NETWAS

Network for Water and Sanitation (EA)

Mid-Term Review for the Kenya-Finland Western Water Supply Programme

Field Survey Report

By

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Submitted to

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Table of Contents

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Acronyms and Abbreviations

AMREF	-	African Medical & Research Foundation
BN	-	Bungoma
BS	-	Busia
C	-	Borehole
CDA	-	Community Development Assistant
DEC	-	District Executive Committee
DDC	-	District Development Committee
DO	-	District Officer
DTB	-	District Tender Board
DWE	-	District Water Engineer
EA	-	East Africa
FINNIDA	-	Finnish International Development Agency
IGA	-	Income Generating Activities
IRC	-	International Water and Sanitation Centre
K	-	Kenya
KA	-	Kakamega
KEFINCO	-	Kenya Finland Company
KFWWSP	-	Kenya Finland Western Water Supply Programme
Ksh	-	Kenya Shillings
LBDA	-	Lake Basin Development Authority
MOCSS	-	Ministry of Culture and Social Services
MOWD	-	Ministry of Water Development
n	-	Sample Size
N/A	-	Question not answered or incomplete answers
NETWAS	-	Network for Water and Sanitation (EA)
O & M	-	Operation and Maintenance
RE	-	Resident Engineer
RWSG/EA	-	Regional Water & Sanitation Group (EA) of the UNDP/World Bank Water and Sanitation Programme
SI	-	Siaya
SP	-	Spring
UNDP	-	United Nations Development Programme
Y/N	-	Year of Construction not on records

List of Tables

List of Figures

1 Introduction

1.1 Terms of Reference for the Survey

When starting the Third Phase it was agreed that a mid-term review be carried out at the end of the first two years, and an evaluation at the end of the Phase III.

1.1.1 Purpose of the Review

The main purpose of review is to assess the progress made during the first half of Phase III, identify the problems and deficiencies in the plans, approach, and strategy of the programme and prepare detailed recommendations for future actions to be taken. The review should cover but not necessarily be limited to the following aspects of the programme implementation:-

(a) Objectives of the Programme
(b) Programme strategy
(c) Institution building
(d) Water points and piped water schemes.
    - New
    - Rehabilitated.
(e) Operation and maintenance.
(f) Training and manpower development.
(g) Community involvement
(h) Inputs
(i) Institutional arrangements
(j) Monitoring and reporting
(k) Costs and financing
(l) Environmental aspects

Detailed terms of reference are reproduced in 5.

1.1.2 Composition of the Review Team

a) Mr. Han Heijnen - Sanitary Engineer IRC (Team Leader)
b) Ms. Lane Hoffman - Social Scientist IRC
c) Mr. Osmo Purhonen - Sanitary Engineer RWSG/EA
d) Mr.S. Syeunda - MoCSS
e) Mr.L. Musyoka - MoWD

1.1.3 Timetable on reporting

The field work for the review mission was carried out from the 17th - 31st January, 1991. This was prior to the arrival of the Review Mission. The field survey was carried out by 4 survey teams. Each covering one district. The survey teams worked under the general guidance of two national consultant, one technical and the other social. The technical consultant was the national team leader responsible for output, management and logistics of the exercise.

The two national consultants were:

(a) Mr. I.O. Oenga - Public Health Engineer (K)
(b) Mrs. Pauline Ikumi - Social Scientist (K)

The national consultants were resource persons to the Review Mission.

1.2 Background

The Governments of Kenya and Finland have agreed that rural water development is one of the sectors of programme concentration within their development co-operation. In 1981, the Kenya-Finland Western Water Supply Programme (KFWWSP) was started in Western Province of Kenya. It currently covers parts of Busia, Bungoma and Kakamega Districts in Western Province and Siaya District in Nyanza Province.

1.3 Objectives of the Programme

The overall programme objective has been stated as to improve the water supply situation in the programme area, so as to contribute to the supplying of the population with a safe adequate supply of potable water by the year 2000.

Rapid population growth makes the attainment of this goal increasingly cumbersome. The competition for the scarce resources by other sectors of the economy deprive the water sector of the required inputs. The goal however, remains an ideal target to work towards.

The specific objective in Phase III, of supplying an additional 400,000 people with clean water through the repair of existing and the design and construction of new water points and piped water schemes is on schedule. To fulfil this objective a total 1700 point sources need to be developed. At the end of June 1990, a total of 484 point sources were constructed. This represents an achievement of 28.5% within 37.5% of the programme time.

