

**Water Resources Sustainability Project
(WRS)**

**1997 Annual Report
§ January 1 to December 31, 1997 §**

**Deliverable for
United States Agency for International Development**

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WRS Project
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Ministry of Environment

American Agency for International Development (USAID)

WRS Project

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ANNEX 2: WRS PROJECT - TECHNICAL AND MANAGEMENT REPORTS

Introduction

This document constitutes the WRS annual report for calendar year 1997. The Water Resources Sustainability (WRS) activity is a USAID funded project with a \$12 million budget, covering a six-year period. The WRS project team began work in country on July 15, 1996.

The WRS project directly addresses USAID's environmental strategic objective to improve water resources management in the agricultural, urban, and industrial sectors in Morocco. To reach this strategic objective, USAID Morocco has defined three intermediate results:

- Improved policy, regulatory, and institutional framework;
- Improved environmental technologies; and
- Broadened public participation for environmental action.

In 1997, WRS made significant progress towards the attainment of performance indicators, intermediate results, and the strategic objective. We completed three feasibility studies, two environmental assessments for the industrial pollution prevention pilot demonstration project in Fes and the wastewater treatment and reuse pilot demonstration project in Agadir, and a life of project monitoring plan. In addition, we prepared and delivered four seminars on cost-benefit analysis and cost recovery for the Fes and Agadir project. We also held an pollution prevention awareness workshop for the tanners in Fes, and three stakeholders workshops to present project options for each of the three pilot projects. Two inter-ministerial steering committees were held in 1997 to communicate the progress of project activities to partner institutions.

This report presents the WRS activities undertaken in 1997 with respect to the strategic objective, intermediate results, and indicators of performance. This document contains three sections. The first section describes the progress towards the WRS strategic objective, intermediate results and performance indicators; the second section describes the missions that were undertaken in 1997; and the third section describes key meetings and deliverables. Budget tables are presented as annexes.

1. Progress Towards Objectives

This section describes how the WRS activities in 1997 helped achieve progress towards stated intermediate results and strategic objectives of the project. Exhibit 1 presents USAID's indicators for the environmental strategic objective.

EXHIBIT 1

1.1 Expected Results

The WRS project is expected to achieve results, as measured by the following indicators of performance:

- Amount of water pollution in target areas;
- Volume of water savings in target areas;
- Volume of soil erosion in target areas;
- Progress towards the adoption of key policy reforms;
- Percent of tanners adopting chrome recycling technologies; and
- Number of environmental activities implemented with non-governmental partners.

1.2 Performance

This section describes the progress made in 1997 with respect to the indicators of performance. In 1997, we completed the ambitious program we had set in the annual work plan, and we laid solid foundations for the success of the WRS pilot demonstration projects in 1998.

We completed three feasibility studies for the WRS pilot demonstration projects, as well as three Initial Environmental Examinations (IEE) and two draft Environmental Assessments (EA). We conducted three stakeholders workshops and an awareness training workshop for the tanners of Fes. In Agadir, we conducted a participatory rapid appraisal survey in the rural communes of Drarga and Temsia on the attitudes of the community towards water. We prepared and delivered a seminar on cost-benefit analysis of environmental projects for technical staff from the Ministry of Environment and partner institutions at the national and local levels. We conducted two follow-up seminars on cost recovery issues for the Fes and Agadir projects. We prepared a work plan and produced quarterly progress reports that detailed the progress made towards project objectives. We also prepared a life of project monitoring plan, which will serve as an important management tool for the duration of the project.

We prepared draft conventions for all three pilot projects that will be signed by all project partners. In the Agadir wastewater treatment and reuse project, we developed partnerships with the Al Amal water users association in Drarga and with ERAC-Sud that has agreed to finance 30 percent of the project cost. In Fes, the RADEEF agreed to manage the chrome recovery unit that will be built in Dokkarat, and the tanners have agreed to separate their chrome effluents, and to purchase recycled chrome if it meets their production standards. In the Oued Nakhla watershed, the Ministry of Agriculture has agreed to implement the proposed soil erosion control actions and to include the watershed as a rainfed perimeter eligible for funding under a new law. Finally, the Agency for the Development of the Northern Provinces has agreed to finance indirect actions in the watershed to the tune of over 1 million Dirhams. These successful partnerships were developed under the leadership and coordination of the Ministry of Environment, in its role as coordinator of environment

and sustainable development policies. The direct participation of beneficiaries (the Al Amal water users association in Drarga, the tanners in Dokkarat, and the farmers of the Oued Nakhla watershed), and the strong commitment of key partner institutions will ensure ability of these pilot projects.

