

Morocco WPM Watershed Protection and Management Task Order No. 814 under the BIOFOR IQC

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2003 Annual Progress Report

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1. Introduction

This document presents the year 2003 progress report for the Morocco Watershed Protection and Management (WPM) Activity. This report covers the period from January 1, 2003 to December 31, 2003. The WPM activity has the following objectives:

- In the Nakhla watershed, the objective is to expand the successful Water Resources Sustainability (WRS) pilot project's agroforestry and soil erosion control activities to the entire watershed, thereby reducing siltation of the Nakhla reservoir and prolonging its useful life.
- In the Souss-Massa river basin, the objective is to identify, design, and implement new watershed protection activities to control soil erosion, reduce the spread of desertification, and protect water quality.

These objectives are integrated in USAID's Strategic Objective 6 to improve water resources management in the Souss-Massa river basin. While activities related to the Nakhla watershed do not occur in the Souss-Massa region of Morocco, completing an integrated watershed management program in Nakhla will provide valuable lessons on integrated water management that can be applied and replicated in the Souss-Massa.

After this introductory section, Section 2 presents WPM activities undertaken in the Nakhla watershed during the fourth quarter of 2003; Section 3 presents activities in the Souss-Massa river basin; Section 4 shows activities anticipated in the next quarter; Section 5 presents meetings and events attended by WPM staff in the fourth quarter 2003; and Section 6 lists the consultants fielded during the reporting period. Annex A presents the budget tables, and Annex B lists reports and deliverables.

2. Activities in the Nakhla watershed

2.1 Direct actions

Tree plantations

We began 2003 by marking cropland areas for plantation in Zones III, IV, VII, and VIII. By the end of the first quarter, we planted 55,000 olive trees in these zones, benefiting 646 farmers. Farmers also identified a site to be planted only with almond trees, and we distributed 4,000 almond trees to 48 farmers.

Also in the first quarter, we distributed 20,000 fruit trees (mainly apple, quince, plums, and apricots) to farmers in the irrigated areas. The trees were planted on the edges of terraces to prevent land sliding. Farmers also planted the fruit trees in their terraces as orchards. In a couple of years, when these trees begin to produce fruit, they will increase the income of the farmers of the area.



In the third quarter, the CT and DPA staff held field days for farmers in Zone III and Zone VII regarding the construction and maintenance of small water catchments (cuvettes) around olive trees.



Continuing their work with the WPM project in the fourth quarter of the year, the DPA and CT marked the cropland in douar Amtil for 13,000 olive trees that will be planted in the first quarter of 2004. The CT and DPA staff also held field days for farmers in zones II, V, VI, and VII regarding proper techniques for pruning olive trees, fertilization and chemical treatment, construction of water catchments around olive trees, and irrigation of fruit trees distributed as part of the soil conservation and income-generating activities for farmers earlier in the year.

Installation of grass strips

At the beginning of 2003, we planted vines on 13 hectares of land between olive trees on contour lines. This action replaced the grass strips we had planned originally. The vine plantation plays the role of a grass strip by collecting and catching sediments after rain events. Once the vineyard begins producing, it will generate extra revenue for farmers. We performed maintenance and weeding of the vine plantation in the third quarter.



During the fourth quarter of 2003, we prepared an additional 10 hectares site for band strips along the contour lines. These bands will be planted with vines next quarter. In keeping with our goal to ensure that our activities are tailored to local needs, the CT staff held meetings with farmers to choose other sites for stone and grass strips.

Rehabilitation of irrigation canals

With the CT and DPA, the WPM team prepared and finalized a bid for the rehabilitation of the irrigation canals in Bettara, Ouadyine and Tzili in the first quarter of 2003.

In the third quarter, the WPM team prepared and completed the irrigation network rehabilitation study and the bid document to be submitted to the APDN for funding. The request for bids was released and a private contractor was selected. The APDN issued the task order to the contractor to start the work in September 2003.

Paralleling the APDN-funded work on the irrigation network, the WPM team held sensitizing meetings during the fourth quarter about the rational use of water for irrigation with farmers living in the area where the work will be done.

Stabilization of ravines

In the second quarter of 2002, we identified 5.1 km of ravines requiring stabilization, and we planted 41,000 new acacia, eucalyptus, and poplar plants donated by the DREF-Rif. Along the Nakhla River, we selected seven sites where we will apply soil conservation techniques to prevent land sliding.



Rehabilitation of rangeland

In the second quarter of 2003, we identified areas in the rangeland of the watershed that will undergo seeding and other management techniques. During the last quarter of the year, a team consisting of DREF-Rif staff and a WPM consultant visited some

potential sites for rangeland rehabilitation through seeding or plantation. However, farmers remain skeptical about rangeland rehabilitation because the rangelands are held publicly. Though none of the farmers wanted or accepted work on the collective rangeland, they were open to seeding or plantation in their private landholdings.

Construction of water holding tanks

In the second quarter of the year, we conducted a survey, in collaboration with the U.S. Army, to select water points to be rehabilitated and to determine sites where water reservoirs (with a storage capacity of 10 m³) will be constructed.

Following up on that work, in the third quarter, the DPA, CT, and WPM jointly conducted a survey of water sources to be rehabilitated in the watershed and selected 11 water sources among 22 for rehabilitation, the cost of which is supported by funds administered by the U. S. Embassy in Rabat. A private contractor was selected for the job, but unexpected circumstances, including unanticipated contractor financial problems, the Moroccan legislative election campaign, and annual leave of the local administrators in August, prevented the contractor from completing the work within the timeframe set in the contract. However, construction of the water reservoirs began in December 2003.

