West Bank and Gaza.

This report concerns USAID funding for Save the Children Federation (SCF), which intends to institute a three-year Institutional Development Project for the West Bank and Gaza Strip in the amount of $6,156,785. For this project, SCF will collaborate with 10 national-level organizations to implement community development activities, strengthen 40 local institutions, and facilitate the intervention of at least six grassroots/area committees. Areas of intervention will be water resource development (domestic and agricultural purposes), sanitation (small-scale sewage collection and treatment, household sanitation collection, and disposal), agricultural development (land reclamation, crop diversification, cultivated areas), environmental awareness campaigns, and women's activities (management and technical training, models for loans, basic literacy, job-related skills training). The primary purpose of the project 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.

B. PEA Objectives

A Programmatic Environmental Assessment (PEA), defined in USAID's Environmental Procedures 22 CFR 216.6, must be carried out when the Initial Environmental Examination (IEE) recommends a positive threshold decision. These procedures identify potentially significant impacts on natural resources, social and economic parameters, and cultural resources. The objective is to avoid or minimize potential adverse environmental impacts of the projects by considering project alternatives, modification of project elements, or other mitigative measures.

This PEA differs from an Environmental Assessment (EA) in that it covers multiple projects of a similar nature at multiple sites, whereas an EA typically covers a specific project at a specific site.

A PEA is implemented after an Initial Environmental Examination of the project results in a positive threshold determination.

The IEE for the above-listed project was completed on March 21, 1994, are established that the project could result in potentially significant environmental impacts in light of the diversity of the types of projects and subprojects to be funded and geographic locations of communities where interventions will occur.

After a positive threshold determination is made, an in-country scoping session is carried out in which the project originator and experts in the environmental aspects of the proposed project participate. (Participants may include, but are not limited to, representatives of host governments, public and private institutions, the USAID mission staff, and contractors.) A scoping session report and scoping statement are prepared for the Asia/ Near East Bureau Environmental Officer's (BEO) review and approval. The scoping statement includes (1) a determination of the scope and significance of issues to be analyzed in the PEA, including direct and indirect effects of the project on the environment and (2) identification and elimination from detailed study of the issues that are not significant or have been covered by earlier environmental review, narrowing the discussion to a brief presentation of why they will have no significant effect on the environment.

This document has been prepared as a result of the positive threshold decision on the project dated March 24, 1994, and the BEO's approval of the scoping statement on August 1, 1994, concerning USAID funding of SFC's Institutional Development Project. Within the PEA, potential environmental impacts that may result from activities of the project, as well as mitigations of those impacts, are discussed. In addition, the abilities of SCF and the partner institutions to perform "environmental reviews" of projects and subprojects will be examined.

C. PEA Methodology

The first stage of the PEA was carried out April 12-15, 1994, by conducting prescoping activities among Near East Bureau environmental staff and West Bank/Gaza Strip staff, to develop a preliminary list of perceived negative environmental impacts requiring further discussion. The perceived environmental impacts considered were:

- Excessive soil erosion and transport of debris offsite.
- Exposure of village inhabitants to environmental health problems.
- Disruption or destruction of cultural and agricultural resources.
- Potential effects of seismic activity and seasonal flooding.
- Worker or occupant accidents.
- Increased point-source discharges of wastewater or septage.
- Misuse and mismanagement of pesticides and fertilizers.
- Improper collection and disposal of household solid waste.

16

- Improper siting and management of landfills.
- Increased exploitation of groundwater sources.

Eight SCF sites (villages/towns) were then visited. A description of the sites is provided in the scoping session report.

The scoping session conducted on July 25, 1994, was attended by 27 individuals representing USAID, SCF, American Near East Refugee Aid (ANERA), Catholic Relief Services (CRS), Palestinian Agricultural Research Center (PARC), Applied Research Institute of Jerusalem (ARIJ), Cooperative Development Project (CDP), Bethlehem University, Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Environmental Protection and Research Center/Gaza Strip, United Nations Development Program (UNDP), West Bank Department of the Environment, and PRIDE. The significant issues raised and explored during the scoping session were:

- Odors and groundwater contamination resulting from inadequate solid waste disposal and siting.
- Collection, treatment, and disposal of wastewater (shower pit latrines) and related solid waste debris.
- Soil erosion and stormwater runoff.
- Exposure of residents to environmental health problems.
- Worker accidents during construction and operation.
- Potential seismic and flooding hazards of interventions.
- Need for public awareness campaigns with the agricultural community regarding safe disposal of contaminated materials and how activities, such as using untreated sewage for irrigation, affect the community.
- Lack of coordination with public institutions and other donors and among other private voluntary organizations (PVOs) and nongovernmental organizations (NGOs).
- Social impact assessments being equally important to environmental assessments.

The scoping session report and scoping statement were presented to the USAID Affairs Officer for review and submission to the BEO, and were approved on August 1, 1994.

The "perceived list" developed from the prescoping activities and the "significant list" developed from the scoping session were examined in the PEA to ensure adequacy of the assessment.

17

The following steps describe the procedures used to implement the PEA:

- Review of all documentation pertaining to the activities of the SCF Institutional Development Project.
- Study of SCF prior projects supported by USAID.
- Site visits considered representative of SCF projects and subprojects, including both previous USAID-funded projects and presently proposed potential project sites.
- Evaluation of SCF's program planning, implementation, monitoring, and evaluation procedures.
- Development of recommendations for technical assistance, interventions, and training programs designed to improve SCF's institutional capacity to perform environmental reviews.
- Development of recommendations on whether each SCF activity is managed in an environmentally responsible manner.
- Development of recommendations on design, administrative, policy, and other adjustments that can be made to the project to address site-specific "environmental review" requirements.
- Identification of all significant environmental impacts, including those discussed during the scoping session, and how they can be avoided or mitigated through proper and early design, siting adaptations, or "reductions in number."
- Development of a preliminary system for assessing and monitoring environmental issues within the SCF program context.
- Provision of a workable scheme to ensure adequate monitoring of mitigative activities and reporting to USAID/Jerusalem.
- Collection of all necessary data.
- Evaluation workshop with SCF and its potential partners.

The evaluation workshop was held on September 2, 1994, at the American Colony Hotel in Jerusalem. The results are reflected in Annex B, SCF's Institutional Development Project Evaluation Workshop on PEA impacts, mitigations, monitoring, and reporting.

SECTION II

PROGRAM DESCRIPTION

SECTION II
PROGRAM DESCRIPTION

A. Program Overview

The overall objective of this project is to enhance the management and administrative capability of Palestinian development institutions in the West Bank and Gaza Strip. SCF will provide training, technical assistance, and sectoral and block grants as mechanisms for institutional strengthening. Through provision of grants and technical and managerial assistance, SCF seeks to provide institutions with opportunities to engage in and acquire meaningful development experience and to apply their skills to development problems.

The project has a total cost of $6,156,785 and will be implemented in two phases: (1) SCF will organize training opportunities for Palestinian institutions and provide sectoral grants; and (2) SCF will fund proposals through block grants.

A1. Training

SCF will focus on training the staff of selected Palestinian institutions in managerial, technical, and sectoral skills to increase their capabilities to identify development activities and priorities and to design, plan, implement, monitor, and evaluate their projects. Prior to implementing training and issuing sectoral or block grants, SCF assesses institutional training needs and designs programs to meet those needs.

Recipients of sectoral grants will be trained during implementation of those grants (Reference 2.1.2). The focus of their training will be sectoral, although participation in management and technical training will be possible. Recipients of block grants will receive training prior to receiving block grants (Reference 2.1.3).

SCF or other institutions will provide training or technical assistance in the following areas:

- Accounting and financial systems
- Information and filing systems
- Documentation process
- Development of appropriate administrative policies and procedures
- Budget preparation and planning
- Creation of internal financial controls
- Procurement procedures and policies
- Personnel management
- IEE procedures
- Strategic planning
- Sectoral activities

A2. Sectoral Grants

The Institutional Development Project will involve sectoral grants (estimated total of $1,715,000) to Palestinian institutions, enabling them to carry out specific sectoral activities. Institutions receiving sectoral grants will receive formal training from SCF in sectoral work. Of the $970,000 in sectoral grants, $470,000 will be disbursed in Year I of the project, gradually dropping to $275,000 in Year II and $225,000 in Year III. The amount of sectoral grants will decline annually as SCF shifts program emphasis to more flexible block grants.

Sectoral grants will focus on the implementation of projects in which SCF and its partner institutions currently work, including:

- Water resource development for drinking and agricultural purposes

- Sanitation
  - Small-scale sewage collection and treatment
  - Garbage collection and disposal

- Agricultural development
  - Land reclamation
  - Crop diversification
  - Construction of earth access roads for agricultural purposes
  - Fencing of cultivated areas

- Environmental awareness campaigns

- Women's activities
  - Management and technical training of women
  - Small-scale income-generating projects for women entrepreneurs
  - Promotion of credit models for lending to women and the poor
  - Basic literacy
  - Job-related skills training

Local institutions will be responsible for managing the project activity from its inception to its conclusion. They will be involved in the planning and design, implementation, monitoring, and evaluation phases of the project. The training programs for the local institutions will be funded by the sectoral grants.

A3. Block Grants

Block grants constitute the largest budgetary component, consisting of $2,060,000 over the three-year program. Of the total amount, national institutions are projected to receive $1,200,000; local institutions are projected to receive $600,000; and grassroots institutions are projected to receive $250,000. Block grants will allow the recipient institution to develop, implement, and supervise its own development program. With block grants, SCF will work in partnership with Palestinian institutions and will reduce direct SCF supervision over project implementation, compared with sectoral grants. However, SCF will be responsible for monitoring the use of block grants.

Block grants will be given to institutions that engage in water resources development, sanitation, agricultural development, environmental awareness, and women's activities. Institutions that engage in other sectoral activities, in addition to those mentioned above, will also be eligible for block grants.

B. Institutional Partners

SCF plans to target three levels of institutions:

- **National institutions.** Those institutions that serve the Palestinian community at the national level and have local affiliations in the towns and cities of the West Bank and Gaza Strip (e.g., the Palestinian Agricultural Relief Committee, Union of Agricultural Relief Committee, Union of Agricultural Works Committees, and Palestinian Hydrology Group).

- **Local institutions.** Those institutions that serve in a specific locality (e.g., El-Tuffah Education Center [Gaza], Sa'ir Charitable Society [West Bank]).

- **Grassroots institutions.** Those that are formed by communities themselves to perform specific tasks (e.g., block committees in refugee camps and village communities in rural areas).

National institutions will receive the majority of grant funds that will be allocated by SCF. However, a dynamic NGO sector requires the cooperation of institutions on all levels.

SCF plans to continue to implement and coordinate development activities funded by non-USAID sources with local NGOs and grassroots organizations. Activities to be stressed include empowerment of women, rehabilitation of the environment, development of low-cost agricultural technology, and encouragement of creative learning environments for young children.

Potential partners include:

Women's organizations

- Union of Women's Working Committees
- Women's Committee for Social Work
- Islamic Women's Committees
- Shu'un al Mar'a (Women's Affairs)
- Women's Graduates Society
- Bisan Research Center

Agricultural committees

- Union of Agricultural Works Committees
- Palestinian Agricultural Relief Committee
- Palestinian Farmers Union
- Palestinian Hydrology Group

Child community and research centers

- Rafah Community Center
- El-Toffah Educational Center
- Child Health and Community Research Association
- Palestinian Youth Union
- YMCA

C. Program Implementation Criteria

C1. Selection of Impact Areas

In SCF's selection of impact areas, the following are taken into consideration:

C1a. Long-term Development Strategy

Geographic. A chosen impact area (IA) should predominantly be a center for social and economic relations in the region. This would help build upon the experience of a group of villages (which serve as a model) to permit intervillage cooperation through social and economical interrelationships.

Administrative. The chosen IA should correspond more or less to the government technical and administrative subdivisions. This would facilitate the cooperation between local leaders and officials in formulating development plans and obtaining assistance and/or permits.

Demographic. Since initial investments are relatively high, IAs should have a manageable population size to make it more feasible to undertake ambitious projects, such as public works, education, and health care. There is also a greater resource base to draw upon (i.e., community contribution; labor and material contributions).

C1b. Need

IA's should exhibit obvious needs, ranging from the lack of social and/or economic infrastructure to inadequate means of production and large unemployment problems. Communities that lack sufficient or inadequate NGO assistance should receive preference.

C1c. Development Environment

- Willingness and ability of the local community to make the development process its own.

- Preference given to communities with village or community committees.

The practical steps of impact area selection are:

1. Through mapping, clusters of nearby villages are suggested.

2. A profile for each village is prepared by:

- Collecting background information and literature.
- Contacting other NGOs that are doing work similar to SCF.
- Visiting the suggested villages and using Participatory Rapid Appraisal (PRA) techniques to collect preliminary information. Villages should be visited by the maximum number of program staff.

3. Using the village profiles and visit reports, a matrix for IA selection is created.

4. Based on the selection criteria, the program team selects potential IAS.

5. General village-level meetings are held, preliminary needs assessments are made in all potential impact areas, and priority lists are prepared.

6. A development committee is established in each village followed by the formation of an IA development committee.

7. One or two pilot projects are identified and implemented in each village of the potential impact area.

8. Parallel to the implementation of the pilot projects, information about each potential area is collected using PRA techniques.

9. After the pilot project is executed, an assessment of each potential IA is made.

- If the assessment is positive, the IA is endorsed. A strategic plan is then formulated with the community's participation. The plan identifies the activities and a time frame for each phase of SCF intervention: entry phase, initial activity plan, integration phase, and institutionalization phase.
- If the assessment is negative, the potential IA is dropped and a new area is selected.

C2. Project Planning

The planning procedures for projects within SCF impact areas are:

- SCF and the village committee jointly set program priorities and develop the general program plan for the impact area.
- The SCF program team meets with the impact area committee to identify roles and responsibilities, and to define SCF procedures, policies, and scope of work.
- The team then prepares the IA sectoral report, which includes the list of projects by sector, results expected through the year (quarterly), and results achieved.

- Initial lists of beneficiaries are drawn up by the village committee and coordinators based on relative need and eligibility of agreed-upon criteria. (Project criteria within impact areas in the West Bank could vary. Community contribution is negotiated as a full package, in contrast to preset standardized individual projects.)

- The village committee submits the beneficiary list to the coordinators for review and approval and then to the program manager for final approval.

- The program manager and program team specifically allocate budgets for impact areas. These are forwarded to the finance department for detailed tracking sheets. (Committed IA budgets will be reflected as committed budgets on these sheets.) The balance of the budget is allocated to specific projects by sector.

- A subproject agreement, a subproject description, and an implementation plan are prepared by the coordinator and forwarded for program manager review and approval.

The planning procedures for projects outside SCF impact areas are:

- The program team selects the project sites and projects. Beneficiaries are approved based on project selection criteria.

- A subproject agreement, a subproject description, and an implementation plan are prepared by the coordinator and forwarded for financial review and editing.

- In the West Bank, the designs and implementation plans will be reviewed by the resource management supervisor (prior to financial review) and forwarded to the program manager for review and editing.

- The director then reviews the whole package; upon approval, the committee and/or beneficiary(ies) sign the agreement. The beneficiary will sign the contract as the second party. (The agreement specifies SCF's standard provisions, including community contribution versus SCF's contribution, the implementation plan, and payment procedures.)

For FY 95, SCF's four impact areas—I. Al-Araqa, Al-Hashimiga, and Al-Yamoun; II. Ramin and Beit Lead; III. Assira El-Qibliyeh, Burin, and Madama; IV. Taquu', Al-Rashaydeh, and Kisan—are profiled in the SCF Scoping Session report and added as Annex C of this report.

D. Sectoral Activities (Grants)

D1. Water Resource Development for Safe Drinking Water and Agriculture

The World Bank reports *Developing the Occupied Territories* (Sept. 1993) *Water Conservation in Palestine* [Center for Engineering and Planning, March, 1994] and numerous other publications set forth the general issues related to further water resources developments for both drinking and agricultural purposes.

There is agreement that the West Bank and Gaza have common development issues that have a heavy impact on the environment, with Gaza having the more severe environmental situation due to its coastal location, population, overpumping status, and so forth.

These environmental impacts are complicated by the lack of transferred authority, control, and enforcement. Therefore, it is necessary that full project and program file documentation be completed per USAID's environmental assessment requirements. Making an analysis of alternatives, including the no action alternative (which may in some cases be the best justification for certain programs, projects, and/or activities, etc.), is an important required element in the documentation file.

Additionally, recognizing the scarcity of water and inevitable population growth in the region, the conservation of existing water resources is imperative. Therefore, full water conservation measures must be established before justifications can be made for new water supply development.