In the policy area, the project activities in 1997 have advanced the implementation of key policy reforms including strengthening of the Ministry of Environment, the acceptance of the polluter pays principle, the development of progressive pricing policies, and the implementation of industrial norms and standards.

Indicator 2.1: Amount of Water Pollution in Target Areas

Two WRS activities conducted in 1997 will affect the amount of water pollution in two target areas: (1) the implementation of a chromium recovery plant in the Dokkarat industrial area of Fes, and (2) the implementation of a wastewater treatment and reuse facility in Drarga, Agadir. The chromium recovery plant of Dokkarat will substantially reduce the concentrations and volume of chromium discharged from Dokkarat into the Fes sewage systems and the Sebou river. In 1997, we completed the feasibility study for the pollution prevention pilot demonstration project for the tanneries in Dokkarat. The pilot project will implement a centralized chromium recovery unit in Dokkarat. This plant is expected to be operational by the end of 1998. The volume of chromium effluents per ton of hide treated is expected to be reduced by 90 percent at the exit point of the Dokkarat industrial zone. Likewise, chromium concentrations in the sewers of Fes that eventually end up in the Sebou river will be substantially reduced. In 1997, the project also prepared the draft environmental assessment for the chromium recovery pilot demonstration project in Dokkarat. In the fourth quarter, we prepared and sent bid documents to qualified U.S. firms for the detailed engineering design of the chromium recovery plant, and to Moroccan firms for design of the piping network to transport chromium-containing wastewater from the tanneries to the station.

The wastewater treatment and reuse project in Drarga, will reduce water pollution from domestic sewage. Specifically, the project will reduce Biological Oxygen Demand (BOD) and fecal coliforms. In 1997, we measured baseline levels of BOD and fecal coliforms from the Drarga effluents. Based on the feasibility study prepared in 1997, we will implement a recirculated sand filtration wastewater treatment station. The facility will also include a tertiary treatment step through reeds to reduce the levels of nitrates reaching the aquifer.

We also prepared of the environmental assessment for the wastewater treatment and reuse pilot demonstration project in Drarga in 1997. Specifically, a project team visited the candidate sites and collected data on threatened species and historical resources in the area. The team evaluated the potential environmental impacts associated with the candidate sites. Since the site preferred by the local population is subject to flooding, the team conducted a detailed study of the public works necessary to install a flood control system to protect the site.

In the fourth quarter, we prepared and sent requests for proposals for qualified US engineering firms to prepare detailed engineering design for the Drarga wastewater treatment plant.

Indicator 2.2: Volume of water savings in target area

In 1997, we completed the feasibility study for the wastewater treatment and reuse pilot demonstration project in Drarga. The wastewater treatment station will sell treated effluents to farmers in adjacent fields. The quantity of water reused will constitute water savings since a greater quantity of water will be available in the area. The feasibility study identified crops that could be irrigated with treated sewage water.

We also prepared an environmental assessment for the wastewater treatment and reuse pilot project that emphasized the need for treating the effluents to Class A WHO standards for reuse, and to reduce the concentration of nitrates in ground water to acceptable levels for the pumping wells of ONEP.

In the Oued Nakhla soil erosion control feasibility study, we estimated the reduction in the siltation of the Nakhla dam resulting from project interventions, and quantified the quantity of water saved by increasing the storage capacity of the dam. The project interventions will thus have a direct impact on water savings.

Indicator 2.3: Volume of soil erosion in target areas

In 1997, we completed the feasibility study for the soil erosion control pilot project in the Oued Nakhla watershed. The feasibility study includes the results of the Participatory Lifescape Landscape Appraisal (PLLA) conducted in 1996, detailed soil and land use maps, calculations of the baseline rates of erosion, and proposed direct and indirect interventions that will affect erosion in the watershed.

The project team developed and presented options for reducing soil erosion in the watershed at a workshop in Tetouan in May. Following the workshop, the project team identified specific areas for intervention and prepared an analysis of the costs and impacts of direct and indirect interventions. Direct interventions that are expected to have a direct impact on soil loss include tree plantations, construction of cuvettes, seeding grass and forage, repairing terraces, building check dams, and planting shrubs and other vegetation in the matorral. Indirect interventions that are aimed at reducing further degradation of the matorral include the introduction of small mechanization, the implementation of beehives, improved goat breeding, the use of biogas and of improved ovens.