It may be useful to note that construction of new point sources without corresponding use, O & M by the communities may not achieve an improvement in general health and economic development. The programme is endeavouring to ensure that user communities are well versed in the O & M of the point sources.

1.4 Programme Strategy

The use of cost-effective locally sustainable technologies is a tool in the long-term management and sustenance of the water supply systems.

Point sources as well as gravity schemes are cheap both in terms of capital investment as well as minimal O & M costs. The continuance of utilizing these technologies and the community involvement in the water supply system development, use, operation and maintenance is contributing greatly to the attainment of the goal of clean water for all by the year 2000 in the programme area.

The capability of MoWD in the O & M of point sources need to be developed further, so as to provide backstopping services to the user communities.

1.5 Implementing Agency

The Ministry of Finance and FINNIDA with the approval of the Ministry of Water Development, appointed KEFINCO as the consultant responsible to manage the implementation of the Kenya-Finland Western Water Supply Programme.

KEFINCO is a consultant, and by force of circumstance it is also involved in physical implementation, operation and maintenance, institution building, training and manpower development.

1.6 Programme Achievements

The Investigation and Planning Phase (February 1981 to October 1983), achieved among other things, the water supply development plan for the programme area, protected 21 springs, dug 114 shallow wells and drilled 82 boreholes, providing 43,400 people with safe water. Infrastructure for the programme was also constructed. The total expenditure was Ksh. 45 million.

The water supply development plan that was developed during the Investigation and Planning Phase gave the overall goal as 7,200 handpump wells and 1,400 protected sprigs as sufficient to cover and supply safe water to the population in the programme area adequately.

The Implementation of Phase I commenced in November 1983, and was completed in December 1985. A total of 183 springs, 294 dug wells and 266 boreholes were constructed. The Kakamega, Malava and Shikusa water treatment plants were rehabilitated and/or augmented. Three struja units were installed, two in Kakamega and one at Maseno. It was estimated that this phase provided an additional 148,600 people with safe water. This measures together with those in the investigation and planning phase served a total of 160,000, people. A total of 90 wells were deepened. The total number of dug wells that required deepening is not given in the reports. A total of 600 water committees were formed. The total cost for phase I was Ksh. 89.3 million.

The Implementation of Phase II commenced in January 1986 and ended in December 1988. It was estimated that 340,000 people were provided with safe water during Phase II alone. This brings to a total of 500,000 people served with safe water at the end of Phase II. It is estimated that 350 dug wells will need deepening, while 120 spring protection facilities will be repaired during Phase II. A total of 180 dug wells will be maintained. The target figures for Phase II were 600 protected springs, 450 boreholes and 450 dug wells. A computer data system was started and two offices built in Kakamega. Augmentation of the mechanical store was completed.

During the Third Implementation Phase, it is expected that an additional 400,000 people will be provided with safe water. A special emphasis is laid on community involvement in order to enhance sustainability. Point sources shall still continue to receive priority with some enhanced utilization of gravity piped schemes where possible. Rehabilitation and /or augmentation of existing piped schemes shall continue to receive some attention. The proposed targets are 600 protected springs, 500 dug wells and 600 boreholes over the 4 year period. In addition, 200 supplies will need repairing and 700 supplies (point sources) will need pollution control measures in Phase III.

The Phase III Implementation is divided into five main sectors, each with its objectives and components. These are:-

- Water Supply Development
- Physical Improvements
- Operation and Maintenance
- Training and Manpower Development
- Community Involvement

The main emphasis in Phase III is consolidation of the programme activities in order to enhance sustainability. This measure it hoped shall counter the disintegration of the systems and thus, waste of all effort spent on their construction.

Imparting knowledge and skills to the communities in matters related to the sustenance of the improved systems is another justifiable need for the Phase III. This too is hoped to help prevent the programme from becoming an isolated effort without a lasting impact on the water sector, especially in the programme area.

2 Field Survey Implementation

2.1 Methodology

The consultants made their first field visit to the programme area to facilitate planning. During this period the survey teams were identified. Each Survey team will have 3 members, a driver and a vehicle.

The survey teams will be trained by the consultants on the background to the survey methods and the aim of the evaluation. The meaning of each question explained in detail and attention devoted to getting the teams to interpret and gather information in a uniform way. The questionnaires will be pre-tested and revised on the basis of the experience gained.