About 42 percent of West Bank villages have no piped water. Estimates range from 198 villages (37 percent of the population of the West Bank)[1] to more than 250 villages[2] without piped water. Faced with this lack of water, West Bank residents historically have relied on springs, rainwater cisterns, and collection ponds to satisfy domestic and agricultural needs.

In its early years, SCF worked primarily with municipalities and villages on large water network and reservoir infrastructure projects. This approach faced several difficulties, including long delays in obtaining the necessary clearance permits from the Israeli Civil Administration (CIVAD). As a result of these delays, SCF was sometimes unable to disburse grant funds on schedule, and several projects had to be canceled and the funds were unused.

In the late 1980s, SCF's approach shifted toward working with grassroots committees and other local institutions to implement small-scale infrastructure projects for which CIVAD provided a blanket clearance. Consistent with this recent experience, SCF will fund the following types of water resource development activities under the Institutional Development Project:[3]

- Rainwater cistern development
- Collection ponds for agriculture use
- Spring maintenance
- Rehabilitation of existing wells in Gaza

---

[1]Personal conversation with Eng. Abdelrahman Al-Tamimi, Director of PHG, West Bank.

[2]Save the Children Federation, "Rainwater Harvesting Project for Domestic and Agricultural Use, Evaluation," July 19-24, 1993.

[3]Based on an extensive conversation with Eng. Khalil Nijem, Save the Children Federation, West Bank, August 17, 1994.

No specific permit is required from CIVAD to implement these types of projects.

D1a. Rainwater Cistern Development

SCF has a long tradition of providing support to West Bank village populations in rehabilitating old rainwater cisterns or developing new ones. Since 1982, SCF has participated in the repair or construction of a total of about 1,700 cisterns throughout the West Bank. Table II-1 provides a breakdown of the number of villages in which SCF assisted in cistern development and the number of cisterns repaired or built with SCF assistance since 1988 in the seven districts of the West Bank, including Jerusalem. Table II-1 also indicates the percentages of these cisterns used for domestic versus agricultural purposes.

As in the past, SCF will assist in repairing or building rainwater catchment cisterns, primarily in IA I (west of Jenin), IA II (west of Nablus), and IA IV (southeast of Bethlehem). Two types of rainwater cisterns may be built depending on soil type: (1) Roman cisterns in stable but not rocky soil (e.g., clay) and (2) reservoirs where the soil is either too loose (sandy) or rocky.

Because Roman (pear-shaped) cisterns cost about half as much as reservoirs and require fewer construction materials, they are preferred for rainwater harvesting if the soil type is suitable.

Table II-1
Numbers of Villages and Cisterns that Benefited from SCF Assistance Since 1988, and Percentages of Cisterns with Domestic vs. Agriculture Uses

District	Number of Villages	Number of Cisterns	Percentage of Cisterns	
			Domestic Use	Agricultural Use
Jenin	24	482-492	53%	47%
Nablus	10	56	59%	41%
Tulkarem	12	138-143	17%	83%
Ramallah	24	219-224	76%	24%
Bethlehem	20	84	58%	42%
Hebron	41	472	69%	31%
Jerusalem	2	6	33%	67%
Total	133	1457-1477	59%	41%

Source: SCF, "Rainwater Harvesting Project for Domestic and Agricultural Use, Evaluation," Appendices 1 and 2, July 19-24, 1993, East Jerusalem.

Table II-2 compares both types of rainfed cisterns according to suitable soil type, excavation method, materials used, total construction cost, materials cost as a percentage of total construction cost, and cleaning.

Table II-2
Comparison of Roman Cisterns and Reservoirs

Criterion	Roman Cistern	Reservoir
Type of soil	Stable soil not rocky	Loose or rocky soil
Typical shape	Pear, with plastered walls	Cube with reinforced concrete walls
Excavation method	Manual	Excavator-loader or jackhammer
Materials used	Small amounts of cement and sand for plastering	Cement, sand, gravel, and steel for reinforced walls and plastering; wooden molds to pour concrete
Source of rainwater	Runoff from the house roof	Runoff from house and/or reservoir roof
Construction cost (labor and materials)	$800-$1,500 Depends on soil type and size	Twice the cost of Roman cisterns of same size
Cost of materials	20%-30% of total construction cost	Over 60%-75% of total construction cost
Drainage/ cleaning	Once a year before the rainy season; bottom hole to facilitate drainage	Once a year before the rainy season

Source: Based on SCF, "Rainwater Harvesting Project for Domestic and Agricultural Use, Evaluation," July 19-24, 1993, East Jerusalem.

Rainwater cisterns built with SCF assistance between 1988 and 1990 reportedly cost $1,350 on average per cistern, with SCF contributing on average $255 per cistern, or 19 percent of the total average cistern cost (Appendix 4.0 of SCF Evaluation Report). Assuming the same average cash contribution per cistern, a maximum number of 550 cisterns could be built with SCF assistance under the proposed program (total budget for water resource development projects of $140,000 divided by $255 per cistern). Clearly, however, the actual number of cisterns to be built with SCF assistance is likely to be much less since SCF will participate in other water resource development activities (spring maintenance, collection ponds, well rehabilitation in Gaza).

D1b. Collection Ponds for Agricultural Use

SCF and other NGOs and PVOs (e.g., Oxfam with funding from the British Overseas Development Agency, Dutch aid) have assisted in developing two types of rainwater collection ponds in the West Bank and Gaza: earth and concrete.

D1c. Spring Maintenance

Springs were the original drinking water source for the majority of villages in the West Bank. Today, they often supplement rainfed cisterns as a source of water in villages without a piped water supply.

The distance between village and spring varies considerably. In some cases, the spring is at the center of the village; in others, the village is on the hillside and the spring in the valley below. Water is normally carried from the spring to the house in jerry cans or small barrels. Containers may be transported on donkeys.

Most drinking water springs are protected by a concrete storage tank with an overflow pipe leading to a collecting tank located at some distance from the spring source. SCF will assist in spring maintenance activities, such as rehabilitating the concrete storage tank, the collecting tank, and the connection pipes between those two tanks. SCF does not encourage and will not participate in any attempts to overhaul the spring system from the source to outlet. According to SCF engineer Khalil Nijem, past efforts to do so have sometimes led to the irreversible loss of the spring source.

D1d. Rehabilitation of Wells in Gaza

SCF will also fund the rehabilitation of existing wells in the Gaza Strip. Well rehabilitation will be limited to superstructure works, such as replacing old pumps, upgrading the upper walls of the wall, etc. SCF will not fund such development activities as increasing the depth of an existing well or digging a new well.

D2. Sanitation

Small-scale sewage collection and treatment plus garbage collection and disposal. With an increasing population and higher water demands, adequate small-scale sewage collection and treatment as well as garbage collection and disposal are necessary to ensure that no further degradation of the environment occurs.

Sewage treatment and garbage disposal are key elements that need to be properly addressed and mitigated. At present, untreated sewage and garbage are disposed of by physically transferring them from one area to another, for example, by gravity flow through a valley. In areas where this occurs, sewage infiltration has already caused considerable pollution to the groundwater supply. [World Bank, 1993 report]

SCF's sanitation activities fall into two areas: (1) small-scale sewage collection and treatment and (2) household waste collection and disposal.

Septic tank coupled with subsurface drainage. Subsurface drainage techniques (SDT) are a well established technology that has been used worldwide. SDT consists of two phases: a primary treatment phase that takes place in an underground concrete box with two compartments, and a secondary phase in which the effluent flows from the tank into a subsurface drainage (absorption) field.

Offset pour-flush latrine. The offset pour-flush latrine is one fitted with a trap providing a water seal. Feces are cleared by pouring in sufficient quantities of water to wash the solids into the pit and replenish the water seal. The pit is offset from the latrine by providing a short length of pipe from the pan to the pit.

D3. Agricultural Development

The historical importance of the agricultural sector and its role in development is a common assumption among Palestinians that needs to be documented. In the West Bank, the economy is largely agriculturally based (livestock and rainfed farming) and focused on local markets.

Available agriculture data for both the West Bank and Gaza are very limited and sometimes conflicting. However, some of the best baseline data currently available are in the recently published World Bank reports, *Developing the Occupied Territories* - Volumes 1 through 6, September 1993.

In 1991, West Bank Palestinian farmers cultivated approximately 500,000 hectares with 30 percent lying fallow. This is a 6 percent decrease in cultivated land since 1973. The Gaza farmers cultivated only 0.16 dunums in 1991. With almost one-third of the land used for marginal cultivation, grazing, or fallow, and an increasing undeterminable area of land under cultivation, it is difficult to ascertain an accurate estimate of cultivated land in either the West Bank or Gaza.

Land holdings in the West Bank and Jordan Valley are large with absentee owners living in Jordan. The West Bank farms are usually small, with 90 percent being less than 50 dunums (1 dunum = 0.1 hectares). Family-owned farms in the olive-growing areas rely on tenant farmers who share a percentage of the crop. Livestock operations are usually overseen by family or laborers.

In Gaza, small fragmented family farms predominate, but over half the cultivated area is farmed by large landholders. The continuous division of family farms has exacerbated the problems of mechanization, reduced efficiency, caused loss of soil fertility, and reduced the willingness of the farmers to invest in the farming activities.

While most Palestinians live in the western hilly areas where farming is mostly limited to rainfed operations, the most promising agricultural land is in the Jordan Valley. However, Palestinians are not allowed to take water from the West Bank of the Jordan River, and, in some cases electrified fences deny them and their livestock access to the water. Water must be trucked in for the livestock in that area. The CIVAD imposes this water access restriction although numerous large Israeli settlement farms with large pumping

operations are located every few kilometers. This water appropriation and usage policy is a major impediment to present and future Palestinian agriculture development.

Farm labor. With a drop in employment opportunities for Palestinians in the Arabian Gulf since the Gulf War (1990-1991), Palestinians returning to agricultural development are concentrated in the western hills of the West Bank. However, unless water resources management and development activities improve and expand, agricultural development in this area will be restricted and opportunities for farm laborers will decrease.

Technology. Appropriate agriculture technology is available to the Palestinian farmer through agriculture extension at all levels. Agricultural crop production in the West Bank and Gaza is much more advanced than that of some of their Arab neighbors. Crops are produced in polyethylene greenhouses and high (polyethylene) tunnels, and drip-irrigated crops are planted under polyethylene mulch.

Introduction of new technologies, new crop cultivators, and water management techniques has also increased agricultural development, but further advanced methodology must be introduced to keep pace with the cost-competitive systems of other countries.

Upgrading of land preparation, planting practices, and, most importantly, irrigation water quality and the judicial use of pesticides and herbicides need to be addressed before exports markets will become available to the Palestinian farmers.

Further and existing agricultural development is keyed to water resources balancing, water conservation, and the use of treated wastewater. However, associated with treated wastewater reuse are the associated environmental impacts, mitigation requirements, monitoring activities, and their related costs. Treatment is mandated to eliminate the present widespread use of untreated wastewater in agriculture. This is a common but dangerous practice causing the transmission of waterborne diseases and attributing to poor public health.

SCF agricultural development includes (1) land reclamation (development), (2) crop diversification, (3) construction of earthen access roads for agricultural purposes, and (4) fencing of cultivated areas. SCF's agricultural development activities will be site specific in the first two categories defined above, depending on the amount and quality of water available for agricultural purposes. However, crop diversification, usually to a higher value crop and/or crops that can be grown with less water, will be evaluated on a case-by-case basis. Construction of access roads to facilitate the development and improved marketing of agricultural products will be on a service or marketing area. The fencing of cultivated lands to protect crops from both wild and domestic animals will be considered an aid to increasing agricultural development.

D4. Environmental Awareness Campaigns

A tremendous interest and need for a Public Awareness/Education Program exist in the West Bank and Gaza. However, at this time, USAID and other donors will mandate environmental awareness program activities only as they specifically relate to programs and project activities funded by them. SCF's project plans to continue to implement public

awareness campaigns to promote environmental awareness amongst Palestinian communities. The project has the following objectives:

- Reduce potential health and environmental hazards related to solid waste collection and disposal.
- Enhance community participation through campaigns to facilitate a broader environmental health education campaign targeted especially at women.
- Encourage local organizations to promote environmental awareness campaigns.
- Cooperate with other institutions to establish a network for future cooperation in the area of environmental awareness building and education.

D5. Women's Activities

SCF gives special emphasis to the empowerment of women in their program. Women's activities planned by SCF include management and technical training of small-scale income-generating projects for women entrepreneurs, promotion of credit models for lending to women, and job-related skills training. In addition to these activities, however, women play an important role in SCF's agricultural, water, environmental awareness, and sanitation activities. In identifying environmental problems in these other sectors and recommending measures to resolve them, the active participation of women is essential.

SCF has not made formal partnership arrangements with women's organizations or other organizations at this stage. It has however, identified potential partners who are in agreement with SCF's goals. Potential partners for women's activities include the Union of Women's Working Committees, Women's Committee for Social Work, Islamic Women's Committees, Shu'un al Mar'a (Women's Affairs), Women's Graduates Society, and Bisan Research Center.

In the rural areas, women are the principal caretakers of the household and family farm. Responsibilities include seeding and harvesting rainfed and greenhouse crops, rearing animals, bee-keeping, collecting water from springs, and food processing. Their access to education and training is often limited. In cooperation with its partners, SFC will provide training opportunities for rural women in small-scale income-generating projects. Basic literacy classes, management and technical training, and other job-related skills will be offered. Women's rights, gender awareness training, and communication skills are other important activities offered by women's organizations.

An example of one of SCF's past women's projects is a bee-keeping course. A two-week intensive course was offered to 20-25 women from the Aseera Al-Qybliyah village in the production and marketing of honey. At the end of the course, 10-15 women received $1,000 loans for hives to start their own honey production projects. Loans had to be repaid within three years at 8 percent per year.

However, in many cases, SCF has not succeeded in collecting interest payments from the women reportedly because charging interest on loans is forbidden by Islamic law.

Therefore, for acceptability, this interest charge should be changed to a service fee. Honey sells for relatively high prices in this part of the West Bank (NIS 80-100 or $27-$34 per kilogram) to account for women's labor and for the pollination of medicinal plants. In comparison, honey sells for NIS 20-30 ($7-$10) per kilogram in the Jordan Valley.

Women will also play an important role in SCF's environmental awareness campaigns, which are described in detail above. As teachers, women can educate their children on both these issues both at home and in school. Community cooperation and communication, especially among women, are important parts of such campaigns.

SECTION III

ENVIRONMENTAL SETTING

SECTION III
ENVIRONMENTAL SETTING

A. Physical Environment

A1. Physiography

A1a. Geography

The West Bank and Gaza Strip have a land area of 6183 square km. The West Bank, including the neutral and military zones around Jerusalem but excluding the 210 square km comprising the surface area of the Dead Sea within the West Bank boundaries, has a total surface area of 5,606 square km. It has a maximum length of 137 km along the longitudinal axis between Zububa in the north and the southernmost boundary line south of Al Samu. The width varies from 31 km along the latitude connecting Jerusalem with the northern tip of the Dead Sea to 58 km along the latitude starting from Qalqilya along the western boundary and intersecting the Jordan River northeast of Zubeidat.

The West Bank contained eight administrative districts in 1967. In 1968, their number was reduced to seven and their borders were redrawn by the Israeli administration, enlarging the Tul Karem and Jenin districts at the expense of Nablus, partitioning the rural parts of the Jordanian/Jerusalem District between those of Bethlehem and Ramallah, and including in the entire geographical region of the Lower Jordan Valley in the Jericho Jordan Valley District.

The Gaza Strip extends over an area of 367 square km. It has an average maximum length of 45 km between the boundary near Beit Hanoun in the north and Rafah in the south. The width varies from 6 km near Deir Al Balah in the center to 13 km near Rafah. [Center for Engineering and Planning, 1992]

A1b. Topography

The area of the West Bank and Gaza Strip is divided into five distinct physiographic zones on the basis of topography. These zones are the Jordan Valley zone, Eastern Slopes zone, Central Highlands (Mountainous) zone, the Semi-Coastal (Fertile) zone, and the Coastal zone. [Al Khateeb et al, 1993; Center for Engineering and Planning, 1992]

The Jordan Valley zone. This zone extends along the western bank of the Jordan River from the point where the boundary intersects the river in the north to the northern tip of the Dead Sea in the south. It has an area of approximately 400 square km and lies within 0 to 400 meters below sea level. The Jordan Valley zone has a "natural greenhouse" characteristic and good fertile agricultural land is available. Average rainfall ranges from 50 to 250 millimeters/annum; and its major products are bananas, off-season vegetables, and citrus.

The Eastern Slopes zone. This zone lies between the Jordan Valley in the east and the Central Highlands in the west. It extends from the areas east of Jenin in the north to the Dead Sea in the south and includes the slopes along its western shore. This zone has an area of approximately 1500 square km with altitude varying from 800 meters above sea level to 50 meters below sea level. The major crops are barley and legumes and the annual rainfall is around 250 millimeters/annum.