The project team also prepared a detailed schedule of interventions in 1998 and for the remainder of the project, and identified institutions that will be collaborating with the project. The proposed interventions identified in the feasibility study are expected to reduce soil loss in the target areas by 25 percent at the end of the project. Finally, we prepared a draft convention for the implementation of the project that includes as partners the Ministry of Environment, the Ministry of Agriculture, the Wilaya of Tetouan, and the Agency for the Development of Northern Provinces.

Indicator 2.1.1: Progress towards the adoption of policy reforms

In 1997, the WRS project team worked closely with the Ministry of Environment, particularly on activities to *enhance the role of MOE as coordinator of policy in sustainable water resources management*. We prepared and delivered four training seminars for MOE and partner institutions. Two seminars were held in Tetouan on “cost-benefit analysis of

environmental projects”, and two follow-up seminars were held in Fes and Agadir on the cost recovery of the wastewater treatment and the pollution prevention pilot projects. Staff from MOE were involved in all project activities. In the Fes pilot project, MOE laboratory technicians took and analyzed wastewater samples from tanneries in Dokkarat; in Drarga, MOE staff were trained on rapid appraisal procedures and participated in a survey of the population on their attitudes towards water; in the Oued Nakhla watershed, MOE staff participated in the participatory landscape appraisal (PLLA) and helped prepare the feasibility study. Staff from other partner institutions were also involved in these activities.

The project team prepared, with MOE, draft conventions specifying the role of each partner for project implementation in all three pilot projects. The convention for the Drarga wastewater treatment and reuse feasibility study includes specific prices for the sale of treated water to the farmers that have been accepted by the Al Amal water users association that will manage the station. These tariffs reflect *progressive pricing policies* for the sale of treated effluents. In addition, at the suggestion of project staff, the Ministry of Environment, along with other partners agreed to place a study on the true cost of water in Morocco as a priority action for the Government of Morocco in the national workshop on “Water and Environment”. Such a study could lead to the development of water pricing policies that truly reflect the economic value of the resource.

The draft convention for the pilot project to recover chromium discharged by the tanneries of Dokkarat incorporated *the polluter pays principle* through an effluent discharge fee and the resale of recovered chromium to the tanners. The tanners will also separate their chromium effluents at their own expense. In February 1997, the project delivered a workshop on pollution prevention for the tanners of Dokkarat. The goal of this workshop was to make the tanners aware of the water pollution associated with tannery effluents, and to share with them aware that they had some responsibility to pay for the pollution they caused. The workshop also presented the value of adopting pollution prevention technologies that, not only can reduce the degradation of water resources, but can also improve the economic efficiency of tanneries.

In the fourth quarter, WRS project staff reviewed the current status of the development of *industrial norms and standards* for the leather tanning industry and proposed the fielding of a technical expert mission to assist MOE in preparing detailed tannery standards.

The project prepared, along with staff for MOE’s *environmental assessments* for the Drarga and Fes pilot projects. These EAs will serve as models for further environmental assessments that will be undertaken by the Ministry.

Indicator 2.2.2: Percent of tanners adopting chrome recycling technologies

In 1997, we conducted an awareness workshop for the tanners of Dokkarat on pollution prevention. The goal of this workshop was to convince the tanners that it would be useful for them to adopt chrome recycling technologies. We conducted detailed audits of all twelve operating tanneries of Dokkarat to determine the best technological options to reduce chromium to acceptable levels. We completed the feasibility study for the industrial pollution prevention pilot demonstration project for the tanneries in Dokkarat.

In the fourth quarter, we began the detailed engineering design of the separation of chromium-containing effluents in all the operating tanneries of Dokkarat. The pilot project will consist of implementing a chromium recovery unit in Dokkarat that will collect the chrome-containing effluents of all the tanneries in the industrial zone and will generate recycled chromium. The tanners have agreed to separate their chromium effluents and send those effluents to the chromium recovery station. The tanners have also agreed to purchase the recycled chromium produced by the station, provided it meets their production standards and is sold at a reasonable price. We expect all the tanners of Dokkarat to connect to the station and thus to recycle their chromium.