2.2 Indirect Actions

Rabbit production women's association

In the first quarter, we delivered rabbits, cages, and rabbit food to the Amtil women's association to help start the rabbit production activity. We assisted the association with acquiring new vegetable varieties for their rabbits, and we started a demonstration trial to show the net benefit of using these new varieties.



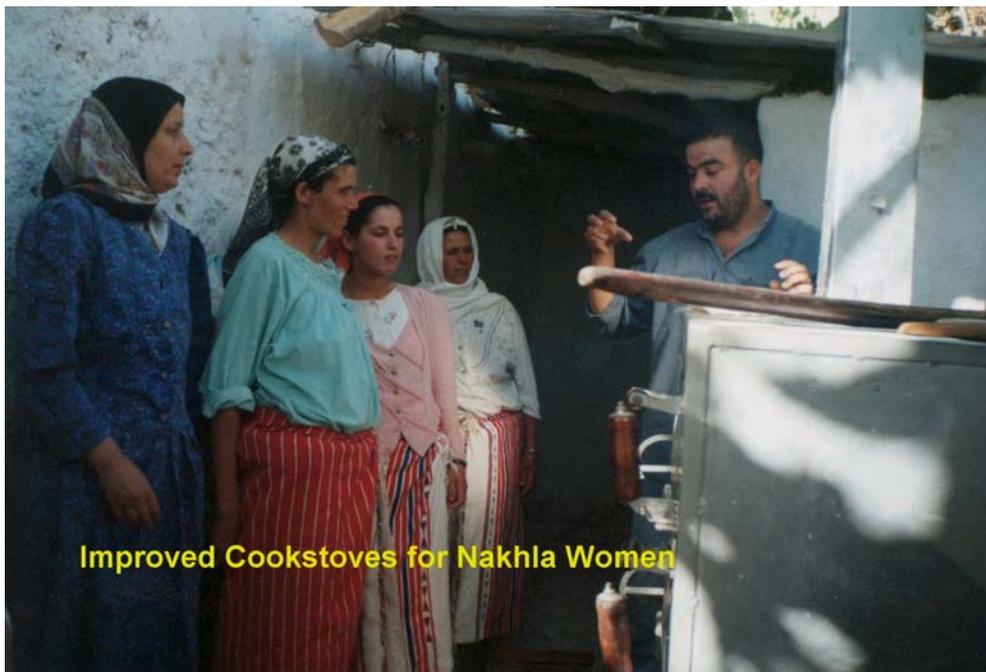
Throughout the year, the CT continued to work closely with the rabbit production association to help its members gain experience in managing rabbits. In the second quarter, some rabbits began to show signs of a viral infection. In response, the WPM team began a vaccination campaign to prevent the spread of viruses and also delivered 50 new rabbits to the association to replace some of those that died.

The technical assistance provided in the third quarter included the ongoing vaccination campaign to prevent the spread of viruses among the association's rabbits. In addition, the women were able to sell some of their product, and the income generated was used to buy feed for the rabbits.

The CT continued to provide technical assistance for the treatment of the rabbits against diseases in the fourth quarter. Again, the association sold some of their product, and we hope this will encourage them to continue their good work.

Introduction of improved cookstoves

In the last quarter, the UNDP was also involved in the watershed by distributing six collective ovens and some rabbits to the women's association. An additional 11 collective ovens supported by the APDN were distributed in Zone II.



Apiculture

In the first quarter, we organized farmers who have experience in apiculture from Amtil and Beni Moussa into beekeeping cooperatives, with assistance from the CT. By the end of the second quarter, we purchased and distributed 100 modern beehives

in Amtil, and created a second beekeeping cooperative in Beni Moussa. Twelve farmers have been registered under this association, and they have been supplied with 80 modern beehives and equipment. In addition to technical assistance from WPM project consultants, the association has also benefited from the technical expertise of the DPA and CT staff.



In the fourth quarter of 2003, we held a training day on the extraction of honey from beehives for the beekeeping associations already created in the area. The success of the first beekeeping association is evident. Since members of the first association started honey extraction from the beehives distributed by the project, more farmers are demanding to be organized into beekeeping associations. In response to the demand, our team has begun the process of creating a third beekeeping association in the douar of Achekrade.

Improved animal production

This year, the CT and the DPA conducted a follow-up evaluation of the goats selected to undergo supplemental trials. With the help of a WPM consultant, a sampling of goats was evaluated to monitor weight gain.

Training for farmers

In addition to the field days and trainings mentioned above, the WPM team periodically visited farmers for training and follow up throughout the year.

In the second quarter, we supported the participation of four MOE staff in the international seminar of the International Association for Impact Assessment (IAIA) held in Marrakech, Morocco, June 12-18, 2003.



During our third quarter, we organized a study tour for 28 farmers and two technicians to visit the Dou Tamma watershed, the WPM replication site in the Souss Massa. The farmers who benefited from the tour come from four douars of the watershed. The participants attended presentations and discussed the various interventions implemented in the watershed. They also visited associations and cooperatives in the Souss area where they were shown what they can achieve if they organize like the farmers of Souss Massa.

2.3 Dissemination

As part of our efforts to disseminate the project's success, in the second quarter of the year we hosted a group from Echanges Mediterraneens pour l'Eau, la Forêt et le Développement, a European NGO that operates in the Nakhla watershed. The WPM project team and our partners presented different activities and actions implemented in the watershed and provided an opportunity for the participants to visit some interventions and to talk to some farmers of the area. During the second quarter, we also presented the water projects USAID is implementing in Morocco in a joint stand with SIWM project during the International Association for Impact Assessment (IAIA) seminar.