The Central Highlands zone. This zone extends from Jenin in the north to the Hebron in the south. It has an area of about 3500 square km and altitudes exceeding 1000 meters above sea level. The rainfall in this zone ranges from 450 to 700 millimeters/annum and the major crops are olives, stone fruits, and grapes.

The Semi-coastal zone. This zone represents an extension of Palestinian Mediterranean coastal lands and comprises parts of the Jenin and Tulkarem sub districts. It has an area of approximately 400 square km, and altitudes ranging from 100 to 300 meters above sea level. This zone is characterized by fertile lands with shallow groundwater. The rainfall is plentiful and often reaches over 600 millimeters/annum. The major crops are vegetables, citrus, field crops, olives, and stone trees.

The Coastal zone. This zone extends along the southern part of the Palestinian Mediterranean shore to the north and south of Gaza City. It has a total area of 367 square km and altitudes ranging from 20 to 40 meters above sea level. It is characterized by sandy soils and very shallow aquifers. Annual rainfall ranges from 200 millimeters in the south to 400 millimeters in the north and the major crops are citrus and vegetables.

A2. Climate and Meteorology

The West Bank and Gaza are part of a subtropical zone with summer and winter climates and brief transition periods between the two seasons. The summer is generally warm and dry, with the hottest month being August and temperatures ranging between 18 to 38 degrees Celsius. The months of June through August are dry and generally have no rain. The winter is cool and wet with the coldest month being January with temperatures ranging between 5 degrees to 10 degrees Celsius. [Al Khateeb, 1989] About 70 percent of the average rainfall in the West Bank and Gaza Strip falls between November and March, and includes heavy rainstorms. In January and February, snow occasionally falls at the higher elevations of the central highlands, especially around Jerusalem. [Center for Engineering and Planning, 1994]

The average annual rainfall on the West Bank has been estimated between 2,000 and 3,000 million cubic meters (MCM) while the amount of rainwater in Gaza is estimated at about 125 MCM/year. Roughly 75 percent of the rainfall evaporates, the remaining water infiltrates the soil and recharges the groundwater reservoirs or appears as short-lived runoff in rivers and streams. [World Bank, 1993]

A3. Air Quality and Noise

Air quality and noise pollution pose serious problems to the environment. Vehicle emission standards and controls are nonexistent in the West Bank and Gaza and are well above acceptable international guidelines, particularly during rush hour in the city centers.

Smoke and odors from burning household rubbish and other solid wastes in the open streets, and uncontrolled effluent discharges from settlements, cities, and villages further aggravate the degradation of the air quality. In industrial areas, the natural and industrial dust from stone quarries causes heavy inversion layers, especially on the hot and still summer days.

Noise pollution from traffic, construction sites, and infrastructure rehabilitation is an ongoing problem.

A4. Water

A4a. Resources

Rainfall is the main source of water in the West Bank and Gaza, replenishing surface and groundwater supplies. Rainfall on the highlands recharges the groundwater aquifers draining to the east and west. The western slopes are gentler than the eastern ones and receive considerably more rain, hence they have a much higher recharge rate than the eastern aquifers draining towards the Jordan Valley.

Surface water. The only perennial river in the West Bank is the Jordan River. No agreement among the riparians has been reached to share this resource. Prior to 1967, the Jordan River was a source of water for the Palestinians. The Palestinians have been denied access to the Jordan River water by the Israelis since 1967-1968. Peace Agreement discussions, however, are now taking place related to the Jordan River and other water resources shared by Palestine, Israel, Jordan, and others in the region. There are about 300 springs near the base of the mountain ranges. Only about 120 of these flow year-round, while the remaining ones flow only during the winter rainy season. The total annual discharge of all springs is estimated to reach about 100 MCM, but only half of this amount is freshwater. The other 50 MCM has a high salt content and originates mainly from the springs along the northern and western shore of the Dead Sea.

Groundwater. The structure of the aquifers in the region is complex. The aquifers spanning the West Bank and Israel are not only richer but the water quality is much higher than that of the aquifers spanning Gaza and Israel. Usually, distinction is made among three main aquifers underneath the West Bank and Israel.

The largest aquifer is the western aquifer, which extends to the Mediterranean coast. Its annually renewable recharge is generally estimated at 335 MCM, whereas the eastern aquifer yield is estimated at only 105 to 125 MCM/year. Together with the annual recharge of the northeastern aquifer estimated at about 140 MCM/year, the total annual recharge of the aquifers amounts to about 580 to 600 MCM. [World Bank, 1993]

Water rights for both the Jordan River and groundwater supplies are agenda items under discussion as part of the Peace Agreement. While several plans exist for sharing water, it is not possible now to predict the outcome. It is clear, however, that water is a critical resource and will remain a subject of extreme importance.

A4b. Supply

As illustrated in Table III-1, 58 percent of West Bank communities, or 74 percent of the population, are supplied by piped water networks that deliver a higher quality of water than that taken from other sources, such as cisterns or springs. Households that have access to piped water, on average, consume more water and maintain a higher standard of personal and household hygiene than those who are not covered by the piped water network.

Table III-1
Access of West Bank Communities to Piped Water

Community Access to Piped Water	Number	Percentage
With Access	307	58
Without Access	220*	42

Source: Infrastructure and Health Services in the West Bank: Guidelines for Health Care Planning, The Health Development Information project, 1993.
* Including 10 communities in the Hebron district where piped water services had been disconnected.

In the 307 communities where piped water is available, an average of 98 percent of the households are connected to the network. However, there are considerable variations in the availability of piped water between the eight West Bank districts. For example, in the Jenin district, only 47 percent of the population are covered by piped water networks; in contrast, there is 100 percent coverage in the Jerusalem district. In general, the central region of the West Bank, where 92 percent of the population is covered by piped water networks, enjoys better coverage than either the north, with 86 percent coverage, or the south, with 55 percent coverage. Actual water availability and delivery percentages, however, are much lower due to water shortages in systems operations.

In the West Bank, 42 percent of the rural communities (26 percent of the population) do not have access to piped water networks. As Table III-2 indicates, the most common source of water for these communities comes from rainfed cisterns, where little is known about the water quality. In all West Bank rural communities, with the exception of two, rainfed cisterns are used as either the main or secondary source of water for domestic use, even where households have access to piped water networks.

Table III-2
Non-Piped Water Supplies in West Bank Communities

Main Source of Water	Number of Communities	Percentage
Cisterns Only	171	78
Cisterns and Springs	31	14
Springs Only	3	1
Cisterns Fed by Piped Spring Water*	13	6
Tanks	2	1
Total	220	100

Source: Infrastructure and Health Services in the West Bank: Guidelines for Health Care Planning, The Health Development Information project, 1993.
* Thirteen communities had piped networks that carried water from local community springs to household cisterns, which were also used for storing rainwater.

Table III-3
Sources of Piped Water in West Bank Communities

Source of Piped Water	Number of Communities	Percentage
Mekorot	195	63.5
Municipalities and Local Springs	50	16.4
Jerusalem District Water Undertaking	51	16.6
Bethlehem District Water Undertaking	11	3.5
Total	307	100

Source: Infrastructure and Health Services in the West Bank: Guidelines for Health Care Planning The Health Development Information project, 1993.

The major supplier of piped water in the West Bank is Mekorot, the Israeli Water Authority. Mekorot directly supplies 63.5 percent of the piped water networks in rural communities of the West Bank. The remaining 36.5 percent of the piped water networks are controlled by the only two Palestinian authorities in the West Bank, the Jerusalem District Water Undertaking and the Bethlehem District Water Undertaking. These two water authorities provide water directly to communities in the central region of the West Bank or to local city councils who serve as water sub-distributors within their own communities.

A5. Soils

Soil physiognomy in the West Bank and Gaza Strip are affected by parent rock and local climate and display a wide range of soil types. In mountainous areas, the topsoil is washed off faster than new soil can form from the bedrock beneath. The young soil usually has no chance to mature and age; therefore, most soils in these areas are classed as young.

In the Tulkarem and part of the Jenin subdistricts, soils are characterized by heavy terra rossa and alluvial types. Most of these soils are suitable for farming. Much of the remaining soils in the West Bank are light gray to grayish brown. These soils are not particularly fertile but they may be enriched by manure and chemical fertilizers.

In the coastal region, besides the barren dune belt along the shore, are coarse-grained hamra soils, which are adaptable to farming because of a fine textured layer of mineral coating each grain. [Center for Engineering and Planning, 1992]

A6. Geology

The predominant geology and outcrops in the West Bank are carbonate sediments from the Cretaceous Age. Old and young rocks are barely visible. Jurassic and Lower Cretaceous rocks, limestone, chalky limestone, marls, and sandstone are visible in the core of the Judean Anticline in the extreme north of the West Bank. In Gaza, the geology typical to the coastal aquifer is sand, sandstone, and pebbles.

A7. Terrestrial and Aquatic Resources

Wildlife resources. High population pressure and intensive land use in the Gaza Strip and West Bank since the end of the 19th century have prevented wildlife populations from flourishing. Overgrazing, hunting, and agricultural and industrial activities have disturbed the natural habitat of most of the indigenous fauna. The overgrazing of land by the Palestinian sheep and goat herds push the wildlife further and further into the desert. The pollution of springs and streams from direct dumping of sewage effluent from the settlements and the random dumping of village garbage and trash near or in waterways are destroying the natural water holes for most wildlife, as well as many domestic livestock.

Some 56 mammal species have been recorded in the Gaza Strip, but only rodents and small insectivorous mammals, such as shrews and hedgehogs, have recently been observed in any numbers. The present situation for other larger mammals remains unclear due to the lack of recent surveys and investigation, but they are thought to be present in very small numbers or not at all. In contrast, nonindigenous rodents such as the brown rat and the house rat are abundant in disturbed, densely populated areas.

Amphibians and reptiles have also experienced a decline in supporting habitats. Intensive human use of water resources has contributed to the drying up and pollution of much of the moist environments amphibians require. Land use and agricultural practices have disturbed most of the suitable habitats for terrestrial reptiles, but adequate data on the present occurrence of local reptiles are lacking.

The near absence of natural vegetation and biotopes and the intensive land use of the region curtail the suitability of the area as a breeding and overwintering place for birds. However, the West Bank and Gaza are a historical migratory resting stop for a large number of birds on their way to and from the European, Asian, and African continents. Migratory birds that rest in the West Bank include European goldfinch, heron, storks, kingfishers, yellow and white wagtails, ducks, pelicans, and vultures, some of which remain over winter.

The destruction of wetlands; pollution of springs, rivers, and lakes; the enormous quantities of plastic and trash dumps; and especially the uncontrolled use of fertilizers and pesticides have led to a dramatic drop in the bird population. This, in turn, has led to the extinction of entire species, as well as a large number of species of birds being endangered.

Aquatic resources. Due to the pollution of the Jordan River, indigenous fish are on the decline and many fish caught there are considered unsafe to eat. Cattails and rushes can still be seen in marshy areas and along streams and rivers, but are sometimes found to be dying out in areas near uncontrolled sewage dumping. Water hyacinths, known for their water purification properties, are still found but in small numbers.

Marine and coastal resources (fisheries). Fish production around the Gaza coast has declined in recent years. In a 10-year span, catches have dropped by 3,000 tons/annum. The low nutrient levels in Nile water discharge after the closure of the Aswan High Dam may have contributed to this disruption in catch size.

Recent regulation of the fishing industries may have also contributed to reduced production. Hours for fishing near beaches have been restricted and fish auctioning has been moved to an area 500 meters from the beach. In addition, the fisheries industry is hampered by outdated equipment and vessels.

However, the lack of a suitable fishing port in the Gaza Strip has been the greatest impediment to the industry, although some jetties traditionally used for loading and unloading general cargo still exist and are being used in fair weather. Support facilities for the sector are basic; infrastructure is limited to some ice production, fish auction halls, and boat building and engine repair facilities.

There is no aquaculture in either Gaza or West Bank, even though the demand for fish is high. Substantial technologies that utilize brackish water resources or raise fish from human wastewater exist. Wastewater treatment technologies based on macrophytes, which produce products that can be effectively used for animal feeds, may have potential at a fraction of the costs of traditional wastewater treatment systems. These systems are, however, very land intensive.

Plant communities. There are many wildflowers in the West Bank, 80 percent blooming from February to May with some flowers reaching their peak as late as July. The rains transform what looks like desert most of the year into green and colored fields with many types of wildflowers.

However, without an awareness campaign some of these flowers, plants, and trees—some indigenous only to the West Bank area—will disappear. Contributors to this problem are open grazing for sheep and goats, expansion of agricultural and housing areas, decreased wetlands, pollution of the waterways, and the lack of designated wildlife conservation areas with specific conservation guidelines.

Endangered species. Although information is often fragmentary and inaccurate, data indicate many animals are on the decline. Due to the lack of formal studies and any real designated areas dedicated to wildlife protection, it is very difficult to obtain any reliable data upon which to base quantitative estimates of declines. At present, animals that used to be seen in the West Bank area but now have disappeared include the Syrian bear, the wolf, the Syrian woodpecker, the crocodile, and the ostrich.

According to Imad Atrash, a Palestinian environmentalist, plant life has also suffered and the following should be placed on the local endangered list: sumac, salvia (sage), thyme, Palestinian pistachio tree, carob tree, ficus tree, wild orchid, iris, crocus, mountain lily, and desert tulip. Many of the ancient olive orchards are being cut down to make way for settlements and infrastructure projects. With the great abundance of olive wood being used in the tourist industry for wood carvings, there should be some immediate control over the cutting of trees.

Nature conservation areas. There are no Palestinian nature conservation areas in either the West Bank or the Gaza Strip. There are 48 Natural Reserves and National Parks in Israel, with only 5 of these lying within the West Bank and Gaza. As of this date, it has not been determined whether these parks and reserves will be turned over to the National Palestinian Authority (NPA) Ministry of Tourism.

In the Gaza Strip, some small areas remain of nature conservation value near the outlet of the Wadi Gaza. The near pristine flora and fauna of the nearby dunes and salt marshes merit special care and consideration to preserve their condition. Although the vegetation of the mobile dunes is grazed by a few remaining Bedouin herds, it remains the only example of desert flora in the Gaza Strip. Around 500-1000 meters from the coastline, inland between the resorts of Gush Katif and Neve Dekalim, is an outstanding example of this valuable landscape and floristic and faunal diversity. No activities planned for Save the Children Fund (SCF), American Near East Refugee Aid (ANERA), or CRS will affect this area around Wadi Gaza.

There is a great need for many parks for both wildlife protection and for nature conservation. Only when these areas are designated can the real wildlife awareness campaigns and the preservation of the Palestinian nature heritage begin.

Public awareness. Environmental awareness in this region is still in its infancy. This, combined with the degree of political tension and lack of government and nongovernment resources, has produced environmentally unfriendly practices. Only one environmental organization, Children for the Protection of Nature, currently exists in the West Bank and Gaza. This organization was funded, in part, by SCF. The organization's program has spread to over 40 schools in Gaza, Hebron, Bethlehem, Jerusalem, Ramallah, Jericho, Nablus, Jenin, and other places throughout the West Bank and Gaza.

The organization promotes the preservation of the environment through an educational program aimed at Palestinian children. Educational activities include classroom lectures, poster campaigns, and a quarterly magazine issued by Education for Awareness and Involvement in Cooperation with the Department of General and Higher Education—NPA. Teachers organize summer camps that target environmental awareness programs with participation in intensive lectures, field trips, and archaeological visits. These activities have attracted attention abroad, notably in Italy, where children exchange environmental and economic information with Palestinian children.

There are no recent lists or studies on wildlife found in the West Bank, with the exception of those of Imad Atrash of the Children for the Protection of Nature program. He is attempting, through an environmental awareness program introduced to the Palestinian school system and with the help of the International Development Research Centre, to study and identify indigenous animals, birds, and fish that are present in the West Bank, as well as those in danger of extinction.

B. Cultural and Aesthetic Conditions

B1. Archaeological, Historical, and Cultural Sites

Three cities—Nablus, Bethlehem, and Jenin—have been identified as zones that may be affected by the project. These cities and the surrounding areas have been inhabited for thousands of years and contain sites that have deep religious significance for Christians, Jews, and Muslims. Also located within these zones are many historical sites, including ruins from the Romans, Byzantines, and Crusaders.

There are several examples of historical, cultural, and archaeological sites located within these three cities. El-Kabir Mosque, said to be the site where Joseph's blood-stained coat was presented to his father as proof of the death of his favorite son, lies in the project area. The Church of the Nativity, considered to be one of the oldest churches in the world and believed to be the birthplace of Christ, and the Milk Grotto Chapel, where it is believed that Mary, Joseph, and the baby Jesus sought shelter on their way to Egypt also lies within the project area. In addition, the three cities are home to the tomb of the matriarch Rachel, the ruins of an ancient Roman amphitheater, the convent of Jacob's Well, and the traditional site of Joseph's Tomb. Just outside the city of Nablus are the remains of the biblical city of Shechem.