Indicator 2.3.1: Number of environmental activities implemented with non-governmental partners

In 1997, the project developed partnerships with non-governmental partners for the implementation of all WRS activities. In Drarga, the management of the wastewater treatment facility will be the responsibility of the Al-Amal water users association. The Al Amal association has already put in a water and sewer system in Drarga and will be an ideal partner for the management of the WRS wastewater treatment station. In the Oued Nakhla watershed, a local NGO (the Association for Environmental Protection in Tetouan) will be involved in awareness and training activities. In the soil erosion control feasibility study, we identified non-governmental partners that can contribute to indirect interventions. The report also recommended the creation of village associations composed of farmers that will participate directly in project implementation. In Fes, we worked with the tanners of Dokkarat on their participation to the pollution prevention pilot project. All three WRS pilot projects will be implemented with the active participation of non-governmental partners.

For all three WRS pilot projects, we held stakeholders workshops to present technical options and receive feedback from the project beneficiaries. Non-governmental partners were invited to participate and to share their views on the projects' proposed activities. For example, as a result of the stakeholders workshop held in Agadir in June, the site selection for the Drarga wastewater treatment plant was changed to a site more suitable to the local population.

2. Field Missions in 1997

- **Mr. Jean Tilly** (ECODIT) was fielded in January 1997 to work on the Fes feasibility study
- **MM. Brahim Soudi and Khalid Khallayoune** (Chemonics) were fielded in January and February 1997 to identify and characterize communes in the Agadir area suitable for the wastewater treatment and reuse pilot demonstration project
- **MM. Said Bouanani and Driss Messaho** (ECODIT) were fielded in January through March 1997, to prepare a workshop for the tanners of Fes on pollution prevention technologies, and conduct detailed audits of the tanneries in Fes.
- **Mr. Roger Legros** (Senior tanning expert - ECODIT), and **Mr. Behzad Safavi** (environmental engineer - GSE), and **Mr. Jean Tilly** (WRS Technical supervisor) were fielded in March to participate in the detailed audits of the tanneries of Dokkarat.
- **Dr. David Swift** (Range Ecologist - University of Georgia) was fielded in March to identify potential interventions in the Oued Nakhla watershed.
- **Ms. Carla Boussen** (community participation specialist - Planning Assistance) was fielded in March to assess community issues in Fes and Agadir.
- **Ms. Elizabeth Bennour** (Planning Assistance) and **Ms. Carla Boussen** (Planning Assistance) were fielded in April to train staff from MOE and partner institutions in rapid appraisal techniques and to conduct participatory research on the community's attitudes towards water in the communes of Drarga and Temsia near Agadir.
- **Mr. Joseph Karam** (ECODIT), **Ms. Cathryn Goddard** (Coverdale), **Mr. Hassan Sebbar** (ECODIT), and **Ms. Nouzha Alaoui** (ECODIT) were fielded in April and May to prepare and deliver a workshop on "cost-benefit analysis of environmental projects". The seminar was held in Tetouan from May 5 to May 15, 1997, and was attended by over forty participants from MOE and WRS partner institutions.
- **Mr. Brahim Soudi** (Chemonics) and **Mr. Moulay Cherif Harrouni** (Chemonics) were fielded in April to prepare a soil occupation map of the Drarga area and identify opportunities for wastewater reuse.
- **Mr. Said Bouanani** (ECODIT) and **Mr. Driss Messaho** (ECODIT) were fielded in April to analyze the results of the audits of the tanneries of Dokkarat and develop options for the pollution prevention pilot demonstration projects. They also assisted in the preparation of the inter-ministerial steering committee meeting and of the stakeholder's workshop on the presentation of options in Fes.
- **Mr. Abdessadek Nhrira** (ECODIT) was fielded in April to identify and characterize potential sites for the wastewater treatment and reuse pilot project in Drarga.
- **Ms. Christine Bernardeau** was fielded in April and May to prepare the financial and

economic analysis for the pollution prevention pilot project in Fes, and the wastewater treatment and reuse pilot project in Agadir. Ms. Bernardeau developed full cost recovery scenarios for both projects.