The survey instruments shall be questionnaires, interviews observations, and discussions.

- The survey teams shall visit pre-selected point sources, and interview among others:-

  - Water committees
  - Attendants
  - At least 4 households for each point source

- Five focused group discussions will be conducted, one in each of the districts, Bungoma, Kakamega and Siaya and two in Busia. The main target group will be women.

- Lastly, special groups shall also be interviewed. These are District Water Engineers (DWE), Provincial Administration (i.e. DO, Chiefs, Assistant Chiefs), Project Staff at Kakamega and the extension workers. Health Agent (i.e. Public Health technician) and officers-in-charge of health centres will also be interviewed.

2.2 Survey Teams

2.2.1 Introduction

The main task for the national consultant was to collect and analyze data from the field in the programme area, which will form the basic material for the mid-term review. The consultant recruited, trained and organized 4 survey teams (one for each district). The field surveys were executed by the survey teams under the supervision of the national consultant.

2.2.2 Composition

Each survey team had 3 members. The survey team leaders were persons with considerable amount of knowledge in water supply technologies. They consisted a geologist, and three senior water inspectors. The other team members were a Public Health Technician and a social worker.

2.3 Training of Survey Teams (14th January to 16th Jan. 1991)

2.3.1 Briefing: Objectives

The National Consultant recruited and organized 4 survey team (one for each District). Each team had 3 members, one being the team leader. The field surveys were done by the survey teams under supervision by the national consultant.

The training of the survey team took 3 days. After a short welcome to all participants, the consultant gave an overview of the programme and the purpose of the evaluation. The main purpose of the survey was to assess the progress made during the first half of phase III of the Kenya-Finland Western Water Supply Programme, to identify the problems and deficiencies in the plans, approach and strategy of the programme and to prepare detailed recommendation for future actions to be taken. The field survey was to provide basic material for the mid-term review.

2.3.2 Background Information

The following areas were covered during the briefing of the survey teams.

(i) **Technical options**

There are 4 options which are offered by the programme, namely protected springs, dug wells, borehole, gravity piped schemes. Rehabilitation of piped scheme is also done.

(ii) **Institution Buildings:**

Each water point has to have a water committee. The committees are registered with the Ministry of Culture and Social Services. Each committee collects funds for the operation and maintenance of the water points. They are also billed for parts and services rendered to them for maintenance and repairs. All points have attendants while each location is expected to have a repairman.

(iii) **Community participation:**

Local communities are involved in decision making, on water point allocation, planning, design and construction of water supplies. They are expected to use the facilities when completed. Communities are involved in all stages of the physical improvements. Operation and maintenance of the systems is the responsibility of the communities so as to guarantee their sustainability.

(iv) **Women Involvement:**

Special attention is to be paid to the involvement of women.

(v) **Cost Recovery:**

The specific aim is to achieve sustainable community operated and maintained water supplies.

(vii) **Income Generating Activities:**

Income generating activities are encouraged,activated, and initiated with the objective of boosting the level of income so as to raise the living standards of community and also enable them to maintain their water systems.

(viii) **Training Activities within the programme:**

There are three target groups for whom training activities are organized. The community leaders and extension workers who attend seminars for about three to four days. Then there are the pump attendants (two women) for each water point who are taught handpump maintenance and repair. The general population is educated on the linkages between disease and water. This has been achieved through film shows.

2.3.3 Survey Instrument

(i) **Review**

The national consultant went through the questionnaire and explained the purpose of each question and how to record answers. There were discussions on the checklist. The observation form was also discussed. A timetable was developed in line with the number of points each team was to visit. The questionnaire and checklists are attached as 1.

(ii) **Role Play**

Participants did a role play to practice the questionnaire. Special attention was paid on how the questions were asked and getting clear answers. Time was taken to discuss on how the survey teams should introduce themselves to the communities. Supervision, guidance and support for the team while in the field, was provided by the national consultants.

(iii) **Pre-testing**

A day was spent on pre-testing the survey instruments in Malava Division in Kakamega District.

(vi) **Adoption of survey instruments**

A morning was spent discussing questions/problems identified during the pre-testing. In the afternoon, the teams left for their respective places to start the actual Field Survey on Thursday 17/1/91.

