UNICEF Malawi

End Review Report

NORWEGIAN AGENCY FOR DEVELOPMENT AID

SUPPORTED

VONDER SHALLOW WELLS BOREHOLE PROJECT

JANUARY 16, 2000

Executive Summary:

With assistance from the Norwegian Agency for Development Aid (NORAD), the Vonder Shallow Well Borehole Project began implementation in 1997 with the overall goal of achieving a significant reduction of water borne diseases in the districts of Mangochi, Nkhata Bay and Mzimba. UNICEF and the Malawi government engaged four NGOs, Canadian Physicians for AID and Relief (CPAR), Africare, Adventist Development Relief Agency (ADRA) and World Vision International (WVI) to implement the project in 400 target communities.

The purpose of this evaluation is to document and incorporate lessons learned in a future in water, and environmental sanitation initiative to be supported by UNICEF and NORAD. The methodologies used for the evaluation were: meetings with NGOs and government counterparts, community-based focus groups, district focus groups, data collected from health centres, district and regional health offices, and a desk evaluation of NGO, UNICEF and government reports. The project is measured against the planned objectives and, the recommendations are presented under key UNICEF programming strategies. The concluding remarks consider three areas: cost-effectiveness, health impacts and sustainability.

The project objectives were:

- To increase access to safe drinking water to 100% of the target communities by 1999 through 400 Vonder drilled wells at 27 litres per capita per day.
- To increase access to excreta disposal to 80% of households and 100% of schools in target communities through improved pit latrines by the end of 1999
- To increase access to hygiene education to 100% of households in target communities
- To reduce incidence of diarrhoea among children under-five by 25% and deaths due to diarrhoea by 50%

The project was successful in achieving the following outputs:

- 373 water points were successfully constructed (93% of target achieved),
- 373 boreholes installed with VLOM pumps (9 Malda and 364 with Afridev),
- 319 wells were drilled with the Vonder rig technology (85% achievement rate)
- 8,787 sanitation platforms were cast for improved latrines (87% of the target set)
- 383 communities mobilised for hygiene education (95% achievement rate).
- 381 committees were trained in VLOM, approximately 4191 people

Key findings related to project operation:

1. Inappropriate application of drilling technology in certain target areas led to many failed sites, especially in Mpherembe, Mzimba District. It appears that hydrogeological assessment was not adequate in determining recommendable sites for vonder drilling. Most failed sites were

abandon, with the exception of ADRA sites where fifty-four wells were hand dug.

2. Delays by UNICEF in the procurement of equipment, materials and supplies affected the project throughout the implementation cycle. The outcome was insufficient amount of supplies were used in construction, in particular cement, and some sites were vandalised while waiting for materials.
3. Delays in financial liquidations by implementing agencies affected implementation during the early stages. MoWD had an outstanding liquidation for most of the 1997/1998 fiscal year, resulting no resources available for monitoring.
4. Transport difficulties including inappropriate vehicle choices were noted. The vehicles provided by the project were Mitsubishi canters. They had limited use because they were not four-wheel drives. Many bicycles provided by the project are inoperable because there were no spare parts available.
5. Poor supervision and follow-up by both extension workers and NGO field staff affected the quality of implementation in terms of civil works, community commitment to sanitation promotion and hygiene behaviour change. The main cited reasons were unavailability of transport, lack of motivation by extension workers and no uniform procedure for collecting and documenting data.
6. Sandy soils caused latrines to collapse which was a major constraint in sanitation promotion. To avoid collapsing pit latrines, households had to line pits with bricks or weave baskets increasing the time and cost to construct a latrine.

Recommendations as per UNICEF-WES programme strategies:

Capacity Development at National, District Assembly and Village Levels:

Information on key project indicators were difficult to collect because no formal system of community-based monitoring had been established by NGO project staff and extension workers. Moreover, the initial baseline information from NGOs was also not available. As a result, large discrepancies existed in the information collected depending on the origin of the source. Overall, it was noted that monitoring throughout the project cycle was very weak.

With operational support from UNICEF's SPAC programme, a comprehensive integrated monitoring and evaluation plan (IMEP) could be created that would link individual project objectives to overall programming and sector goals. Equally important is the development of a uniform baseline study, strict reporting guidelines, and community-based indicators. UNICEF has a number of globally developed guidelines to improve sector monitoring and planning. Healthy, Hygienic, Happy (HHH) Communities is one such series with potential application to a future initiative. An increased allocation for bicycles and spares, and obligatory monitoring reports will also ensure monitoring is periodic and documented by extension workers.

Project management has generally improved over the three years project duration, and the capacity of

district assemblies to support implementation has increased. Of the four NGOs, CPAR made a deliberate effort to support district capacity development through supporting the DEC. From focus groups, it appears that this was successful in improving the capacity for project delivery and similar efforts among all implementing agencies should be encouraged. Furthermore, district coordination teams felt that they should have had a greater involvement in project development and planning. There is also a need to examine budget allocations for counterpart monitoring, and where possible a greater sharing of resources between NGOs and government counterparts should be encouraged.

Catalytic Support to Expansion of Service Delivery:

Many gains in water supply and sanitation coverage were off-set by increased population growth in the target areas. A greater investigation into population growth in light of the HIV/AIDS epidemic is necessary. It was found that HIV/AIDS affected the project primarily in two ways: high staff turnover and low community participation. The need for integration of HIV/AIDS awareness activities in WES initiatives was recommended by NGO and government partners.

The vonder rig technology has a comparative advantage of providing communities water supply at lower costs than mechanical drilling. However the poor application of the technology in areas where it was not suitable, compounded by a poor hydrogeological assessment, has given both communities and implementors a bad opinion of the vonder rig. In future, greater attention should be paid on how this technology was introduced to district assemblies and communities. This will be important to ensure that the limitations are well understood and the technology is used in only areas where it is appropriate. Greater collaboration and monitoring by NGOs with MoWD would assist in better application and usage of the vonder rig.

Empowerment of Communities and Households Through Participatory and Gender Sensitive Approaches

PHAST training for extension workers and VHWCs would assist in the development of simple and measurable indicators for monitoring. The participatory nature of the training would also engage VHWCs to come up with indigenous intervention strategies for sanitation and hygiene behaviour change. Community involvement in identifying key practices and finding solutions are the founding principles of PHAST (participatory hygiene and sanitation transformation). The MoHP has recently initiated a national PHAST team to train district teams. To date, four districts have been trained Dowa, Lilongwe, Zomba and Salima. The results so far are encouraging within target districts, as sanitation coverage has risen from 38% to 70% in target areas.

Gender equity was addressed in the project through an affirmative action to reserve 60% of positions in the VHWCs for women, and the later the provision of gender awareness in CBM training. It was found that while women's participation was high especially in traditional areas of construction and maintenance of water point, male participation was low. Women in the focus groups noted that low male participation was a constraint in vonder rig drilling. To promote a more equitable workload

between men and women, the focus on gender equity should examine ways of improving male participation. Equally important is the need to increase women's representation in project management and as field workers.

In conclusion, the findings from the focus groups, project reports and health data indicate that there is a progressive trend toward improved health, hygiene and sanitation in the three project districts. In terms of cost-effectiveness, the use of the vonder rig was a lower cost option for providing water supply to target communities. However, this should also be weighed against the costs to the community in terms of labour, delays in procurement and poor hydrogeological assessment. San plat training over provision also appears to be another cost-effective approach for sustaining sanitation coverage. Beyond the provision of water supply, hygiene and sanitation, this project has improved the capacity of NGO and government counterparts to deliver and sustain development initiatives.

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Photo credits: Belinda Abraham, UNICEF

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List of Abbreviations

ADC	Area Development Committee
ADRA	Adventist Development Relief Agency
AIDS	Acquired Immune Deficiency Syndrome
BT	City of Blantyre
CBM	Community-Based Management
CDA	Community Development Assistant
CPAR	Canadian Physicians for Aid and Relief
DC	District Commissioner
DCDO	District Community Development Officer
DDC	District Development Committee
DEHO	District Environmental Health Officer
GoM	Government of Malawi
HEP	Hygiene Evaluation Procedure
HESP	Hygiene and Environmental Sanitation Promotion
HHH	Happy, Healthy, Hygienic
HIV	Human Immunodeficiency Virus
HSA	Health Surveillance Assistant
IEC	Information, Education and Communication
IMEP	Integrated Monitoring and Evaluation Plan
LL	City of Lilongwe
MALDA	Malawi Direct Action
MASAF	Malawi Social Action Fund
MOGYCS	Ministry of Gender, Youth and Community Services.
MPO	Master Plan of Operations (UNICEF)
NGO	Non Governmental Organisation
NORAD	Norwegian Agency for Development Aid
PHAST	Participatory Hygiene & Sanitation Transformation
PPA	Project Plans of Action (UNICEF)
PRA	Participatory Rural Appraisal
Plat	Platform
San	Sanitation
SPAC	Social Policy Advocacy and Communication Group of UNICEF
TA	Traditional Authority
UNICEF	United Nations Children's Fund
WES	Water and Environmental Sanitation Group of UNICEF
WVI	World Vision International
WMA	Water Monitoring Assistant
WP	Water Point
VDC	Village Development Committee

VHWC	Village Health and Water Committees
VLOM	Village Level Operation and Management

1.0 Background:

The Vonder Shallow Well Borehole Project began implementation in 1997 with assistance from the Norwegian Agency for Development (NORAD). The overall project goal was to achieve a *'significant reduction of water borne diseases'* in three target districts, Mangochi, Nkhata Bay and Mzimba, with a focus on improved health for mothers and children. To achieve this, the project targeted 400 communities with integrated water supply, sanitation promotion, and hygiene education.

UNICEF-Malawi and the Government of Malawi entered into formal cooperation agreement with four international non-governmental organisations (NGOs), which were the lead agencies for implementation. They were Africare, Adventist Development Relief Agency (ADRA), Canadian Physicians for Aid and Relief (CPAR) and World Vision International (WVI). The division of work was as follows: Africare and ADRA worked with 160 communities in Mzimba District; CPAR and Africare worked with 100 communities in Nkhata Bay District, and WVI worked with 140 communities in Mangochi District. NGOs implemented initiatives in collaboration with the district offices from primarily three line ministries of Health and Population, Gender, Youth and Community Services, and Water and Development.

