

HUAMBO RETURNEES RURAL WATER AND SANITATION PROJECT: Angola

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EXECUTIVE SUMMARY

This project planned to construct/rehabilitate 20 hand-dug wells and where this was not possible, to drill boreholes. Each of these 20 water points was to be maintained and managed by a water committee elected by the community. The project also aimed to construct 400 dry-pit latrines, conduct ongoing environmental education campaigns for the communities and organize 20 well-digging brigades. This project aimed to benefit 10,000 returnees.

The construction of 20 water points (i.e., 19 hand-dug wells and 1 borehole) was completed successfully by the end of the project period. All the water points are fully operational and are now serving the needs of 16,536 beneficiaries instead of the original target of 10,000 – an increase of about 65% over the targeted number of beneficiaries. In parallel, the project was able to facilitate the creation of 20 water committees, one for each water point constructed (100% of the target).

The management and maintenance of the 20 water points was passed on to the water committees, which were elected by their respective communities. To further assure the sustainability of the water points, the elected water committees were trained by the project staff in the management and maintenance of the water points and in other related topics such as conflict resolution and basic accounting/bookkeeping. All the water committees are active and functional.

On the other hand, 405 family and 18 school latrines have been constructed bringing the total to 423 (23 more than the targeted number). A total of 2,025 individuals (from families) are benefiting from them. In addition, 43 hygiene education sessions were conducted by the project team to discuss diarrhoea, AIDS, and other water-borne diseases. These sessions were attended by 3,123 individuals made up of 869 males, 1,075 females and 1,273 children (composed of 563 males and 710 females) showing clearly that females make up the majority in both the adult and children groups.

By all measures, it can be said that the project was successful in achieving its targets.

1 Background

The civil war in Angola ended three years ago, following the signing of the April 2002 Luena Agreement in Moxico Province. Hostilities between the FAA (Angolan Armed Forces) and UNITA (Ex-rebel armed movement) military forces ceased, and a continuous period of peace is being maintained. After the ceasefire, the internally-displaced persons (IDPs) living in designated camps, and the UNITA soldiers and their relatives, started to return to their places of origin. However, the war has destroyed most of the infrastructure in the country and those in the province of Huambo sustained the heaviest damage. On the other hand, statistics from the Institute of Reintegration of the Ex-military indicated that Huambo is the intended destination of the largest number of ex-combatants wishing to return to their places of origin. The primary concern therefore is that the barely-functioning basic facilities in the destination communities will be highly inadequate to meet the needs of the returnees.

The Province of Huambo has a surface area of 34,000 square kilometres. It has a total estimated population of 1.9 million people, which is approximately 15% of the estimated national total of 12.6 million. With the influx of returnees and demobilized combatants, the population is expected to become bigger.

Most of the population have inadequate water and sanitation facilities and are vulnerable to chronic and epidemic diseases. Poor water quality is a major on-going problem in Huambo; diarrhoeal diseases are commonly cited as the main health problem in both urban and rural areas.

Springs and wells are the main sources of water for both urban and rural inhabitants of the province. These sources are, in most cases, polluted and/or not properly operational, except for those that have been constructed and/or rehabilitated by the different projects implemented by DW and some of the other NGOs working in the province.

The water obtained from the rehabilitated water points (via the hand pump) is good for drinking and free from contamination. However, it has been observed that the water gets contaminated because open containers are commonly used when water is transported to the homes of the end-users. In some cases, leaves of trees are placed on the surface of the water to minimize spillage. The people also do not have covered containers for storing water at home and this also becomes an entry point for contamination (children and pets can easily access the stored water). There is a need to sensitize the families to the above sources of contamination and, at same time, there is a need to provide families in the poorest communities with a covered bucket or water storage container to address this problem. Perhaps these water containers should be distributed as part of future projects.

To help meet the communities' and Government's priorities in terms of preventing the outbreak of water-borne diseases and providing safe sources of drinking water, the project constructed water and sanitation systems in Huambo Province. The project was implemented in the municipalities of Bailundo, Katchiungo and Tchikala-Tcholohanga where the majority of the returnees were, and still are being resettled.

Although the municipality of Londuimbale was also a destination of choice for returnees, it was chosen as a second priority project area because of the presence of other NGOs who were already providing services there. Due to this, the project ended up providing services to only one community not being served by the other NGOs. The municipality of Huambo was also included in the project area because of its large population and because of the need to take over the work of OXFAM-UK which decided to stop implementing water and sanitation projects in the province. The project also ended up providing services to only one school and two communities in this municipality. Incidentally, this points to a greater need to provide more water and sanitation facilities for the municipalities in the southern side of the province, the area that has been previously assigned by the provincial government to OXFAM-UK.