The activities proposed in this report are limited in scope and size, and are not anticipated to affect any of the above-referenced historical, cultural, or archaeological sites. The establishment or upgrading of wastewater treatment facilities and the creation of roads will not disturb the groundwater levels at these sites; therefore, there will be no damage caused by rising water levels. Construction activities are not anticipated to cause any adverse impacts, since there are no known sites where construction or upgrading activities are planned. However, should a new site be discovered during the course of project activities, the appropriate authorities would be contacted immediately.

B2. Aesthetic Settings

As an earlier section of this report outlines, the West Bank and Gaza have a wide variety of topography, top soil, and vegetation cover. However, an unfortunate but common element in the West Bank and Gaza's landscape is increasing desertification, which is caused by several factors, such as:

- Drought due to changes in climatic conditions, especially the decrease in rainfall and increase in mean temperature.
- Deforestation resulting from urbanization, clearing land for Israeli security purposes, tourism and olive tree carvings, firewood and charcoal production, etc.
- Damage to mountain farm terraces constructed and maintained by previous generations of villagers but neglected by current farmers.
- Uncontrolled domestic livestock grazing, especially sheep and goats, which destroy wild plant life and planted vegetation.
- Pollution of wetlands due to uncontrolled irrigation and use of water sources with high salinity.
- Casual picking of wild plants and endangered plant species and/or collecting and selling for income.
- Quarry areas and stonecutting workshops and industrial plants too close to agricultural lands, causing the agriculture to die from the dust in the air.
- Soil erosion near stone quarries as a result of transporting stones by heavy trucks.
- Construction of roads and residential areas to support the agricultural areas.
- Forest fires, set by accident or on purpose.
- Overpumping of groundwater that leads to increased soil salinity, decreasing land productivity, or total destruction of agricultural land, especially in Gaza.

The landscape's aesthetic condition is also affected by poor solid waste management due to:

- Institutional weakness in residential garbage collection.
- Increasing quantities of industrial and commercial solid waste.
- Lack of modern techniques in solid waste handling and disposal, such as recycling, reuse, sanitary landfill, etc.
- Improper garbage disposal site selection due to lack of institutional enforcement.

C. Socioeconomic Conditions

C1. Demography

A census of the population has not been taken in the West Bank and Gaza since 1967. Instead, population data are based on estimates and statistical models and are often inconsistent and inaccurate. For example, in 1980 and 1987, the Central Bureau of Statistics and the Ministry of the Interior (MOI) published population estimates of the West Bank showing differences of more than 40 percent as shown below:

Organization	Region	Year	Population Estimate
Central Bureau of Statistics	West Bank	1980	704,000
MOI	West Bank	1980	871,000
Central Bureau of Statistics	West Bank	1987	858,000
MOI	West Bank	1987	1,252,000

The Central Bureau of Statistics estimates represent "present population" at the end of a calendar year. Births and deaths are estimated by using parallel figures from within Israel and neighboring countries because of underreporting of actual deaths. MOI figures are based on population registration (identity card) data. MOI figures, therefore include residents who are temporarily or permanently living abroad, and their children who are registered for summer visits only. Underreporting of deaths tends to inflate the population data.

C2. General Land Use

Land use and development depend on a number of factors, including prevailing soil characteristics, climate, population distribution and density, availability of water and other natural resources, type and level of economic activity, and regulations imposed by the Israeli authorities on Palestinians. Of the total land area of the West Bank and Gaza Strip, it is estimated that 2,300 square km (37 percent) are easily cultivable, 2,250 square km (37 percent) have a limited capacity for cultivation (but may be reclaimed), and that some of the remaining areas that are not suitable for cultivation could be developed into good grazing lands. Table III-4 shows major land use components in the year 1990. [Center for Engineering and Planning, 1994]

Table III-4.
Land Use Components in the West Bank and Gaza, 1990

Land Use	Area (km)	Percentage
Cultivated Lands	1,945	31.5
Forests	30	0.5
Built-up Areas: Palestinian Communities	200	3.2
Israeli Settlements	70	1.1
Roads	10	0.2
Grazing and Desert	3,928	63.5
Total	6,183	100.0

C3. Economy

Overview. For the past 25 years, lack of employment opportunities have made it necessary for Palestinians to look for work either in Israel or abroad. Since 1967, Palestinians have been a large and relatively cheap source of manual labor for Israel. In March 1993, in response to unrest caused by the Intifada, Israel closed its borders to most of the Palestinian workforce. Employment opportunities decreased drastically at that time and less than half the number of workers are currently allowed to work in Israel. Outside Israel, especially in the Arabian Gulf countries, Palestinians make up a highly educated and skilled workforce. Remittances to the West Bank from Palestinians living and working abroad have been an important stimulus to the Palestinian economy. However, since 1991, work opportunities for Palestinians decreased substantially in the Gulf because of their political support of Iraq during the Gulf War. Without the remittances from Palestinians working in Israel and the Gulf, increasing unemployment in the West Bank and Gaza, and increasing prices for land and real estate, the Palestinian economy is in a state of crisis.

In the public sector, municipalities do not have enough funds to sustain basic public services. Water services are interrupted for several days at a time. Power outages are frequent. The quality of drinking water is often below World Health Organization standards. And garbage collection services have broken down, leaving it in the streets.

With regard to public services, taxes and fees are collected by either the Israeli Civil Administration (CIVAD) or the municipalities. Whereas the municipalities are able to collect earnings from some public utilities, many revenue-generating taxes—such as fuel and vehicle—go to the CIVAD and are not reinvested in the municipality. The result is poor

quality services or total lack of public services for Palestinians. For example, road construction and maintenance is poor, and roads in the West Bank and Gaza, except those designated as "Israeli settlement security roads," are old and in disrepair. The municipality's lost revenues and its inability to borrow have been the primary reasons for this.

Both revenues and spending by the CIVAD and the municipalities are low by international standards, at about 16 percent of gross domestic product (GDP)—or a mere 12 percent of gross national product (GNP)—between 1987 and 1991, with no clear trend. On the other hand, statutory income tax rates are significantly higher in the West Bank and Gaza than in Israel.

The lack of revenue available for public services is supplemented by aid from other organizations and donors. Many organizations operating in the West Bank and Gaza provide quasi-public services. Foremost among these is the United Nations Relief and Works Agency (UNRWA), which provides basic services to approximately 40 percent of West Bank residents and 60 percent of refugees. UNRWA has spent $100 million annually in recent years, equivalent to 4.5 percent of GDP, 85 percent to education and health.

Before Jordan broke off administrative ties to the West Bank in 1988, Jordanian aid amounted to an estimated $50 million/year, dropping to $15 million thereafter. Aid from other Arab governments provided an estimated $15 million/year in 1988-1989. Other Arab nongovernment organizations (NGOs), United Nations Development Program, the European Community, and a large number of non-Arab NGOs have also provided resources and services to the West Bank and Gaza. These funds are treated as near-government capital inflows and spending.

Economic development is hindered by a number of factors: depleted land and water resources in the face of an increasing population; increased loss of land to Israeli settlements; restricted access of Palestinian sheep and goat farmers to land designated as military land or a nature reserve; and restricted access to water.

The lack of real zoning regulations and public land utilization policy has created uncertainty and has become a barrier to industrial expansion. The freeze on the building of housing on land beyond the municipal boundaries has distorted land prices. Aquaculture (fish production) is carried out by Israelis on land controlled by them along the Jordan River. However, Palestinians are not allowed to implement this activity.

The economics of the West Bank and Gaza are characterized by an unusual dependence on external sources of economic growth. In the future, policies will be central to a reorientation in the pattern of development.

C4. Transportation, Telecommunications, and Power Networks

C4a. Transportation

The existing transportation facilities in the West Bank and Gaza are inadequate for future economic development. In recent years, investments in transport infrastructure have been primarily designed to increase Israeli security and incorporate the Israeli settlements in the West Bank with the Israeli economic and social structure.

These policy objectives have resulted in the construction of modern and high-standard roads linking the settlements with major centers in Israel, often bypassing the Palestinian cities, towns, and villages. On the other hand, the road networks serving the majority of the Arab population have been largely neglected. As a result, two weakly connected road networks have emerged that serve two sets of distinct transport demands. Sea and air transport services are nonexistent.

C4b. Telecommunications

The communication services have been affected much like the transportation sector. Postal and telephone services that link the main and secondary urban areas are extremely inadequate and deficient, particularly in the rural areas. By the year 1990 some 14,000 people were engaged in transportation and communications activities, accounting for only about 5 percent of the total labor force.

C4c. Power Networks

The majority of the electric power is supplied by Israeli companies. The major Palestinian producers of electric power (including the Jerusalem District Electric Company) and several municipalities are linked up with the Israeli grid and purchase electricity from the Israeli Electric Corporation. The total amount of purchased electrical power is estimated at around 700 million kilowatt-hours/year. The Palestinian producers of electrical power were restricted in developing their power stations. While about 95 percent of the urban population enjoys continuous electrical power supply, only about 45 percent of the rural areas have continuous electric supply. The rest of the population that has access to electricity is supplied with power for only a few hours a day. In general, the demand for electricity is satisfied in urban areas, but not in rural areas. Less than 5 percent of the supply of electric power is locally produced. [Center for Engineering and Planning, 1992]

C5. Public Health and Safety

At the time this report was prepared the main parties concerned with public health services in the West Bank and Gaza Strip included CIVAD, the NPA, UNRWA, private voluntary organizations (PVOs), and private for-profit providers, such as hospitals and clinics, private doctors, and private laboratories.

In the Gaza Strip and Jericho area, the public health services are the responsibility of the NPA, UNRWA, and other private parties. In the rest of the West Bank, they are the responsibility of the CIVAD, UNRWA, and private parties.

According to a World Bank report (September 1993), the public health conditions in the West Bank and Gaza Strip are similar to those typically found in lower-middle-income countries. The total fertility rate was estimated in 1987 to be 7.2 births/woman for the Gaza Strip and 6.5 for the West Bank. The population growth in the West Bank was 4.4 percent in 1992 and 5.0 percent for the Gaza Strip. [Health in Judea and Sameria and Gaza, 1992-1993, Ministry of Health, Jerusalem, May 1993] The infant mortality rate is 40 to 45 infant deaths per thousand live births. Life expectancy is 65 to 66 years. Data are not available about life expectancy of men and women separately.

Moderate and severe malnutrition is virtually unknown. Food supplies are adequate in quantity and fairly well distributed. The customary diet is rich in proteins and fiber and low in animal products, but provides too little of some micro-nutrients, particularly iron. Weaning practices are generally also sound.

The types of diseases found in the Gaza Strip are somewhat different from the West Bank. The two areas are distinct in terms of environmental conditions, economic circumstances, social situations, and social services. However, the reports that are available do not reveal major differences, except in the area of chronic adult-onset diseases.

Gaza. The World Bank reports high prevalence rates for cardiovascular diseases, hypertension, diabetes, and cancer—diseases usually associated with highly developed counties. Gastrointestinal and respiratory infections are reported as major problems in the Gaza Strip but not in the West Bank. High rates of respiratory, skin, and gastrointestinal infections continue to be reported by residents of refugee camps due to crowded housing and poor environmental sanitation. Communicable childhood diseases such as mumps, whooping cough, tetanus, measles, and polio have been largely controlled through a successful child immunization program.

Living conditions in the Gaza Strip are much worse than per capita incomes would lead one to expect. Nearly three quarters of the population are registered refugees, and 55 percent of these people live in refugee camps operated by UNRWA. Most of the camps have no organized sewage collection system, and none has an adequate system of sewage treatment for collected wastes. All the camps are provided with solid waste collection facilities, but none is served by a proper disposal site. The solid wastes are accumulated at surface disposal sites without further treatment.

Outside the refugee camps, about a third of the population is served by a solid waste collection system. Surface disposal sites are available rather than properly designed sanitary landfill. Wastes often leach into the aquifer, contaminating drinking water supplies.

More than half of the households in the refugee camps in the Gaza Strip are served by a piped water supply in the dwelling, and two-thirds have access to some source of piped water. More than 90 percent of the time, the water is disinfected at the source. Inadequate water supply, poor water quality, and unsanitary disposal of liquid and solid wastes nonetheless contribute to a high incidence of gastrointestinal and parasitic infections. In addition, the fluoride content of the groundwater in the area north of Gaza City is reported to be (naturally) high enough to lead to the mottling of teeth and bone diseases.

The West Bank. In the West Bank the natural environment is generally healthier than that of the Gaza Strip. Population densities are much lower, potable water supplies are safer and more abundant, housing is less crowded, and incomes are, on average, substantially higher. Additionally, only about 9 percent of the population lives in refugee camps, and the camps themselves are much smaller.

In the West Bank, approximately 70 percent of the households (including villages, towns, and refugee camps) are connected to a water supply system. The percentage of the West Bank population that actually has access to piped water supplies is 73.2.

In rural areas 42 percent of the communities (26 percent of the population) of the West Bank do not have access to piped water and depend on rainwater harvesting and spring water for their domestic use. Any additional water is supplied by tankers. [M. Barghouthy, 1993]

Less than 2 percent of the residential areas in the West Bank, where less than 10 percent of the population lives, have wastewater collection and disposal systems, and only 21 percent of the residential areas have solid waste collection and disposal services. [M. Barghouthy, 1993]

Hospital services are primarily operated by the government but nongovernmental hospitals also provide important services, especially in the West Bank. The number of hospital beds decreased from 2.2 per 1000 inhabitants in 1975 to 1.1 per 1,000 inhabitants in 1991, compared to 6.1 beds per 1000 inhabitants in Israel and 4.2 per 1000 in Jordan.

Cisterns are often a preferred source of drinking water, even when a piped water supply is available. People prefer the taste of cool water from the cistern to the warm, chlorinated, and sometimes salty municipal supply. Cistern water also lathers better for washing because of its lower hardness.

In 1993, SCF commissioned the Water and Soil Research Unit of the Department of Chemistry at Bethlehem University to conduct a sampling and analysis campaign for rainwater cisterns in West Bank villages. The Water and Soil Research Unit analyzed 20 samples for total coliform and fecal coliform: 10 samples from three northern West Bank villages and 10 samples from three villages in the Southern West Bank. The analysis indicated high total and fecal coliform per 100 milliliters, often "too numerous to count." Furthermore, the "differential tests" conducted by the laboratory showed a variety of coliform bacteria, including *Klebsiella pneumonia*, *Klebsiella oxytoca*, and *E. coli*. These types of bacteria are known to cause throat infections and gastrointestinal diseases. Based on these results, the Water and Soil Research Unit strongly recommended that water from these sources not be used for drinking, washing vegetables or fruits, or dishwashing unless boiled or chlorinated.

The causes or sources of water contamination in rainfed cisterns include:

- Dirty catchment area (house roof, reservoir roof, ground) due to the presence of plant debris (leaves), animal waste (pigeons, goats, sheep, etc.), and other human activities (washing clothes, drying crops).

- Removal of water from the cistern using a contaminated bucket.
- Seepage of contaminants from nearby cesspits.
- Lack of a "lip" around catchment to prevent animal waste from falling in.

Also, according to SCF, some villagers poured small amounts of diesel into the cistern to kill insects, mosquitoes, and worms and prevent them from entering the water. As a result, these people were drinking water contaminated with diesel.

Data are not available on the incidence of waterborne diseases that could be linked to the poor quality of water from rainfed cisterns, springs, or canals. Nevertheless, data strongly suggest that water not supplied publicly is often not fit for drinking without prior heating or chlorination. This appears to be true for most rainfed cisterns and for contaminated springs and canals.

C6. Tourism and Recreational Areas

Tourism and related services have traditionally constituted a major source of national income [Center for Engineering and Planning, 1992]. Tourist sites are scattered throughout the West Bank. The most important cities are:

- **Jerusalem**. A holy city for three of the world's religions. Important sites include Al-Aqsa Mosque, the Church of the Holy Sepulchre and Via Dolorosa, and the Temple Mount.
- **Jericho**. Considered the world's oldest city, it has many historic sites.
- **Bethlehem**. The birthplace of Jesus, and one of the most important sites of Christianity.
- **Hebron**. Regarded as a holy city by Muslims, Christians, and Jews.
- **Nablus**. The first-century city of Neopolis and the site of Joseph's Tomb and Jacob's Well.
- **Gaza**. One of the five great Philistine cities. It has several important sites of archaeological and religious importance, including Sampson's Tomb.

- Removal of water from the cistern using a contaminated bucket.
- Seepage of contaminants from nearby cesspits.
- Lack of a "lip" around catchment to prevent animal waste from falling in.

Also, according to SCF, some villagers poured small amounts of diesel into the cistern to kill insects, mosquitoes, and worms and prevent them from entering the water. As a result, these people were drinking water contaminated with diesel.