The project objectives were:

- To increase access to safe drinking water to 100% of the target communities by 1999 through 400 Vonder drilled wells at 27 litres per capita per day.
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UNICEF-Malawi provided overall project management, coordination and monitoring for activities. The support to NGOs came in a number of forms. Primarily, it was the procurement of materials, equipment and supplies including offshore procurement of vehicles. Secondly, it came in the form of capacity building through conducting a number of training sessions to improve the overall project management and monitoring. Some examples include: Training of Trainers Workshop in Boadzulu,

(October 1998), Experience-sharing Workshop in Nkhata Bay (May 1998), Annual Reviews and Planning (1997, 1998, 1999), Workshop on Supply and Cash requisition Procedures(1999), mid-term review of the MPO and mid-year reviews (2000), and periodic field visits.
A third form of support came through MoWD. UNICEF supported the completion of an assessment to demarcate suitable areas for Vonder Rig drilling and availability of water facilities; a baseline assessment of sanitation coverage, type of facilities, and soil strata; and an evaluation of community participation and skill capacity. A fourth support was for CBM/ HESP initiatives through MoWD, MoHP, MoLG and MoGYCS. This included training of district CBM officers, NGO project staff, extension workers and village health and water committees. Government's main contribution was technical assistance through personnel.

During the course of implementation, changes to the project strategies occurred:

- Crews were hired to cast and distribute san slabs/ plats in place of training committees. This was based on a recommendation by a NORAD consultant as a strategy to speedup sanitation promotion.
- Malda pumps were provided early in project implementation because there was a fear that Afridev pumps and spares would not be available. Therefore, nine water points implemented by WVI in Mangochi have Malda pumps.
- Based on recommendations from the UNICEF country programme mid-term review, NGOs were given the permission to procure materials and equipment as long as procedures of accountability were demonstrated.

The total project allotment budget under NORAD funding was: $ 1,554,665.50 US.

2.0 Evaluation Objectives:

To evaluate the Vonder Shallow Well Borehole Project and incorporate lessons learned in the past three years into a new proposal to be submitted to NORAD after the evaluation.

3.0 Evaluation Methodologies:

- Introductory and debriefing meetings with NGO partners and government counterparts from the district and central levels.
- Twelve community-based focus group discussions, three in each of the NGO impact areas.
- Five District/ Area-level focus group discussions.
- Desk evaluation of NGO, UNICEF, and government counterpart reports.

The project is being measured against UNICEF water and environmental sanitation (WES) programming strategies and the achievements toward the individual project objectives. In addition, three categories of investigation are considered in conclusion section: *cost-effectiveness, health impacts* and *sustainability*. Cost-effectiveness refers to the project inputs in relation to output. Health

impacts are the perceived improvement in health by communities interviewed and health centre records. Project sustainability is measured by existence of an active committee and supporting CBM extension structures.

The evaluation was designed to be both an assessment and learning exercise for all participants. NGOs were asked to choose both successful and unsuccessful sites for the focus group evaluation. NGOs chose successful sites to highlight their accomplishments and unsuccessful sites to further underline the constraints and problems throughout the project cycle. As such, the criteria for unsuccessful communities were: delays in material procurement leading to vandalism (Africare); poor application of Vonder Rig technology (ADRA); poor latrine uptake (CPAR); and poor community participation (WVI). However, the choice of problematic communities also provided an opportunity for implementing agencies to reflect on root causes and to listen to the community's perspective on the problems. This exercise proved useful in considering what sort of mitigative measures need to be put in place in future initiatives. In most cases, regular follow-up and communication with communities were seen as key to addressing the problems.

3.1 Methodological Constraints:

Although the evaluation set up was to encourage discussion and reflection of activities, the presence of NGO field staff, district officers and extension staff may have inhibited some people to speak freely in fear of losing future support or their jobs. All participants were encouraged to speak freely and ask questions. Moreover, the presence of extension workers and NGO field worker who were familiar with communities acted as a *check and balance* to ensure that responses given were accurate, especially where physical observation would have been necessary like hygiene behaviour.

Another major constraint was that the evaluation primarily took place in English requiring Chichewa translation. This required different people to interpret and translate questions and responses, that could lead to possible misunderstanding or misinterpretations. The common themes that came out during all the community focus groups give some assurance that information collected is representative of target communities and translation errors were minimal.

Other methodological constraints were:

- The unavailability of baseline data and no gender disaggregated information
- The propensity of focus group discussions to address the community as a whole, and not capture varying opinions

None of the NGOs had readily available baseline data, although they were aware something had been done prior to implementation. Only one of the NGO programme managers were part of the original group which was involved in the project start-up. Most of the personnel were relatively 'new' to the project. The UNICEF Project Officer involved in project start-up had also resigned earlier this year.

UNICEF had no records of baseline study with an exception of an early ADRA report[1] presented in a workshop in Zomba, April 1998. The MoWD baseline assessment could not be found in programme records.

[1]ADRA (1998) *'Project Status Report.'* Presented at the Consolidation Meeting April 1-2, 1998 Kuchawe Inn. UNICEF-NORAD files.

4.0 Key Findings in Project Operation

The project has been relatively successful in the provision of safe water, sanitation promotion and hygiene education. However, it has equally had many difficulties that recently appear to have been overcome. Six main areas of problems have been highlighted through documentation and discussions with implementating personnel.

1. Inappropriate application of drilling technology in certain target areas
2. Delays by UNICEF in the procurement of equipment, materials and supplies
3. Delays in financial liquidations by implementing agencies
4. Transport difficulties including inappropriate vehicle choices for the terrain and supply load
5. Poor supervision and follow-up by extension and NGO field staff
6. Sandy soils and collapsing latrines

4.1 Inappropriate application of drilling technology:

In a number of correspondences between UNICEF and both NGOs and MoWD, it appears that the application of the Vonder rig was questioned. In a report from MoWD, serious concerns were raised about the *'technology used for drilling water points and hence the reliability/sustainability of water supplies against the background of recent drought episodes and unfavourable geological/hydrogeological conditions in target areas*[2]*.'* The MoWD asked NORAD to consider the drilling of deep boreholes instead of Vonder shallow wells. As part of their argument, MOWD claimed that '*Vonder rig drilling limits the diameter of the wells which in turn affects the recharge characteristics and volume of water in the field*'[3].

Consequentially, several water points drilled in Nkhata Bay and Mzimba were found to be dry. Moreover, it was noted that the unfavourable hydrogeological areas and the difficulty of borehole siting resulted in water points being far away from beneficiary communities beyond the acceptable guidelines of 500 metres one-way from the homestead to the water point. The shallow nature of drilling also made Vonder drilled water points more prone to contamination especially in proximity to dambos or pit latrines. The MoWD proposed mechanical drilling because no data exists currently for monitoring ground water levels and aquifers characteristics, and it would be the only option to ensure adequate water supply all year round.

A case in point was the dry shallow hand dug well visited by the evaluation team in Mpherembe. The well was hand dug to 10.6 metres after hitting underlying rock several times with the Vonder rig. It was unclear what was the involvement of the MoWD in the construction. However during the time of

[2]MoWD (1998) *Report on NORAD WES Project-Ministry of Water Development.* Lilongwe Malawi.

[3]MoWD (1998). *Ibid.*

digging in 1999, water tables were quite high and it is possible that this gave a false indicator for the normal water levels. After the rainy season in 2000, the well dried up and the community of Gunda Aziche had to return to using the previous open well. Households could not rely on this open well because it dries up with frequent usage. Furthermore, one district officer observed that the inability to use the vonder rig in some places, led to a disproportionately high number of wells in places where vonder rig drilling was suitable.

UNICEF's position toward the vonder rig remains that it is an efficient low-cost option to increasing access to safe water for communities over mechanical drilling. The quality and quantity of water from vonder rig wells are comparable to mechanically drilled wells when properly constructed. However what appears to have occurred was that the initial hydrogeological assessments were not accurate in pin-pointing recommendable sites for drilling. Therefore, the vonder rig was used in places which it was not conducive such as hard underlying rock beds. Moreover, there may not have been a clear understanding by district planning officers of the limitation of the vonder rig. As such, planning officers chose sites for drilling on the basis of low water coverage, rather than areas where the vonder rig was best suited. As a result, it was concluded, both from the point of view of the communities and the implementors, that the technology is inappropriate. However a more realistic assessment might conclude that the technology was applied in unsuitable areas. A thorough hydrogeological assessment and greater collaboration with MoWD personnel in siting and drilling of boreholes would have resolved many of the difficulties.

Although people questioned the appropriateness of the vonder rig in some areas, the majority felt it offered a low cost option for water provision to rural communities, especially those inaccessible by road. Moreover, some extension workers felt the nature of hand augured drilling promoted community participation and ownership. The fact that the majority of water points (94%) drilled by vonder technology are still producing water, attest to the fact that proper siting and construction are equal determinants for year round water supply. Communities, also mentioned that drilling was physically difficult, required a lot of people and made them dizzy. In many communities, the term for the vonder rig was coined as the '*dizzy machine*'!

4.2 Delays by UNICEF in the Procurement of Equipment, Materials and Supplies:

Essential project inputs were not received for more than a year after the start of project implementation. This set back implementation for a long time after materials and equipment were received. According to NGOs, because of delays in procurement, some sites did not have sufficient amount of cement. This resulted in poor civil works, cracking and exposed bricks. Delays in cement resulted in some communities not having pail stands, washing slabs or sufficient number of san slabs. The most extreme case was the community of Nashoni Helma, where late procurement of pumps and poor follow-up by Africare led to a delay of two years in implementation. After which time, the encased hole drilled by the vonder rig was vandalised by children, rendering it useless for well construction.

4.3 Delays in Financial Liquidations by Implementing Agencies:

Delayed liquidations and slow advances affected implementation schedules. Improper supporting documents, and poor knowledge of UNICEF procedures were most often the cases for returned liquidations.
MoWD could not access funds for supervision from UNICEF because of outstanding liquidations in 1997/1998. As a result, extension staff were not able to adequately monitor activities and potentially affecting the quality and workmanship of water points.

4.4 Transport Difficulties Including Inappropriate Vehicle Choices for the Terrain

Problems of transport were cited by government counterparts:

- the unavailability of transport (no vehicles),
- inadequate transport (bicycles used to cover distances of more than 20 km one-way) or
- no funds for fuel.

Government counterparts link unavailability of vehicles to poor follow-up on project activities. To deal with transport problems, UNICEF encouraged NGOs to share resources and make arrangements for joint monitoring visits. During the final evaluation discussions, there was some indication that sharing of resources between NGOs and government counterparts had improved.