- **Mr. Behzad Safavi** (GS. Engineering) was fielded in May to prepare engineering plans and technical options for the wastewater treatment and reuse station in Agadir. Mr. Safavi developed draft plans for the dimensions of the station for alternative sites.
- **Mr. Douglas Petrie** (Chemonics) was fielded in May to prepare the life of project monitoring plan (LOPMP). Mr. Petrie prepared a draft LOPMP.
- **A team from the University of Georgia and ENA Meknes** was fielded in May to complete the PLLA report and prepare the soil erosion control project's stakeholders workshop
- **Ms. Sana Hamady** (ECODIT) was fielded in June to prepare Initial Environmental Examinations for all three pilot projects and collect information for the Environmental Impact Assessments for the Fes and Agadir projects.
- **Mr. William Hargrove** (University of Georgia), **Mr. Dave Swift** (University of Georgia), and **Mr. Fouad Rachidi** (University of Georgia) were fielded in June to help determine specific interventions in the Oued Nakhla watershed, and identify areas for implementation of interventions.
- **Mr. Jean Tilly** (ECODIT), **Mr. Joseph Karam** (ECODIT), and **Mr. Douglas Petrie** (Chemonics) were fielded in June to prepare the feasibility study reports for the pollution prevention pilot project in Fes, the wastewater treatment and reuse pilot project in Drarga, and the soil erosion control pilot project in Oued Nakhla.
- **Mr. Brahim Souidi** (Chemonics) was fielded in July to complete the soil use map and to identify opportunities for sludge recycling and composting for the Drarga wastewater treatment and reuse feasibility study.
- **Mr. Behzad Safavi** (G.S. Engineering) was fielded in July to complete engineering drawings and analyzes for the four alternative sites for the Drarga wastewater treatment and reuse pilot project.
- **Mr. Joseph Karam** (ECODIT) was fielded in August as Interim Chief of Party to replace Mr. Kerby who was on vacation.
- A team composed of **Mr. David Mulla** (Chemonics), **Mr. M'Hamed Tayaa** (Chemonics), and **Mr. Hassan Sebbar** (ECODIT) was fielded in August to determine the soil erosion reductions resulting from the proposed direct and indirect interventions in the Nakhla watershed and to conduct a cost-benefit analysis for inclusion in the soil erosion control project feasibility study.
- **Ms. Sana Hamady** (ECODIT) was fielded in August to complete the environmental impact assessments for the Drarga wastewater treatment and reuse pilot demonstration

project and the Dokkarat pollution prevention pilot demonstration project.

- **Mr. Driss Messaho** (ECODIT) was fielded in September to collect data on the environmental settings in Dokkarat for inclusion in the environmental assessment report for the pollution prevention pilot project.
- **Mr. Brahim Soudi** (Chemonics) was fielded in September to set up a protocol for nitrate testing at the Ben Sergao experimental plant in Agadir to determine the performance of the proposed system for Drarga.
- **Ms. Sana Hamady** (ECODIT) was fielded in September to prepare procurement plans and requests for proposals for the design phase of the Drarga wastewater treatment plant and the Dokkarat chromium recovery plant.
- **Ms. Nouzha Alaoui** (ECODIT) was fielded in October and November to help prepare follow-up training activities on cost recovery for the Fes and Agadir pilot projects.
- **MM. M'Hamed Tayaa** (Chemonics), **Mustapha Naimi** (Chemonics), **Rachid Bouabid** (Chemonics), and **Fouad Rachidi** (University of Georgia) were fielded in October - December to assist in the implementation of the soil erosion control pilot project in the Oued Nakhla watershed.
- **Jean Tilly** (ECODIT) was fielded in November to assist in the preparation of the WRS 1998 annual work plan.
- **Driss Messaho** (ECODIT) was fielded in November and December to assist with the transition towards implementation of the pollution prevention pilot project in Dokkarat, Fes.
- **Sana Hamady** (ECODIT) was fielded in November and December to prepare Requests for Proposals (RFPs) and review proposals submitted by U.S. engineering firms for the Drarga and Dokkarat pilot projects.
- **Francine Ducharme** (Planning Assistance) was fielded in December to assist in the delivery of the workshops on cost recovery issues for the Dokkarat and Drarga projects, and to identify communication issues for WRS media campaigns.
- **Said Ouattar** (Chemonics) was fielded in December to assist with the implementation of tree plantations in the Oued Nakhla watershed.

3. Meetings Attended

Table 1 below summarizes the key meetings and workshops organized or attended by WRS staff in 1997.

