PD-ABW-676

WORLD VISION

PROJECT:
INTEGRAL MANAGEMENT OF 5 WATERSHEDS
MUNICIPALITIES OF JUJUTLA & GUAYMANGO DEPT. OF AHUACHAPAN

GRANT N° 519-A-00-99-00210-00

QUARTERLY REPORT OF ACTIVITIES
April-June 2002
SUBMITTED: JULY 31, 2002

Submitted To:
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Executive Report

The present report makes a description of the main actions executed for the project **Management of Water Producing Microbasins** executed by World Vision in the municipalities of Jujutla and Guaymango department of Ahuachapan. The project is being financed by USAID and executed by World Vision. The reported period covers the months of April to June of the year two thousand and two.

The efforts of the project were focused toward meeting the two proposed objectives, which are described below:

1. Objective 1: To produce water in sufficient quantity and with the required quality for human consumption.
2. Objective 2: 100% of the producers will adopt a minimum of 7 appropriate farming technologies in their demonstrative fields.

The activities planned for the reported period were performed satisfactorily. A summary of more relevant actions performed under each objective are detailed below:

OBJECTIVE 1: TO PRODUCE WATER IN SUFFICIENT QUANTITY AND WITH THE REQUIRED QUALITY FOR HUMAN CONSUMPTION.

a. Construction of 81 improved stoves Finlandia type, benefiting the same number of families. The women were trained on the appropriate use of the stoves.
b. Construction of 24 Dry Fertilizing Latrines in the communities Hoja de Sal, Cashagua and Cuilapa. The beneficiaries of the latrines received training on the appropriate use.
c. A total of fifty thousand forest and fruit trees have been produced in community nurseries and are being planted in the recharge zones of the microbasins.
d. Performing of cleaning campaigns in the microbasins.
e. Distribution of Puriagua (water purifier based on chlorine), among the families that reside in the different microbasins.
f. Training of the water and health committees on environmental cleaning.
g. Fumigation campaign against the mosquito in Microbasin Cashagua.

OBJECTIVE 2: 100% OF THE PRODUCERS WILL ADOPT A MINIMUM OF 7 APPROPRIATE FARMING TECHNOLOGIES IN THEIR DEMONSTRATIVE FIELDS.

a. Construction of 1800 meters of drainage ditches on slopes.
b. Training of 35 Producers Promoters in the use of micro irrigation systems and the Ariete type pump as well as the installation of two irrigation systems.
c. We provided training on Environmental Education to 120 girls and 8 female teachers of five schools in the miocrobasins covered by the project. The following modules were covered:
    - A hand for the environment
    - The environment and my health
    - Environmental education in school
    - The enemy of water
    - Don't throw it away nor get it dirty
    - Garbage recycling
d. Planting of 100 thousand bundles of Vetiver grass, for soil conservation against erosion.
e. Monitoring the water quality through lab tests.

At the end of the report quantitative tables of project objectives and goals for the current year are included.

DETAILS ON THE EXECUTION OF ACTIVITIES BY OBJECTIVE

OBJECTIVE 1: TO PRODUCE WATER IN SUFFICIENT QUANTITY AND WITH THE REQUIRED QUALITY FOR HUMAN CONSUMPTION.

Activities Performed
Below the activities that were performed in the reported period are described.

A. Construction of 81 improved stoves Finlandia Type

During the present quarter the construction of 81 improved stoves Finlandia Type was completed, benefiting the same number of families. The benefited microbasins were Cashagua, El Interno and Cuevitas. The construction process included the selection of families to be benefited, the training of women, the

purchase and transportation of the materials and the actual construction of the stoves.

The women that were converted into main users of the stoves were trained in the construction and adequate use, in such a way that they are now in capacity to build more improved stoves in their communities.

The improved Finlandia type stove has the advantage of being a wood saver, thus reducing wood consumption up to 50%. Because it has a chimney it avoids the inhalation of toxic smoke due to wood combustion. It also reduces the amount of time required to collect wood.

With the implementation of this type of stove an improvement in the quality of life is expected mainly for women, as well as preventing the destruction of forests in the microbasins.