Each NGO was given a three-tonne Mitsubishi canter. This was not four wheel drive and had limited usefulness during the rainy season when roads were inaccessible or on rugged sandy terrain. Its size and capacity could not sufficiently carry large loads of materials like cement, and resulted in NGOs making numerous trips to collect materials and supplies. Halfway in the project cycle, a Toyota Hilux single cab was purchased. The party who made original choice of Mitsubishi canter is unclear. UNICEF claims that counterparts chose this vehicle because similar ones were being used by district offices. NGOs claim the choice came from UNICEF. However under UNICEF's procurement procedures, counterparts are to choose vehicles and upon receiving the vehicle, NGOs were given an option to accept or reject the items based on suitablilty. There are no records that the Mitsubishi canter, upon receipt, were rejected on the grounds of suitability.

4.5 Poor Supervision and Follow-up by Extension and NGO Field Staff

The MoWD reports that poor workmanship in terms of civil works was observed in many of the sites. This was related to the poor supervision by NGO staff, and the level and competency of builders. It was also noted that civil works structures were not using the acceptable amount of material as stipulated under the Bills of Quantities (BoQ). Late procurement of supplies is believed to be one of the reasons that civil works may have been sub-standard.

Regular project reports by NGOs were not forwarded to MoWD through UNICEF. This in turn affected the ability of MoWD to monitor through progress reports. Monthly reporting by NGOs in DEC meetings was an important part of district monitoring.

During the focus groups discussions, communities reported that they did not receive regular visits by extension workers. When supervisory visits were conducted, the extension workers tended to focus on the water point, and speak only to the chief and members of VHWCs. What rarely took place was household visits and inspection of san plat installation. An exception to this was a site visited during the evaluation in Chimwala, where the neighbouring communities had established a sanitation committee. The five member sanitation committee was made up of women and one man trained in sanitation platform casting. The women claimed that they were regularly visited and supported by the local HSA. However, this community was believed to be an exception, because of the following factors:

- The communities' commitment to sanitation promotion activities through the establishment of a sanitation committee
- The easy accessibility of the community by road side
- The HSA was a local resident.

The work of monitoring sanitation and hygiene education falls completely on HSAs. At the same time, sanitation activities receive a low priority among HSAs, and the situation is compounded by the fact that it receives no priority among CDAs and WMAs. The CBM concept of involving line ministries seems to be effective as far as CBM/ VLOM training is concerned, but, beyond this, it is relatively nonexistent in HESP efforts. Compounding this, was the insufficient resource allocation for extension monitoring beyond the provision of a bicycle.

Poor monitoring is cited because of a lack of motivation by extension staff. Government counterparts suggested examining non-monetary incentives such exchange trips and learning opportunities which could motivate extension workers in their work.

4.6 Sandy Soils and Collapsing Latrines:

Sandy soils made latrine construction difficult and costly for lake shore communities. CPAR and WVI reported many cases of latrines collapsing. Latrines had to be lined with either bricks, or branches weaved to form a basket. Furthermore, latrines could not be dug deep for fear of collapsing, so they filled up quickly requiring households to dig new pits annually.

The results were the low installation of san plats, and the difficulty of gaining people's confidence in applying heavy san plats to unstable soil. Women during the focus groups mentioned that they were

more likely to let their young children use latrines if they felt confident about the structure.

5.0 Findings from Major Project Components

5.1 Water Point Coverage

The average number of households using each water point ranged from 50-100 households. The number of households using water points is at or beyond the design criteria of 250 people.

It was difficult to get a clear number of functional water points in the project impact areas. In Mzimba records show that 90%of protected wells and 82%of the boreholes are functioning. Water point coverage in Nkhata Bay District fell from 69% in the start of the project to 40% because a high number of shallow wells dried up. One district report sets Nhkata Bay's current water point coverage rate at approximately 54%. But it is believed that district records have yet to reconcile the most recent borehole developments. Mangochi District also has a coverage rate of 54%.

After the community-based focus groups discussions, pump tests were conducted. Water drawn from wells in both successful and unsuccessful implementation sites were able to fill a 20-litre bucket in less than two minutes. In one case, the pump was leaking water, indicating the need to replace U-seal or improper installation. Generally it was felt by the evaluation team that the operation and maintenance of hand pumps were good. The functional rate of waterpoints constructed under this project is 94% (351/373).

5.1.1 Quantity and Quality of Water:

Generally community focus groups reported a good flow and sufficient quantities of water from water points constructed. Only one community reported a low flow after heavy usage. Water quality was also considered good, with the exception of the lake shore communities of Nkhata Bay and Mangochi were traces of silt were found. One water point required servicing because it had traces of rubber in the water.

The water-testing for all newly constructed shallow wells has not been completed yet by MoWD. The preliminary findings show 67% of CPAR sites and 54% of WVI sites are above the WHO standards in bacteria and chemical testing. Remedial action by CPAR has been chlorination of wells and closing off pit latrines within close proximity to the well.

5.1.2 Civil Works:

All communities interviewed during focus group discussions were happy with the design and

workmanship of the water points. NGOs field staff claimed that local currency devaluation affected their ability to purchase the needed bags of cement and others were told that the 'NORAD' design did not allow certain features like pail stands. As a result, some water points had pail stands and washing slabs, while others did not. Where no pail stand was present, it could be observed that water point users would place the pail on the spout of the pump as a form of support when lifting the bucket. This resulted in observable stress and wearing of the spout.

While most communities have constructed soakaway pits, the quality varied. Drains and aprons were generally well constructed but the length varied from five to eight metres. Where no cement reinforcement existed under the pump in the form of a pail stand, large grooves formed from constant placement of pails under the pump. This resulted in early cracking and pools of water on the apron. WVI used concrete in the construction of civil works, which appeared to be more durable. In terms of design, women in Champumbwa village, Nkhata Bay felt that the size of washing basins were too small to wash things like blankets and with a large population using the water point, more basins were also needed.

5.1.3 CBM

In Mangochi, CBM efforts have been coordinated through the DEHO and District Planning and Development office. The major CBM issue reported was that district offices get complaints from communities of the cost and accessibility of spares. A MK 10 spare part can easily become MK 500, when overnight accommodation and transport were added. Even when communities managed to travel, they arrived to find that Chipiku stores (the GoM central distributors) do not have the needed spares. The views of the district officers were that distribution and supply of spare parts were too centralised and worked to the disadvantage of rural communities.

The difficulty of getting spare parts was expressed in most of the communities visited during the evaluation. In Mtambo village TA Chimwala in Mangochi district, the VHWCs claimed that when spare parts were distributed to Chipiku stores, local vendors would buy up the stock and then resell them at higher prices to communities. One committee solved the problem of inaccessible parts by making a U-seal out of a rubber shoe!

In the villages of Champumbwa, there were concerns about their ability to maintain water points because of increasing spare part prices and decreasing commodity price returns. One women in Champumbwa felt it was reasonable to consider a piped water scheme because from her observation they appear better sited, and closer to homes. And in relation to the cost of constant repair of boreholes and expensive spare parts, piped water schemes may appear more cost effective because they do not require the same maintenance. It was also noted that many communities continue to keep money over purchasing spare parts. Hence, the collected funds devalue with price changes.

Many internal conflicts between communities and committees were highlighted during the focus

groups. There were a number of articulated arguments of poor community support for VHWCs or alleged mismanagement of funds. CDAs had limited involvement in conflict resolution and negotiation. Community disputes were left to the discretion of local leaders. However, where local leadership was weak and indifferent, arguments and conflicts could jeopardise the maintenance of the well.

Some reasons leading to community disputes:

- Committee members were selected without full approval of community. At the time of selection, only a few people were present. However, an opposing argument felt that people did not take interest in the initial project meetings to select committee members.
- Jealousy over those who received training
- Raises in household spare part contributions without consultation of community
- Ignorance of the cost of spare parts, leading to allegations of misuse of funds
- Alleged misuse of funds
- Refusal to contribute to the spare part fund by community members
- Poor local leadership

5.2 Sanitation Coverage:

Although, san plat installation was low, there was a high demand for san slabs, especially in Nkhata Bay. This might have been attributed to the fact that many people who requested for san plats were keeping them for their new latrines, once the old one filled up. A more effective project implementation strategy should have deliberately targeted households with no latrines. In this way, coverage of sanitation would have been greater. In addition, sanitation promotion through project design did not offer individual households sanitation choices. Many respondents said that for a variety of reasons they would have preferred different types of sanitation options. Some respondents felt san slabs were too heavy to be lifted and carried to site. Others felt san plats were too small and did not adequately cover the pits, so therefore logs were needed to compensate the difference in space. In Mangochi, women preferred dome slabs because they were based on the traditional latrines and could be placed over the pit securely without fear of collapsing.

Cases of chronic diarrhoeal remain high. The table below presents average reported diarrhoeal cases in Mzimba, 1998 and 1999 from a population of 3727 households. These reported cases would be considered severe as households needed to seek medical attention at health facilities.

Jan	Feb.	Mar	April	May	June	July	Aug.	Sept	Oct.	Nov.	Dec
112	193	335	358	370	404	470	506	553	1613	1686	1708

The highest number of reported cases of diarrhea was during in the dry months from October to December. The potential reasons are water sources dry up and community members must revert to

using unsafe sources. The high temperatures allow for the easy spread of bacteria especially where there is low sanitation rate coverage. In October approximately 43% of households experienced and reported a serious bout of diarrhea. Forty-five percent of households in November and 46%of households in December reported cases of diarrhea. The writer speculates that by the time the rains are in full force and water tables have increased, then households return back to using potable water sources, resulting in a decrease of diarrhea cases during the months of January to March.

In Nkhata Bay, there are still many reported cases of disease outbreaks in Nkhata Bay north (outside of project impact area). There are conflicting reports on sanitation coverage. One district report states the coverage rate for latrines is between 52-61% and is lower in the lake shore communities due to unstable sands. Another district record through the regional health office indicates a decrease in sanitation coverage from 81% to 51% during the period of the project cycle[4]. The district health office also reported that with CPAR and UNDP's efforts overall coverage rates of improved sanitation coverage (san slabs installation) has risen from 3% to 6% since 1997. Within CPAR's impact area, improved sanitation coverage is about 30% but it is increasing with the provision and eventual installation of all 1,800 san slabs. Two areas Champubwa and Maligasanga were continually affected by cholera but the incidence has significantly decreased through project intervention. The Nkhata Bay district strategy has included the promotion of traditional latrines as well as improved latrines.