2.4 Actual Field Survey (17th Jan. to 31st Jan. 1991)

2.4.1 Survey Schedule

Dates were set to visit pre-selected point sources in all the 4 districts. Each team had to visit an average of 3 point sources a day. An average of 4 households were interviewed at each point source. A water committee at each point source, and the pump attendant (mama safi) were interviewed. The public health technicians for each of the sub-locations were also interviewed.

2.4.2 Visiting of pre-selected point sources

Survey teams visited pre-selected point sources. They interviewed consumers in 4 households at each point source. The teams also interviewed the committees and pump attendant at each point source. Observations on the sanitary conditions of the Point Sources and the homesteads was done. Observations on water storage and drawing at home was noted. The two national consultants assisted and supervised the teams in all the 4 districts throughout the survey.

2.4.3 Focused group discussions

Focused group discussions with women were done by the national social consultant, and in two districts there were group discussions for men. The selection of participants in the group discussions was by selecting a cluster of point sources and requesting consumers from them to come to the group discussions.

2.4.4 Discussions with DWE's, Chiefs, Locational Representatives

The national consultant also held discussions with the District Water Engineers in all the four districts, the local administration (DOs, chiefs, assistant chiefs) and locational representatives.

2.4.5 Visiting piped schemes

Visits to selected piped schemes were done by the national consultant. Operators and committee members were interviewed. Observations on the physical conditions was also done.

2.4.6 Visiting point sources of interest

Point sources not preselected for the survey were also visited by the national consultant, as well as the survey teams. This was done to increase the data base and to yield some interesting information e.g. iron removal plants, solar units and hydram.

2.4.7 Supervision/monitoring/guidance of field surveys

The four teams were supervised by the national consultant throughout the field surveys. At the start of the field survey, the consultant went from one team to another in setting them up. The consultant then assisted in the surveys, checked that the teams were getting the right information, and assisted in the logistics.

2.4.8 Health Centres

The consultant visited some health centres to solicit information of the general health condition in the area.

2.4.9 Transport

Transport was provided by the KFWWSP for the survey teams and AMREF provided transport for the consultant.

2.4.10 Analysis and report writing

Completed questionnaires were collected at the end of the field survey. Analysis and summarizing was done. A draft report was written and presented to the Review Mission on 5.2.91.

2.5 Sampling and selection

2.5.1 Sampling

The Kenya-Finland Western Water Supply Programme (KFWWSP) cover 15 divisions, in 4 districts as follows:

Table 2:1 Area covered by KFWWSP

Province	District	No. of Divisions in the district	No.of Divisions covered
Western	Bungoma	7	4
	Busia	6	6
	Kakamega	12	3
Nyanza	Siaya		2

The divisions covered in Bungoma district are Kanduyi, Cheptais and Sirisia. Kapsakwony division has also benefited by Chemoge -Kapsakwony gravity scheme. In Busia district all the six divisions, Amukura, Amagoro, Butula, Budalangi, Funyula and Nambale are covered. In Kakamega District Mumias, Lurambi and Malava divisions are covered. While in Siaya, Ugunja and Ukwala divisions are covered by the KFWWSP.

Some few points have been done outside the programme area on request by DDC,s. This has been possible due to the 10% flexibility in the programme budget allocated for each District.

So far the programme has constructed about 3000 water points. The field survey covered 5% of the constructed points. The total number of points visited was 140 distributed evenly in the 15 divisions covered by the programme, except for Kapsakwony Division in Bungoma which has very few point sources developed.

In each division, 10 points were be visited. Some attempt done to distribute selected points in proportion to the densities of the constructed points.

2.5.2 Selection

Objectives

The selected points were hoped to yield vital information on the sustainability of the community based operation and maintenance system currently advocated by the programme.

In order to check on the technical progress made by the programme, 3 boreholes in Kakamega, 3 in Bungoma, 3 in Busia and 1 in Siaya all done in 1990, were selected for visiting. These were C-9183, C-9203, C-9213 in Bungoma, C-8814, C-8859, C-9187 in Busia, C-8806, C-8862, C-9221, in Kakamega and C-9189 in Siaya.

Selection

Each division had 10 point sources. This gave even distribution over the programme area. The points selected in the divisions were from those sub-locations with high densities of point sources.

The selected points were distributed over the technical options as 47 boreholes (C), 55 shallow wells (BN, BS, KA, SI) and 38 protected springs (SP). The actual sites were randomly selected from a list provided by KFWWSP.