B. Construction of 24 Fertilizing Latrines

During the quarter a total of 24 Dry Fertilizing latrines have been built in the microbasins Hoja de Sal, Cashagua and Cuilapa. With these a total of 48 latrines built during this year are completed. The project provided the necessary materials for the construction, as well as the technical personnel with latrine construction knowledge. Each one of the beneficiaries contributed with their own labor for the construction of their latrine.

Later Doctor Susana Calderón, project technician on the use and maintenance of latrines, trained the benefited families. A constant monitoring is maintained in the microbasins to verify that people are making good use of the latrines and to solve any operating problems.

The advantages that the Dry Fertilizing Latrine provides are: it reduces contamination since a pre-separation does not contaminate the soil, expels fewer odors and it can be used as organic fertilizer for agriculture.

C. Production and Planting of 50,000 forest and fruit trees

In the quarter the production of fifty thousand plants of forest species and some fruits was completed. The plants have been produced in community nurseries. The project has provided the necessary materials to establish the nurseries, such as: plastic bags, wire for fences, screen mesh for shade, certified forest tree seeds among others. The people from the different microbasins have provided the labor to establish the nurseries, time for irrigation, weeding and fertilizing of the plants.

The planting has begun in the recharge areas of the micro basins, in the streets and fences along property lines. 5 reforestation campaigns where performed where 200 producers and students from the schools in the area participated. 8,200 forest trees have been planted to date. The rest of the trees will be planted during the next quarter, through more reforestation campaigns and individual planting in each one of the plots belonging to the producers.

Reforestation of microbasins has multiple benefits among which we can mention:

- Prevents erosion of the soil.
- Increases infiltration of rainwater and as a consequence the availability of water at the springs.
- Adds more scenic value to the microbasins.
- Provides timber and fire wood for the population.
- Serve as habitat for other vegetable and animal species.

D. Performing of cleaning campaigns in the microbasins

Cleaning campaigns were performed in the five microbasins covered by the project. The campaigns counted with the participation of teachers, students and the rest of the community. The object of the campaigns was to eliminate disperse trash within the community and to eliminate unusable objects that retain water and promote the nurturing of vectors. The recollected trash was separated into organic and inorganic; the inorganic trash was buried. The organic trash will be used after decomposition as fertilizer in the plots of the producers.

A total of 150 people participated in the recollection activities belonging to the communities Cuevitas, El Interno, Cashagua, Cuilapa and Hoja de Sal.

The purpose of these actions if to free the community from trash that can contaminate the water in the springs and rivers. Also by freeing the microbasins of trash the risk of proliferation of vector production like the mosquito that transmits the dengue virus is reduced.

The attached photograph shows one of the pits that each family has constructed to bury their trash. They have a pit for inorganic trash and one for organic trash.

Photo: Pit for the treatment of trash at a family level

Photo: Organic material produced from the recycling of garbage

E. Distribution of Puriagua

In coordination with the Health and Social Assistance we managed to obtain a donation of 80 liters of Puriagua. It is a purifier for water to be consumed by humans based on chlorine. The donation became effective through the health unit of Guayapa Abajo, located in the municipality of Jujutla, department of Ahuachapan.

The Puriagua was distributed in the different storage centers of the communities so that the people of the community can withdraw the quantity of purifier they need.

With water purification through chlorine, the prevalence of certain prevailing diseases mainly related to intestinal parasites and bacteria is avoided. The measure of purifying the water together with other prevention measures for the contamination of aquifers improves the quality of human consumption and also for the use in agricultural, livestock and industrial activities.

F. Training of Water and Health Committees

During the present quarter we provided two training's oriented toward 28 members of the Water Committees. The first training was performed during the month of April and the subject of vector control was covered. During the training the participants were taught the three factors in which vector control is based, these are:

- The elimination of breeding places,
- The using of Abate and
- The fumigation campaigns.

The second training stage was based on dengue. This subject was handled due to an arising need, the new dengue epidemic that is affecting the Salvadoran population. The subjects covered in this training were:

- Ethiology of dengue
- Pathogenics
- Clinical manifestations
- Diagnostic
- Treatment
- Preventive measures

It is expected that the acquired knowledge of the participants will be divulged in the communities and will be put into practice in such a way that the environmental cleaning improves and the mosquito that transmits dengue is controlled.