2. Description of Project

2.1 Project Outputs

To be able to provide safe sources of drinking water, the project constructed 20 new water points in various communities of the identified municipalities. Wells were hand-dug where possible, with labour being provided by the communities. However, in areas where the geologic formations made it very difficult for manual excavation, there was no alternative but to drill boreholes.

The management and maintenance of the 20 water points is the responsibility of the water committees elected by the beneficiaries. These committees were trained and equipped with the necessary tools – the training sessions included conflict resolution, maintenance of the water point, basic accounting and water point management.

In addition, the project also aimed to construct 400 dry-pit latrines, conduct ongoing environmental education campaigns for the communities and organize 20 well-digging brigades.

Environmental and health education campaigns are an integral part of the project and were conducted by the DW Mobilization Team during the training sessions.

It is expected that through these activities, the sustainability of the water and sanitation systems will be achieved.

2.2 Beneficiaries

The targeted communities include returnees and longer-term residents in 20 villages located all over the project area. The total number of expected beneficiaries was 10,000. Since the task of fetching water falls mainly on women and children, these two groups, in particular,

benefited from the water points constructed as the time savings in fetching water from the constructed water points was significant. The women now have more time to devote to more productive activities while the children can now focus on attending school.

2.3 Project Duration

The project started as planned in May 2004 and all activities were completed by the project end date of May 28, 2005.

3. Actual Results Achieved

3.1 Construction of Hand-dug Wells/Drilling Boreholes

A total of 20 new water points (19 wells and 1 borehole) have been established under the project and these now serve the needs of 16,536 people - an additional 65% over the planned target. The increase in the number of beneficiaries was due to the increase in the population (i.e., due to the larger than expected number of returnees) in some of the communities. The targeted number of water points to be constructed has been achieved (Table 1).

Table 1. Distribution of new water points by municipality

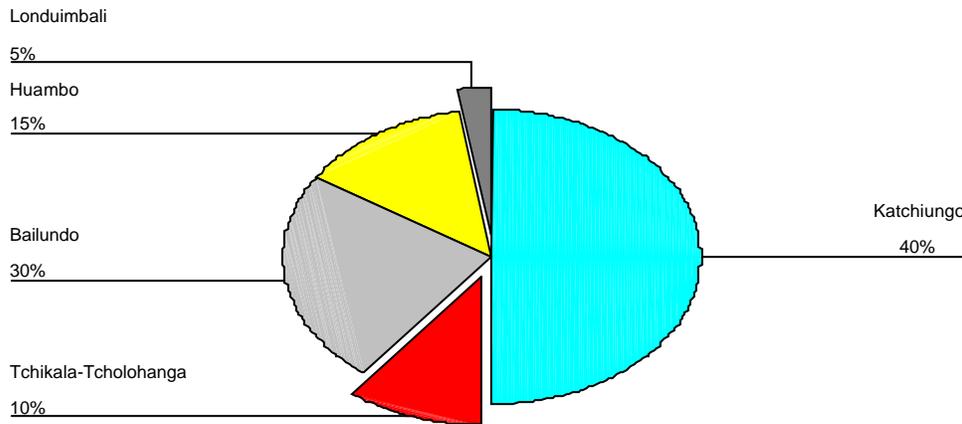
Municipality	Number of Wells
Katchiungo	8
Bailundo	6
Huambo	3
Londuimbale	1
Tchikala-Tcholohanga	2
Total	20

Most of the well construction activities were concentrated in the municipalities of Bailundo (30%) and Katchiungo (40%) due to their high population density and because they were the most popular destination among the returnees. The water points constructed in these two municipalities account for 70% of the total (Figure 1).

All the newly-constructed water points are working properly and are free from bacterial contamination. The following criteria determine the proper functioning of a water point:

- The water point is clean and tidy
- The pump is in good working order
- There is good drainage from the water point
- The well gives clear (not turbid) water
- There are no cracks on the well cover

Figure 1. Relative distribution of water points by municipality



To guarantee enough water throughout the year including during periods of drought, these wells had to be dug to their maximum depth when the water table in the area was at its lowest. The excavation of wells was done in two-phases: the first phase involved starting the excavation activities in June and digging as deep as possible. During this period the maximum depth achievable ranged between 1.5 to 2 meters below the existing water level. Beyond this, sand and soil flow occurred and the well linings caved in. Reinforced concrete rings were placed to protect the walls of the wells from collapsing.

It must be pointed out that well-digging was done with the community contributing the labour for excavation work in the first phase of digging, i.e., for depths up to 2 meters below the existing water table. Excavation work was turned over to the well-digging brigade during the second phase of digging as this was the more difficult phase of excavation. Parallel to this activity, the DW Field Supervisors were supervising the community members in the construction of latrines. Table 2 shows the progress of the well construction activities for the duration of the project.