Focused group discussions were conducted in some pre-selected areas. One group discussion for every three divisions was conducted. The group discussions were in Malava division in Kakamega, Ukwala division in Siaya, Kanduyi division in Bungoma and Amukura and Nambale divisions in Busia district.

The list of the selected points was given to KFWWSP staff who provided detailed information on each of the points. This revealed that in Bungoma district 4 of the 9 boreholes randomly selected and 2 of the 13 shallow wells were dry. This situation raised the issue of whether there was need to visit the dry points. It was decided that in the case of Bungoma where there were many dry points, some of the dry points be replaced by productive points. Indicated in brackets are the productive points, BN-138 (BN-128), C-6176 (C-6107) which was also dry and had to be replaced by C-6106. The point C-8401 replaced by (C-8396). The dry points visited in Bungoma were BN 129, C-6391, C-8393. The springs in Chepyuk sub-location, Kopsiro location of Cheptais Division that were chosen included SP-869, SP 872, SP 876. These were replaced by SP-497, SP-498, SP-499 due to the resettlement process being done in Chepyuk sub-location, as this is a forest conservation area.

In Busia district, borehole numbers C-8780, C-3391, C-3926 in Busia town are observation boreholes and were therefore not visited. No replacement was done for them. The borehole number C-7941 is dry. An alternative point visited was C-7943. The borehole number C-8592 is an observation borehole and was thus not visited, no replacement site was visited. Borehole number C-8016 was dry and not visited.

The shallow well numbers BS-484, BS-469, BS-503 were visited despite the fact that they are dry. BS-10 is abandoned due to poor quality, and was visited. While BS-527 which is also abandoned due to poor quality, was replaced by BS-517 in the survey. In Kakamega and Siaya districts, no changes of the selected sites was done. Visiting those sites that are dry or abandoned was hoped to yield data and information from those communities on how they view such developments.

In addition to the pre-selected point sources, additional piped schemes were selected for visiting. These were Kakamega water supply and Mukumu water supply in Kakamega district; Sega water supply in Siaya district; Amukura Mission Water Supply in Busia district and Kapsakwony, Kutere and Chwele water supply in Bungoma district.

Other point sources that would yield additional information of interest, such as iron/manganese removal plants, hydram arrangements, struja units, solar units, income generating activities, gravity schemes and pumped schemes were visited.

The final list of points visited and the survey schedule is in 2.

2.5.3 Distribution of pre-selected points visited

Table 2:2 Distribution of pre-selected points visited

	YEAR OF CONSTRUCTION								
DISTRICT	82	83	84	85	86	87	88	89	Y/N
KAKAMEGA									
Borehole	3		1			4		4	
Shallow wells		1		1	4	2			1
Springs		2	1		1		4	1	
BUNGOMA									
Boreholes				3	2			6	
Shallow wells				1		1	9		
Springs			2			3		3	
BUSIA									
Boreholes				1			11	4	5
Shallow wells			2	8	5	6	5		
Springs			2			7	3		1
SIAYA									
Boreholes						3	1		2
Shallow wells					3	1	2		
Springs			3		3	1	2		

Table 2:3 Other points visited

BUNGOMA	KAKAMEGA	BUSIA		SIAYA
C-6192	SP-8	BS-483	BS-9	C-5746
C-6149	KA-429	C-6129	(Iron removal)	SI-102
	C-7093	C-7533		
C-8565	C-5476	C-6128	BS-556	
SP-3012	C-7093	C-8816	BS-26	
C-6149	C-5476	C-5181	C-5294	
BN-140	C-7045	C-8803	BS-112	
BN-33	KA-237	Buduongi (no	BS-5	
	C-8403	number on slab)		
	C-7010	C-5305	C-8814	
	C-7012	BS-30	C-8815	
	C-8011	C-5308	BS-649	
	C-5958	C-5156	BS-522	
	C-8445	C-5133	BS-535	
	KA-333	BS-10		
	C-5697	BS-644	BS-523	
	KA-343	BS-610		

The data collected from this list was observations only and is not tabulated.