G. Fumigation Campaign

A fumigation campaign was held in the community of Cashagua in coordination with the Public Health and Social Assistance Ministry (MSPAS), through the support of the Malaria Unit of Cara Sucia.

For this campaign the MSPAS provided:

- Malaria Personnel
- Fumigation Pumps
- Transportation
- Chemical for fumigation

World Vision/USAID provided:

- Diesel to prepare the chemical mixture
- Gasoline for the pumps
- Batteries for the starting of the fumigation pumps

The community provided the following:

- 10 volunteers
- Lunch for the Malaria equipment.

In Cashagua a total of 300 homes and their surroundings were covered. With these fumigation's we expect to reduce the incidence of dengue in the area and avoid deaths especially of boys and girls.

OBJECTIVE 2: 100% OF THE PRODUCERS WILL ADOPT A MINIMUM OF 7 APPROPRIATE FARMING TECHNOLOGIES IN THEIR DEMONSTRATIVE FIELDS.

A. Construction of 1800 meters of drainage ditches for slopes

During the present quarter a total of 1800 additional meters of drainage ditches for slopes have been built to make a total of 3300 for the year. The project has trained the producers in the layout of level curves and in the design of ditches. Each

producer has worked in the layout and construction of the ditches in his own property. This infrastructure is very effective to control superficial water runoff thus reducing soil erosion. On the other hand it helps the infiltration of water since it retains rainwater and allows it to infiltrate gradually. It is estimated that each meter of ditch can infiltrate a barrel of water for each rain precipitation.

This type of infrastructure has the disadvantage that it requires great physical effort for its construction. They are built generally in the summer (Dry Season) which is the time when the producers have greater time available. However in the dry season the soil is hard and this complicates the construction even further.

B. Training of 35 Producers Promoters in irrigation systems and installation of two Ariete type pumps.

In coordination with the organization FUNDESYRAN, a training on irrigation systems was held, oriented toward 35 community leaders of the 5 microbasin covered by the project. The participants were able to acquire knowledge on the operation of the drop irrigation systems and the gravity type. Also they could become familiar with the operation of Ariete type pumps. These pumps have the advantage that they use the force of the water to work and they don't require the use of any fuel. The training included a field visit to San Pedro Puxtla to observe the plots of producers that are using this type of irrigation systems for the production of vegetables.

After the training of the producers two irrigation pumps of the Ariete Type in the microbasins Hoja de Sal and Cuevitas, along with the Ariete type pumps 4 drop irrigation systems were provided to cover 4000 square meters of irrigable land. Also two water storage tanks were provided with a capacity of 1000 liters each.

The Ariete pumps and the irrigation systems were used by the producers to begin production of vegetables in the summer season. Two producer groups have been formed with ten members each so they can work in an organized fashion in vegetable production.

These efforts are directed to promote the diversification of crops in the microbasins, through vegetable production, in such a way that the families do not depend only on basic grain production.

Photo: Instalation of Ariete type pump.

Photo: Producers installing drop irrigation system.

C. Environmental education for girls and female teachers of five schools of the Mocrobasins.

As part of the awareness program of the different sectors of the population in the microbasins a series of 6 of 9 modules in environmental training directed toward 120 **girls and 8 female teachers** were taught. The modules offered were:

- A hand for the environment
- The environment and my health
- Environmental education in the schools
- The enemy of water
- Don't throw it away nor get it dirty.
- Garbage recycling

The materials used for the training have been donated by the Ministry of the Environment and Salvanatura. The classes are taught by Dr. Susana Calderón, specialist in public health and environmental education.

As part of the environmental education program field trips were organized in each of the five microbasins with the students and teachers. During these field trips the plots of some of the producers were visited to get to know the work the adults are performing for the protection of the microbasins.

The girls that participated in the classes have to perform homework activities like the manufacturing of handicrafts from recycled material, cleaning campaigns in the school and in the community as well as participate in the reforestation of the microbasin.

With the environmental education program it is intended to cultivate values in the new generations and the knowledge to take care of the environment.

D. Planting of 100,000 bundles of Vetiver grass

During the month of June a total of 100,000 bundles of Vetiver grass were acquired and were distributed in the five microbasins for the planting of live barriers.