The second phase involved restarting digging in September-October (the dry season). During this season the water table significantly dropped to allow the teams to dig deeper, making it possible to dig to the maximum depth possible, thereby guaranteeing enough water during the driest seasons. By this time too, 95 community members have been trained in the techniques of well digging and they have been organized into digging brigades, ready to carry on the construction work.

In most parts of the province where the water table is completely shallow, hand-dug wells are most appropriate. This method of constructing wells is less expensive, uses local labour, the wells are easily maintained and are more sustainable relative to other technologies including boreholes. Development Workshop constructs three types of hand-dug wells depending on the anticipated number of users for the well. The technology used is the same in all three: all-the-way, reinforced-concrete ring protected and concrete-covered, with an Afridev pump. The only difference between the three types of wells is the internal diameter: 90, 120 and 150cms, respectively. This project constructed 120 cm wells.

In areas where the water table is deep and the soil is rocky, the best technology to use is drilling boreholes. The project team had to drill one borehole due to the rocky subsoil and thus, only 19 well-digging brigades were finally organized.

Some of the basic materials such as sand and gravel were locally supplied. In Huambo there are no natural gravel pits; the project therefore maintained a contract with a group of ex-IDP's to crush stones for gravel to be used in the production of the reinforced concrete rings and concrete well covers for the project.

Table 2. Progress of work: well construction activities

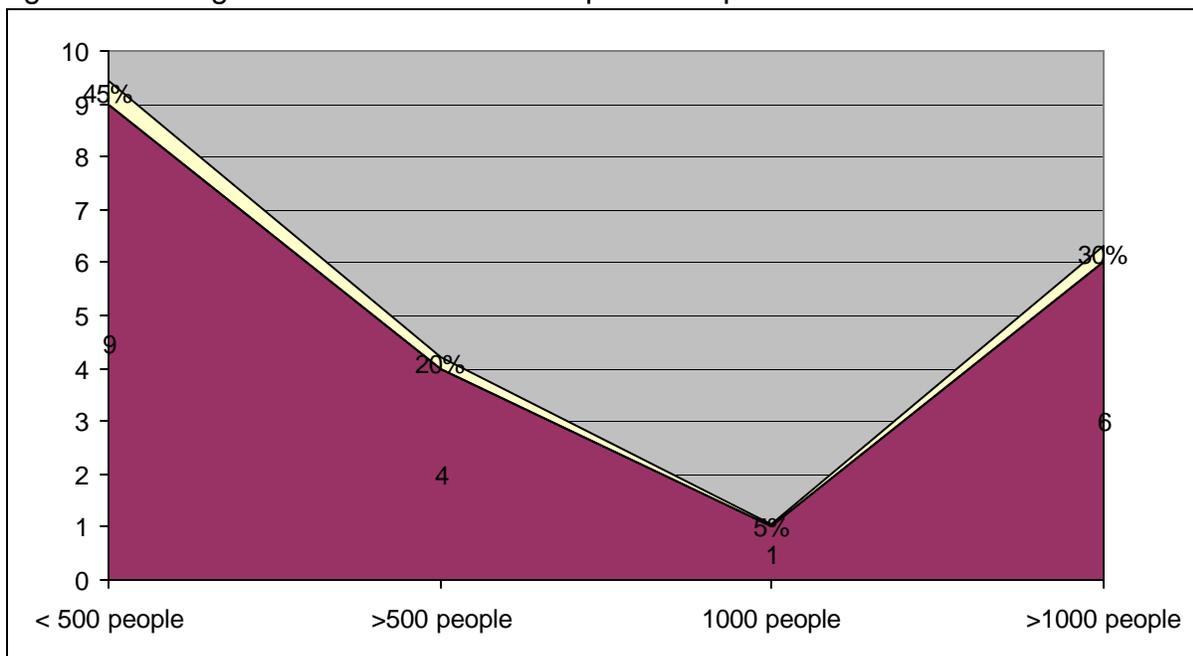
Month	Water Points Started	Water Points Finished					Total Finished	Beneficiaries
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5		
May 04								
June	2	0	2	0	0	0	2	965
July	3	0	1	2	0	0	3	3,400
August	7	0	0	0	7	0	7	7304
September	3	0	0	1	2	0	3	2139
October	4	0	0	0	4	0	4	2613
November	1	0	0	0	1	0	1	115
Total	20	0	3	3	14	0	20	16,536

The wells now serve the needs of 65% more beneficiaries (Table 2) than originally intended, due to the continued arrival of returnees in the project area. This influx of migrants can be considered as an indicator of the impact the project has made – reliable and safe sources of water, among other things, act as magnets that draw returning populations into the area (migrants will tend to settle in areas where basic facilities can be found). However, if this trend in the growth of the population in the project area continues, the existing number of wells will not be adequate to meet the needs of the communities in the near future. It will also mean that due to the increased number of current users, wear and tear on the pumps will be greater than normal and therefore maintenance costs of these wells will be much higher.