3. Activities in the Souss-Massa River Basin

3.1 Soil erosion control

As part of our efforts to build institutional partnerships with local agencies, we drafted and signed two separate program contracts with ORMVA-SM and DREF-SM at the beginning of the year. These contracts stated the responsibility of each partner regarding the soil erosion control activities programmed for 2003.

In the areas of training and dissemination, in the third quarter we hosted a group of farmers from the Nakhla watershed who visited various cooperatives and associations in the region and learned about measures we have taken to control soil erosion.

Tree plantation

In the first quarter, our team distributed 13,250 almond trees and 6,600 olives trees to farmers from the douars of Tasguint, Tazarine, Sinit, Alemzi, Goungui, Agadir Ida Ousouarh, and Bigoudine. At the end of the quarter, we evaluated the success of this plantation action to 40-60% for the almond trees and to more than 70% for olive trees.



Improved animal production

During the first quarter, we evaluated the performance of the 1,160 goats that were part of the WPM project's vaccination campaign at the end of 2002. The mortality rate was very low, and the overall performance of the vaccinated animals was better than that of the animals that were not vaccinated. We will continue to monitor the effects of the vaccine and the nutrition supplementation on the growth of these goats.

This year, we also started monitoring the performance of the new baby goats born from vaccinated and non-vaccinated females.



In the second quarter, in addition to continuing performance monitoring, we distributed barley grain to support the baby goats' feeding to improve their daily weight gain. We observed that some farmers started using scales to measure the exact amount of barley grain to give to their animals. This is proof of farmers' commitment to the awareness campaign conducted by the project in the area. Our monitoring program will continue to determine the effect of the vaccine and the nutrition supplementation on the growth of the goats in the watershed.

In the third quarter, the team again distributed barley grain to farmers who were selected for the nutritional and management demonstration trials. The objective of these trials is to show how much improvement in growth and production farmers can achieve by changing the nutrition, sanitation, and management procedures for their goats. The goats of the watershed also received internal and external parasite treatments.

The parasite treatments and the barley grain distribution program continued into the fourth quarter. We continued to distribute barley grain to selected farmers for undergoing the nutritional and management demonstration trials.

Also in the fourth quarter, WPM consultants with ORMVA-SM staff worked with farmers to select those who will be eligible to receive a male goat to improve their goat production. Only those who have more than 25 females will be eligible. Farmers can also be grouped together to meet this requirement.

Introduction of improved cookstoves

In the first quarter of 2003, we conducted a survey in the watershed to determine the needs of the local population with respect to improved collective ovens. We based our survey on the experience we had with the first collective oven introduced in the douar of Tazarine last quarter. Eighteen groups of houses agreed to comply with the conditions, set by the WPM project, to receive the ovens. These conditions state that each group of houses must identify one person who will sign a contract to provide a shelter where the oven will be installed, allow free access to the oven by all group members, and maintain the oven.



The introduction of the new oven has been a success. During the fourth quarter, we distributed another set of 10 collective ovens in the area for groups of women.

Apiculture

At the beginning of 2003, we identified three potential groups of farmers interested in organizing a beekeeping cooperative to perform their apiculture activities. The farmers, who are aware of the improved performance of modern beehives relative to that of traditional beehives, were quite interested in joining the cooperative and receiving the new hives.

In the second quarter, we officially created a beekeeping cooperative in douar Tasguint and supplied 100 beehives. The cooperative's name is "Tazoukini," which represents the name of a local plant that is very attractive to bees. Most members of

this cooperative have practiced beekeeping before, and their experience will greatly benefit the cooperative.

We had begun the process of creating two more beekeeping associations in the third quarter, and by the fourth quarter, one of the new associations had extracted honey from their beehives. The honey was of good quality, and the association kept some for its members and sold what was left. We created two more beekeeping associations in douar Goungui and Agadir Ida Ouswarh within the watershed. These associations will receive beehives next quarter.

Forest area and rangeland activities

In collaboration with DREF-SM, we replanted a total of 1,637 argan trees in a 7.18 ha area delimited within the watershed forestland with the participation of the local population. The plantation density is around 228 plants/ha. The trees were provided by the DREF. The trees were planted along contour lines with stone strips along the lines and cuvettes around the trees to trap sediments and collect water.



We also fenced the area to serve as a demonstration site. The fencing prevents goats from grazing and makes natural regeneration of argan trees possible. We also distributed 3,400 carob seedlings—provided by the DREF—to farmers from douar Goungui. These seedlings were planted in the forestland around the douar.



In the second quarter, we delimited an area that will be replanted in a joint venture between the WPM project and the DREF-SM. A team of representatives from both partners went to the field and discussed with the farmers the delimitation of these areas. No final delimitation was made until it received the approval of the population.

We also chose a site for cactus plantation in the area that contributes to soil erosion in the watershed. To prepare the terrain for plantation, we ran a successful hole-digging campaign that resulted in the digging of 12,600 holes. However, because of the lack of the rain and difficulties with irrigating the site, we decided to postpone the plantation until September or October 2003.

In the second quarter of 2003, a WPM/DREF-SM team also conducted a survey for sites where caper trees can be introduced. Caper will be introduced both in private and forest lands. Cactus and caper will play double role, protecting the soil from erosion and providing a source of income to farmers in the watershed.