For each meter of live barrier seven bundles of Vetiver grass are necessary. With the 100,000 bundles a total of 14,000 lineal meters of live barriers have been planted.

Vetiver grass is one of the best materials to control erosion caused by water. It possesses a powerful root system and thick foliage that forms a barrier that prevents the particles of soil from being dragged by the runoff.

Another advantage of Vetiver grass is that it requires little maintenance during the year, it is not an invader, nor it turns into weed and from barriers that has been planted the year before you can extract material to make more live barriers.

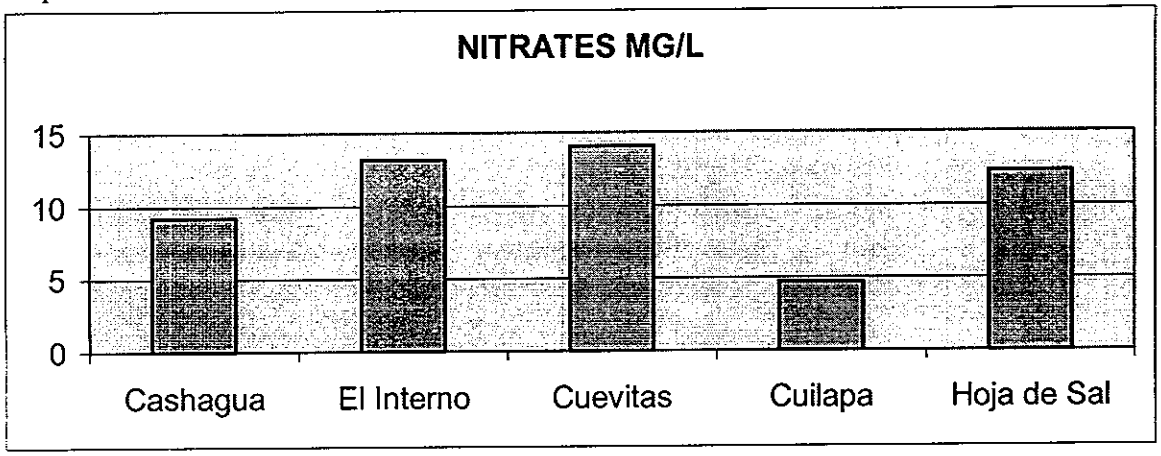
Photo: Live barriers of Vetiver grass already established.

E. Lab analysis to determine water quality.

With the purpose of measuring water quality in the community water sources for consumption a series of lab tests have been performed. The analysis determines the biologic and chemical characteristics of the water. For a wider spectrum samples from high, middle and low parts of the each microbasin were collected. The results shown in the following chart is the average of three samplings.

Microbasin	Nitrates mg/l	E. Coli	Coliforms	Bacteria Totals
Cashagua	9.24	3,000	129,666	256,333
El Interno	13.20	366	9,366	68,500
Cuevitas	14.08	4,066	25,000	71,000
Cuilapa	4.69	1,666	45,333	120,333
Hoja de Sal	12.32	2,333	12,666	47,666

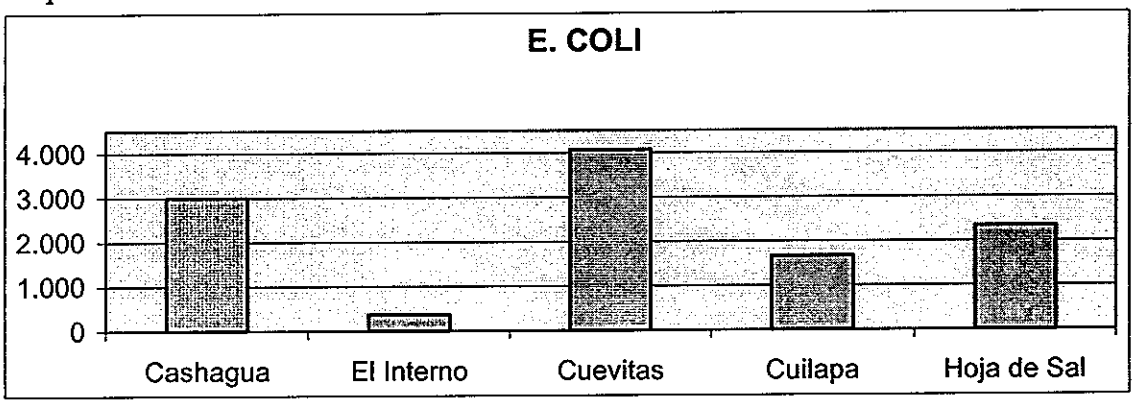
Graph 1: Lab results for nitrates content in the water