Piped schemes visited

- Amukura - borehole
- Chwele - solar (borehole)
- Kutere - gravity
- Kakamega - Pumping (rehabilitated)
- Mukumu - borehole
- Sega - borehole
- Webuye - gravity/pumping
- Kapsakwony - gravity
- Chemoge - gravity
- Kongit -gravity

3 Field Survey Findings

3.1 Introduction

Below is a summary of the main aspects of the data obtained from the field survey. Detailed discussions for each of the districts are given in section 3.2 to 3.5 of this report.

3.1.1 Programme Achievements

The total number of point sources constructed in all the 3 phases is 3000. The anticipated initial production to adequately cover the programme area was estimated at 8400. Fig. 1 shows the percentage done against the total output expected. It may be useful to note that about 1/3 of the total expected output has been done within a 10 year period. In order to reach the total coverage another 20 years of programme time is needed at current rate. If the rate is to be reduced to allow for proper community integration, and thus enhancing the sustainability of community based management, then a longer programme time is necessary.

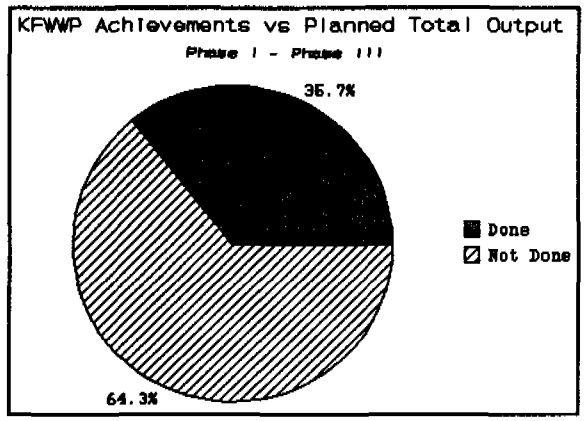

Figure 1 Programme Achievements

Also that the programme boundaries be increased to coincide with district administrative boundaries, increased resources will be called for.

3.1.2 General Information

In all districts the distances to the district headquarters from the water points is considerable. Accessibility may be hampered in many cases during the rainy season. Public transport is expensive thus the use of bicycles is common. This state of affairs is in many cases an hinderance to the quick and effective servicing of handpumps. The long distances to reach the spare parts increases significantly the financial outlay for maintenance. This causes long delays as the repairman and/or the mobile repair teams may not be reached easily.

Decentralising spare part distribution to divisional level and the erection of gauntries at boreholes/dugwells may enhance the chances of success of the community based management of the water suppliers

In many of the villages, there is little other development activities going on. The presence of the office of the Assistant chief, only helps in law and order and coordinates but does little initiation of development activities. The other common committee in the villages is the school committee, this too concentrates on school activities. It is therefore imperative that the water programme puts in lots of effort in mobilising and organising the communities in the water development activities. Self-help women groups may be a useful entry point in many areas.

3.1.3 Socio-Economic

The standard of living in the Programme area is generally low. Fig. 2 indicates that most households depend on peasant farming for sustenance. The low ratio of business shows little exchange of funds in the programme area, while the employed, who are mostly employed in the agricultural sector within the Programme area show that little resources come to the area from elsewhere.