Data are not available on the incidence of waterborne diseases that could be linked to the poor quality of water from rainfed cisterns, springs, or canals. Nevertheless, data strongly suggest that water not supplied publicly is often not fit for drinking without prior heating or chlorination. This appears to be true for most rainfed cisterns and for contaminated springs and canals.

C6. Tourism and Recreational Areas

Tourism and related services have traditionally constituted a major source of national income. [Center for Engineering and Planning, 1992]. Tourist sites are scattered throughout the West Bank. The most important cities are:

- **Jerusalem.** A holy city for three of the world's religions. Important sites include Al-Aqsa Mosque, the Church of the Holy Sepulchre and Via Dolorosa, and the Temple Mount.
- **Jericho.** Considered the world's oldest city, it has many historic sites.
- **Bethlehem.** The birthplace of Jesus, and one of the most important sites of Christianity.
- **Hebron.** Regarded as a holy city by Muslims, Christians, and Jews.
- **Nablus.** The first-century city of Neopolis and the site of Joseph's Tomb and Jacob's Well.
- **Gaza.** One of the five great Philistine cities. It has several important sites of archaeological and religious importance, including Sampson's Tomb.

C7. Industrial Activities

The Palestinian industrial sector has, for more than a decade, been characterized by prolonged stagnation resulting from a combination of internal and external constraints. Although the sector's average annual contribution to the GDP increased from around $50 million in the mid-1970s to around $150 million in the late 1980s, its relative share of GDP has remained at an average of about 8 percent. The total number of persons employed in industry in the West Bank (excluding olive oil presses and stone quarries) remained constant at 16,000 to 17,000. The combined West Bank/Gaza Strip industrial sector constituted a mere 1.4 percent of Israel's industry. The West Bank industry is the least productive sector in the region's economy. The West Bank and Gaza industry remains underdeveloped, small-scale, and traditional.

Simcha Bahiri [Industrialization in the West Bank and Gaza Strip, WBDP, 1987] explored the constraints on industrial development of the West Bank and recorded "economic, administrative, political, and cultural" barriers that have resulted in a continuation of the backward, underdeveloped nature of industry despite a relatively rapid rise in the consumption of industrial goods. Table III-5 shows the types of industries and the production account of all industrial units.

C8. Agricultural Activities

Historically, the agricultural sector in the West Bank and the Gaza Strip has played a major role in the economy. The current situation of this sector is not sustainable and reflects distortions in labor markets, external markets and trade arrangements, and the impact of policies and regulatory constraints.

Table III-5
Industries and Percentage of Production
in the West Bank and Gaza

Type of Industry	Percentage of Production
Textile, Clothing, Leather	30
Metal Production	24
Wood Works	20
Food, Beverage, Tobacco	9
Non-Metallic Minerals Production	12
Pharmaceuticals, Plastics, and Others	5

Source: Center for Engineering and Planning, 1992.

Based on available information (thought to be incomplete), the land area of the West Bank under cultivation covers 5.8 million dunums, and the area of the Gaza Strip is 360,000 dunums. In the West Bank, approximately 4 percent of the total land area is irrigated, with slightly more than 1.5 million dunums under cultivation. In the Gaza Strip, 165,000 dunums are under cultivation by Palestinian farmers, two-thirds of which are irrigated. Gaza and the West Bank display some differences in crop and production patterns.

The climate in the West Bank and Gaza allows production of early crops in the Gaza Strip and the Jordan Valley. Precipitation is the major source of water in the West Bank and Gaza, although it is relatively modest and highly variable. Less than 10 percent of the arable lands in the West Bank and Gaza are irrigated; field crop yields are highly susceptible to changes in precipitation and variations in weather patterns. While the area under irrigated cultivation has increased, improved technology and production techniques have reduced water usage per crop and area unit. In the West Bank, irrigated land under cultivation by Palestinians has remained constant since 1967, while the area under cultivation in the Gaza Strip has increased by 50 percent. The total water used for irrigated agriculture in 1990 was between 145 and 165 MCM, with the West Bank accounting for 80 to 95 MCM and the Gaza Strip for 65 to 70 MCM.

Until the mid-1980s, agriculture in the West Bank and Gaza lost workers, many of whom took up employment in Israel. However, an increasing number of people are seeking employment in agriculture—the traditional depository of surplus labor—due to rapid population growth, return from Gulf employment, limited employment opportunities in other sectors, stricter implementation of Israeli policies, and the effects (since 1987) of the Intifada.

Most Palestinians live in areas with modest agricultural potential like the western hilly areas, where rainfed tree planting, field crops, and livestock operations prevail. The least populated areas, the Jordan Valley and the semi-coastal region, have the most promising agricultural potential. The agroecological zones of the West Bank are outlined in Table III-6 on the following page.

Table III-6
Agroecological Zones in the West Bank and Gaza

Agroecological Zone	Rainfall	Soil	Crops
Semi-coastal	600	Alluvial and heavy terra rossa	Variable
Central Highland	High	Shallow soil depth	Grapes, olives, vegetables, grains
Eastern Slopes	Low	Steep mountains	Grazing
Jordan Valley	200	Sandy and calcareous	Semitropic Vegetables
North Coastal	Moderate	Sandy and alluvial	Citrus, strawberries
Middle Coastal	Modest	Sandy and loess	Vegetables, citrus
South Coastal	200	Sandy and loess	Vegetables

About 60 different types of crops are grown in the West Bank and Gaza, including citrus fruits, vegetables, olives, field crops, grapes, almonds, plums, apricots, apples, figs, dates, strawberries, etc.

Irrigation techniques differ according to location, availability of water, and type of irrigated crop. Sprinkler irrigation and drip irrigation are used.

C9. Pesticide Use

The excessive and uncontrolled use of pesticides is the characteristic phenomenon of the agricultural sector in the West Bank and Gaza. According to a survey conducted by the Center for Environmental and Occupational Health Sciences and the Agricultural Work Committees Union, the following preliminary results were obtained.

- The quantities of pesticides used are in excess of the required dose. In the Jordan Valley, Jenin, and Tulkarem areas, the applied quantities for vegetable cultivated lands are 4 to 6 kg/dunum, while in the Gaza Strip applied quantities are 4.5 to 7.5/dunum. A normal average would be 1 to 2 kg/dunum.

- Incorrect application methods by the farmers were reported, including improper spraying techniques, eating and smoking during spraying, and not following required safety precautions.

- Pesticide stores do not meet required specifications. Stores are close to houses; many have little or no ventilation; material from larger containers are repackaged to smaller ones without safety measures; and the small containers are sold without

instruction labels. Contamination of animal feed and veterinary medicines sold in the same stores is prevalent.

- The safety period required between the application of pesticides and picking of agricultural products is ignored.

- The Hebron area consumes about 10.5 tons annually of Hexanol, Hexaconazole, and Lindane. The mixture is used as a cattle dip to remove and destroy parasites.

- Most of the instruction labels for application methods and doses are written either in Hebrew or English rather than in Arabic.

According to the Ramallah Marketing Cooperative, most of the pesticides used in the Ramallah area are manufactured and registered in Israel, and the remainder (less than 10 percent) are of European origin.

In the Gaza Strip, due to intensive agriculture, farmers use methyl bromide (a potentially carcinogenic material) as a soil sterilant or seed treatment to destroy insect larvae in grain or as a method of weed control. [A. Wihaidi, Dept. of Agriculture, GS]

Among the pesticides used in the West Bank are Roager, Resek, Adiman, Mostang, Lepacede, and Dorspan. The Israeli Ministry of Agriculture, Department of Plant Protection and Inspection's January 1993 report *Pesticides for Plant Protection—Registered for Use and Sale in Israel* has over 370 products listed by common names.

D. Institutional Setting

D1. Palestinian Environmental Protection Authority

Environmental regulations and guidelines for the NPA are slowly being developed. At present, however, agreement has not been reached on the placement of the environmental program in a ministry. Administration and enforcement of environmental regulations can only be addressed after such decisions are made.

D2. Agricultural Department

As a result of the Peace Accord Agreement signed by the Palestinian Liberation Organization (PLO) and Israel in Cairo on May 5, 1994, the Department of Agriculture's divisions in the Gaza Strip and the Jericho area are now run by the NPA.

The NPA Department of Agriculture consists of several divisions, including the Water Division, the Agricultural Extension Division, and the Veterinary Division. The Water Division has overall jurisdiction over water resources in the Gaza Strip, which are entirely underground. At the present time, it is responsible for allocating water resources to the various uses, namely drinking water and agriculture. The Water Division undertakes the water quality analyses.

In the West Bank, excluding the Jericho area, the Central Agricultural Organization is a unit of Israel's Civil Administration based in the Ramallah district. The West Bank is divided into the six districts of Hebron, Ramallah, Jordan Valley, Nablus, Jenin, and Tulkarm. Each district office has an extension unit, a veterinary service, a forestry unit, a regional experimental station, and an administrative office.

D3. Civil Administration

The CIVAD is a branch of the Israeli Military Government responsible for civil affairs administration in the West Bank (except for the Jericho area). It is headed by the chairman of the CIVAD in the West Bank area.

Civil services are provided to West Bank inhabitants through about 35 departments. Each department is headed by an Israeli military officer, but services and activities are performed by Palestinian employees.

One of the important departments that belonged to the CIVAD is the Department of Environment. It was responsible for all environmental affairs within its jurisdiction, including water quality analyses, wastewater treatment plant design and performance, industrial activities control, pesticide use control, and air pollution control. The department has its head office in Ramallah and six district offices in Hebron, Bethlehem, Ramallah, Nablus, Jenin, and Tulkarm. Forty-one environmental inspectors and four engineers are employed in addition to an administrative staff. However, the department is still under Israel control and as of the writing of this report has not been transferred to the NPA. However, with the large area of responsibility and little true enforcement powers, the Department of Environment has not been very effective.

The Village Affairs Department (VAD) used to be a department of the CIVAD under the direction of the social welfare officer. Currently, the VAD is a coordinator between international NGOs, such as ANERA and CRS, and other CIVAD offices. As an intermediary organization, VAD studies the proposals submitted by NGOs, estimates the cost of the proposals, and writes recommendations on behalf of the NGOs to the inspector to approve the proposals. The inspector is responsible for ensuring that the NGO's fieldwork is carried out in rural areas before approval is issued. VAD's responsibilities are mainly in the rural areas; however, they have some responsibility over NGO projects in municipal areas. The VAD has one main office in Nablus with a director, two engineers, and one secretary. As a result of the agreement between Israel and PLO, negotiations have cleared the way for VAD to be transferred to the NPA soon.

D4. Applied Research Institute of Jerusalem

Founded in 1990, the ARIJ is a nonprofit organization dedicated to promoting sustainable development in the occupied Palestinian territories and the self-sufficiency of the natural resources.

Although initially conceived to confront issues facing the agricultural community, ARIJ has since broadened its agenda to include a wide spectrum of environmental concerns.

Early research priorities focused on cultivation in marginal lands, livestock production, agro-industries and marketing, and water management and utilization.

As water issues gained precedence, the Water Research and Dryland Farming Units were created to better identify research goals and implement project objectives. Recently, the Environmental Research Unit was established in the West Bank and Gaza. It assists in the formulation of strategy options, policy guidelines, and national standards and legislation. A precursor to these objectives is the development of a comprehensive environmental database that will serve the region as a foundation for in-depth research. Additionally, ARIJ has instituted a resource center that publishes and makes available to the local community a wide range of scientific data, literature, and periodicals.

ARIJ receives technical and financial support from a variety of international governmental and nongovernmental organizations who grant funding on a project basis. ARIJ projects are currently being funded by the Ford Foundation, the Canada Fund, and the International Development Research Center.

ARIJ is concerned with environmental studies in Palestine related to the following topics:

- Water
- Environment
- Rainfed farming
- Wastewater irrigation

ARIJ has published several studies with local and international institutions, such as Harvard University, International Center for Agricultural Research in Dry Areas (ICARDA), Global Environment Facility, etc. ARIJ is now working on a water allocation system project that will develop a land use system and environmental information system. ARIJ is also working on a pesticide survey project. At this time 29 researchers are employed by ARIJ part time.

SECTION IV

IMPACTS OF WATER RESOURCE DEVELOPMENT

SECTION IV
IMPACTS OF WATER RESOURCE DEVELOPMENT

USAID's Environmental Procedures 22 CFR 216.6 for a Programmatic Environmental Assessment require that the activities being undertaken be evaluated by identifying potential significant impacts in the following categories per their environmental setting.

ENVIRONMENTAL SETTING

1 Physical Environment

1.1 Physiography
1.2 Climate and Meteorology
1.3 Air Quality and Noise
1.4 Water Resources
1.5 Soils
1.6 Geology
1.7 Terrestrial and Aquatic Resources (Flora and Fauna)
1.8 Marine and Coastal Resources

2 Cultural and Aesthetic Conditions

2.1 Archaeological, Historical, and Cultural Sites
2.2 Aesthetic Conditions

3 Socioeconomic Conditions

3.1 Demography
3.2 General Land Use
3.3 Economy
3.4 Transportation, Telecommunications, and Power Networks
3.5 Public Health and Safety
3.6 Tourism and Recreational Areas
3.7 Industrial Activities
3.8 Agricultural Activities
3.9 Pesticide Use

4 Institutional Setting

4.1 Palestinian Environmental Protection Authority
4.2 Agricultural Department
4.3 Civil Administration

All of the categories above were reviewed by the PRIDE team. However, only those categories on which the proposed activity is determined to have a significant impact will be

addressed in the following sections. All remaining categories were determined not to be significant at this time.

A. Environmental Impacts of Water Resources Development

Based on past SCF experience, water resource development projects in West Bank villages not served by piped water will have a positive impact by helping their populations:

- Meet domestic and agricultural water needs.
- Improve personal hygiene and household sanitation practices, thereby improving public health (e.g., add new flush toilets).
- Lower the cost of water supply.
- Reduce labor expended to secure water.
- Provide low-cost backup water supply to household cisterns (Impact Area IV southeast of Bethlehem).

Public health and safety. Although the construction of a rural rainfed cistern increases water availability, water consumption levels remain quite low compared with piped water system areas. It can be expected, however, because of the increased water supply, septage would need to be pumped more frequently from cesspits, resulting in higher costs to households (to hire a tanker truck) and increased potential environmental pollution.

Water resources. It is also a common practice in many households to place salt bags in the basement to accelerate the process of wastewater infiltration into the ground through osmosis. This process exacerbates groundwater contamination from cesspits.

B. Mitigation Measures for Water Resource Development Projects

SCF recognizes the importance of ensuring a water supply of adequate quality for both drinking and agricultural purposes. SCF has clearly documented the mitigation measures necessary to provide a water supply of adequate quality from rainfed cisterns. In particular, SCF is developing household-level sand filtration as an alternative to chlorination, the traditional way to combat bacteriological pollution.

According to SCF Eng. Khalil Nijem, chlorination is not a sustainable solution to the problem of bacteriological pollution of rainfed cisterns. Currently, villagers may ask the Civil Administration to test their cistern water for coliform contamination. If fecal coliform (FC) counts are found to exceed 3 FC/100ml, CIVAD provides the cistern owner with chlorine tablets (high-test hypochlorite) to treat the water. In addition to being dependent on CIVAD for supplying chlorine tablets, cistern owners lack sufficient training in proper dosage techniques based on cistern size and water consumption rates. Moreover, not all cistern owners approach CIVAD to test the quality for their rainwater cistern.

SCF is testing the use of sand filtration at the household level as an alternative to chlorination. SCF has built 10 experimental household-level sand filtration systems. Preliminary results are encouraging. **Should this pilot project prove successful, SCF should require sand filtration tanks for all rainfed cisterns that SCF helps build.** Text Box IV-1 summarizes this and other mitigation measures to ensure drinking quality water supply from rainfed cisterns.

It is also important to mitigate the potential sanitation impacts of increases in water consumption. Depending on the type of soil and the characteristics of the existing cesspit (size, etc.), mitigation measures might include increasing the size of the cesspit, building a septic tank system, and reducing or eliminating the archaic use of salt bags in basements.

B1. Water Resources

In accordance with §216.3(a)(8) of the USAID Environmental Procedures, SCF's water resource development projects "should be designed to include measurement and monitoring of any change in environmental quality, positive or negative, during their implementation." This will require recording baseline data at the start of the project. Environmental indicators of water resource development projects may include, at the household level:

- **Sources of water supply:** percentages of water from rainfed cisterns, springs, tanker trucks, network.
- Total water consumption (in baseline year) and percentage breakdown (domestic, irrigation, livestock).
- Water consumption rates (per day or per year).
- Water quality (total fecal coliform counts, total dissolved solids, nitrates, etc.).
- Incidence of waterborne diseases.
- Average cost of water supply (per cubic meter) and breakdown of cost (energy for pumps, charges paid for private tanker truck deliveries, charges for network supply, cistern maintenance costs, etc.).
- Average amount of time spent to secure water (per cubic meter).
- **Sewage disposal method:** cesspit, septic tank, sewer network, others.
- Information on septage pumping and disposal (if applicable): who performs services, annual frequency and cost, applicable disposal method).