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
Meetings with institutions in Agadir	WRS, Wilaya of Agadir, DPA, ORMVA Souss-Massa, IAV, DREF	January 6
Meetings with institutions in Agadir	WRS, DRH, Ministry of Health	January 7
USAID planing retreat to discuss USAID objectives in 1997	WRS, USAID, Other contractors	January 8
Meetings with institutions in Agadir	WRS, ONEP, Faculté des Sciences, Agence Urbaine	January 8
Meetings with institutions in Agadir	WRS, DRH, ERAC Sud, Laboratoire de Recherches et d'Analyses	January 9
Meetings with institutions in Agadir	WRS, Association "Tiouzi", Ministry of Health, Wilaya of Agadir	January 10
Governor of El Jadida to discuss wastewater treatment issues in Azzemour	WRS, MOE, Governor of El Jadida	January 14
SO Team meeting on indicators for the environmental SO	WRS, TSS, TRM, USAID	January 16
Work Plan review meeting	USAID, MOE, WRS	February 7
Pollution prevention awareness workshop for the tanners of Dokkarat in Fes	WRS, MOE, Tanners of Dokkarat, Wilaya of Fes, RADEEF, DRH, MCIA, ADER, Fes Chamber of Commerce, ONEP	February 17
MOE workshop on "Agriculture and Environment" (El Jadida)	MOE, GOM institutions, technical experts, WRS	March 5
USAID debriefing on Fes tannery audits (Jean Tilly)	USAID, WRS	March 7
Meeting with Associations in Agadir	WRS, Association "Tiouzi", Water Users Association in Drarga, APEFEL	March 10

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
Meeting with institutions in Agadir	WRS, Préfecture of Inezgane Ait Melloul, Communes of Temsia & Oulad Dahou	March 11
Meeting with Regional Committee on Wastewater in Souss-Massa	WRS, Committee	March 12
USAID debriefing on WRS community awareness issues (Carla Boussen)	USAID, WRS	March 14
World Water Forum in Marrakesh	WRS	March 21 & 22
Meeting with ONEP on Agadir project	WRS, ONEP	March 28
USAID debriefing on Oued Nakhla project (Dave Swift & M'Hammed Tayaa)	USAID, WRS	March 28
MOE workshop on "Water & Environment"	MOE, GOM institutions, technical experts, WRS	March 31 & April 1
Workshop on Rapid Appraisal Procedures in Agadir	MOE, Wilaya d'Agadir, DRH, RAMSA, ORMVASM, WRS	April 7 - 11
USAID debriefing on participatory surveys in Agadir (Elizabeth Bennour)	USAID, WRS	April 16
Inter-ministerial steering committee meeting	MOE, MTP, MAMVA, MCIA, M. of Interior, MEM, ONEP, M. of Transport, M. of Tourism, M. of Fisheries, M. of Health, USAID, WRS	April 21
Stakeholder's workshop in Fes	MOE, Wilaya of Fes, RADEEF, ADER, MCIA, DRH, ONEP, Chambre of Commerce and Artifacts, Tanners	April 24
Meeting with the Wali of Fes	Wilaya of Fes, MOE, WRS, RADEEF	April 25
SO2 workshop on deepening initiative	USAID, SO2 team	April 28
Cost-benefit analysis workshop (Tetouan)	MOE, MTP, MAMVA, MEM, M. of Transport, ONEP, FEC, M. of Health, M. of Economic Incentives, USAID, WRS	May 5 - 8

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
Cost-benefit analysis workshop (Tetouan)	MOE, ORMVASM, DRH (Fes, Tetouan, Agadir), DREF (Tetouan), DPA (Tetouan), ONEP (Fes), RADEEF, Wilaya d'Agadir, Wilaya de Fes, Wilaya de Tetouan, RAMSA, MCIA (Fes), WRS	May 12 - 15
USAID debriefing on life of project monitoring plan (Doug Petrie)	USAID, WRS	May 14
Mediterranean Development Forum (Marrakesh)	USAID, WRS	May 15-16
USAID debriefing on financial analysis of pilot projects (Christine Bernardeau)	USAID, WRS	May 19
Environmental assessment briefing (Sana Hamady)	USAID, WRS	May 22
Soil erosion control pilot project stakeholder's workshop (Tetouan)	MOE, DREF, DPA, MTP, M. of Health, Wilaya of Tetouan, M. of Interior, NGOs, Faculté des Sciences (Tetouan), Oued Nakhla farmers, USAID, WRS	May 27
Meeting with Oued Nakhla farmers	WRS project team, MOE, Oued Nakhla farmers	May 28 - 29
Wastewater treatment and reuse stakeholder's workshop (Agadir)	MOE, Wilaya d'Agadir, DRH, ONEP, RAMSA, ORMVASM, IAV, Al Amal Association, Tiouzi Association, M. of Interior, USAID, WRS	June 4
Meeting with Valmont USA	Valmont, USAID, WRS	June 6
Atelier PANE on regulations	MOE, WRS	June 9
Meeting with GEF-Rif Project	GEF Rif, WRS	June 27
Briefing on Environmental Assessment	USAID, WRS	July 1
Meeting on procurement issues	USAID, WRS	July 7
Meeting on wastewater issues in El Jadida	USAID, WRS	July 10