In addition to our work planting new argan trees, we are trying to maintain the older argan trees in the area. To help the old argan trees collect water during rain events, we installed small catchments around 2,400 naturally grown argan trees as a water harvesting technique to be introduced in the area. With a plant density of about 32 trees/ha, this operation covered about 70 ha of the forestland.

In the second quarter of 2003, we proceeded with two irrigations to the newly planted argan site, as well. We are careful to not give more water than they need because we

want the young seedlings to be able to acquire some resistance and adaptability to their harsh environment.

During the third quarter of 2003, in the watershed's fenced area, we prepared a site where caper would be planted in the following quarter. Also, with the DREF-SM and the local population, we finalized the limits of the area that would be planted in the forest zones of the watershed fourth quarter. The species that will be planted will consist mainly of argan, carob, caper, and cactus.



Additionally, we continued making water catchments around old native argan trees, and we continued our construction of stone trips and mechanical ravine corrections.

The treated area is approximately 150ha. We also applied three irrigations to the newly planted and fenced argan trees in the watershed.

In the fourth quarter, in the fenced area in the watershed we planted 2,100 caper plants, and we distributed 2,150 more caper plants to farmers who will plant them on their private lands.



The DREF-SM prepared about 250 ha of forestland for plantation. Thirty ha were already planted with argan and the rest is scheduled to be planted next quarter. In the Tachdirt perimeter that was prepared for cactus plantation last quarter, we planted 12,600 cactus plants.



The argan reserve near douar Tazarine has been extended to include another perimeter of the watershed locally called Mizourine, in the province of Taroudant. In Mizourine perimeter, 3,100 argan seedlings were planted. These seedlings came from the IAV Hassan II nursery (1,100 seedlings) and the Eaux & Forets nursery in Taroudant (2,000 seedlings).

Work progressed on the small water catchments around the native argan trees in the last quarter of 2003. We also continued our construction of stone strips and mechanical ravine corrections. The cumulative treated area approached 200 ha.

Also in the final quarter of 2003, we set up an experiment using a product called DRiWATER on 100 newly planted argan trees. The product is supposed to reduce soil evaporation, making more water available to the plants.



Women's cooperatives/associations

Much effort was put into creating women's associations or cooperatives in the second quarter of 2003. The project team held many meetings with the women of the area to explain the benefits of joining associations or cooperatives—including enhancing their ability to sell their products. We proposed to them two types of income-generating activities: rabbit and poultry production.

It seems to us that the women are skeptical about being grouped as a cooperative because of their lack of experience and their fear about the division of labor among the members of the cooperative. They would prefer to work individually. Since our goal is to generate or improve the women's income, we decided to work with them individually at first. However, once they gain some experience and begin to accept the idea of working as a group, we can create a cooperative or association.

In the third quarter, we created an argan oil extraction women's cooperative. We continued to search for potential members in the douars, and several women expressed a willingness to join the cooperative once it is established. We also organized a trip for 20 women from the watershed to visit another women's cooperative working in the same sector. After the visit, 126 women expressed interest in joining the cooperative.



The women's argan oil extraction cooperative that began in the third quarter was officially established in the fourth quarter. We organized meetings with women from other parts of the watershed to explain the goals and perspective of the association. Local laborers have begun the construction of the women's association building using local materials.

Rehabilitation of irrigation network

In the second quarter of 2003, we started the rehabilitation of the irrigation network in four douars of the watershed: Tazarine, Tasguint, Agadir Ida Ouswarh, and Goungui. We selected a private contractor to do the work, which began in May 2003. About 820 meters of irrigation canal have already been rehabilitated and the work is still underway.



By the fourth quarter, we started the second phase of the irrigation network rehabilitation. In this phase, the work will be completed on some parts of the network in the douars associated with the first phase, and the rehabilitation of the irrigation network of the Sinit douar was also scheduled.

3.2 Industrial pollution prevention

During the first quarter of 2003, we finalized and signed the second version of the collective agreement regarding the COPAG activity. The Aït Izza Municipality was the new institution joining this collaboration.

We also finalized our study on the treatment option and technology that COPAG will use, and we held a workshop on the treatment options for pollution prevention. The workshop was attended by all technical committee members, representatives of other institutions, and persons interested in industrial pollution prevention.

The ABH selected Iskane, a private contractor, to take over the study done by the WPM project. Iskane's main task will be to conduct a detailed study on the interventions proposed by the WPM project regarding the water savings and treatment options.

We shared with Iskane all the data and documents we collected or prepared during the first part on the feasibility study, and the coordination of the COPAG feasibility study was handed over to the ABH. However, WPM project will be kept informed and consulted about the progress of the work.

Under the collective agreement signed for this activity by the different partners, WPM has the main task of generating data necessary to do the feasibility study. During the second quarter of 2003, the COPAG started an orange juice processing unit. The effluent of this unit will affect the characterization of the overall effluent that comes out of the COPAG unit. To be able to continue the design of the final effluent treatment option for COPAG, we conducted a characterization campaign of the orange juice unit and the final COPAG effluents. The results of this campaign are to be used by Iskane to finalize the study on the treatment option to be proposed to COPAG. Iskane has completed the detailed study on the water saving projects to be proposed to COPAG for implementation.

In our continued efforts to support COPAG in meeting the eligibility criteria for FODEP funds, we held a meeting during the third quarter with COPAG and FODEP staff at the dairy plant in Taroudant to discuss and better understand the FODEP requirements. We took this opportunity to review the funding request that COPAG will submit and to correct and adjust the information to meet FODEP standards.