B2. Management and Monitoring of Water Resources Development

B2a. Public Health and Safety

SCF should:

- Provide training in the siting, design, and maintenance of cisterns (including sand filter).
- Conduct a public health education program focusing on mitigation measures to maintain water quality.

B2b. Water Resources

SCF should conduct a lessons-learned workshop:

- Participants (maximum 15 to 20) should include selected beneficiaries of previous SCF water development projects.
- Objective is to exchange ideas on success stories and past difficulties (e.g., increased sanitation problems) and ways for dealing with these problems.

Table IV-1
Selected Potential Impacts and Possible Measures for SCF Development Projects

Development Activity	Potential Impacts	Mitigation Measures	Monitoring Measures	Management Measures
Water Resources				
Rainwater cisterns	Health effects from presence of coliforms	Clean rainwater catchment area and cisterns periodically	Measure water quality	Report levels, provide hygiene education
Piped water networks	Increased usage increases sewerage volume	Increase sanitation disposal facilities	Monitor level of usage and disposal efforts	Design proper sanitation facilities
Spring development	Health effects from coliform levels	Control watershed use	Measure water quality	Report levels, provide hygiene education
Agriculture				
Increased use of pesticides and fertilizers	Health effects on humans and wildlife	Use approved products, change to biological controls	Monitor levels of usage and measure water and soil quality	Ban use of unapproved products, train in use of substitutes
Expanded use of land for agriculture	Loss of wildlife habitats	Plan habitat areas and enhance	Measure land use changes	Ban development on land used as wildlife habitats
Sanitation				
Wastewater disposal	Pollutants introduced to irrigated crops and groundwater	Provide wastewater treatment and disposal facilities	Measure water quality	Report levels, provide training in reuse of treated wastewater
Solid waste disposal	Groundwater contamination, unsightly trash accumulation, especially plastics, rodent and disease vectors	Provide sanitary landfills	Monitor operations	Provide environmental education, training in waste reduction and recycling
Construction				
Civil works, such as rural roads	Worker health and safety	Provide protective clothing and equipment	Monitor adherence to worker safety codes	Report adherence, train in worker safety

SECTION V

IMPACTS OF SANITATION DEVELOPMENT

SECTION V
IMPACTS OF SANITATION DEVELOPMENT

A. Environmental Impacts of Sanitation Development

A1. Public Health and Safety

- During the construction phase, workers may be subject to work-related accidents, such as cave-ins during excavation works. They may come into direct contact with sewage, thus, subjecting them to communicable diseases and other health risks.

- Public health is expected to improve due to reduction of odors, flies, and mosquito problems.

- Although some of the sanitation activities will tend to reduce groundwater pollution, the potential of groundwater pollution is expected to be high unless appropriate mitigation measures are adopted.

- Proposed disposition of treated wastewater by reuse in agricultural irrigation may introduce harmful pathogens into the soil.

- Improved sanitation systems may lead to increased water consumption and, as a result, increased wastewater production.

- Improper operation of wastewater disposal systems may subject workers to communicable diseases.

A2. Water Resources

- Increased establishment of point sources through increased construction for wastewater discharge may change land characteristics and may expand the area of groundwater contamination through leaching into the groundwater aquifer.

- Improper solid waste disposal site selection may lead to serious soil and groundwater pollution problems. This depends on many factors, including leachate and whether it is transmitted through stormwater into a sewer treatment facility, etc.

B. Mitigation Measures for Sanitation Development

B1. Public Health and Safety

- During the construction phase, workers shall use protective clothing. Attempts will also be made to reduce the incidence of accidents at the site.

- Groundwater protection measures shall be applied, including lining of structures and landfill areas (clay, plastic, etc.).

- Wastewater reuse in irrigation shall be applied after sufficient retention time in the septic tank-SDT system.

- Protection measures shall be applied during operation of wastewater and solid waste disposal systems.

C. Management and Monitoring of Sanitation Development

C1. Public Health and Safety

- Health of construction workers shall be monitored before, during, and after the construction work.

- Soil and groundwater quality at the irrigation sites and solid waste disposal sites shall be monitored regularly to check the buildup of biological or chemical contaminants.

- Septic tank-SDT systems shall be restricted to areas with sufficient land areas to minimize change of land characteristics.

- Owners and workers shall be trained to operate the disposal systems safely.

- Wastewater effluent quality from septic tank-SDT system shall be monitored regularly.

- A water conservation program shall be instituted to minimize wastewater production.

No significant environmental impacts that would require mitigation and monitoring measures on endangered flora, fauna, or historical sites due to their location within the household property area are foreseen at this time for the water resources activities proposed by SCF.

SECTION VI

IMPACTS OF AGRICULTURAL DEVELOPMENT

SECTION VI
IMPACTS OF AGRICULTURAL DEVELOPMENT

A. Environmental Impacts of Agricultural Development

SFC's agricultural development activities, through their sectorial and block grants, are directly linked to its efforts in water development for agricultural purposes. These activities are land development, crop diversification, construction of earthen access roads for agricultural purposes, and fencing of cultivated areas for selected impact areas (villages).

Potential partners are Union of Agricultural Workers Committees, Palestinian Agricultural Relief Committees, Palestinian Farmers Union and Palestinian Hydrology Group.

At this time, no significant environmental impacts are foreseen for the agricultural development activities proposed by SCF. These include any activities that would require mitigation and monitoring measures on endangered flora and fauna, migratory birds, and historical sites, as these impact (cultivated) areas are near existing villages and are presently rainfed farmed.

A1. Water Resources

Water sources will vary with each different site, such as wells, springs, collection ponds, etc. As indicated in Section II, D3., "Agricultural Development," further and existing agricultural development is keyed to water resources balancing, water conservation, and the use of treated wastewater.

As pointed out in Section III, C8., in addition to the lack of water, agricultural activities have been discontinued on some land due to restrictions imposed on the use of land as well as poor economic opportunities. However, with the use of improved irrigation technology, the area irrigated (per cubic meter) has increased.

A2. Soils

With the widespread non-biodegradable plastics goats in particular, are casualties of "plastic pollution." Veterinarians are reporting increasing numbers of livestock deaths from the ingestion of large amounts of plastic of various kinds.

A3. Economy

Agriculture has always been an important factor in employment, but its future importance will depend on resolving the issues and constraints above, in addition to the overall economics of agricultural activities.

A4. Pesticide and Fertilizer Use

SCF does not promote the use of chemical fertilizers and pesticides and, in fact, discourages their use by advocating natural and biological pest controls (i.e., integrated pest management (IPM) techniques) and natural fertilizers. However, there will be a secondary effect in SFC's agricultural development activities that will result in higher pesticide and chemical fertilizer usage [reference Section III, C9., Pesticide Use].

SCF and its partners must be aware of USAID's policies, practices, and recommendations related to pesticide uses [reference USAID Handbook 3, Appendix 2 D, Environmental Procedures, Part 216.3 (b) Pesticide Procedures], as well as local agricultural extension recommendations as to type, usage rates, application methods, etc. which include the ultimate safe disposal of used pesticide and fertilizer containers. Furthermore, the USAID regulations allow only USEPA- or WHO-approved pesticides.

B. Mitigation Measures for Agricultural Development

B1. Mitigation measures for land reclamation (Development)

- Recognize and control excessive soil erosion.
- Identify and take necessary actions on potential seismic activities and seasonal flooding.
- Avoid misuse and mismanagement of pesticides and fertilizers.
- Secure all permits and licenses in advance.
- Review the "environmental check list" to ensure that no unknown environmental impacts will result from reclamation or development.
- Provide environmental awareness information in preproject and postproject activities.

B2. Crop Diversification

- Avoid misuse and mismanagement of pesticides and fertilizers.
- Provide adequate agricultural extension to allow and maintain crop diversification.
- Confirm processing and marketing costs in addition to actual production costs.

B3. Construction of Earthen Access Roads for Agricultural Purposes

- Recognize and control excessive soil erosion and seasonal flooding.
- Provide operations and maintenance guidelines and program.
- Secure all permits and licenses in advance

B4. Fencing of Cultivated Areas

- Evaluate type of fencing related to need and purpose(s).
- Allow adequate access for both vehicles and humans.
- Provide for adequate operations and maintenance.

C. Management and Monitoring of Agricultural Development

C1. Land Reclamation

- Make baseline study and report (including preproject and postproject evaluations and continued monitoring and reporting).
- Investigate alternative plans, actions, and programs to include cost and acceptability.
- Periodically (with USAID's semiannual report six-month period as a limit) monitor changes from original baseline study and report taking corrective action if results are not positive or beneficial in nature.
- Look for both positive and negative indicators.
- Have monthly management meetings that are open to all so that discussions of ongoing and proposed activities, programs, and projects can take place.
- Provide environmental awareness in preproject and postproject activities.
- Coordinate with national, regional and local authorities.
- Share information and "lessons learned" with others (PVOs, NGOs, etc.).

SECTION VII

IMPACTS OF ENVIRONMENTAL AWARENESS CAMPAIGNS

SECTION VII
IMPACTS OF ENVIRONMENTAL AWARENESS CAMPAIGNS

A. Impacts of Environmental Awareness Campaigns

The proposed project will provide block grants to some institutions to conduct environmental awareness campaigns. These campaigns are environmentally friendly activities and require no mitigation measures. Their effects on the environment are positive as outlined below:

- Improve solid waste collection and disposal. This will prevent odor problems and breeding of rats and other vermin that can transfer disease and endanger the public health. Proper disposal of solid waste can also prevent leachate production and hence prevent pollution of groundwater.

- Improve sewage collection and disposal with reuse options. This can prevent infiltration of sewage to the ground and hence prevent the pollution of the scarce groundwater aquifers. In addition it will prevent the breeding of disease-carrying mosquitoes and other insects that can endanger the public health.

- Enhance water conservation and efficient use of water supply resources.

- Ensure mitigation measures to protect and implement sustainable projects.

- Prevent soil erosion and make use of rain harvesting as a new source of water.

- Protect fauna and flora.

- Improve the standards of living and hence improve the women's roles in relation to their environment.

B. Mitigation Measures for Environmental Awareness Campaigns

The environmental awareness campaigns are still relatively new to the West Bank and Gaza Strip. However, recently there is increased interest in protecting the environment, and some grassroots organizations, PVOs, schools, and NGOs have been established to protect and increase environmental awareness. In addition the Water Resources Action Program is taking the lead and has initiated a national awareness campaign in coordination with all Palestinian NGOs, grassroots organizations, women's societies, United Nations Relief and Works Agency, UNDP, local universities, and others interested and active in water and sanitation programs. In the past, many PVOs and NGOs paid insufficient attention to the environmental awareness campaigns and mitigation measures. Such campaigns are important and coordination with other institutions active in this field is recommended.

C. Management and Monitoring of Environmental Awareness Campaigns

- Establish local, regional, and national environmental groups to care and enhance the environmental activities.
- Establish national environmental guidelines and enforce their implementation in the various development projects.
- Enhance and support environmental health education through coordination with the educational ministry.
- Encourage the environmental assessment of each project proposal from the early stages as a prerequisite for funding.
- Provide environmental training for the PVOs and other institutions involved with rural development.

SECTION VIII

IMPACTS OF WOMEN'S ACTIVITIES

SECTION VIII
IMPACTS OF WOMEN'S ACTIVITIES

A. Women's Activities

The women's training activities planned by SCF in basic literacy, job-related skills, promotion of credit models for loans, and management are environmentally friendly activities and will require no mitigation actions. By increasing women's education, literacy, and awareness, women are more likely to have an understanding of the issues related to the environment, health, and sanitation. By encouraging women's participation in the community, women can take a more active role in teaching other members of their family and community about environmental and health issues. Women's roles as childbearers, care-takers, educators of their young, and decision makers in everyday activities, have a direct impact on, and are influenced by the environment. Their sanitary and hygiene habits, handling of food, water, energy, and domestic wastes inevitably affect their family's health. Training programs for women should, therefore, include an environmental awareness component. Women's participation in SCF's environmental education campaigns is a very good way to ensure that the family and community at large is informed about environmentally friendly practices of everyday life.

Rural women carry most of the responsibilities on the farm and at home. They contribute to agricultural production; care for livestock, poultry, and bees; collect water; and shoulder most of the household duties, including food production. Environmental impacts and recommended mitigation measures outlined in the sections above have a direct relation to the women's activities. As primary participants in agricultural income-generating projects, for example, women have been known to use pesticides in their farming practices and the chemical methyl bromide to clean the hives used in their production of honey.

B. Mitigation Measures for Women's Activities

SCF is aware of the negative health impacts caused by pesticides and methyl bromide and actively discourages their use in its program. Women should be taught about the harmful effects on humans and bees. They should be instructed in or provided proper protective clothing for handling pesticides and chemicals. To ensure that women are adhering to SCF's policy and changing their habits in the use of pesticides and chemicals, local institutions should monitor their activities intermittently.

Similarly, as primary caretakers of livestock, women should be taught about potential health risks and poor hygiene associated with raising animals in the home, a common practice among village women. Also, women are responsible for the upkeep and agricultural production of greenhouses and should therefore be made aware of the need to properly dispose of the plastic used in building greenhouses. If plastic is left in the field, animals may eat it and the visual landscape suffers.

C. Management and Monitoring of Women's Activities

Despite these potential negative impacts resulting from agricultural activities, the socioeconomic benefits to women are important. Women's social status is improved as a result of their ability to earn an income in agricultural production. The negative impacts can easily be mitigated and should not be a reason to prevent SCF from pursuing agricultural income-generating projects for women. Training for these projects should, however, highlight the potential problems that can result from agricultural activities.

SECTION IX

CONCLUSIONS AND RECOMMENDATIONS

SECTION IX
CONCLUSIONS AND RECOMMENDATIONS

A. Summary of Findings

The findings of this PEA indicate that the proposed SCF activities pose no significant negative environmental impacts except for those activities related to new water resources development and the potential use of pesticides. For the latter activities, we have made basic recommendations for water development and use of pesticides that should be followed to avoid or mitigate negative environmental impacts. Therefore, we recommend the following relative SCF-planned activities to USAID.

B. Recommendations for SCF Activities

B1. Water Resources Development for Drinking and Agriculture Purposes

B1a. No Water Development Planned

Even if no water resource development activities are planned, to protect the severely strained supplies in Gaza, SCF should confirm in writing to USAID that it will not fund any activities that increase the withdrawal of existing sources either through the rehabilitation or new construction of wells.

B1b. Rehabilitation of Existing Water Sources

If an existing water resource facility is being expanded, such as spring development or well rehabilitation, the PVO should submit to USAID, in advance, an engineering and environmental study that confirms that there is to be no further depletion of water as a resource in that area with a water balance study performed before the project activity is allowed to proceed. USAID will investigate and confirm these reports and give additional guidance, if necessary, so that funding can be approved on a case-by-case basis.

B1c. New Water Source Development

If a new water resource is proposed for development, the PVO must submit to USAID, in advance, an independent engineering and environmental study in addition to the requirements given in B1b., above. USAID will investigate and confirm data, reports, and "no action" alternatives on a case-by-case basis. However, at this time, with no Palestinian national and regional environmental authorities in place, no further depletion of water resources is recommended. Exceptions may be made on a case-by-case basis in certain localized areas within the West Bank, but no exceptions should be made for the Gaza Strip area. This is due to its present critical and potential high devastating negative environmental impact. In this case the "no action" alternative is the preferred action.

B1d. Monitoring

Set up baseline data collection for preproject and postproject analysis and evaluation at the local household level per Section IV, B.

B2. Rainwater Cistern Development

Unless waters in rain cisterns is regularly tested and monitored to meet drinking water quality standards, the water must not be used for drinking and cooking. The following Mitigation Measures for Rainfed Cisterns should be used when and where applicable.

- Build household sand filtration tanks.
- Build a settling tank at the entrance to the cistern so that solids are deposited before entering the cistern.
- Clean up the rainwater catchment area (house roof, reservoir roof, ground) at least once a year (before the rainy season).
- Direct the first rainfall away from the cistern.
- Either use an electric or hand pump to remove water from the cisterns or ensure that the bucket used to remove water is free of contaminants.
- Locate the cistern far enough from water contamination sources, such as cesspits and animal sheds.
- Minimize human and animal activity near and around the cistern.
- Protect the cistern with a clean cover at all times.
- Test the water periodically and, if the water is found to contain fecal coliform, boil the water or chlorinate it before drinking.

B3. Collection Ponds for Agriculture Use

No adverse impacts are foreseen under normal development practices.