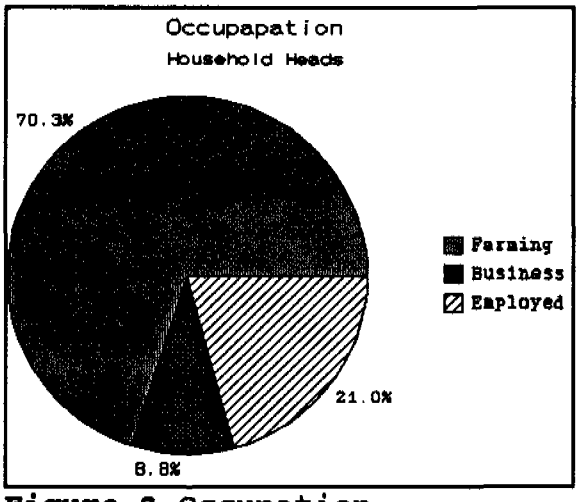

Figure 2 Occupation - Household Heads

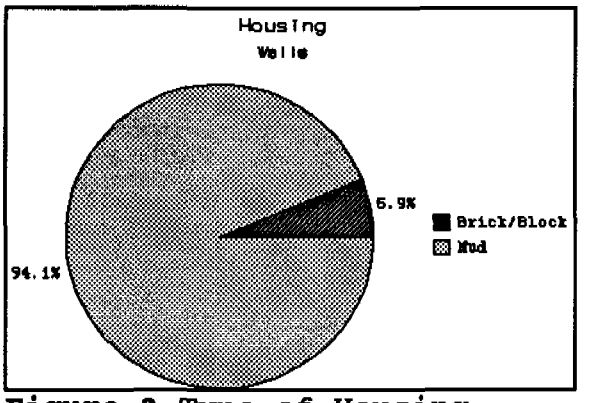

Figure 3 Type of Housing

Housing is of low quality, as can be seen from Fig. 3. This maybe indicative of the peoples inability to raise their own standards of living, and thus shows the level of commitment they can afford in cost sharing.

3.1.4 Women Involvement

Figure 4 and 5 show the literacy levels in men and women. The high illiteracy levels in women is an hinderance to effective participation of women in development programme.

Appropriate communication aids (audio-visual) are necessary, if the programme is to effectively involve women.

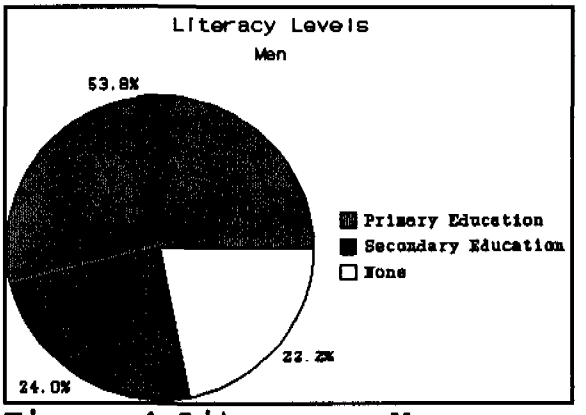

Figure 4 Literacy - Men

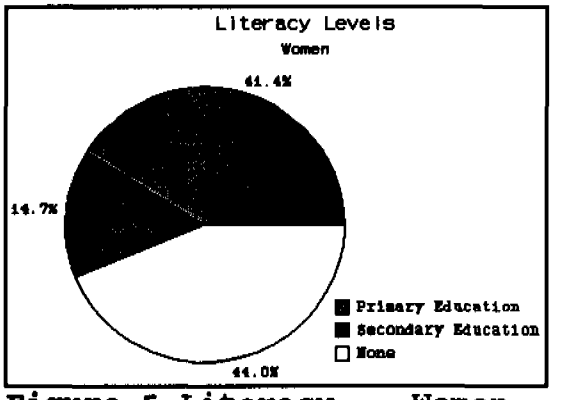

Figure 5 Literacy - Women

3.1.5 Community Involvement

In many water points awareness campaigns have been done, refer to Fig. 6. However the essence of the campaigns have been "selling" the Programme and not sensitizing the communities to address themselves to their basic problems and find solutions. This has lead to committees being formed in hurry and consumers not knowing what their obligations and responsibilities are. The sense of ownership by the communities was lacking in many places.