One issue noted, under CPAR's sanitation strategy was that drop hole covers were not being provided with pit latrines. The field staff rationalised that the demand for san slabs exceeded the supply. So san slabs were cast first and distributed to households, and drop hole covers were to be cast and distributed later. The issue is that without the drop hole cover the improved latrine has lost its comparative advantage over the traditional latrine. Households were also complaining that they had not received drop hole covers and needed them to control the flies from breeding. It is unclear whether this is an issue of cement availability or the time to cast platforms and drop hole covers. In either case, follow-up to ensure san slabs have covers should be the responsibility of HSAs and UNICEF.

According to district officers in Mangochi and communities, since 1995 there have been noticeable decrease in disease prevalence related to poor water and sanitation conditions. Water point coverage has gone from 40% to 70% since 1996. Pit latrine coverage is around 52%. According to district records, Nankumba and Chimwala, two of WVI impact areas have the highest sanitation coverage rates in the district at 55% and 57% respectively. However, communities cited bilharzia as a major

[4] This figure is also taking into consideration the northern part of the district which was not covered under this project.

health issue and felt there was little intervention in this area. A newly established bilharzia coordination team is trying to address this problem by coordinating efforts of NGOs, donors and MoHP. The Ministry of Health's main intervention strategy against bilharzia has been through hygiene education.

Community focus groups revealed that hand washing after defecation took place in bath shelters. Although there is not data specifically on hand washing containers, the presence of bathing shelter is a good proxy indicator. In Mpherembe, it is estimated that less than 45% of households had bathing shelters, which are often used as areas for washing after latrine use. Kitchen coverage was at 65% of 3727 households, and a proxy indicator for food hygiene. There was no information on school sanitation facilities. According to communities, most schools did not have adequate facilities. No schools were reported to have hand washing facilities.

Most households claim to use the two-cup system for drinking water, except one community claimed it was limited to only adults. From observation, the second cup is hung too high for children to reach. Therefore, drinking water may be contaminated by children who are unsupervised when getting water. Furthermore, if the majority of schools do not have hand washing facilities, it is an unlikely habit for young children to develop.

5.3 Community Baseline Information and Monitoring:

There was no formal community-level monitoring of disease, project outcomes or impacts. With the exception of a few communities visited during the evaluation, most VHWCs only kept records related to water point maintenance and spare part funds.

One community felt that disease monitoring was the responsibility of the individual households. They felt that door-to-door investigation would be viewed with suspect by the community because one might be considered to be doing witchcraft. They viewed monitoring as something which should be initiated out of individual demand and not something through VHWC investigation. In another case, the village headman's family was very active in monitoring disease and in turn the committee was active in monitoring disease occurance. This was, despite the fact that, they had not received any CBM/HESP training. The same community had established an informal means of monitoring disease occurrences through regular and routine household visits. They also had established a focal point person to report disease and seek guidance from the health centre. The extension workers kept regular contact with the village headman's family.

The difficulty of baseline monitoring is compounded by incorrect information on community population sizes. Most VHWCs were unaware of the number of households who regularly used the water point. Therefore, management of facilities were based on assumptions which were often incorrect. Poor estimation led to inadequate numbers of san slabs being provided, insufficient money being collected per household, and water points catering for large numbers of households over the

stipulated design criteria. The outcome was that water points required constant maintenance and, required frequent replacement of parts at high costs to contributing households. The constant repairs and stress on water point facilities may eventually undermine effective community-based management if communities believe that the water point breaks down too often and are costly to maintain.

Two other points noted on monitoring:

i. When information is collected by HSAs for reports, it is rarely fed back to the communities. Similarly, information collected at district-level was not reflected back to sub-district levels.
ii. The district health office in Nkhata Bay felt that greater investigations on ethnography, knowledge, practices and attitudes related to HESP were important because without this basis, implementation strategies do not begin with what people know.

5.4 Community Contribution:

Community contributions were sand, crushed stones, bricks, labour, food and accommodation for crews. In general, communities were able to meet their contributions. However, in some areas the availability of materials and labour for construction was problematic. In Nkhata Bay, some communities could not acquire crushed stones for sanitation platforms. CPAR made some attempts to assist by transporting crush stones from other communities In Mangochi and Mzimba, bricks were often difficult for communities to acquire. Also in Mangochi, a high number of female headed found labour a constraint because few men were available to assist during implementation.

5.5 CBM /HESP /VLOM Training:

The component of CBM /VLOM /HESP training lagged behind water point construction. The evaluation found that communities had to wait up to one-year after water point construction for training. Also in reviewing the CBM syllabus provided by MoWD, three out of eighteen or 16% of topics were dedicated to sanitation and hygiene. Ten out of eighteen (or 55%) were dedicated to the water point: borehole, hand pump, and practical field installation and one out of eighteen topics (or 5%) was dedicated to leadership and group dynamics. There is not a practical or field application component of the sanitation and hygiene modules. The fact that certain topics received greater attention over others, reflects the priorities in CBM training and this translates into lower community priority in sanitation.

Community servicing of water points was low, sometimes up to one year or so before anything was done. Although, extension workers advocated servicing of water points at least once a month, in most cases this was not feasible because of time and cost. More realistically, some extension workers recommended servicing based on the geographic area. In areas with high iron or alkaline content in water exists, committees were requested to service more often to prevent damage to pipes and rods.

Servicing at best was done every four to six months or when the water point broke down. Interestingly, some water monitoring assistants saw their role as primarily being to service water points for communities, which went against the CBM concept.

Although all communities answered that the borehole belongs to them, it was not clear by their actions because all, with the exception of one committee said, that they reported breakdowns to either the government or NGO. A few committees were not aware of how to service water points and where to buy parts, resulting in a continued reliance on the implementing organisations.

5.6 Information, Education and Communication (IEC):

The project developed and tested IEC materials, which were posters depicting four thematic areas: good hygiene practices (1), VLOM (2), and sanitation promotion (1). They were translated into four languages relevant for the impact area: English, Chichewa, Tumbuka and Yao. An additional language translation of Tonga might have better served the lake shore communities of Nhkata Bay south.

The IEC materials were not found in any of the communities visited. Most people recalled seeing them during training, but IEC materials were not used during follow-up visits by extension workers. The majority of people claimed that IEC materials and messages were seen at health centres, especially under-five clinics. Under-five clinics present a good opportunity for reaching mothers with hygiene education messages because between 50-80% of children under-five received immunisation. Schools were also important venues for drama performances and health talks.

A good observation by Nashona committee was that HESP posters seem to target only mothers with young children or school going age children. Posters can be found in under-five clinics and that is where dramas and health talks take place. However as older women they do not regularly go to schools or under-five clinics, so something should be done within the community. Similarly, many men and boys would be left out of hygiene education and IEC strategies because they do not regularly attend under-five health clinics. HESP component must seek strategies to extend information to secondary audiences.

However, IEC messages in only schools and under-five clinics leave out an important secondary target audiences of husbands, fathers and elderly women. A self-initiated sanitation committee in a Mangochi village had organised a drama group to advocate and educate on the prevention of common diseases. Such an initiative would have wide contact with all members of the community.

5.7 *Project Management and Partnerships*:

NGOs were able to forge close links with government extension workers. The close working relationship meant government extension workers were made to feel part of the project and their

participation was not outside their job descriptions. A good example of collaboration was with WVI, they did not have a regular project driver, so they often relied on drivers from district offices to assist in implementation. HSAs through the Mangochi district environmental health office were primarily in charge of all health, and hygiene related activities with minimal involvement from WVI.

In Nkhata Bay, district planning teams felt that cooperation with CPAR was good. CPAR added an additional project objective related to supporting district capacity building. From the evaluation focus groups this appears to have been successful. However in general, district officers also felt that they did not have sufficient input on project development and design. As a result, NGOs were seen '*to take the project as their own*'. The coordination and relationship with Africare in Nkhata Bay was very poor. This affected the quality of implementation. District officers cited a large percentage of water points in Africare's impact area were reported to be inoperable. They received many complaints from communities who needed remedial assistance for their water points constructed through Africare. Poor collaboration between Africare and district planning teams was viewed as a great disservice to beneficiary communities. The Nkhata Bay district officers felt that the government and NGO roles should be clearly defined, because NGO activities should fall within and support the district development planning framework.

District focus group discussions cited that there was an expectation that NGOs will use government extension workers, but sharing of project resources and equipment with government counterparts was limited. District officers felt that a thorough assessment of NGO capacity was also needed.

A general feeling among project implementors was that allocation of resources were disproportionate and more resources should have been invested at the extension level in training and transport availability. In the spirit of decentralisation, district officers proposed a resource allocation shift toward beneficiaries and field staff, and away from the central ministries.

5.8 Gender Equity:

Gender equity, as a sub-objective, was integrated later into the UNICEF WES programme objectivies. Two main activities addressed gender equity in the project:

1. An affirmative action to reserve 60% of VHWC position for women
2. Integrating gender awareness in CBM training

There were varying comprehensions of gender. NGOs approached gender equity by ensuring quantitative representation of women in construction and management. Communities held a more realistic view that it was the increased capability of women to preform work formerly done by a man.

The narrow application of gender did not consider some pertinent project issues, such as low participation of men and women's already heavy workload. Furthermore, the poor participation of

men in implementation and maintenance resulted in an even greater workload on women. At the same time, NGO field workers, project managers and extension staff were predominantly men, and this meant that women's participation in overall project management and decisions was minimal.

An examination of the division of labour reveals certain tasks such as latrine construction are viewed as man's work, and women were reluctant to do it. There is a direct correlation between the number of female households and the construction of fewer latrines.

The MoGYCS introduced gender awareness training late in the project implementation cycle. As a result, only a small number of communities have actually received gender awareness training. Community mobilisation, and HESP/CBM training offer good opportunity for introducing gender awareness. Radio messages on gender seemed to be the most popular means of gender awareness communication for communities.

VHWCs may act as an entry point for community empowerment and gender equality. Women trained and actively involved in VHWCs develop a sense of pride and confidence. They also appear to have a better idea of what are the key problems in the community and could confidently articulate them. In contrast to discussions with women from an untrained and poorly mobilised committee, comments were heard like this: '*We are only women, we cannot decide what are the problems and solutions in the community*.'

5.9 HIV/AIDS:

The HIV/AIDS epidemic has affected the project primarily in two ways: *staff turnover and low community participation*. Three key NGO staff were lost to HIV/AIDS related illness, as well as other support staff and extension workers. This has affected the continuation and momentum of project activities. Africare has suffered the greatest lost in terms of staff numbers to the epidemic.

In communities, frequent funerals have affected the level and consistency of community participation. NGOs and government partners felt there is a need to integrate HIV/AIDS prevention and information into the project such as during community mobilisation exercises and CBM/HESP training. There are initiatives related to HIV/AIDS prevention through Community-AIDS Committee (CAC), which offer another opportunity for collaboration.