Although the wells built were relatively concentrated in municipalities with bigger populations,

the location of the wells within each municipality was spread out so that communities with smaller populations are equally provided with protected water sources. Figure 2 shows the average distribution of people per water point after hand-over to the communities.

Figure 2. Average number of beneficiaries per water point



An important feature of this project is that the communities themselves selected and decided on the particular location of the water point to be built. However, if the preferred location did not meet the technical criteria set by the project, a meeting was held with the community to discuss and resolve the issue. The project technical team ensured that the site chosen for the water point met the following criteria:

- Located on public land
- Accessible by road (to transport equipment and materials)
- Have no potential source of pollution around it (minimum 30m distance)
- The technical team has verified the availability of ground water

Invariably, the beneficiaries chose to build the water point at a central location, and as close to their homes as possible.

3.2 Community-based Maintenance and Management Systems

The project intervened on the basis of an expressed demand. This demand comes through the local or traditional authorities, the communities themselves and/or through an NGO working in

the area. Based on the demand, project mobilisers and the technical team visit the area to assess the situation and verify the need for the service. During the visit they consult with local authorities, traditional chiefs, community-based organizations and community members, and based on the findings of these visits and follow up discussions with senior project staff, a decision is made to intervene in that particular area or not. To avoid duplication of work, coordination with other NGOs working in the area is also undertaken.

Community mobilization enables people to participate in improving their living conditions and is a key element in all DW activities. In this particular project, the communities were involved in the setting up, maintenance and management of the water points.

Prior to the start of excavation work, meetings were held with the community to explain the project requirements in detail. Residents from the area to be serviced by the water point had to agree to be responsible for the excavation work, under the supervision of project technical staff. This helped to establish a sense of community “ownership” of the project at the outset. To facilitate the work, local masons were contracted to do some of the tasks that required a higher level of technical skills. This in itself contributes to local capacity building as well as to the creation of livelihood opportunities for the local population. As a result of this approach, 95 community members in the project area have now developed skills for hand dug well excavation and they have been organized into well-digging brigades.

For each water point, the community also had to choose a water committee through democratic means; the project was able to meet the target of facilitating the election of a water committee for each of the 20 water points constructed by the project. These committees are now mainly responsible for the maintenance and management of their respective water points.

Members of the water committee as well as interested community members were trained in basic water point management, basic maintenance of the hand pumps, as well as on basic bookkeeping and on conflict resolution. The training program for a particular water committee was started while the construction work was in progress, and continued until after the water point became serviceable. It is the task of the committees to keep the surroundings of the water point clean, collect user fees (when feasible), resolve any conflicts that arise and make preventive and corrective repairs. Water committees were encouraged to collect user fees so that there is a ready source of funds for spare parts, repairs and preventive maintenance.

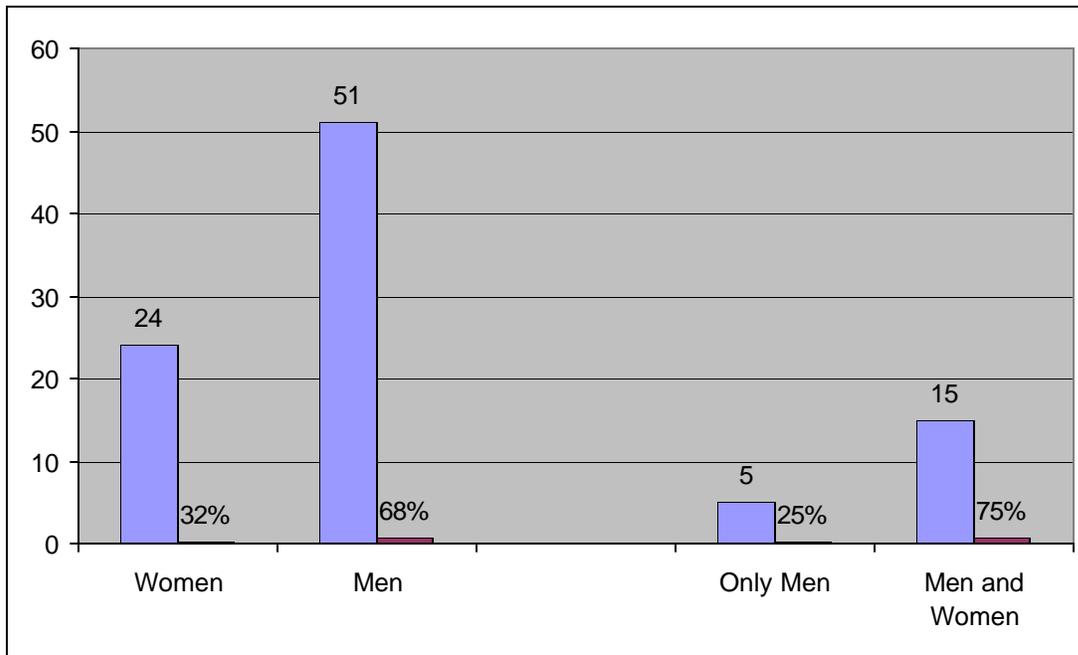
Thus the beneficiaries are involved in decision-making and on-going maintenance of the water point from the very beginning. To a great extent, the presence of the water committee helps ensure the sustainability of the water point following the handover by the project. Monitoring of the water points after the completion of the project continues to be done by DW mobilisers and the water committee members.