B4. Spring Maintenance

No adverse impacts are foreseen under normal development practices.

B5. Rehabilitation of Existing Wells in Gaza

Per Section II, D1d., "Rehabilitation of Wells in Gaza," SCF should not fund development activities such as increasing the depth of an existing well or drilling a new well. USAID and SCF should define this in a written agreement.

B6. Sanitation

With increased watersupply, and therefore consumption, the impact on increased effluent must be mitigated as indicated in Section IV, B. of this report.

B7. Small-scale Sewage Collection and Treatment

- Septic tank coupled with subsurface drainage (SDT)
- Offset pour-flush latrine

No adverse impacts are foreseen under normal development practices.

B8. Garbage Collection and Disposal (Solid Waste)

No adverse impacts are foreseen under normal development practices.

B9. Land Reclamation (Development) and Crop Diversification Involving the Use of Pesticides

No SCF activities funded by USAID will involve the purchase or distribution of pesticides. SCF activities will be limited to educational outreach efforts aimed at improving and decreasing use of pesticide. Should SCF advise farmers to substitute pesticides, only USEPA preapproved or registered materials will be recommended. Methods of application and safety procedures will follow USEPA guidelines. SCF will submit to USAID an advance list of any proposed pesticides to be recommended as well as the proposed rates of application and safety procedures. USAID will confirm that the materials are on the approved USEPA list and give any additional guidance as necessary.

B10. Construction of Earth Access Roads for Agricultural Purposes

No adverse impacts are foreseen under normal development practices.

B11. Fencing of Cultivated Areas

No adverse impacts are foreseen under normal development practices.

B12. Environmental Awareness Campaigns

No adverse impacts are foreseen under normal development practices.

B13. Women's Activities

No adverse impacts are foreseen under normal development practices.

B14. Threatened Flora and Fauna

No adverse impacts are foreseen, but any future indication of threatened species will require further study.

B15. Archaeological and Cultural Sites

No adverse impacts are foreseen under normal development practices. Should a new site be discovered during the course of project activities, the appropriate authorities should be contacted immediately, and a separate EA would be required.

C. General Guideline Recommendations

Although we have determined that "no adverse impacts are foreseen under normal development practices for certain planned SCF activities," we have given general guideline recommendations in the text of the report that should be followed when and where applicable.

The approach used by the PRIDE team in carrying out the EAs and PEAs under this assignment was designed to be flexible and, therefore, adaptable to local conditions. The approach was found to be well suited to evaluating the wide-ranging activities proposed by the NGOs involved. It is recommended that the approach be replicated for future environmental assessments.

USAID plans to provide training workshops on USAID environmental procedures. The structure, content, and target audiences for these workshops should be carefully considered and highly focused, and the workshops should be conducted at the earliest possible time consistent with the planning and arrangements necessary to accomplish this. In addition, USAID should consider allowing PRIDE to proceed to the next logical step, which is to further develop field-level guidelines on assessing levels of environmental impacts related to commonly funded activities, especially those being undertaken by NGOs and others requesting funding from USAID. These field-level guidelines would also help identify those activities in which additional technical and special expertise and assistance would be needed to make an accurate environmental assessment.

D. Unforeseen Significant Adverse Impacts

SCF and its partners must be aware that due to the programmatic aspects of a PEA, there may be unforeseen significant adverse impacts that are site specific. Therefore, each new site must be investigated per USAID's Environmental Procedures 22 CFR 216.6 (reference Section IV of this report). If any adverse and/or negative impacts are suspected in any impact category, further investigation is required by a qualified specialist in that field. If the investigations at a specific site confirm the need for changes in present recommendations, this PEA report can be amended to reflect the new investigations and findings, etc.

ANNEX A

EVALUATION WORKSHOP

PRIDE/SAVE THE CHILDREN FEDERATION WORKSHOP
OPENING REMARKS BY RANDALL HARSHBARGER

September 2, 1994
The American Colony Hotel, Jerusalem

Welcome to all participants of the workshop. This is the first time SCF has the opportunity to meet with all of its potential partners to discuss the Institutional Development Project.

The goal of the Institutional Development Project is to enhance the management and administrative capability of Palestinian Development Institutions.

SCF has worked in Palestine since 1978. SCF came with grants and over time identified projects needed by the Palestinians. At the beginning of the *intifada*, SCF realized that their top-down approach to development was inadequate. In the past, projects had unintentionally resulted in a degree of closeness between the PVOs and the Israeli occupation. Before the *intifada* SCF relied on traditional and conservative structures which were losing links with the grassroots. Therefore, SCF decided to change and work at the village level, at the grassroots level, and camp level. During the *intifada* some of the organizations at these levels were illegal and SCF had to deal with partners who were being deported or imprisoned. But it was important for SCF to work with people whose ideas reflected the situation on the ground.

In light of this new approach, SCF will not just be an implementing agency but will assist the Palestinians to take over all activities that have been done by SCF, the UN and others. It is important from the donors' point of view that SCF pull back and offer the opportunity to Palestinians to improve their management and accountability. Donors will not write blank checks to SCF or local institutions for development activities. SCF hopes to improve the locals' ability to manage projects and be accountable to donors.

SCF's development projects have traditionally focused on improving the well-being and status of children around the world. The overall situation in which children grow up, the life of children in a whole sense involves development on a larger scale. For example, the primary caregivers and caretakers for children are women. If SCF ignores women, then SCF is ignoring children. Programs must actively promote the status of women in society. This is a delicate issue because there are different interpretations on how to overcome prejudices that exist in different areas. SCF's priority is to include women in the decision-making process rather than have men decide what is best for women. A foreign organization shouldn't tell Palestinians what is best for them, but local organizations should.

SCF's Institutional Development program is not an easy one. It may not be possible for SCF to work in this program with everyone who has come here today. It requires trust, compromise and negotiation in implementing the work. The work will be implemented in two phases:

Sectoral Grants

Work and funding will be related to a specific field of activity: water, agriculture, training, environmental awareness, and economic production. SCF is not running a social welfare program, but working with local organizations that have expertise in particular areas and enhancing their abilities in these fields. Cooperation between SCF and their partners must be as close as possible.

Training will be provided both in technical areas and in organizational or management areas. Questions asked will include: can your organization account for funds given by international or local donors? do people have job descriptions? are there enough staff? and, what training courses are available? In the context of today's meeting, the donor will ask whether the projects are environmentally sound. SCF can assist by putting together training packages that address your organizations' needs. You may decide you need technical training more than organizational training. SCF will work with local organizations, for example, an accounting firm, to provide such training programs.

Bloc Grants

Once the local organizations achieve greater technical and organizational abilities, SCF will give them more autonomy to carry out their work. Instead of sectoral grants, SCF will disperse bloc grants. Rather than SCF telling an organization, "we'd like to do an agricultural program, would you [the local organization] like to do it?", the local organization can approach SCF with proposals for activities in areas of water, sanitation, income-generation for women, and education. The goal is for Palestinian organizations to gain more responsibility. Although in some ways this can be more fun, it can also be more difficult because it involves strict accountability.

In terms of SCF's future activities, SCF's primary emphasis has been to work with NGOs rather than government institutions. Government institutions will receive funds from other international donors or governments, whereas NGOs won't necessarily. SCF's presence in Palestine is currently subject to Israeli approval. In the future, SCF hopes to receive approval from the Palestinian National Authority to continue their work in Palestine.

SCF INSTITUTIONAL DEVELOPMENT WORKSHOP

September 2, 1994

Women's Activities:

Randa, YMCA

Training in:
Rural Development Projects
* Health
* Agricultural Projects
* Management

Urban Projects
* Handicrafts
* Management
* Vocational counselling for school girls

"Tuffah" Educational Development Center, Gaza

Traditional Training in:
* Sewing/Needlework
* Etiquette
* Home Maintenance - carpentry and electrical
* Working in kindergarten - improve teachers abilities
* first aid
* Kindergarten programs
* Summer camps for girls

Non-traditional Training in:
* Community participation/communication
* Illiteracy programs - women encouraged to participate in literacy campaigns
* Increase income
* Women's awareness programs: self confidence and communication skills
* Women's rights - legal &/or Islamic rights
* Early childhood development projects
* Gender awareness training
* Domestic violence

Other Training:
Small-scale production projects
Food processing and agriculture projects - food cooperative societies
Beekeeping
Raising animals
Carrying water

Seed/harvesting
SCF Loan program for women - agriculture, sewing, commerce
Children's libraries

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT
PRIDE SCF WORKSHOP
Friday, September 2, 1994

Attendance:

NAME	ORGANIZATION
1-Suleiman Juma Harb	Charitable Welfare Society
2-Halimeh Badawi	Charitable Welfare Society
3-Faysal Hindi	U.P.F. (Union of Palestinian Farmers)
4-Mohammed Noibat	U.P.F. (Union of Palestinian Farmers)
5-Muharram Barghouti	Palestinian Youth Union
6-Andreinne Boyle	Bisan
7-Stephen Karam	Bisan
8-Fadwa El Sha'r	Women Committee for Social Work
9-Shawkat Sarsour	PARC (Palestinian Agricultural Relief Committee)
10-Taysser Abd Muhisen	PARC (Palestinian Agricultural Relief Committee)
11-Rifat Kassis	Y.M.C.A.
12-Adnan Schlaldeh	Y.M.C.A
13-Randa Ailal	Y.M.C.A.
14-Dua'a Qurie	Palestinian Federation Women for Action Committee
15-Fadwa Khader	U.P.W.W.C. (Union of Palestinian Women's Working Committee)
16-Mazina Anees	A.W.S.W. (Women's Committee for Social Work)
17-Mohammed El Rayyes	Association Engineers
18-Fathi Sobh	T.E.D.C. (Tuffah Educational Development Center)
19-Fatma Sobh	T.E.D.C. (Tuffah Educational Development Center)
20-Sharon Fee	AID/Jerusalem
21-Magda Zaher	AID/Jerusalem
22-Joseph Karam	PRIDE
23-Jack Farmer	PRIDE
24-Ramez El-Titi	PRIDE
25-Nader Al-Khateeb	PRIDE
26-Lena Dajani	PRIDE
27-Martha Farmer	PRIDE
28-Kayed Janazreh	SCF
29-Ian Shaw	SCF
30-Hussam Al-Aloul	SCF
31-Randall Harshbarger	SCF
32-Mohammed Alwan	SCF

BRAINSTORMING TECHNIQUES

Purpose

- Capture a variety of ideas in short time

Criteria

- Define subject precisely
- Limit time
- Note ideas without criticizing them
- Ask questions only to clarify
- Conclude with synthesis

BRAINSTORMING EXAMPLE

"What does the word ENVIRONMENT mean to you?"

ENVIRONMENT

- Overall situation: physical, social, economic
- All surroundings: air, water, sea
  -all living beings/land
- Problems: pollution, sewage
- Unreasonable human intervention --- > Degradation
- Nature, mankind, social-economic ideas
  -customs, culture, tradition
- Interaction between human and nature which result in positive/negative impacts
- Balance between aesthetic and functional
- Traditions, nature and heritage
  -architecture and preserving it for future generations

ENVIRONMENT

- Anything that affects anything - MICRO/SPACE
- Everything
- The world where we live - social, health, geographic and economic surrounding
- Not renewable resources
- Ecosystem and balance
- A clean world worth living in
- Government policies and Government
- Difference between short/medium/long term effects
- Natural balance
- Problem, solution and struggle
- Planet is not infinite; need controls at international level and awareness at local level
- Natural resources: living and inert
- Awareness, monitoring, accountability, regulatory control

INSTITUTIONAL DEVELOPMENT

GOAL

To enhance the management and administrative capability of Palestinian Development Institutions.

PHASES

1-Sectorial work
2- Training
3- Bloc grants

"WHAT ARE THE ENVIRONMENTAL IMPACTS OF DRILLING A NEW WELL IN GAZA?"

- Increased use of pesticides and fertilizers
- Improved hygiene
- Sewage disposal impact
- Provide water for land reclamation
- Sea water intrusion - lowering of water table
- How does plan fit into regional plan?
- Job creation, land reclamation and improvement in standard of living
- Saline intrusion, increased soil salinity, increased volume of sewage
- Limit opportunities for future generations
- Negative impacts
- Evaluate needs of well before drilling
- Women's work increased/decreased? what social impact? as water carriers
- Saves women's time

WHAT ARE THE ENVIRONMENTAL IMPACTS OF:

- Water/sanitation
- Agricultural
- Women
- Social
- Activities

Activities

YMCA:

Training:

(A) Rural development projects:
- health
- environmental/agricultural
- management

(B) Urban:
- handicrafts
- management

(C) School girl counselling:
- vocational

Educational Development Center (Gaza) "Tuffah Center"

Training:
- sewing, needlework
- home maintenance
- etiquette
- community
- early childhood development
- literacy
- awareness programs
  -women's rights

Nontraditional:
- first aid
- domestic maintenance
- communication skills
- early child development projects
- literacy programs
- women's awareness

Educational Impacts:
- increased income
- self confidence
- learning to read and write
- encouraging other women to participate in literacy campaigns
- home maintenance courses for women. eg. electrical and carpeting
- increase ---- with community
- improvement of performance trainees trained in working in kindergartens
- women aware of their legal and "sharia" rights.

Cooperatives

- small-scale productive projects
- food processing
- bee-keeping
- agricultural projects
- food product/catering
- Kindergarten programs
- summer camps for girls
- raising animals
- carrying water
- seed, harvest
- loan program for women
  - -agriculture
  - -sewing
  - -commerce
- children's libraries
- gender awareness training
- domestic violence
- women's rights

Impacts

- Animal raising:
  - -hygiene (negative) animals income/women and family
  - -food increase/nutrition (positive)
  - -income generation (positive) social status raised

- Agricultural Projects:
  - -methyl bromide used to clean beehives (negative)
  - -bees pollinate flowers
  - -pesticide use in greenhouse (negative)
  - -nutrition/health
  - -potential problem with plastic later -- disposal
  - -production in small area
  - -greenhouses production (quality & quantity)
  - -flowers need a lot of water?
  - -training/gender awareness small-scale projects
  - -social-economic (positive)
  - -time-away from children/family conflict?
  - -project improvement and women's strengthening of character

Economic/Social Issues

- programs (educational) that generate/raise awareness
- pollution resulting from development
  - ex. trash/debris from summer camps
  - ex. waste from production projects
  - ex. distribution of trash receptacles
- importance of collective action to deal with problems
- export of dangerous materials and impact on health:
  - a. smoking
  - b. asbestos
- economic priorities -- > environmental
- poor working conditions:
  - ex. dust from mother of pearl (no ventilation)
- no policy space-gardens for recreation/social outlet public works
  - policy ex.
  - *impact of settlements
  - *tear gas
  - *double-standard policies of donors (US supplier of tear gas)
- need for follow-up by specialists on projects to ensure environmental soundness
- trade-off between new building and cultural/traditional aspects preserved in older building:
  - a. tiles
  - b. building

*social identity/meaning cultural

Water Agriculture Activities
Environmental Measures

- use resources as part of regional plans
- encourage fish harvesting to reduce insect breeding in collection
- allocate part of the budget forenuir issues
- encourage traditional plowing techniques
- support institutions that promote recycling - Kindergarten
- develop environmental guidelines - specific to SCF and distribute to all parties
  -monitor performance - ensure guidelines followed
- seek control of environmental resources:
  -water and land
  -forestation projects
  -mountain springs
- develop environmental training programs
- emphasize planting crops during season
- provide technical assistance for reuse of animal waste
- develop national policy for pesticides use by coordinating with other institutions
- take into account cost of measuring, management and training (put into budget)
- push for national guidelines and regulations
- maintain integration between sectors --> prevent garbage dumping
- promote recycling, reuse at waste materials
- provide mechanism for testing of cistern water

Workshop Evaluation

1) Learned a lot, met new people, and wish to have more meetings on the environment.
2) I liked the working method, it forced us to think about issues.
3) Too short a time to cover all topics - need a workshop for each.
4) Take into account logistics of people coming from Gaza - coordinate with SCF.
5) Thanks to SCF for inviting all of us to concentrate on youth affairs in SCF programs.
6) Avoid Friday/leave time from prayer.
7) Use Arabic 80% of the time.
8) Program should be organized in Gaza for Gaza participants.