5.10 Environmental Management:

NGOs observed declining green cover in impact areas over the course of the project, especially the hard wood trees known as *mubanga*. Two main reasons for the use of wood in the project. First, in

cases where san slabs were cast outside of the communities, san slabs were distributed to a central site of distribution. Households were expected to carry these heavy san slabs and many use mubanga tree poles as support. Secondly, where burning bricks were needed to line pits in unstable sandy soils, trees were used as fuelwood to burn the bricks.

To address this, NGOs suggested that the project incorporate a component of tree planting and the use of alternative technologies, like dome slabs where possible. Dome slabs are known to need less burned bricks for support and hence less fuelwood. Spiral wire with hessian sacks has been also used in Zimbabwe to line pits where tree cover is scarce. WVI has been exposed to this technology and are contemplating a similar adaptation in Malawi. In choosing appropriate technologies, NGOs would have to consider the cost for communities and the use of biodegradable materials. A thorough environmental impact assessment would need to be carried out in addition to promoting *tree-saving* latrine technologies. Alternatively, another component of the project could make resources available for communities and NGOs to experiment on designing latrines which decrease wood use and are geologically and culturally suitable.

6.0 Findings: NGO Project Implementation and Management:

6.1 Africare: Mzimba and Nkhata Bay District:

Africare is an American NGO that has been operating in Malawi since 1986. It has had a number of projects throughout the northern and central regions covering a wide number of sectors: water development, health, education, and food security.

The project objectives in Nkhata Bay were:
- To drill and provide safe water points in 40 communities
- To cast 1,200 san plats
- To train communities in CBM through MoWD

The objectives in Mzimba District were:
- To drill and provide safe water points to 80 communities
- To cast 2,400 san plats
- To train communities in CBM through MoWD

Africare experienced similar constraints as the other NGOs. In their reports, they highlighted poor community participation, hydrogeological challenges due to hard underlying rock and project material availability as key issues affecting implementation.

Project staff noted that the cycles of farming and fishing meant that many men were not involved in the project. Moreover, cultural events during peak implementation period affected overall community participation. Death and terminal illnesses of project staff related to HIV/AIDS seriously affected implementation.

Despite the problems and constraints, Africare was able to construct 111 water points out of the target 120 and attained the following outputs:
- 120 mobilised communities(100%)
- Eighty (80) points drilled in Mzimba, five sites have problems with water and three sites were vandalised.
- In Nkhata Bay, forty (40) sites were drilled, four sites with water problems.
- 109 water points are functional; 72% of water points are yielding 0.02 litres per second
- Water point coverage for more than 5000 households
- 111 active VHWCs (95%)
- 2873 san plats cast and distributed. (There are no accurate figures on installation.)
- One school was targeted with improved latrines
- Two san centres were established
- Reduction in diarrhea reported cases in under-five children went from 108 in September 1996 to 63 cases reported in September 2000 in the Mzimba impact area.

Africare		
Personnel inputs	*Equipment inputs*	*Capacity Development*
■ Country Representative (1)-LL ■ Project Manager (1) ■ Field Coordinators (2) ■ Administrative Officer (1)-LL ■ Accountant (1)-LL ■ Office Clerk (1) ■ Technicians (8) ■ Health workers (4) ■ Driver (1) ■ Builders (4) ■ Assistant builders (4) ■ Guards (2)	■ Three-tonne Mitsubishi Canter ■ Two Yamaha motorcycles ■ bicycles for extension workers ■ Four Vonder rigs	■ CBM training ■ project management training ■ field visits ■ project meetings
Difficulties related to personnel arrangement	*Difficulties related to equipment inputs*	*Difficulties related to training inputs*
■ Centralised project structure, hence, problems had to be rectified in Lilongwe country office. ■ Purchase of materials took time because it was done out of the Lilongwe country office. As a result, the project was not always given the needed priority.	■ Truck not suitable for terrain because it was not a 4x4	■ CBM for communities came long after the water point was constructed. ■ Training schedules differed. Some were two days and others were five. (Clarification: two-day training were based on old modules. All training now has been revised to five days.) ■ The organisation of CBM training was considered too centralised, because the scheduling and direction came from Lilongwe.

6.2 ADRA- Mzimba District:

ADRA-Malawi is an American Christian NGO established in 1982, operating in the sectors of water development, food security, and health with national coverage.

ADRA's project outputs were:

- Fifty-four (54) shallow hand dug wells, and 18 vonder rig drilled wells have been constructed which is a 90% water point coverage rate in target communities. All seventy-two wells have been fitted with Afridev hand pumps. Eight sites that failed to be drilled by vonder rig are being mechanically drilled by WVI and the civil works are being done by ADRA.
- In terms of sanitation,1805 san plats (60%) have been cast and installed. Three san centres were established.
- Within the impact area, sanitation coverage rose from 661 to 1873 households through project intervention and the work of HSAs.
- Hygiene education reached all 80 communities (100% of target), seven schools and one marketplace
- VLOM training reached the 78 targeted communities (98% target rate).

The Mpherembe area within Mzimba district is described as a hilly, sandy and rocky area with underlying rocks. The soil is sandy clay and more clay in the low lying areas, making the water appearance cloudy. The hydrogeological and topographical challenges constrained efforts in using the vonder rig drill. During the course of drilling, the team and communities would change sites several times because they met hard rock. In 1998, ADRA consulted a hydrogeological surveyor from Ministry of Water Development to assist in site selection. The outcome of this was the selection of only two recommendable sites and a recommendation to use alternative technologies. Based on the recommendation, the Government provided, under a separate project, for eight machine drilled wells where the vonder rig technology was not suitable.

The MoWD assessment noted that drilling attempts failed due to hard underlying rock and lack of supervision during the siting of boreholes. The report recommended that *'hand dug wells be introduced in areas where the vonder rig cannot operate. These should be dug to reasonable depths to avoid drying during the dry season (Eswazini and Kafukule areas).'* Because of the nature of the area, the report urged ADRA to work closely and seek the guidance of regional hydrogeologists of the Ministry of Water Development in the siting of boreholes and hand dug wells. Supervision was recommended for the ADRA drilling teams.

The next major problem in the early years of implementation was the slow flow of equipment and supplies from UNICEF. There were requests to increase the number of rigs from three to four. The delay in receiving equipment and the poor application of the vonder rig due to topographic and hydrogeological difficulties resulted in high costs both in time and labour.

A third major constraint for the project in 1998 and 1999, was the heavy rains experienced in the northern region, which made many roads impassable and communities inaccessible. However, ADRA contends that despite these difficulties, the project has had relative success in service delivery with the support of UNICEF-WES project officers.

A representative sample of target communities was completed as a baseline study. In total thirty-one (31) communities[1] were assessed for presence of latrines, bath shelters, kitchen, refuse pits, and dish racks.

TA Mpherembe Sanitation Facilities (HHs=702) *ADRA Baseline Study* 1997-1998		TA Mpherembe and Kabuff, Sanitation Facilities (HHS=3727) *Mpherembe Health Centre: (1998-1999*)		
Pit Latrine Coverage	58%	Pit latrine coverage	2324 HHS	68%
Bath Shelters	60%	Bath screens	1677 HHS	45%
Refuse Pits	44%	Refuse Pits	2721 HHS	73%
Dish Racks	44%	Dish Racks	1751 HHS	47%
Kitchen coverage	56%	Kitchen Coverage	2423 HHS	65%

Three san plat centres were established early in the project implementation in Malidade, Thundwike and Mpherembe Health Centres. Three schools were targeted with hygiene education and sanitation promotion including the casting and installation of 80 san slabs. Hygiene education targeted one market place.

ADRA worked in collaboration with a variety of personnel: health surveillance assistants, medical assistants in charge, teachers from schools, market committee members, local authority, water monitoring assistants, community development assistants, community leaders and chiefs. ADRA established a main project steering committee in 1997 of which the Traditional Authority Mpherembe was chairman.

ADRA		
Personnel inputs	*UNICEF equipment inputs:*	*Capacity Development*

[1] The report presented by ADRA in April 1998, had only18 villages of which 702 households were assessed for sanitation facilities.

■ Director (1)-BT, ■ Assistant Director (1)-BT, partially dedicated to the project to assist in logistics ■ Project Manager based in Mzimba (1) ■ Project supervisor (1) ■ Stores clerk (1) ■ Technicians (3) ■ Builders (3) ■ Sanitation officer (1)	■ Mitsubishi Canter ■ Two Yamaha motorcycles ■ bicycles for extension workers ■ Three vonder rigs	■ Training for Programme Managers ■ CBM training ■ project meetings ■ field visits
Difficulties related to personnel arrangement	*Difficulties related to equipment inputs*	*Difficulties with training support*
■ Mzimba district is large and terrain is tough, rugged and sparse. ■ Project accountant/ administration were based in Blantyre, Mzimba office felt it was not always a priority in central office in Blantrye. ■ Decentralisation of Mzimba District, means that district offices are now very far from NGO office (Mzuzu) and project sites like Mpherembe and Kabuff.	■ Truck not suitable for terrain because it was not a 4x4 ■ Late offshore procurement by UNICEF ■ Poor vehicle suitability because project sites were far apart, in some cases 68 kilometres away from filling station	-

6.3 CPAR: Nkhata Bay District

CPAR is a Canadian NGO operating in Malawi since 1990 with ongoing projects in the sectors of water supply, health, food security, environmental management and income generating activities.

In addition to the three main project objectives, CPAR had four project objectives. The objectives were:

- To have each school construct one latrine for every 100 students
- To assist in the development and maintenance of a strong partnership between communities and the various government of Malawi ministries involved in this project
- To contribute to the development of community-based management (CBM) initiative in Nkhata Bay District
- To complete all activities necessary for achieving the goal of this project

The review of CPAR's objectives clearly indicated beyond service delivery, there was a complementary and deliberate strategy to build district capacity and strengthen partnerships. This has resulted in a strong partnership between CPAR and Government of Malawi demonstrated by CPAR's membership in the recently created National Water Development Programme (NWDP) district coordination team. The close relationship also assisted in resolving problems related to implementation within the target regions. CPAR also reported on community participation, the role of women and sustainability.

Early in the implementation, CPAR cited problems of weak development structures (ADC and VDC) and poor support from extension workers. Based on the evaluation focus group discussion, it appears that the project has assisted in strengthening development structures and improved extension support.

Siltation was another major problem with CPAR's wells, leading to some wells drying up. The problems of siltation were attributed to the poor quality of gravel packs used in the construction of wells. CPAR continued to assist communities with the siltation problems through a mechanical bailer. Eventually, one community was able to use the bailer without CPAR's assistance.