3.3 Focus on Gender

During the orientation meetings with the community, the project staff explained the importance of having women as members of the water committee and because of this, the great majority

(15 out of 20 or 75%) of the water committees have female members (Figure 3).

Figure 3. Number of females in water committees, & committees with female members



Males figure prominently in positions of power and/or responsibility in Angolan society and this trend holds true for the membership in the water committees where females made up 24 out of the 75 members (or 32%) of the total membership in water committees. Although this is lower than the proportion of females in the total beneficiary population (approximately 56%), the females that were elected into the committees are among the more active participants (Figure 3).

3.4 Bacteriological Tests of Water and Health Education

Using the OXFAM Del Agua Kit, a total of 34 water samples from both improved and unimproved water points were tested for the presence of *e. coli* bacteria (Table 3). The presence of more than 10 thermo-tolerant coliform bacteria colonies was taken as an indication of faecal contamination.

All the 20 samples from the improved water points were found to be free from any *e. coli* contamination while all the remaining 14 samples from the unimproved water points were found to be contaminated with *e. coli* (Table 4).

All contaminated, unimproved water points were given chlorine shock treatment and the users were cautioned to use the water for cleaning and bath proposes only. The users were also advised to fetch drinking water only from the protected water sources.

Table 3. Bacteriological analysis of water from sources in the community

Municipality	Total water tests made (from improved and unimproved water points)	Contamination of improved water points	
		Yes	No
Bailundo	11	0	6
Katchiungo	10	0	8
Tchikala	5	0	2
Londuimbali	5	0	1
Huambo	3	0	3
Total	34	0	20

Table 4. Bacterial contamination in improved vs. unimproved water points

Contamination			
Improved Water Points		Unimproved Water Points	
Yes	No	Yes	No
0	20	14	0
0%	59%	41%	0%

To minimize the risk of contamination, the project has adopted the following technical guidelines for well construction:

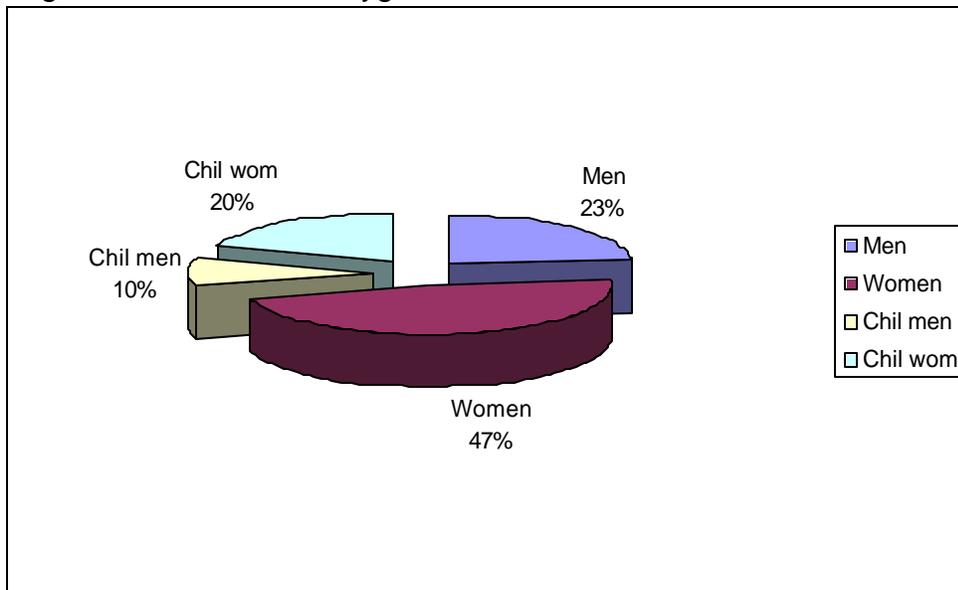
- Water points are never located less than 30m away from a potential pollution source (latrine, garbage dump, animal pen, etc.)
- To avoid surface pollution, a zone of compacted clay/silt layer is installed around the apron to a depth of about 1.5m
- The walls of the well are completely lined with reinforced concrete rings.