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
Meeting on site selection in Agadir	Wilaya of Agadir, Commune of Drarga, Al Amal association, ORMVASM, ONEP, DRH, ERAC, IAV, RAMSA, MOE, WRS	July 24
Meeting with the Agence du Nord	Agence du Nord, USAID, WRS	August 26
Debriefing on the Nakhla feasibility study	USAID, WRS	August 29
Meeting with MOE on feasibility study comments	MOE, WRS	September 11
Meetings in Agadir on pilot project	Al Amal, Commune of Drarga, USAID, WRS	September 15
Meeting of the Regional Committee in Fes	MOE, Wilaya of Fes, RADEEF, DRH, ADER, ONEP, MCIA	September 17
Tannery visits	MOE, USAID, Wilaya of Fes, WRS	September 18
Meeting at the RADEEF	MOE, RADEEF, Wilaya of Fes, USAID, WRS	September 18
Meeting with MOE on project issues	MOE, USAID, WRS	September 22
Meeting with Minister of Environment	MOE, WRS	September 30
Urban environmental conference	TSS, USAID, MOE, Moroccan institutions, WRS	October 1
USAID debriefing on urban environmental issues (Allison Massa)	TSS, USAID, WRS	October 3
Meeting with the Fes Agence Urbaine	Agence Urbaine, WRS	October 8
Meeting with the RADEEF (Fes)	RADEEF, WRS	October 8
SO2 team meeting	SO2 Team	October 10
Meetings with Agadir Institutions	Wilaya of Agadir, Al-Amal association, WRS	October 16-17
Meeting with Ministry of Agriculture on Nakhla	MA, WRS	October 21
Meeting with ERAC Sud (Agadir)	ERAC-Sud, MOE, WRS	October 31

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
Meeting with the Agence du Nord	Agence du Nord, WRS	November 4
Meeting with the RADEEF	RADEEF, MOE, WRS	November 5
Meeting with the Caisse Française de Développement	CFD, WRS	November 10
Meeting with the Wilaya of Agadir	Wilaya of Agadir, Al Amal Association, WRS, USAID, MOE	November 12
Inter-Ministerial Steering Committee	MOE, MTP, M. of Transport, M. of Interior, MAMVA, M. of Health, ONEP, MCIA, M. of Fisheries, MEM, USAID, WRS	November 14
Meeting at the Administration du Génie Rural (AGR) to discuss Nakhla convention	MAMVA, MOE, WRS	November 19
USAID Retreat on R4	SO2 Team	November 21
Meeting at the Ministry of Interior	M. of Interior, MOE, Wilaya of Agadir, Al Amal Association, Tiouzi association, Commune of Drarga, ONEP, USAID, WRS	November 24
Meeting with the Wali of Agadir	Wilaya of Agadir, Al Amal Association, USAID, WRS	December 3
Workshop on cost recovery in Agadir	MOE, Wilaya of Agadir, MCIA (Fes), ORMVASM, ONEP, DGH, DRH, RAMSA, ERAC, Commune of Drarga, Ala Amal Association, Tiouzi Association, WRS	December 11 - 12
Workshop on cost recovery in Fes	MOE, Wilaya of Fes, RADEEF, MCIA (Fes), DRH, ADER, ONEP, USAID, WRS	December 15 - 16
Meeting with MAMVA committee in Tetouan	MAMVA, DPA, USAID, WRS	December 17
USAID debriefing on public awareness	WRS, USAID	December 18

Table 1 Key Meeting Attended in 1997		
Meeting Description	Participants	Date
activities (Francine Ducharme)		
Work plan review	WRS, USAID	December 19

4. Deliverables

Table 2 summarizes the deliverables submitted in 1997.