Also in the third quarter, members of the WPM team attended a technical committee meeting held in Agadir under ABH-SM to present and discuss the APD study done by Iskane regarding the treatment option for the COPAG effluents.

Additionally, we visited COPAG with Mr. Balafrej, director of partnership, communication, and cooperation in the MOE. It was an opportunity for Mr. Balafrej to visit the dairy and to meet with its staff and president to express the MOE's support for this activity.

In the fourth quarter, Iskane prepared a bid document for the treatment option. The bid document was discussed, reviewed, and approved by the technical committee, and COPAG used the document to release an international call for bids. COPAG has received several offers, and the final choice will be made next quarter.

During the fourth quarter we also prepared for the environmental impact assessment study to be performed next quarter, and we continued our efforts to support the COPAG's compliance with the FODEP funds eligibility criteria.

3.3 Wastewater treatment and reuse

In the first quarter of 2003, we decided on the type of technology that will be used in the wastewater treatment plant. We held a meeting where the three associations, the WPM project, and a representative of Schaefer Technology were present.

We compared the Schaefer technology with the natural lagoon proposed by the project, and, although the Schaefer technology presents some theoretical advantages, no wastewater treatment plant using this technology exists in Morocco. Moreover, the technology has high operating and maintenance costs compared to the traditional natural lagoon.

We discussed the possibility for Schaefer to implement a small pilot station using its technology to test it under the Moroccan conditions. Another proposed option was to organize a study tour in the U. S. for the beneficiaries to see a wastewater treatment plant that operates using the Schaefer technology. The Schaefer representative declined both options. The associations validated the choice proposed by the project.

Also in the first quarter, we finalized the study on the sewage network in the three villages. We held several meetings with the associations before finalizing the design. Grouping all three douars in the same sewage network and the wastewater treatment plant does not seem to be feasible, either technically or financially. The Aït Mimoun and Breij douars will have a collective network that will collect effluents for the future treatment plant. The Soualem douar, however, will have a separate network and may have a separate treatment plant. The houses in Soualem are widely dispersed, which increases the cost of implementation. The associations agreed to go along with this proposition.

We invited all the technical committee members to a workshop on the management and maintenance of the wastewater treatment plant. We held a plenary session and also worked in groups. The main outcome of this workshop was the acknowledgement of the lack of information regarding what the law allows each partner to do regarding the management of a treatment plant. The workshop recommended launching a study on the legal aspects of the responsibilities of each partner who wishes to be involved in the management of the future wastewater treatment plant. Houria Tazi Sadeq, a consultant, was hired to conduct this study and the results were presented and discussed at the Technical Committee meeting held in April 2003.

Also during this quarter, we helped the Aït Mimoun association to start putting in place a section of the sewage network proposed by the project. The project purchased 1,070 meters of PVC pipes and shared the cost of installing the pipes with the association. This cost sharing was very much appreciated by the local populations, which were encouraged to contribute more for other sections of the network.



We held several meetings with the General Secretary of the Province of Chtouka Aït Baha to update him on the progress of the work we are doing in Sidi Bibi. He has always been very supportive of the partnership we have built in the area, and he wants it to serve as a model to disseminate in other regions of the Souss Massa.

In the second quarter of 2003, we conducted another characterization campaign of the Drarga wastewater treatment plant to support our work in Sidi Bibi area. The results were used to show the association the performance of the station and the quality of the treated water to be used in irrigation.

Because the Swalem douar is very scattered, we held several meeting with the association of the douar to discuss different sewage network scenarios. This allowed us to have the final drawing of the network of the three douars together. We also prepared the bid document to be used by the association in the implementation phase of the sewage network.

With the three associations we discussed different scenarios for the treatment of the wastewater generated by the three douars. Natural lagoon was the one chosen for implementation. We followed up on our discussion with the population on the potential site for the wastewater treatment plant. After we validated the site with three associations, we started the detailed drawing of the treatment plant.

We are also assisting the associations in preparing a document to be submitted to the Social Development Agency (Agence de Développement Social, ADS), and working very closely with them to explore any information regarding a possible funding required to implement the feasibility study results.

In the third quarter, we implemented the environmental impact assessment under the leadership of Dr. Brahim Souidi, WPM's principal consultant. The MOE staff who attended the International Association for Impact Assessment conference held in Marrakech last June worked with Dr. Souidi on carrying out the EIA.

We also continued our work with the three associations involved in this activity on eligibility criteria for receiving funds from the Agence de Développement Social. Additionally, we approached partners for possible contributions to fund the sewage network and the wastewater treatment plant.

After the completion of the feasibility study, in quarter four we continued our efforts to find partners to contribute to funding the sewage network and the wastewater treatment plant. Our team held meetings at the province level to get rural communes and other institutions to contribute financially to the implementation phase of this component of WPM project. We put together a funding plan, under the supervision of the Province of Chtouka Aït Baha, where the Rural Communes of Sidi Bibi and Aït Izza, the Provincial Counsel, WPM, and the associations involved will contribute substantially to the overall budget. We prepared an agreement to be signed by these partners in a signature ceremony to be held next quarter at the Province level. This

agreement will support the request for funds that will be submitted to the ADS on the behalf of the associations involved.

WPM and PREDEL (a project funded by OXFAM-Quebec) organized a dissemination workshop related to wastewater treatment and reuse in small communities. More than 20 associations working with OXFAM on different environmental projects attended the workshop. A presentation by RBA, ONEP, WPM, ADS, and the association Oulad Mimoun was made to the participants. A visit to the Drarga wastewater treatment plant was also organized as a part of the workshop.