The data from the bacteriological tests provide concrete evidence that it is better to have protected sources of water. However, it is commonly acknowledged that having a protected water source is not a 100% guarantee for safe water because the water can get contaminated during the transport of the water from the source to the house and during the storage inside the homes (open water containers are commonly used to transport and store the water).

To alleviate this problem, the project conducted a series of environmental health education campaigns that featured lectures and theatre presentations on home-based water treatment & conservation, and health education on AIDS and water-borne diseases such as diarrhoea. In all, 43 hygiene education sessions were conducted by the project and these sessions were

attended by 3,123 individuals made up of 869 males, 1,075 females and 1,273 children (composed of 563 males and 710 females). These data clearly show that females made up the majority of the audiences for these sessions, for both the adult and children groups (Figure 4).

Figure 4. Attendance at hygiene education sessions



3.5 Latrine Construction and Distribution of Latrine Covers

One of the objectives of the project was to produce and distribute 400 latrine covers of different sizes and to supervise the construction of 400 dry-pit latrines.

A total of 425 latrine covers were manufactured and distributed to institutions (i.e., schools) and families (Table 5), an increase of almost 6% over the targeted number. The respective owners of the latrines provided the labour and the materials for the superstructure while the respective communities contributed labour and materials for the latrines that were built in their schools.

Table 5. Number of latrine slabs distributed and status of latrine construction

Municipality	Number of slabs distributed			Cumulative status of latrine construction		
	Institution	Family	Total	Finished	Unfinished	Total
Bailundo	3	0	3	3	0	3

Tchikala Tcholohanga	10	0	10	10	0	10
Londuimbale	0	87	87	87	0	87
Katchiungo	8	317	325	325	0	325
Total	21	404	425	425	0	425

This project component was implemented after most of the well-construction activities have been completed.

3.6 Monitoring System

Monitoring mechanisms were integrated into the project mobilisation component to: a) learn from the project experience, b) be able to modify the project strategy if changes in the situation warrant, and c) obtain data for post-intervention sustainable management.

Each month, the mobilisation team visited accessible sites and collected data on community needs and participation, changes in water table, *e. coli* measurements, problems encountered, repairs made to the pumps/wells, environmental hygiene condition of the water point, etc. Monitoring and information sheets were completed for each water point and monthly activity reports were prepared. These monthly water point reports were summarised by the supervisor of the mobilisation teams and these summary reports were, in turn analysed and acted upon by the project management team (Project Co-ordinator, Assistant Project Co-ordinator, Head of Construction and the Mobilisation Supervisor).

Information on each water point is also fed into the DW database (updated monthly); part of the data are fed into the Geographic Information System (GIS) which plots the information collected onto a map of the project area. For example, results of bacterial tests can be overlaid on the map of the project area to show information on possible contamination of wells and its geographic spread. The appropriate steps and co-ordination with health authorities can then be taken. The database will help DW and the DPEAH (provincial water authority) as well as other interested parties to learn more about the project area.

3.7 Coordination and Partnership with Stakeholders

The main government partner in this project is the DPEAH, the provincial water and sanitation authority. DW has established a very good working relationship with this agency – DW co-ordinates its activities with that of DPEAH and there is a continuous flow of information between the two. DPEAH staff participated in the training programs provided for the beneficiaries of the project.

In the same manner, DW has established good working relationships with other government units that are active in and around the project area. These include the Ministries of Education, Health, MINARS and the provincial as well as the municipal administrations.

In the long run, the goal of DW is to hand over the responsibility for construction and monitoring of water points to the DPEAH. However, in general, the capacity of the DPEAH staff needs to be further strengthened and broader reforms in the civil service (e.g., improvements in salaries of government employees) will need to be implemented before this can be done. This particular project was an exception – at the end of the project, it was officially handed over to the DPEAH. This means that technical support for the water committees is now the responsibility of the DPEAH Mobilization Unit.