Monitoring reports from MoWD found that siting was done primarily on the basis of community selection and CPAR technicians did not advise beneficiaries that drilling in some areas would result to high probability of siltation. Furthermore, CPAR was urged by MoWD to drill deeper to 20 metres to avoid problems of siltation. Some of the technical problems could have been beyond the capabilities of the WMA, and these problems should have been forwarded to the Regional CBM Coordinator for resolution.

CPAR outputs were:

- 60 wells drilled with Afridev pump (100%), 52 water points are functional
- 100% of communities received VLOM training

- 1809 san slabs cast out of a target of 1800
- 50% of san slabs are installed, with approximately 58% latrine usage in the impact area
- 100% of communities have undertaken hygiene education training.

Nkhata Bay south was CPAR's implementation area with a population of 53, 824 according to a September 2000 data collection by the Area Health Office. Under-five children make up 14.1% of the population and an HSA ratio of 1:2512. Area health records indicate that 1,558[2] san slabs have been cast under CPAR's intervention of which 21.4% have been installed.

The profile of CPAR's impact area (Data collected September 2000 by Area Environmental Health Officer)			
Pit latrine coverage	52%	Households with access to protected water sources	57%
Bath house	56%	Total # of functioning boreholes	111
Kitchens	67%	Number of taps (Northern Regional Water Board)	107
Proper refuse disposal	33%	Total # of functioning protected wells	75

CPAR		

Personnel inputs	*Equipment inputs*	*Capacity Development*
■ Country Director (1)-LL ■ Programme Manager (1) ■ Project Officer (1)-LL ■ Water and Sanitation Supervisors (2) ■ sanitation promotion crew (6) ■ Drill crew (4) ■ Project driver (1) ■ Accountant (shared) ■ Office assistant (shared)	■ Three tonne Mitsubishi Canter later replaced with Toyota Hi-lux single cab ■ One Yamaha motorcycle ■ Fifteen bicycles for extension workers (5, CDAs and 10, HSAs) ■ Two Vonder rigs ■ Materials to construct shed	■ CBM training ■ project management training ■ field visits ■ project meetings

[2] CPAR has another project operating in the same area funded by CIDA/UNICEF, and presumably the figures reported by the district office include those project outputs.

■ Watchmen (3) ■ Logistics officer (1)-LL		
Difficulties related to personnel arrangement	*Difficulties related to equipment inputs*	*Difficulties related to training inputs*
■ none	■ Truck not suitable for terrain was not a 4x4	■

6.4 World Vision-Mangochi District:

WVI is an international Christian NGO with considerable experience in the water sector, and with complementary projects in health, and food security. In Mangochi, 140 communities were targeted in 10 constituencies, resulting in 14 water points per constituency. WVI was awarded 70 of the 140 after the first phase of implementation, and the remaining 70 water points will be completed by December 2000.

The characteristics of Mangochi District differ from Nkhata Bay and Mzimba Districts because it is economically better off, but has very low literacy levels and a high population density. Some of the rural communities visited during the evaluation were reminiscent of peri-urban areas. High population and low level of literacy offer implementation challenges in making health impacts and influencing behavioural change.

The sub-project objectives were:

- To drill 140 shallow wells and fit them with Malda/Afridev hand pumps to 35,000 people of targeted areas in Mangochi by 1999
- To train ten members of each water point on maintenance and appropriate hygiene practices
- To promote sanitation by constructing VIP latrines in four primary schools funded by NORAD
- To increase access to hygiene education in targeted communities and promote good sanitation in households.

The district baseline completed revealed 68% of the population had access to portable water, however only 7% had access within a distance of 500 metres. According to the district offices in Mangochi, of the 70 water points constructed with WVI support, only three are inoperable because of the inability of communities to procure common spare parts like U-seal and plungers.

WVI worked in collaboration with a variety of sectors through '*liaison meetings'* with representatives from Water, Health, Fisheries, Roads, Council, District Commissioner's office, Community Development, Education and CBM Water Department.

Forty percent of committee members were trained on sanitation platform casting for improved latrines. It was interesting to note the differences between Mangochi and other districts like Nkhata Bay and Mzimba, where the Yao and Muslim influence have had a great impact on the implementation of sanitation facilities. Moreover, HSAs with Muslim backgrounds tend to place a greater emphasis on sanitation in their work and this clearly translates into community demand. The training of committees also proved to be an important factor for sanitation promotion. WVI also has a complementary project, MICAH, which promotes sanitation facilities and hygiene education within the same target communities. No sanitation activities were covered under the school component, as Save-the Children UK had a complementary project providing latrines and hygiene education to schools within the impact area.

Project outcomes:

- 115 wells with Afridev, 9 wells with Malda, all 124 wells were drilled with vonder rig technology. There were 27 sites which failed vonder drilling attempts.
- 113 wells are yielding 0.02 litres per second
- 54% of wells comply with WHO standards
- 118 functional water points
- 2,300 of san slabs have been cast and 1,700 have been installed.

WVI		
Personnel inputs	*Equipment inputs*	*Capacity Development*
■ Programme Manager (1)-BT ■ Sanitation Supervisor (1) ■ Vonder Rig crew (7) ■ Sanitation promotion crew (4) ■ Brick layers (3) ■ Accountant (1)-BT ■ Administrative assistant (1)-BT	■ Mitsubishi Canter later replaced with CPAR Toyota Hi-lux single cab ■ One Yamaha motorcycle ■ Bicycles for extension workers ■ Six Vonder rigs	■ CBM training ■ Project management training ■ Field visits ■ project meetings
Difficulties related to personnel arrangement	*Difficulties related to equipment inputs*	*Difficulties related to training inputs*
-None	■	■

7.0 Findings From Mzimba District

Statistics from Regional Health Office, Mzuzu for Mzimba District	1995-1996		1999-2000	
Population, Mzimba District	540,000	-	630,000	-
Water point coverage, protected water sources	713	-	1050 (650 with pumps)	-
Water point coverage in schools	not available	-	not available	-
Water point (WP) coverage in health centres. (Operational water points)	57 wp out of 60 centres	95%	69 WP out of 70 centres	99%
Sanitation coverage per household including traditional latrines	47,400 HHs/ 90,000 HHs	53% coverage rate	68,250 HHs/ 105,000 HHs or	55% coverage rate
Hand washing Facilities	5,432/ 90,000 HHs	6% coverage	15,382/ 105,250	15% coverage rate
School coverage rate for sanitation facilities	not available	-	not available	-
Number of health talks	2460 health talks/ 3000 villages	82%	8,364/ 3500 villages	200%
HSA coverage	333	1:1621	700	1:900
Report cases of diarrhea for under five's	26,310 over 375,970	7%	not available	-
Reported cases of deaths related diarrhea for under five	17 out of 213	8%	not available	

Notes:

- Increased coverage rates in terms of sanitation and water supply.
- Data availability good with the exception of information on schools and reported cases of diarrhea in the year 2000.
- Improved HSA coverage

8.0 Findings from Nkhata Bay District

Statistics from District Health Office,	1995-1996		1999-2000	
Population, Nkhata Bay District	177,000		209,000	
Water point coverage, protected water sources	489	69%	334	40%
Water point coverage in schools	-		-	
Water point (wp) coverage in health centres. (Operational water points)	23/23	100%	21/23 solar pump stolen, climax pump not working	91%
Sanitation coverage per household	23,895	81%	21,350	51%
Hand washing Facilities	-	-	-	-
School coverage rate for sanitation facilities	-	-	-	-
Number of health talks	672 out of 342 villages	-	N/A	
HSA coverage	78	1:2269	95	1:2200
Report cases of diarrhea for under five	9,074	6%	14,183	10%
Reported cases of deaths related diarrhea for under five	9		67	

Notes:

- Decreased coverage rates in water supply and sanitation. The explanation by district health office is information may not be up-to-date accounting for the most recent borehole development and high numbers of collapsing pits and dried shallow wells. The area of major decline in coverage was Nkhata Bay-north outside of project impact.
- Increase number of reported diarrhea cases.
- Information and data collection is not complete.
- Improved HSA coverage

9.0 Findings from Mangochi District

Statistics from District Health Office,	1995-1996		1999-2000	
Population, Mangochi District	579,710		620,506	
Water point coverage, protected water sources	-		54%	
Water point coverage in schools	40%		-70%	
Water point (wp) coverage in health centres. (Operational water points)	97%		-94%	
Sanitation coverage per household	52%		65%	
Hand washing Facilities	-		-	
School coverage rate for sanitation facilities	18% (permanent) 40% (Permanent and temporary)		36% (permanent) 71% (permanent and temporary)	
Number of health talks	-		-	
HSA coverage	185	1:3134	261	1:2377
Report cases of diarrhea for under five	22,430		30,580	
Reported cases of deaths related diarrhea for under five		-		-

Notes:

- Increased water supply and sanitation coverage rate.
- Information collected on schools with improvements noted.
- Increase in reported number of diarrhea cases, no information on reported deaths
- Improved HSA coverage

10.0 Recommendations

10.1 Capacity Development at National, District Assembly and Village Levels:

10.1.1 CBM:

CBM training seems to be key in developing ownership of water points in communities. Trained committees appear to be confident and comfortable, taking on leadership roles in management. Women appear to hold very active positions. In future, it may be necessary to consider CBM refresher courses for some of the earlier water points constructed in 1997 which have never been serviced, and for new VHWC members. It appears that the recent CBM training which lasts for five days is more comprehensive and gives communities a better foundation for management. The previous three-day training did not cover many aspects in the current curriculum such as gender awareness training.

Moreover, it was observed that CBM training, as a point of entry, could be used to inform communities of developmental opportunities through district development fund and integrate HIV/AIDS information. VHWCs were proven be a powerful and an effective force for establishing other self-help initiatives.

Constant conflicts and disputes between communities and committees will jeopardise CBM. Therefore, an important role of CDAs should be also conflict resolution, where local leadership fails to intervene. CDAs and WMAs should relay information regularly to communities related to spare part pricing. Monitoring visits by all extension workers should include members from the wider community. This will ensure some transparency and accountability of the VHWC's actions.

Better hygiene education training for HSAs on how to deliver messages, and a more technical syllabus is necessary. Currently, HSA training is only for eight weeks which includes only an introductory session on technical health issues. Greater expenditure and attention to community-based training will also translate into direct impacts. Training should be directed at extension workers and VHWCs. Hygiene promotion as well as CBM training should be soon simultaneous with or soon after water point construction. Community mobilisation and participation around the time of water point construction is high, and this energy should be harnessed toward improved hygiene and sanitation promotion. Furthermore, sanitation promotion is most effective when communities are trained in san plat/slab casting. Trained committees are more likely to promote improved latrine construction after project assistance ends.