4. Activities anticipated in the first quarter of 2004

4.1 Souss-Massa River Basin

During the first quarter of 2004, we will continue the plantation campaign in the forest area Dou Tama watershed. We will also continue our work regarding the construction of the argan oil extraction women cooperative building. Bee keeping associations will be also encouraged during this quarter. The distribution of olive trees and Almond to the local farmers will be done in this first quarter. Soil conservation measures will also implemented in the forest area to mitigate the erosion effect in the watershed.

Regarding COPAG activity, we will finish preparing the report to be submitted to FODEP. We will work with the RBA finishing the detailed study of the treatment option and of the bid document. The choice of the company which will have the task to construct the treatment plant will be done during this quarter

In Sidi Bibi, we will finalize the funding plan with the project partners to support the request for fund to be submitted to the ADS.

4.2 Nakhla Watershed

In nakhla, we will support the already existing associations and support the creation of new ones. Plantation of olives trees in crop land and vine in grass trips will be done in this quarter. Work on erosion control measures will be also emphasized.

5. Meetings and events

Table 1 below shows the meetings and events attended by WPM staff in the year 2003.

Table 1 Key Meetings Attended in 2003		
Meeting Description	Participants	Date
Meeting with the associations in Sidi bibi	Association, WPM, population	Jan 6, 03
Meeting with Sidi Bibi Technical committee at the Chtouka Ait Baha Province	Province, Technical Committee, WPM, Associations	Jan 6, 03
Meeting in COPAG	ABH, WPM, COPAG	Jan 7, 03
USAID on site visit in Agadir	SIWM, USAID, WPM	Jan 14-17, 03
Workshop on the management of the STEP, Sidi Bibi	Associations, Technical committee, WPM, consultants	Jan 21,03
Meeting in DPA Tetouan and DREF-RIF	DPA, DREF, USAID, WPM	Jan 28, 03
USAID Partners meeting	USAID, WPM, PArtners	Jan 29, 03
Workshop on the treatment option for industrial pollution, COPAG	Technical committee, wpm, Consultants,	Feb 4, 2003
Meeting with ONEP, Sous Massa	ONEP, WPM, Consultants	Feb 24, 03
Meeting with ABH Sous Massa	ABH, WPM, consultant	Feb 24, 03
Meeting with Sidi Bibi and Ait Amira Rural Communes	Communes Presidents, WPM, Consultants	Feb 24,03
Meeting with Province General Secretary of Chtouka Ait Baha	General Secretary, Province Staff, WPM, Consultants	Feb 25, 03
Discussion and validation of the treatment option in Sidi Bibi	Associations, WPM, Consultants, Sheaffer	Feb 25,03
Meeting with USAID water team	Water team, WPM	March 10, 03
Meeting at ORMVA-SM, "contrat programme"	ORMVA-SM, WPM, Consultants	March 26, 03
Meeting with consultants for replication manual	WPM, Consultants	March 27, 03
Meeting to discuss Iskane study related to COPAG	Technical Committee, ABH, Iskane, WPM	March 28, 03
Workshop in Sidi Bibi	Association, WPM, Technical Committee, population	April 2-4, 03
Meeting with high Atlas Foundation	WPM, Foundation, DREF Marrakech, NGO Marrakech 21	April 5, 03

Table 1
Key Meetings Attended in 2003
(Continued)

Meeting Description	Participants	Date
WRS close up seminar	WPM-WRS partners	April 8, 03
Home Office site visit (Khatouri)	WPM, DREF-SM, ORMVA-SM	April 16-17, 03
Meeting COPAG	WPM, Consultants, COPAG	April 29, 03
USAID on site visit in Agadir	USAID, WPM	June 6, 03
Nakhla survey for water reservoir	WPM, USAID, US Army	June 12-13, 03
Poster at International seminar of the International Association for Impact Assessment	WPM-DOE-SIWM	June 14-18, 03
Visit of P. Bitner to the Dou Tama watershed	WPM-Ecotourism project-P.Bitner-DREF SM	Jul 9-10, 03
P. Bitner Exit meeting at the USAID	WPM-P.Bitner-USAID	Jul 11, 03
M. Khatouri visit to the Dou Tama Watershed	WPM-M.Khatouri-DREF-SM	Aug 21-22, 03
Visit of T. Balafrej to WPM projects in Sous Mass	WPM-T. Balafrej-SEE-DREF SM	Sept 1-2, 03
Meeting with SEE cells	M;Kerby-WPM-SEE cells	Sept 15, 03
Work progress in COPAG activity	WPM-M. Kerby-RBA SM	Sept 17, 03
Discussion of the ADS Sidi Bibi submission report	WPM-M. Kerby-Associations	Sept 17, 03
Visit to COPAG	WPM- M Kerby	Sept 18, 03
Work progress in Dou Tama watershed	WPM-M. Kerby-DREF SM	Sept 18, 03
M. Kerby Exit meeting at the USAID	WPM-M. Kerby-USAID	Sept 26, 03
COPAG Technical committee meeting	Technical committee members-WPM	Sept 30, 03
Meeting with the Sidi Bibi association to discuss the funding plan and the contribution of the partners	WPM-Associations-	Oct 09,03
Meeting at the Province of Chtouka Aït Baha to discuss the funding process of the Sidi bibi project	WPM-Province Chtouka Aït Baha, association, Communes	Oct 21,03
Meeting with the association for agreement signature b/w the 2 associations involved in the project	WPM-Assocaition-Communes	Nov 13,03
Meeting with the Caïd of Tikki to discuss the work progress in Dou Tamma Watershed	WPM-Caïd Tikki	Nov 13,03