To guarantee the sustainability of the water points, a close working relationship between the local government authorities, the traditional chiefs, religious groups and their leaders, and the community is very vital. It must be remembered that the identification of the project areas was done in consultation with these groups and other NGOs working in the water and sanitation sector were also consulted to avoid duplication of work. In connection with this, the project mobilisation team conducted 51 different meetings with the parties mentioned above. Once again, female (adult and children) attendance was greater than the males – 703 and 324 respectively against 573 and 324 adult and children males. These meetings also served as a forum for the exchange of experiences.

Coordination at higher levels was achieved under the auspices of the DPEAH; regular monthly meetings were coordinated and chaired by the DPEAH. All NGOs involved in the water and sanitation sectors as well as different government entities (the provincial Community Services and Public Health Departments; Administrators or their representatives) attended these meetings.

3.8 Risk Management

At this time, the presence of land mines is the biggest risk factor that one can expect in working in areas like Huambo. Strict security procedures have been developed by DW and were practiced by the project management and staff. The project staff never travelled out of the base station to new field sites without first confirming the security status of the areas that they intended to visit. At the same time the project staff strictly followed the Office for the Coordination of Humanitarian Assistance (OCHA) weekly assessment and briefing on the security situation in the province.

4. Summary of Project Accomplishments

The project goal, objectives and outputs are tabulated in the following logical framework matrix (Table 6) and a summary assessment of project performance is provided in Table 7.

Table 6. Logical Framework Matrix

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>Goal: Help meet the water supply and sanitation needs of the rural population of the province of Huambo</p>	<p>Village water points managed by the communities visible in the returnee villages - <i>All 20 water points with elected water committees.</i></p>	<p>End of project evaluation report</p>	
<p>Purpose:</p> <p>1. To secure a safe and sustainable drinking water sources for 10,000 IDPs & returnees and address the issue of basic sanitation on a lesser scale</p> <p>2. Construct 400 dry-pit latrines</p> <p>3. Train 80 returnees on well digging methods and equip them with the necessary tools</p>	<p>➤ 90% of water points functioning well at any time - <i>100% of water points functioning well.</i></p> <p>➤ 100% of new water points free from faecal coliforms - <i>100% of water points free from faecal coliforms</i></p> <p>➤ At least 40 hygiene education sessions held - <i>43 hygiene education sessions held (3 more than planned)</i></p> <p>➤ 100% of constructed latrines used daily by families - <i>425 family and school latrines in use</i></p> <p>➤ Twenty well-digging brigades formed - <i>19 well-digging brigades formed (95 people trained); drilled borehole did not require a well-digging brigade</i></p>	<p>➤ Monthly reports by community mobilisers</p> <p>➤ Quarterly quality assessment and mid-term evaluation</p> <p>➤ Monthly reports by community mobilisers</p> <p>➤ Mid-term and end-of-year evaluations</p> <p>➤ Monthly reports</p>	<p>(Purpose to Goal): Water point construction and/or rehabilitation is integrated into community-based rehabilitation projects of other organisations</p> <p>All 20 wells will be manually excavated</p>
<p>Outputs:</p> <p>1) 20 water points constructed or rehabilitated</p> <p>2) Community-based maintenance and management systems established at each of the above 20 well sites</p>	<p>1.a 19 hand-dug wells & 1 borehole constructed; flow rate of 5,000 L/day - <i>All water points with enough water for original beneficiaries</i></p> <p>1.b 20 water points protected from contamination - <i>All water points sealed; hand pump installed in each</i></p> <p>1.c 20 water points with adequate drainage - <i>All water points with a drainage canal</i></p> <p>2.a 20 water points with elected water committee - <i>20 water committees elected</i></p>	<p>1.a As-built drawings & site inspections</p> <p>1.b As-built drawings & site inspections</p> <p>1.c As-built drawings & site inspections</p> <p>2.a Monthly reports by mobilisers</p>	<p>(Output to Purpose): An average of 100 families will use each water point</p> <p>Each family has an average of 5 members</p> <p>Each person uses an average of 10 L/day</p> <p>The maintenance/ management systems will continue to operate after the support of the mobilisers is withdrawn</p>