Another area for consideration is the way in which communities were mobilised and the introduction of the project to district officers. Both communities and implementors must be well aware of the technology limitations, and in the event it fails, another suitable option should be made available to the communities.

10.1.2 Monitoring and Evaluation

No effective monitoring or evaluation can take place without a good baseline study. The baseline should be a comprehensive examination of target communities. At least, the baseline information should indicate accurate numbers of households with access to safe water and excreta disposal, as well as diarrhoeal prevalence indicators. Baseline research which is formative (begins with what people know, do and want), is the most beneficial and it should include HSAs, CDAs and WMAs as subjects and agents because of their important role in HESP implementation. The opinions and knowledge of extension workers and field staff are important because they influence project implementation and the potential outcomes. Where HSAs, WMAs and CDAs support initiatives in sanitation and hygiene, the community response was good.

Furthermore, the baseline information should be used to guide programme design and implementation strategies. It is also important that the findings be reviewed with the communities to come up with relevant strategies which will promote behavioural change. UNICEF's programme series Health, Hygienic and Happy(HHH) Communities offer a format and guidelines for addressing water and sanitation needs with a specific focus on achieving behaviour change. The future project should integrate this approach in HESP/PHAST activities to move beyond just the provision of sanitation facilities, to sustained behavioural changes. The development of community-based indicators is also important so that communities are able to monitor the situation and take appropriate action. During supervisory visits, HSAs, CDAs and WMAs should reinforce simple hygiene measures like *'wash hands after defecating and before eating*', and '*keep water sources and containers clean and free from contamination*'.

10.1.3 Project Management

There have been improvements in the project management by UNICEF over the course of the project implementation. However, there still needs to be greater and quicker attention from UNICEF on financial, and procurement issues. The decision to allow NGOs to procure project resources has generally sped up implementation and this practice should continue. Before the start of any new UNICEF project, NGOs and government counterparts should receive an orientation on supply and cash requisitions.

A regular monitoring plan established by UNICEF and NGOs is necessary because the current system of monitoring appears ad hoc. More importantly, UNICEF needs to develop and enforce strict reporting guidelines that encourage NGOs to report on results and conduct periodic assessments of project impacts. NGO proposals should also have clear and measurable indicators of which reporting is based. Furthermore, the development of the baseline study should be uniform among all implementing agencies. Baseline data collection and periodic monitoring should not be left to the discretion of individual NGOs or government counterparts. UNICEF currently has an integrated management evaluation plan (IMEP) which guides monitoring at the programme level. With support from UNICEF -SPAC, a similar project-level IMEP could be designed. This will assist in linking project indicators

with outcomes, and expenditures to overall programming goals. A proposed IMEP for this project is presented in Annex D.

A larger budget allocation should be made toward monitoring beyond the construction phase, especially for HSAs, so they are able to follow-up sanitation and hygiene education promotion activities. Project support monitoring should cover up to six months after construction. Likewise, an expenditure of 15% of total budget and six months of project time dedicated to project development and start-up is a reasonable commitment for ensuring improved project results. UNICEF should encourage government partners to establish or consider ownership and management schemes so that bicycles and motorcycles are better maintained. A small budget allocation in the project should be established for spares with a matched government contribution.

It is important to note that extension workers often view monitoring support as merely a matter of vehicle provision. However, proper monitoring is the collection of information based on indicators and documentation for future planning purposes. UNICEF should encourage the documentation of all monitoring visits.

A key recommendation forwarded by all government counterparts was the need to better share project resources for monitoring. In considering such a partnership, issues of accountability are necessary to work out to ensure that funds for fuel and vehicles are used for their intended purposes. A number of options were explored during the focus groups. One option proposed in Nkhata Bay was full reimbursement of fuel costs to government counterparts upon presentation of receipts and detailed monitoring reports to NGOs. The NGOs in turn, would provide supporting documentation for financial liquidation to UNICEF. An agreement of what the monitoring report should include should be established prior to field visits to avoid delays in reimbursements by UNICEF. During project development stages, terms of reference for all monitoring reviews should be submitted in advance to UNICEF. A similar system has been established by MASAF with government officers.

Finally, as district priorities and capabilities differ, UNICEF should involve districts in the planning and design of projects. This will give an opportunity for districts to assess NGO capacity, prioritise developmental needs and suggest appropriate project allocations. Ongoing and regular assessment of NGOs work by both district implementing partners and UNICEF will ensure that minimum standards are being followed, as well as adherence to work plans and budgets.

10.2 Catalytic Support to Expansion of Service Delivery

10.2.1 Population Increases and HIV/AIDS

Based on the findings, the overall trend is toward increased water point and sanitation coverage. However, substantial gains in increased provision of facilities have been offset by the increase in population growth. Some inquiry into the increase in the population in light of a growing HIV/AIDS

epidemic is necessary in order to get a better picture of the situation. For example, the increased population may reflect a growing number of orphans being sent to the 'village' from the city after death of parents. Alternatively, the increased population maybe representative of increased number of affected people returning to the village to be cared for. The increase in population could be related to high birth rates.

A comprehensive baseline is needed to identify trends that may influence project intervention strategies. This will also allow for a better allocation of resources through appropriate intervention strategies. For example, increased number of orphans would require increased number of water and sanitation facilities in communities and schools and hygiene education integrated in school curricula. Likewise, increased number of infected people will require intervention to prevent opportunistic diseases through hygiene education and sanitation promotion and the provision of water facilities in communities and health centres. High birth rates may require the inclusion of family planning and reproductive health intervention with water supply and sanitation provision.

It is apparent from the NGO discussion that HIV/AIDS requires serious consideration in relation to project management, i.e., high staff turnover and in the prevention of opportunistic infections for HIV-positive people. The integration of HIV/AIDS awareness messages and information during CBM was proposed by NGOs and government counterparts as an effective intervention strategy to address this epidemic. Moreover with the HIV/AIDS epidemic, the monitoring of water sources and environmental sanitation must be done carefully with communities to decrease opportunistic infections. Communities must be able to have clear monitoring indicators to give them an idea of where the source of a problem exists and the means to eradicate it.

10.2.2 Vonder Rig Technology:

During the UNICEF mid-term review of the Country Programme in 1999, a decision to include more drilling technology options was welcomed by government and NGO counterparts. While the vonder rig technology has clearly been shown to have a comparative advantage in reaching inaccessible communities, promoting community participation and drilling at a lower cost, there are also many noted disadvantages. Namely, it was the restricted application to sites without hard underlying rock, the nature of shallow drilling which makes water points suspectable to problems of siltation and contamination, and the constant replacement of vonder rig parts due to breakage.

Based on the findings in this evaluation, it appears the poor application of the vonder rig was more of a management issue, rather than a technology issue. Had NGOs and district officers been better briefed on the application of the vonder rig, this would have influenced how and where it was used, potentially increasing the life span of the vonder rig parts. Had the MoWD completed a more thorough assessment under the close examination of UNICEF, the sites selected might have been more accurate. A more proactive role by UNICEF in sanctioning the usage of the vonder rig in places like Mpherembe where clearly it was inappropriate, would have restored faith in the communities and

implementors using the technology. Most importantly, a closer collaboration with MoWD to ensure wells are dug to reasonable depths to avoid siltation, contamination and drying out is necessary. A better hydrogeological assessment and closer links with MoWD during implementation will be important to ensure that people's time, energy and labour involved does not result into a dry water point.

The vonder rig offers opportunities for community members to participate. However, it does exclude certain members from being involved such as children and elderly. Therefore, community input and participation must be carefully designed such that implementors are engaging everyone in the community and not just those who were physically present during construction and maintenance.

10.2.3 Sanitation:

The current implementation strategy focuses on sanitation promotion through committee training. This has proven successful in water point management but information from the HESP training does not filter to all members of the community. A more effective implementation strategy for sanitation would require a direct household-level approach, where by households receive training in casting and hygiene education. From the findings, it appears that training communities and households is more effective and less costly. Although, provision of slabs quickens the process of san plat distribution, it does not increase coverage. Furthermore, it is unclear how many san slabs were broken during transport. High fuel prices, inaccessible communities and the difficulty of carrying large san slabs were also cited as constraints in the current methods of sanitation promotion.

Latrine coverage rates are approximately 70%, indicating most households have latrines. However a more realistic observation would be that most households have access to a latrine but not necessarily own one. Determining ownership is crucial because those with latrines are likely to use them. However, those without latrine have the option of using their neighbour's latrine, or the open areas. It is important for NGOs to have a clear assessment of the actual number of latrines because this is indicative of regular usage.

The promotion of traditional pit latrines is relevant based on the high cost of cement, and transport and material availability. Access to safe excreta would dramatically improve if existing traditional latrines were made 'safe'. The criteria for what makes a latrine, a 'safe' means of excreta disposal has to be clearly established, documented and circulated to HSAs, field workers and VHWCs. The exploration into other appropriate technologies is necessary to increase household sanitation options. VIP and double chamber latrines should be promoted along side san plats installed on single pits, especially in high density areas and in schools.

10.2.4 Standardisation of Design and Minimal Standards:

It is important for UNICEF to enforce the standards established by MoWD (Bill of Quantities) for

construction design, especially in terms of civil works. A particular focus should be paid to the number of bags of cement used, length of drainage, and size of the apron. Minimum standards should also ensure that soakaway pits are present, drop hole covers exist for san plats and a pail stand are available to reduce the stress of lifting heavy buckets of water for women and children.

10.2.5Hygiene Education Promotion:

The high rates of diarrhea during the months of October, November and December warrant an increased emphasis on hygiene education promotion activities during those months. At the same time, under-five clinics and immunization campaigns offer an opportunity to target mothers with relevant health talks and dramas on hygiene and sanitation promotion.

Hygiene education messages should be consolidated into two or three key messages based on observed behaviour. This will prove to be more effective in reaching the target audience rather than a large number of messages. Three key messages could be:

- Regular usage of pit latrines,
- Regular usage of hand washing facilities after defecation and before eating,
- Burying or composting of refuse, especially, where no latrines exist or difficult to construct.

The purpose of the three key message is to effectively decrease faecal transmission. Hygiene education and IEC materials should be kept in the communities, so that VHWCs can follow-up and reinforce what is discussed during health talks.