Deliverable Title	Date
Réduction de la Pollution Industrielle de la Ville de Fes - Rapport des Pré-Audits des Tanneries de Dokkarat (by Said Bouanani & Driss Messaho)	January 1997
Réduction de la Pollution Industrielle de la Ville de Fes - Etude Synthétique des Données sur la Pollution Industrielle des Tanneries de Fes (by Said Bouanani)	February 1997
Mise en Place d'un Système de Traitement-Valorisation des Eaux Usées et des Boues Résiduaire d'une Commune Pilote de la Région d'Agadir. Etude Préliminaire et Diagnostic (by Brahim Soudi & Khalid Khallayoune)	March 1997
Mise en Place d'un Système de Traitement-Valorisation des Eaux Usées et des Boues Résiduaire dans la Commune de Tensia. Etude Préliminaire et Diagnostic (by Brahim Soudi & Khalid Khallayoune)	March 1997
Mise en Place d'un Système de Traitement-Valorisation des Eaux Usées et des Boues Résiduaire dans la Commune d'Oulad Dahou. Etude Préliminaire et Diagnostic (by Brahim Soudi & Khalid Khallayoune)	March 1997
Mise en Place d'un Système de Traitement-Valorisation des Eaux Usées et des Boues Résiduaire dans la Commune de L'Qliaa. Etude Préliminaire et Diagnostic (by Brahim Soudi & Khalid Khallayoune)	March 1997
Bassin Versant de Nakhla - Caracteristiques Physiques, Hydrologiques et Détermination du Taux D'Erosion (by Mhammed Tayaa)	March 1997
Atelier sur les Méthodes Participatives dans un Bassin Versant (Les 8 et 9 Novembre - Meknes) (by Mohammed Mounsif, Fouad Rachidi, and Carla Roncoli)	March 1997
1996 Annual Report	March 1997
Compte-Rendu de L'Atelier de Formation - "Analyse Coûts-Avantages de Projets Environnementaux" du 5 au 8 Mai 1997 (Joseph Karam & Nouzha Alaoui)	May 1997
Compte-Rendu de L'Atelier de Formation - "Analyse Coûts-Avantages de Projets Environnementaux" du 5 au 8 Mai 1997 (Joseph Karam & Nouzha Alaoui)	May 1997
Compte-Rendu de L'Atelier de Formation - "Analyse Coûts-	May 1997

Table 2 Deliverables Submitted in 1997	
Deliverable Title	Date
Avantages de Projets Environnementaux” du 5 au 8 Mai 1997 (Joseph Karam & Nouzha Alaoui)	
An assessment of Community Issues & Practices Related to Water in Two Souss Basin Communes: Drarga & Temsia (Elizabeth Bennour & Carla Boussen)	May 1997
Etude Pedologique du Bassin Versant de Oued Nakhla (Mustapha Naimi & Rachid Bouabid)	June 1997
Mise en Place d’un Système de Traitement et de Valorisation des Eaux Usées et des Boues Résiduairees dans une Commune Pilote: Qualité des Sols et des Eaux Souterraines (Brahim Souidi)	June 1997
Mise en Place d’un Système de Traitement et de Valorisation des Eaux Usées et des Boues Résiduairees dans une Commune Pilote: Carte d’Occupation des Sols (Brahim Souidi & Cherif Harrouni)	June 1997
PLLA of Oued Nakhla Watershed (SANREM CRSP/ENA Meknes)	June 1997
Pilot Project for the Reduction of Chromium Discharged by the Tanneries in Dokkarat - Feasibility Study	July 1997
Pilot Project for Treatment and Reuse of Domestic Waste Water in Drarga - Feasibility Study	July 1997
1997 First Quarter Report	October 1997
1997 Second Quarter Report	October 1997
Pilot project for soil erosion control in the Ourd Nakhla watershed - Feasibility study	October 1997
Environmental Assessment of the Drarga Wastewater Treatment & Reuse Pilot Project	November 1997
1997 Third Quarter Report	November 1997
Environmental Assessment of the Pilot Project to Reduce Chrome in Wastewater Discharged by the Tanneries of Dokkarat, Fes	December 1997
Draft 1998 Annual Work Plan	December 1997

ANNEX 1

BUDGET EXPENDITURES

ANNEX 2

**WRS PROJECT
TECHNICAL AND MANAGEMENT REPORTS**