Table 1 Key Meetings Attended in 2003 (Continued)		
Meeting Description	Participants	Date
Meeting of the Technical Committee meeting of Sidi Bibi component of WPM project	All technical Committee memebbers	Dec 02; 03
Meeting with OXFAM project coordinator to plan for cooperation and workshop	WPM-OXFAM local coordinator	Dec 03; 03
Meeting at the Chtouka Aït Baha Province to identify the partners support to the Sidi Bibi project	All technical Committee members	Dec 12; 03
Workshop on wastewater treatment and reuse in Aït Mimoun village	WPM-Assocaition-ONG working with OXFAM in the province de Chtouka Aït Baha	Dec 25; 03

6. Consultant missions

6.1. First quarter activities

Nakhla activities

- **Rachid Bouabid, and Mohamed Mounsif** were fielded in January, February and March 2003 to implement and monitor the plantation both in irrigated and non irrigated area of the watershed. The follow up of the goat nutrition supplemental trials was part of Dr. Mounsif mission.

Souss-Massa activities

- **Rachid Bouabid, Mohamed Mounsif**, were fielded in January, February and March 2003 to supervise almond and olive trees distribution, goat management and prepare for the irrigation network rehabilitation in the Abdelmoumen watershed.
- **Brahim Souidi** was fielded in the first quarter of 2003 to attende the different workshops and meetings we had either with the associations or with the technical committee. He helped the private contractor to validate and collect the needed data to come up with a final design of the seage network and the WWTP suitable for the area.
- **Houria Tazi Seddik** was fielded to conduct a study on the legal side of the management of a WWTP by association in relation with the Rural Commune.
- **Driss Messaho** was fielded in January and February 2003 to present the results of the option treatment study to the technical committee in the workshop held in January 2003. He also attended coordination meetings with ABH, COPAG and others interested by the feasibility study.

6.2. Second quarter activities

Nakhla activities

- **Rachid Bouabid, and Mohamed Mounsif** were fielded in April, May and June 2003 to implement and monitor the interventions related to the goat and rangeland production, the biological ravine correction, the choice of sites along the Nakhla river for land sliding production, the fruit trees plantation in some and the training and education of farmers (men and women) in the watershed.

Souss-Massa activities

- **Rachid Bouabid, Mohamed Mounsif**, were fielded in the second quarter of 2003 to supervise and assist in making water-catchment around argan trees, goat management, irrigation network rehabilitation, sites selection for the forest planting and beekeeping association in Dou Tama watershed.
- **Brahim Soudi** was fielded in the second quarter of 2003 to attend the workshop held in Sidi Bibi. He helped in the choice of the treatment option and the design of the WWTP.
- **Houria Tazi Seddik** was fielded to conduct the workshop, held in Sidi Bibi, on the legal side of the management of a WWTP by association in relation with the Rural Commune.

6.3. Third quarter activities**Nakhla activities**

- Dr. Bouabid (soil scientist) helped preparing the irrigation network rehabilitation that will be funded by the APDN. He also launched the construction of stone strips in other pilot sites in the watershed.
- Dr. Mounsif was involved in the creation of a second beekeeping association in the Amtil village. He also participated in the organization and the implementation of the study tour for farmers from Nakhla watershed to Dou Tama watershed.

Souss-Massa activities

- **Dr. Soudi** led the Environmental Impact Study regarding the Sidi Bibi activity related to the wastewater treatment and reuse. He also helped preparing the funding framework of the results of the feasibility study performed in Sidi Bibi.
- **Dr. Messaho** attended the technical committee meeting related to the pollution prevention. He also was involved in the preparing the FODEP document to be submitted by COPAG for external funding of the treatment option that will be implemented to treat its effluent.
- **Dr. Bouabid** worked in the planning and the realization of the water catchments around old argan trees, the construction of stone trips and stone check dams to correct ravine erosion.

- **Dr. Kenny** was heavily involved in the process of creation of the women argan oil extraction cooperative. He organized a one-day trip for women from the watershed to visit another women cooperative that is working in the same sector. He also worked on the planning of the plantation of caper and cactus trees in the watershed.
- **Dr. Mounsif** continued his follow up of the goat nutritional demonstration trials and he contributes to start the process of creating two other bee keeping associations in the watershed.

6.4. Fourth quarter activities

Nakhla activities

- **Dr. Bouabid** (soil scientist) worked on the installation of vine on grass strips, the monitoring of the crop landing marking for future olive plantation.
- **Dr. Mounsif** was involved in the goat nutritional demonstration trials, seeding of rangeland and the technical assistance regarding the creation of the third beekeeping.
- **Dr. Aït El Mekki** was in charge of the economic evaluation of the work in Nakhla watershed.

Souss-Massa activities

- **Dr. Soudi** helped finalizing the funding framework of the results of the feasibility study performed in Sidi Bibi. He facilitated the workshop held for associations working with OXFAM regarding the wastewater treatment in small communities.
- **Dr. Messaho** attended the technical committee meeting related to the pollution prevention. He also continued helping in the choice of the preparation of the bid document prepared for COPAG by the RBA.
- **Dr. Bouabid** continued his involvement in the construction of water catchments around old argan trees, the construction of stone trips and stone check dams to correct ravine erosion. He was monitoring the irrigation network rehabilitation progress.
- **Dr. Kenny** was involved in the plantation of caper, cactus in forest land within the watershed.

- **Dr. Mounsif** continued hi follow up of the goat nutritional demonstration trials and he contributes in the creation of two other bee keeping associations in the watershed.