According to the World Health Organization the permissible levels of nitrates in the water should be below 45 mg/l. This means that all the analyzed sources in the microbasins have below standard average, which makes them acceptable for human consumption. The communities of Cashagua and Cuilapa show the lowest values (9.24, 4.69 respectively), Cuevitas, El Interno and Hoja de Sal the highest (14.08,13.20 y 12.32).

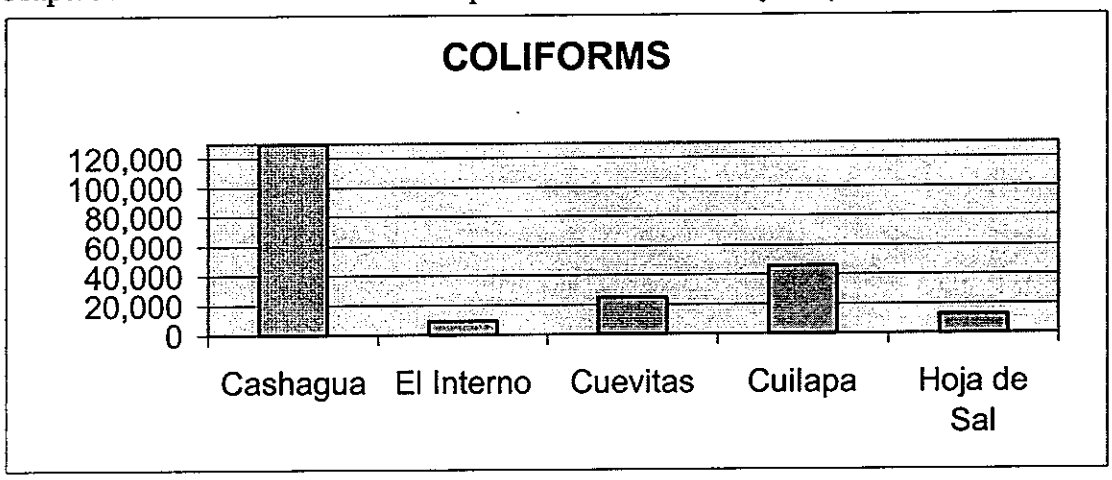
The high values of nitrates may indicate that the water is contaminated with sewer as well as the use of nitrogenated fertilizers in the recharge area. The effect that it produces in the environment is the acceleration of Eutrophication which causes coloring in the water and the growth of algae. In human beings it can cause the disease called Methahemoglobinemia or blue babies and in adults heart problems and cancer

Graph 2: Number of E. Coli contained in the water (UFC/100 ml)