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
of the above 20 well sites	2.b 85% of hand pumps in working order at end of each month <i>- 100% of the hand pumps in working order</i>	2.b Monthly reports by mobilisers	
3) Water at points free of faecal coliforms	2.c 50% of committees holding monthly public meetings <i>- at least 80% of committees held monthly public meetings</i>	2.c Monthly reports by mobilisers	
4) Construction and supervision of 400 dry-pit latrines	3.a 80% of water points free from faecal contamination (Del Agua test kit) <i>- 100% of the water points free from contamination at the end of the project</i>	3.a Monthly reports by mobilisers	
5) Monitoring system for both technical and social aspects of project activities established	4.a Distribution of 400 Latrine covers <i>- 425 latrine covers distributed.</i>	4.a Monthly reports by mobilisers	
6) At least 40 hygiene education sessions held	4.b Construction & supervision of 400 new latrines <i>- 425 new latrines constructed</i>	4.a Monthly reports by mobilisers	
7) Capacity building	5.a Database for water points established	5.a Database included in Semi-annual project reports	
	5.b Database updated monthly with data from mobilisers <i>- Database updated monthly with data from all 20 water points</i>	5.b Database included in Semi-annual project reports	
	6. At least 40 hygiene education sessions held <i>- 43 hygiene education sessions held (3 more than planned)</i>	6. Monthly reports by mobilisers	
	7.a 20 four-man, well-digging brigades trained and equipped <i>- 19 well-digging brigades formed (95 people trained); drilled borehole did not require a well-digging brigade</i>	7.a Monthly and final reports	
	7.a 20 water committees trained <i>- 20 water committees trained</i>		

Overall the project has achieved expected results relative to the performance indicators set out in the project LFA. The project was able to either achieve or exceed expected results in all of the activities set out for the project.

Table 7. Summary assessment of project performance

Performance indicator	Actual Result	Rating	Explanation of Rating/Comments
Output #1 Twenty new water points constructed or rehabilitated .			
1.1 20 Water points constructed or rehabilitated	19 new water points and 1 borehole made with enough water for users during dry season	AE	Target achieved 100% construction completed within the project time frame. An Afridev hand pump has been installed in each of the wells.
1.2 20 water points protected from contamination	20 water points protected from contamination	AE	Target achieved 100%: new water points free from bacterial contamination by provision of proper drainage facilities, well cover and apron.
1.3 20 water points with adequate drainage	20 water points with adequate drainage	AE	Target achieved 100%. All have been completed with proper drainage facilities.
Output #2 Community-based maintenance and management systems established at each of the 20 water point sites			
Performance indicator	Actual Result	Rating	Explanation of Rating/Comments
2.1 20 water points with elected committees	20 water points with elected committees	AE	Target achieved 100%.
2.2 85% of hand pumps in working order at end of month	100% of newly installed hand pumps in working order	EE	Target exceeded by 15%.
2.3 50% of committees holding monthly public meetings	16 out of 20 (or 80%) committees held at least one public meeting monthly	OP	Target exceeded by 30%.
Output #3 Water at points free of faecal coliforms			
3.1 80% of water points free from faecal contamination (Del Agua test kit)	100% of the water points show negative bacterial results	EE	Target exceeded by 20%. These tests were conducted using OXFAM Del Agua Test Kit.
Output #4 400 latrine covers distributed and supervision of 400 newly-constructed pit latrines			
4.1 Distribute 400 Latrine covers	425 latrine covers distributed	EE	Target exceeded by 6%
4.2 Supervise the construction of 400 new latrines	Supervised construction of 425 latrines	EE	Target exceeded by 6%;
Output #5 Monitoring system about both technical and social aspects of project activities established			
5.1 Database for water	Monitoring system	AE	Target achieved 100%.

be further explored.

4. Joint supervision of the excavation activities by the project and the water committees is important because this raises their status within the community and also develops a sense of ownership of the project.
5. Starting environmental health education sessions earlier (in parallel with the excavation and construction work) helps inculcate the proper habits in a timely manner.
6. The use of popular theatre groups and the churches is an effective means of disseminating environmental health education.
7. Some kind of a contribution from the communities in the implementation of the project is vital because it helps to provide a sense of ownership of the project. In this case the communities provided all labour required for excavation work.
8. Continuous field supervision and monitoring is critical in the proper and effective use of materials and timely completion of the project.
9. On-going coordination with the local churches, other community groups, other NGOs and government agencies is an important success ingredient.
10. Close working relationships with the local authorities, prior to and during project implementation, is part of the first steps to project sustainability.
11. It is important to provide a token compensation for the well-digging brigades because they carry on with the more difficult aspect of excavation work, i.e., a four- or six-man team digging to depths below the water table.
12. It is important to ensure that all necessary tools, materials and equipment are ready before getting the community involved in the construction/excavation work. This will avoid wasting the time of the community volunteers.

Figure 5. Photos of project activities



DPEAH Head officer draws water at a handover ceremony



The community present at a handover ceremony



DW - Huambo Provincial representative inspecting a new water point



Water Committee member inaugurating the water point



What a water point can do! New bridge in the community



Helping each other fetch water



Community fetching water at a new water point



DW Social Mobiliser demonstrating how to install a hand pump



Community & Institutional latrine examples



Completion of latrine construction being confirmed by a DW Social Mobiliser



Technical inspection of newly-constructed latrine by DW experts