Annex B : WPM Project Technical and Management Reports

No.	Report Title	Date
1	Quarterly Progress Report - First Quarter 2002	June 02
2	Quarterly Progress Report - Second Quarter 2002	July 02
3	Quarterly Progress Report - Third Quarter 2002	October 02
4	Annually Progress Report - Year 2002	February. 03
5	Quarterly Progress Report – First quarter 2003	May. 2003
6	Quarterly Progress Report – Second quarter 2003	October 03
7	Quarterly Progress Report – Third quarter 2003	December 03
8	Annually Progress Report - Year 2003	March 04
Nakhla Watershed		
9	Prospection et identification des sites potentiels pour l'extension et la réplification des actions du PREM	October 01
10	Extension du PREM – Bassin versant Nakhla	December 01
11	Analyse économique et financière du projet Nakhla	June 02
12	Contrat-Programme WPM-DPA, Juillet-Décembre 2002	October 02
13	CPS Réhabilitation des réseaux d'irrigation de Bettara and Al Ouaddiyine	December 02
14	Rapport sur l'introduction de fours améliorés dans le B.V Nakhla.	December 02
15	Rapport sur la correction torrentielle dans le bassin versant Nakhla	April 03
16	Construction of water reservoirs in Nakhla watershed	June. 03
17	Evaluation Economique Intermédiaire	December 03
Souss-Massa River Basin		
18	Rapport de prospection des sites pour un projet de contrôle de l'érosion des sols dans le Souss-Massa	November 01
19	Bigoudine sub-watershed location in the Abdelmoumen watershed, elements for the 2002 work plan	December 01
20	Economie d'eau et dépollution industrielle dans le Souss-Massa	December 01
21	Projet pilote de développement intégré en zone de montagne: Cas du bassin versant de Bigoudine – Rapport de Diagnostic	April 02
22	Diagnostic des sites potentiels pour la mise en place d'un système de traitement et de valorisation des eaux usées épurées dans la région du Souss-Massa	April 02
23	Projet pilote de développement agricole intégré en zone de montagne: Bassin versant Dou Tamma, Souss-Massa – Rapport de l'atelier de validation	May 02
24	Projet Pilote de développement agricole intégré en zone de montagne : B.V. Dou tamma, Sous Massa : Rapport de l'étude pédologique	July 02
25	Projet Pilote de développement agricole intégré en zone de montagne : B.V Dou Tamma, Sous Massa : Rapport plan d'action	August 02
26	Etude de diagnostic et de monographie de la zone d'Ait Mimoun retenue pour la réalisation de l'étude de faisabilité détaillée pour l'assainissement, le traitement et la valorisation des eaux usées épurées	August 02
27	Economie d'eau et dépollution industrielle dans le sous Massa : Cas	September 02

	de la COPAG- Note Méthodologique	
28	Economie d'eau et dépollution industrielle dans le sous Massa – Rapport sur l'état d'avancement	September 02
29	Signature de la convention cadre relative à l'étude de faisabilité sur le traitement et réutilisation des eaux usées	October 02
30	Etude détaillée de la réhabilitation de réseaux d'irrigation dans cinq zones d'action de la zone du projet	November 02
31	Contrat d'exécution des travaux de réhabilitation de partenariat pour le réseau PMH	December 02
32	Etude de mise en place d'un système de traitement et de réutilisation des eaux usées, localité ait Mimoun : Monographie de la zone d'étude, filière technologique d'épuration et options de réutilisation	December 02
33	Etude d'assainissement des douars Oulad Mimoun, El Breij et Soualem, version provisoire	January. 03
34	Economie d'Eau et Dépollution Industrielle dans le Souss Massa, Cas de COPAG - Projets d'économie et de dépollution	January. 03
35	Etude de mise en place d'un système de traitement et de réutilisation des eaux usées, localité ait Mimoun : Monographie de la zone d'étude, filière technologique d'épuration et options de réutilisation, version finale	Mars 03
36	Evaluation des taux d'érosion au niveau du Bassin de DouTamma (Bigoudine) par le Système d'Information Géographique (SIG)	April 03
37	Etude d'assainissement des douars Oulad Mimoun, El Breij et Soualem, Mission II: Avant Projet Sommaire	April 03
38	Economie d'Eau et Dépollution Industrielle dans le Souss Massa, Cas de COPAG - Diagnostic du processus de production de la filière laitière de l'unité industrielle COPAG et recherché d'une solution optimale pour l'économie de l'eau, Dossier définitif	May 03
39	Résultats des analyses des rejets de la COPAG incluant l'unité de Jus d'orange	June 03
40	Résultats des analyses des performances de la station de Drarga	June 03
41	Etude d'assainissement des douars Oulad Mimoun, Mission II: Avant Projet Détaillé du réseau	June 03
42	Etude d'assainissement des douars Oulad Mimoun, El Breij et Soualem, Mission III: Avant Projet Détaillé Réseau et Station d'Epuraton	June 03
43	Etude d'impact environnemental du projet de traitement et de reutilization des eaux usées de la localité d'Aït Mimoun	September 03
44	Etude de la qualité de l'eau et de la prévention de la pollution de la centrale laitière COPAG- avant Projet détaillé de l'assainissement liquide de l'unité COPAG, Mission II, dossier définitif	September 03
45	Etude de la qualité de l'eau et de la prévention de la pollution de la centrale laitière COPAG, dossier de concours pour la consultation des entreprises pour la réalisation de la station d'épuration, Mission III, Dossier définitif	Novembre 03