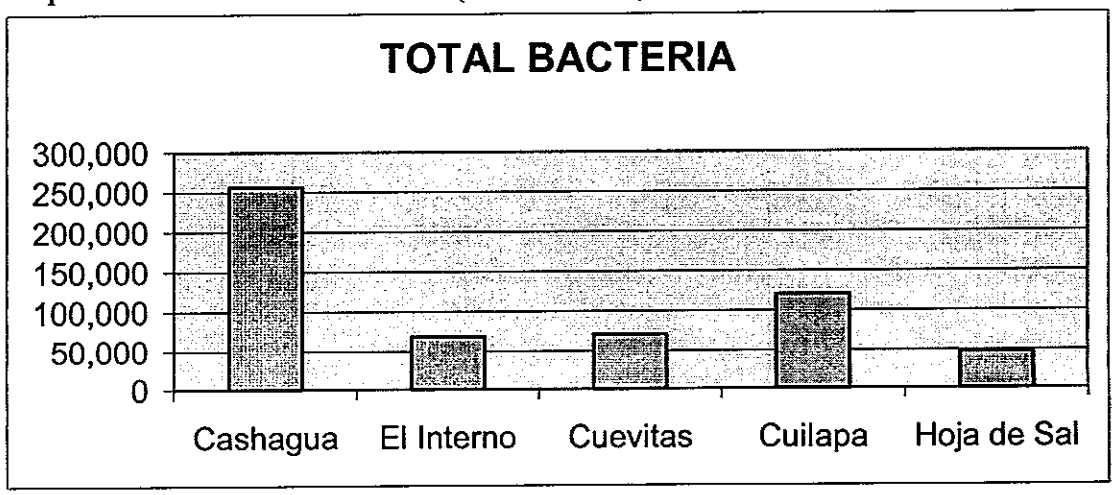
For the water to be suitable for human consumption the desired value of E. Coli is zero. These values can only be reached with a disinfecting treatment for the water. The lab analysis shows that microbasin El Interno has the lowest values of E. Coli (366), followed by Cuilapa (1,666), Hoja de Sal (2,333), Cashagua (3,000) and Cuevitas (4,066). It is noticeable that the sample collected in the high end of the microbasin Cuilapa the E. Coli value is zero. This is due to the fact that a chlorine system for water was built there. This proves that the disinfecting of water using chlorine is effective for bacteria control like E. Coli.

Graph 3: Number of Coliforms reported in the lab analysis (UFC/100ml)



In relation to the number of coliforms the microbasins with the lowest values are El Interno and Hoja de Sal; and the microbasins that have the greatest number: Cashagua, Cuevitas and Cuilapa.

Graph 4: Count of total bacteria (UFC/100 ml)



In relation to the number of total bacteria in the microbasins the ones that have lower values are : Hoja de Sal, Cuevitas and El Interno. The ones with the greatest number of bacteria are : Cashagua and Cuilapa.

In conclusion we can state that the low nitrate content of the water in the microbasins makes it suitable for human consumption. However a disinfecting means is necessary, like the application of Puriagua to lower the levels of E. Coli, coliforms and bacteria. totals.

Summary Chart For Progress Indicators

DESCRIPTION	PLANNED 2002	ACTUAL AID1999	CONTRIBUTION FROM WORLD VISION
4.1 Rural households in target areas with water that meets quality and time standards	H: 65 F: 65	M: 29 F: 30	
4.2 Rural households nationally with water that meets quality and time standards.	M: 57 F: 57	34	
4.1.1: Area covered by improved practices 1. Soil conservation / reforestation 2. Organic cropping 3. Integrated pest management	1.5,000 2.1,300 3.1,300	1. 4,736 2. 1,479 3. 1,206	1.375 2.150 3.160
4.1.1.1: Farm units utilizing improved practices	5,000	2,067	350
4.1.2.1: Households benefiting from improved solid-waste management	6,535	2,994	200
4.1.2.2: Households benefiting from improved wastewater management	1,666	516	150
4.1.3.1: Industries using pollution prevention practices	8	2	
4.2.1: Water delivery systems that meet flow standards	90	31	2
4.2.1.1: Rehabilitated, expanded and new systems 1. Rehabilitated systems 2. Expanded systems 3. New systems	1. 9 2. 20 3. 63	1. 4 2. 3 3. 18	1. 0 2. 0 3. 2
4.2.2.1: Local organization members and technicians trained	M: 1,200 F: 1,260	M: 796 F: 598	M: 175 F: 180
4.2.2.2: Water system costs covered by collected fees	82	1	2
4.3.1: Water-related changes resulting from citizen-group actions	300	190	2
4.3.1.1: Salvadorans knowing at least one cause and at least one consequence	M: 85 F: 87	M: 65 F: 28	M: 85 F: 80
4.3.2.1: Salvadorans knowing at least one solution for unclean water	M:80 F:75	M: 64 F: 27	M: 85 F: 80
4.3.3.1 : Organizations working on water-related issues	50	152	12

Description	Planned 2002	Actual- AID- 1999	Contribution from World Vision
4.4.1 Water-related ordinances passed	25	5	
4.4.2 Resources invested in water-related projects	18	10	
4.4.1.1 Municipalities with water-resource management plans	11	9	
4.4.2.1 Municipalities operating their own water systems	11	8	