The current hygiene education promotion strategy must also be revised to include a secondary target group such as fathers, husbands and mothers-in-law's who influence how or whether hygiene and sanitation is practised in the home. Radio appears to be the most effective means of reaching rural audiences and this offers an opportunity to reach local leaders and chiefs whose opinion and decisions can influence hygiene promotion in the community.

10.3 Empowerment of Communities and Households Through Participatory and Gender Sensitive Approaches

10.3.1 PHAST

Participatory Hygiene and Sanitation Transformation (PHAST) training for extension workers would assist in the development of simple and measurable indicators and corresponding messages for communities. The participatory nature of the training should engage communities in finding indigenous solutions to poor sanitation and hygiene behaviours. To be comprehensive, HSAs and VHWCs supervision and monitoring schedules should become part of action plans devised during CBM training.

10.3.2 Gender Equity:

Recruitment of more female staff will off-set gender imbalances in project management. Women would bring a different perspective to hygiene education and CBM. Culturally, female field workers are likely to be more comfortable to conduct household visits than male.

A gender analysis of roles and responsibilities of men, women, youth and elders should be completed as part of baseline study. This information would assist in designing a programme that would not further burden women's responsibilities. The present gender strategy aims at increasing women's participation in areas where women have traditionally participated, such as, maintenance and physical implementation. To achieve equitable workloads, increased support from men in latrine construction is necessary while simultaneously increasing women's decision-making roles in VHWCs.

11.0 Conclusion:

The findings from focus groups, project reports and health centres indicate that there is a progressive trend toward improved health and hygiene in the three project districts. However quantitatively, this is difficult to determine because the needed baseline records are unavailable. Moreover, there did not seem to be a conscientious effort by any party to record critical outcome and impact indicators. This evaluation, therefore, qualitatively measure outputs against the project objectives.

In terms of cost-effectiveness, the use of the vonder rig was a lower cost option for providing water supply to 351 communities. At the same time, this must be weighed against the costs to community in terms of labour, delays in procurement, poor hydrogeological siting resulting in multiple drilled sites, operational costs because of the prolonged implementation period and probability of year-round water supply. Without a comprehensive cost-benefit analysis from the communities and implementors point of view, it is difficult to conclude the comparative advantage of using the vonder rig over other drilling methods. Future initiatives using the vonder rig, should devise a simple monitoring system to calculate community, NGO and government inputs to arrive at a more realistic cost for using the vonder rig.

Similarly, san plat provision may have led to higher costs over training communities in casting because of transporting san plats, and breakage during distribution. These costs must also be weighed against the sustained ability and demand created when households can cast their own san plats. The high prices of cement, reinforcement wire and other materials for casting may be an inhibiting factor for households to improve latrines. The promotion of 'safe' traditional latrines based on established criteria is one means of increasing sanitation coverage.

Health impacts were assessed on the perceived improved health and hygiene from community focus groups and records from health centres, and regional health offices. Communities felt that there has been a reduction in diarrhea prevalence and cases of deaths in children under-five. The health records supported this community assessment. However, information on improved hygiene practices would require a longer-term observation to verify changes and unfortunately, records for monitoring in this area were poor.

The sustainability of project outcomes relates to the continued positive effects after external support has been concluded. The project has a high potential for sustainability based on the fact that over 94% of water points are still functioning and over 95% of VHWCs received training in VLOM. The high number of san slabs cast also presents an opportunity for future installation and usage with follow-up.

Beyond the provision of water supply, sanitation and hygiene education, district-level discussions revealed that the project strengthened the capacity of NGOs and government counterparts in service delivery. Having gained from the lessons learned in this project and improved structures for coordination, monitoring and management, there is a greater ability for NGOs and government counterparts to support and sustain development initiatives beyond the final project phases.

Annex A:

NGO Site Selection for Evaluation

Africare: Evaluation site selection		
Successful sites	Site Criteria	Village names
	In consultation with CDAs and community health office, it was decided that successful communities are ones which are active in CBM, well managed and maintained surroundings and good water production from the well.	Malonje Mzumala, Mag'msingo, Muhuza/Longwe
Unsuccessful sites	Criteria for unsuccessful sites, no VHWC during CBM, dry hole and water point vandalised by village (one site)	Tebulo Gondwe, Nashoni Hlema, Jozani Quongwane Active VHWCs: Malonje Mzumala, Majimsingo
Women's Group	Active participation of women	Yunga Kumwenda, Nkhandula Chirwa

ADRA: Evaluation site selection		
Successful sites	Site Criteria	Village names
	Successful communities are ones which are active in CBM, well managed and maintained surroundings and good water production from the well.	Kabwafu Trading Centre, Ntonga Khozapi, Chisamba
Unsuccessful sites	Criteria for unsuccessful sites, no VHWC during CBM, dry hole and water point	Mpherembe Health Centre, Chigondongo Tembo, Gunda Ziche
Women's Group	Active participation of women	Chisamba

CPAR: Evaluation site selection		
Successful sites	Site Criteria	Village names
	No problems in implementation, good water supply, good hydrogeological siting	Kabira
Unsuccessful sites	Under supplied, more than 200 HHs, uptake of sanitation facilities slow, lake shore geography, high faecal coliform counts after testing	Chapumbwa and Chimbano
Women's Group	Active participation of women	Kabira

WVI: Evaluation site selection		
Successful sites	Site Criteria	Village names
	Surrounding cleanliness, good community participation and contribution in terms of bricks for civil works, good water point construction	Mtewa
Unsuccessful sites	VHWC not trained or active, slow in sanitation promotion, poor community participation	Chapola
Women's Group	Active participation of women	Mtambo, Chiganga, and Mtambo I and II

Annex B: The outcome of District Focus Group Discussions:

Mzimba District Focus Group Discussion:

District Community Development Office
Functions in relation to project and NGOs: ■ Conduct CBM training ■ Supervision of committees (documented in monthly reports) ■ Monthly field visits ■ Report to Regional CBM Coordinator, currently the post is vacant
Difficulties: ■ Transport for monitoring, no vehicles, bicycles or motorcycles. In order to monitor had to make arrangement to use a regional office vehicle. ■ Received short notice by NGOs when CBM training was needed. ■ Curriculum and training schedules came from central office in Lilongwe. This resulted in delays in training schedules long time after water point construction.
Regional Water Development Office
Function in the project: ■ Personnel; WMAs, Regional Hydrogeologist and Regional CBM officer ■ Functions: supervise CBM training ■ Construction of water points
Difficulties: ■ Field reports not seriously addressed by regional office and are not given the needed attention. ■ WMAs had motorcycles but some were in operable

Recommendations:
Africare: ■ Flexibility in technology choices ■ Better hydrogeological siting, because of salty water ■ Review sanitation options in relation to different soil types
ADRA: ■ Flexibility in technology choices ■ Better hydrogeological siting ■ Include gender, and HIV/AIDS awareness in CBM training ■ Consolidate CBM training messages and curriculum ■ Fixed number and regular monitoring visits ■ Increased involvement of government extension workers in project meetings and training held by UNICEF

■ Consider school sanitation, appropriate designs because of soil types ■ Increased community-based training in sanitation promotion
District CBM coordinator, MoGYCS/ District CBM Coordinator, MoWD ■ Improved coordination with NGOs through direct communication, rather than central or regional office

Nkhata Bay Focus discussion.

Partners in Nhkata Bay	Personnel	Functions and duties
Office of Planning and Development	Members of District Coordination team from ministries of Health, Water, Community Services, Agriculture, Education, and Malawi Industry	■ Supervising and overseeing projects ■ Monitoring ■ Conflict and problem resolution ■ Selection of communities
Difficulties/constraints: ■ Project planning and design should have been with district planning teams. ■ District not consulted in the design, # of water points to be constructed, NGO selection, criteria and technology choices ■ Choice of Vonder rig predisposes the selection of some communities and leaving out others. The District needs to be involved to ensure an equitable distribution of resources within the districts. ■ Africare as an NGO failed to meet obligations, UNICEF's choice and remedial action against Africare's poor performance has not been adequately addressed.		
MoWD	District CBM coordinators, WMAs	■ Conducting CBM training and maintenance programme ■ Monitoring in terms of breakdown
Difficulties/Constraints: Resources needed to preform monitoring such as vehicles and fuel were not available, but duties still expected.		
MoHP	District Environmental Health Officer (1), Health Surveillance Assistants (26), Health Assistants (2) and Area-level Environmental Officer (1)	■ Mobilisation of construction materials ■ Hygiene education ■ Supervision of VHWCs ■ Monitoring and supervision of sanitation promotion activities ■ Monitoring of disease patterns
Difficulties/Constraints: ■ No clear baseline or assessment for disease prevalence ■ Limited IEC materials for hygiene promotion, ■ Flip charts used were adapted from an initiative from Nsanje. Important to have IEC materials which are both culturally and geographically appropriate. ■ Poor collaboration with CPAR in areas of hygiene education, the timing and delivery of san slabs in relation to hygiene education messages, and targeting of intervention strategies, i.e., on those without latrines. ■ Difficulty maintaining bicycles because of no spares		
MoGYCS	District Community Development Officer (1), CDAs (7)	■ Sensitise community on the project ■ Community mobilisation ■ Establishing VHWCs/ pump committees ■ Provision of access roads, where necessary to bring in Vonder Rig, ■ Training of VHWCs/pump committees ■ Monitoring

		■ gender awareness and analysis ■ Promoting women's increased participation.
Difficulties/Constraints: ■ Replication of activities at area-level. Area-level water committees also report directly to DEC. ■ Inadequate transport bicycles when coverage areas are large, sometimes between 20-30 kilometres between villages. ■ Training approaches within ToT have to be designed to articulate the issues within communities ■ Need to conduct a training needs assessment for extension staff. ■ CBM training was a total package presented to communities, for more effective targeting should undergo a training needs assessment with each committee and modify CBM package according to communities' needs.		
MoESC, MoAI, Malawi Industry	Members of District Coordination team	■ Contributions of vehicles for monitoring ■ MoAI, agricultural extension staff ■ MoAI ensured that water points well maintained in terms of environmental sanitation such that other problems were not being created. ■ MoAI coordinated activities through Ministries of Forestry and Health.
Difficulties/ Constraints: Not reported		

WVI:

Partners in Mangochi	Personnel	Functions
District Development committees	District Development Planning Office	■ Supervision, monitoring and liaising with members from the district development planning office
Difficulties: • Limitations with hand augured technology • Spare parts in district for CBM • Inadequate support from the project for monitoring • High population density and low literacy levels among target communities		

Annex C: Report on Project Indicators

Annex D: Sample IMEP