ANNEX B

EVALUATION WORKSHOP HANDOUTS

SCF WORKSHOP: PEA ON
INSTITUTIONAL DEVELOPMENT PROJECT

September 2, 1994

Potential Environmental Impacts as defined in SCF' scoping session on July 26, 1993:

* excessive soil erosion and stormwater runoff
* exposure of inhabitants to environmental health problems
* potential seismic and flooding hazards of interventions
* worker accidents during construction and operations
* odors and groundwater contamination resulting from inadequate solid waste disposal and siting
* increased exploitation of groundwater sources

Examples of Mitigations as discussed in the scoping session:

* public awareness campaigns with the agricultural community regarding the safe disposal of infected/contaminated materials and how activities such as using untreated sewage for irrigation affects the community
* collection, treatment and disposal of wastewater (shower pit latrines) and related solid waste debris
* coordination between public institutions, other donors, and PVOs/NGOs

SAVE THE CHILDREN
INSTITUTIONAL DEVELOPMENT PROJECT
WORKSHOP

September 2, 1994

NAME: _____
TITLE: _____
ORGANIZATION: _____
TEL #/FAX #: _____

I. ACTIVITY/ACTIVITIES BEING UNDERTAKEN ON BEHALF OF SCF-ID-PROJECT

A. _____
B. _____
C. _____

II. ENVIRONMENTAL IMPACTS RESULTING FROM I ABOVE (POSITIVE & NEGATIVE)

A. _____
_____
_____
B. _____
_____
_____
C. _____
_____
_____

III. IF II IS NEGATIVE, WHAT ARE THE ENVIRONMETNAL COSTS AND BENEFITS TO CONSIDERING ALTERNATIVE SITES, DESIGN, & APPROACHES IN THE ACTIVITY/ACTIVITIES?

A. _____
_____
_____
B. _____
_____
_____
C. _____
_____
_____

IV. WHAT MITIGATION MEASURES CAN BE TAKEN TO REDUCE THE ENVIRONMENTAL IMPACTS?

A. _____
_____
_____
B. _____

C.

V. MANAGEMENT & MONITORING MEASURES

A.

B.

C.

VI. ENVIRONMENTAL TRAINING NEEDS OF SCF IN CONDUCTING FUTURE PEAs/EAs

VII. OTHER COMMENTS

WORKSHOP OBJECTIVES

- Follow-on to workshop on AID environmental procedures
- Raise environmental awareness among SCF and its potential partner institutions
- Learn to build environmental factors and values in SCF's projects
- Update PRIDE Team on SCF's Institutional Development Project
- Exchange ideas on potential environmental impacts and possible mitigation measures
- Get feedback from SCF and its potential partner institutions on impacts and measures
- Identify new sources of information (contacts, references)
- Work together for a better environment in the West Bank and Gaza

BRAINSTORMING TECHNIQUES

Purpose:

- Capture a variety of ideas in a short time

Criteria:

- Define the subject precisely
- Limit the time, overall and per participant
- Note ideas without criticizing them
- Ask questions only to clarify
- Conclude with a synthesis of ideas expressed

BRAINSTORMING TECHNIQUES
AN EXAMPLE

Subject: What does the word "environment" mean to you?

Twenty minutes total:

- One minute of reflection for the whole group, plus
- One minute maximum per participant, plus
- Synthesis

AID ENVIRONMENTAL POLICY

- Pre-identify environmental impacts of AID-financed activities
- Adopt environmental safeguards (mitigation, monitoring, and management measures)
- Assist in strengthening environmental planning and management capabilities of developing countries
- Identify environment and development linkages and promote sustainable development

EXAMPLES OF ENVIRONMENTAL IMPACTS

- Impacts on the physical environment may include:
  - water pollution due to uncontrolled sewage disposal or solid waste dumping
  - soil erosion due to deforestation
  - air pollution from uncontrolled burning at solid waste dumps and factories
  - noise pollution from industries located in residential neighborhoods

- Socio-economic impacts may include:
  - health impacts from water, air, and noise pollution
  - loss of productivity
  - reduction in quality of life and aesthetic value

MITIGATION, MONITORING AND MANAGEMENT MEASURES

- Mitigation measures are technical measures aimed at reducing or controlling environmental impacts; examples may include:
  - changing the location of an industrial project to reduce exposure to noise pollution and ground water pollution
  - recycling water for reuse in an industrial plant
  - testing the quality of water in rainfed cisterns routinely and boiling or chlorinating the water if contaminated
  - designing septic tanks properly to reduce ground water contamination
- Monitoring measures require:
  - Identifying environmental indicators
  - Evaluating these environmental indicators in a baseline year
  - Tracking their value over time
- Management measures are institutional and management measures intended to ensure that the recommended measures actually will be implemented; examples may include:
  - Incorporating environmental performance into contractual arrangements
  - Training beneficiaries and NGOs in sound environmental management practices
  - developing and implementing environmental laws and regulations

ANNEX C

PROFILES OF IMPACT AREAS

PROFILE OF SCF SITES

In implementing the Institutional Development, SCF will be restricted to two types of sites: those pertaining to SCF's Impact Areas and those of partner institutions . The description below is limited to SCF's impact areas, since project sites of partner institutions will be identified during the course of implementation . SCF's impact areas are cluster of villages that share a common social, economical, demographical and administrative base . In FY95, SCF will work in four impact areas . Two more new impact areas will be identified in FY96 after the regular mapping and selection procedures are completed . The selection of these areas is based on a set of 21 indicators such as location, linkages, population, productivity activities, development environment, and their readiness to work with SCF . Gaza Strip will be considered as one impact area where the implementation sites will be identified with partner institution in course of work .

I. Al-Araqa, Al-Hashimiya, Al-Yamoun Impact Area

A) Al-Yamoun: It is the largest among the three villages . It is located nine kilometers to the north-west of Jenin city at an altitude of 250m above sea level . It has a mountainous terrain . The estimated annual rainfall is around 500mm . The total area of the village is 16 km^2 whereas the residential area is 4 km^2 . There are around 13,000 persons living in the village . The internal affairs of the village are the responsibility if a newly elected village council in addition to four "Mukhtars" . The village has 4 mosques, one post office (with four telephone lines), two wheat mills, and four olive oil pressing facilities . There are 14 km of internal streets of which only seven are paved .

Transportation links to the nearby Jenin city is relatively regular . There is a bus that makes 10 journeys daily in addition to around 25 taxis .

Al-Yamoun possesses a relatively poor infrastructure and public facilities . There exists a local network for electricity with four generators of a total capacity of 600 kw . Electricity is supplied at an average of 20 hrs/days . The village depends mainly on rainwater collecting cisterns for their water supply in addition to three springs of a total capacity of 7-8 m^3/day . The number of cisterns existing in the village is around 225 cisterns with an average capacity of 50 m^3/cistern .

The village has three K.G's serving around 80 children . In addition, there are two schools up to the twelfth grade one for boys and the other for girls . The total number of students is around 1200 males and 900 females . Illiteracy rates are relatively small 5% for males and 10% for females .

There exists one charitable society in the village which runs a literacy program for the elderly people of Yamoun .

There are two public clinics in addition to two private ones, the services of which do not suffice the whole village . Most of the villagers seek health services in Jenin city . The villagers depend mainly on work in Israel for their income . 55% of the villagers' income used to come from workers in Israel (a figure which is greatly reduced now due to the closure of Palestinian Occupied Territories since April 1993) . 20% of the villagers income comes from local agricultural activities, 20% from villagers residing in Jordan or Gulf states, and the remaining 5% comes from work in nearby Jenin city .

B) *Al-Araqa:* It is located 15 km to the west of jenin city, 3 km away from Al-Yamoun village on a hill facing the border with Israel . The population is around 1250 persons more than 50% of them are under 16 years of age . Females constitute 45% of the total population .

The village possesses a relatively poor infrastructure . There is a local electricity network providing the village for 4-5 hrs/day of electricity . Similarly, the villagers depend on collecting rainwater to meet their needs . There exists no clinic in the village . In time of need, the villagers go to the clinics and hospitals of Jenin city .

The main source of income for the village is through work in Israel where more than 80% of the labor force work there (estimates are for the pre-closure) . The second source of income is agriculture . Around 2000 dunums of land is planted by olive and almond trees . In addition the villagers have around 85 cows and 400 heads of sheep .

A major problem facing the village is the lack of appropriate schools . There is one elementary and one preparatory schools (i.e., up to the 9th grade) . The schools are mixed for boys and girls . In the conservative context of the village, this leads to early dropouts among the female students at earlier stages . The majority leave school after the fifth grade .

C) *Al-Hashimiya:* Al-Hashimiya village is located to the south west of Jenin city and is 3 km far from Al-Yamoun village . It is a relatively small village of a population around 650 persons, 42% of which are under 16 years of age . The village depends on rainwater harvesting for their water in addition to a nearby spring which has a capacity of 4 m^3/day .

Electricity is supplied 4-5 hrs/day by a local generator which is relatively old and maintenance costs are high .

The internal streets of the village are mostly unpaved . The village lacks basic infrastructure . There is one elementary school for both sexes . Thus, the illiteracy rate is around 20%, and it is specially high among the women .

There is no kind of health services, and people usually go to the nearby Jenin city for treatment . With irregular transportation this becomes very difficult especially in times of emergency .

The village depends mainly on work in Israel for its income . The village land ownerships is 840 dunums of which 720 dunums are planted with olives and almonds . In addition, it is estimated that there are around 15 cows and 150 heads of sheep . Thus the agricultural contribution to the village economy is small .

In expanding this Impact Area two other nearby villages might be added, namely Kufur-Qud and Burqin, the profiles of which will be prepared in due time .

II. Ramin, Beit Lead Impact Area

A) *Ramin:* Ramin is 15 km west-ward from Nablus city . It has a mountainous terrain 350 m above sea level and with an annual rainfall of 600 mm . It has a population of 1600 persons administered locally by a village council and a "Mukhtar" who himself is a member of the village council . 5 km of its 8 km internal streets are paved . Electricity provided by Nablus municipality .

Transportation to the nearby cities Nablus and Tulkarem is irregular since there are only 9 taxis serving this purpose in addition to around 30 cars owned by the villagers .

For its water supplies, the villagers depend on around 215 rainwater collection cisterns with an average capacity of 60 m^3/cistern in addition to a spring which has the capacity of 9 m^3/hr .

There are two K.G's, one elementary and one preparatory schools (up to the 10th grade) . Education is done mixed for boys and girls . The Illiteracy rates are relatively high for the age group 30-50 years of age especially among women which is round 20% . This is extremely high for women older than 50 years which is around 95% compared to only 5% for men for the same age group .

There exists one women charitable society which provides literacy courses for women .

There are two clinics in the village which barely suffices the health needs of the people .

Main income to the village comes from labor in Israel which consists of 45% of the total village income . 25% is provided through agricultural activities, 25% is provided by villagers residing in the surrounding countries and only 10% of the income comes from work in the West Bank . (Note: these are pre-closure estimates, where now most of the villagers depend on agriculture for their primary source of income) .

The village owns around 72000 dunums of land of which 85% is being cultivated . In 10% of the cultivated land vegetables are being grown, 70% is planted with olives and 20% is used as gazing area .

In the village there are around 50 cows and 350 heads of sheep in addition to around 3000 chickens .

B) *Beit Lead:* The village is located 18 km to the west of Nablus city on a hilly area 440 m above sea level . The annual rainfall is estimated to be around 600 mm . The total village area is 16,000 dunums of which only 275 dunums are residential area . The internal streets are of a length of 5 km of which 2.5 km is paved . The total population is around 5500 persons .

Transportation to Nablus city is irregular . There is only one bus which makes one journey a day in addition to two taxis which peddle between the village and Nablus city .

The village is supplied regularly with electricity from Nablus Municipality .

There are around 1200 rainwater collection cisterns with a capacity of 50 m^3/cistern . The village lacks basic sanitation and garbage collection services .

There is one school in the village for both boys and girls . Illiteracy rates are, as a result, relatively high for the females especially for those who are older than 40 years which is around 50% compared to 10% for men of the same age group .

Income from labor in Israel provides 60% of the villagers income, where as agriculture contributes around 20% . 10% is provided through work in the West Bank and 10% from villagers residing outside the village .

The villagers own 7 cows, around 1500 heads of sheep, 10000 chicken, and 200 bee hives in addition to around 500 donkeys .

III. Assira El-Qibliyeh, Burin and Madama Impact Area

A) *Assira El-Qibliyeh:* The village is located 15 km south-west of Nablus city at an altitude of 700 m above sea level with an estimated annual rainfall of 600 mm . The total residential area is 1000 dunums . The total population is estimated to be around 2000 persons .

The village lacks basic infrastructure facilities . A generator of a capacity of 110 kw provides electricity 4-6 hrs daily . Only 2 km of its internal 5 km streets are paved .

Transportation to the nearby Nablus city is provided through a bus which makes two journeys a day in addition to three taxis and 20 privately owned cars .

The village depends on 210 rainwater catching cisterns with a capacity of 60-70 m^3/cistern in addition to a relatively small spring which needs lot of maintenance .

The village has one school up to the 9th grade for both boys and girls . The estimated Illiteracy rates are 10% for men and 30% for women .

There is only one clinic in the village which provides clinical services four days a week and only 3 hours per each day, which scarcely covers the needs of the village. Sanitation and garbage collection services are lacking .

The village is rich in its community activities . They have five charitable or cooperative societies which sponsor various activities in the village, starting with supervising electrical supply to providing health education .

More than 50% of the villagers income is provided by workers working inside Israel . 25% is provided by agriculture, 20% through work in the West bank and 5% from villagers residing outside the village .

Surely the unemployment rate has risen upruptly after the closure of the territories in April 1993 .

Major agricultural products are olive and wheat . But still thousands of dunums of land are not being cultivated due to the continuous harassment of the nearby Israeli settlers .

The agricultural wealth of the village is modest . They own around 60 cows, 150 heads of sheep and about 6000 chicken, in addition to three bee hives .

B) *Burin:* Burin is located 10 km south west of Nablus with an altitude of 700 above sea level and an estimated annual rainfall of 500 mm . The total population is estimated at 2000 persons .

The village is administered by a village council in addition to two "Mukhtars" . It has one mosque, a post office, one youth club and one wheat mill .

Electricity is supplied by a 200 kw local generator which provides electricity to 95% of the houses 6 hrs/day . Of the 5 km internal streets 3 km are paved .

Transportation to Nablus is done by bus of irregular journeys in addition to 10 taxis and 50 privately owned cars .

There is no water network in the village and the people depend on around 80 rainwater collecting cisterns in addition to six springs, two of which are inside the village itself .

The village has one KG for 50 children . The only school in the village provides education up to the 12th grade for both boys and girls . Total number of students for both sexes is around 500 students yearly .

The village has one agricultural cooperative, one charitable society and one youth club . The later was closed by the authorities at the beginning of the Intifada . In addition to that there is an informal women committee which provides training in sewing for village women .

A doctor is present two days a week in the only clinic of the village which provides primary health services on daily basis through the presence of a full time nurse .

As in other villages most of the income is provided through work in Israel (60%) . Only 5-15% of the village's income come from agriculture . Although the village owns around 10,000 dunums only 5000 dunums are being cultivated mostly with olive trees and wheat .

Animal wealth of the village is composed of 12 cows, 800 heads of sheep, and 11,000 chicken in addition to around 100 donkeys .

C) *Madama:* Right in between Assira El-Qibliyeh and Burin lies Madama village which is around 15 km south-west of Nablus village . The total population is estimated to be around 1,000 persons . The village is administered locally by one "Mukhtar" . Madama village is relatively conservative compared to the other two nearby villages . It lacks almost all infrastructure facilities . Of its 3.5 km internal streets, 3 km are paved . Transportation to Nablus city is provided through a bus which makes 4-5 irregular journeys daily . This is supplemented by 5 taxis and 15-20 privately owned cars .

There exists no health serving facility in the village nor any type of public facility except for a committee which supervises the supply of power to the village .

Water is provided through 190 cisterns for collecting rainwater in addition to two poorly maintained springs .

The village has one school up to the 9th grade . Students who want to continue their education should transfer to Burin school .

Main agricultural activity of the village is raising wheat (3000 dunums) in addition to around 1500 dunums of olive trees .

IV. Tquu', Al-Rashaydeh, and Kisan Impact Area

This impact area lies on the edge of the Judean desert 12 km south-east of Bethlehem city. The annual rainfall is between 200-300 mm . The population is estimated to be around 12,000 persons . They are mostly of beduin origin who Israel worked on resettling them in that area .

Of its 20 km internal roads only 5 km are paved . There is no regular transportation especially in the remote areas of Kisan and Rashaydeh . Around 10 taxis provide transportation services for this large number of people .

Although electricity and water is supplied by Bethlehem Municipality, most of the time it is cut because the people cannot afford paying the fees .

In addition to the water supplied by the network, there are around 450 cisterns for collecting rainwater most of which are badly maintained and need rehabilitation .

In remote areas of Kisan and Rashaydeh basic needs are lacking . There are tens of families who are living in shabby huts or old buses with no services what so ever .

The Illiteracy rate is relatively high 60% for males and 80% for females . Most of income comes from work in Israel, which composes 70% of the communities income . Although the community owns around 50,000 heads of sheep yet the returns from this sector constitute 25-30% . High water and feed costs needed for the animals puts more pressure on the relatively poor community .