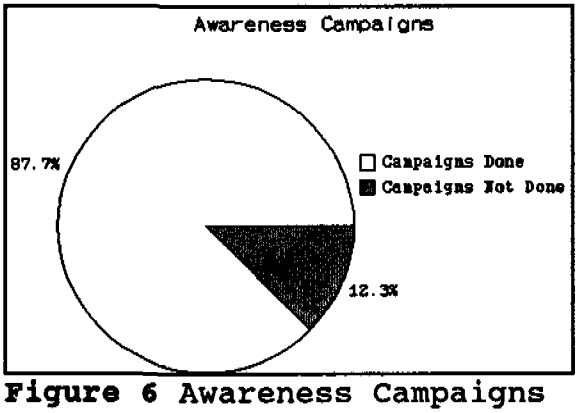

Figure 6 Awareness Campaigns

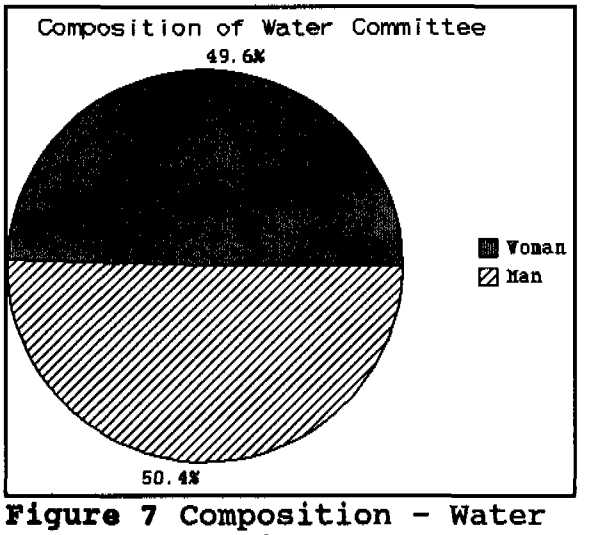

Figure 7 Composition - Water Committees

Figure 7 depicts the composition of water committees. Gender participation seems to be even, and the involvement of both man and woman may enhance sustainability better than when it is all a woman's affair. The training aspects in management skills have not been effective. This may be due to high illiteracy levels and lack of follow ups. Many of the pump attendants who are women have been trained on Nira AF 85, but even then pumps do not break down often to give them practice. This condition also deprives the repairmen of anticipated revenue and are moving elsewhere. This state of affairs may be due to the massive replacement of the old hand pump models Nira AF 76 by the new more robust handpump Nira AF 85.

3.1.6 Water Uses/Willingness to Pay

There is considerable improvement in the physical facilities. However, contributions for their maintenance is almost lacking. In theory the consumers are expected to contribute, but on checking funds at hand, it is evident that the contributions are difficult to comeby. It may be due to either inability or unwillingness to contribute.

Figure 8 and 9 show the water sources before and after KFWWSP, while Fig.10 shows those who answered "YES" to contributions.

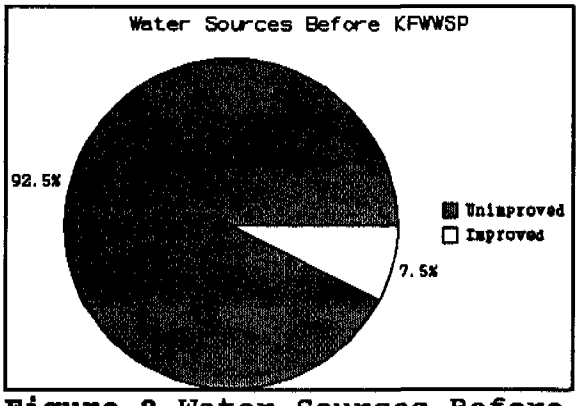

Figure 8 Water Sources Before KFWWSP

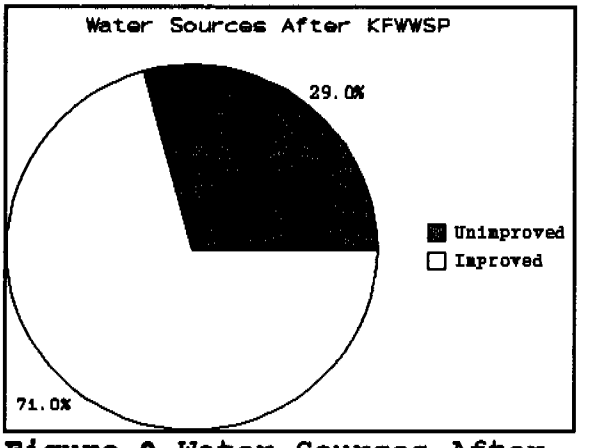

Figure 9 Water Sources After KFWWSP

Figure 11 shows the gender role in payments at household level. This may be due to over emphasizing of the woman's role.

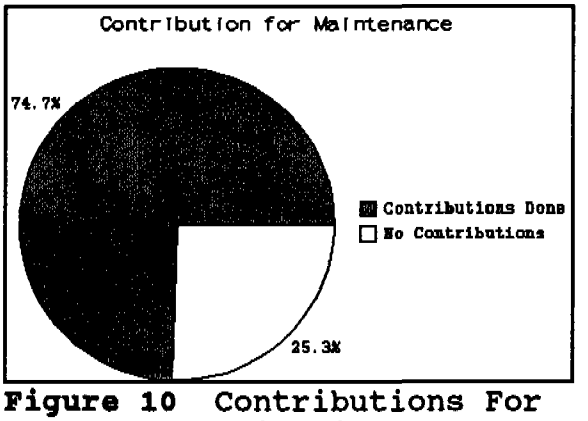

Figure 10 Contributions For Mainteinance

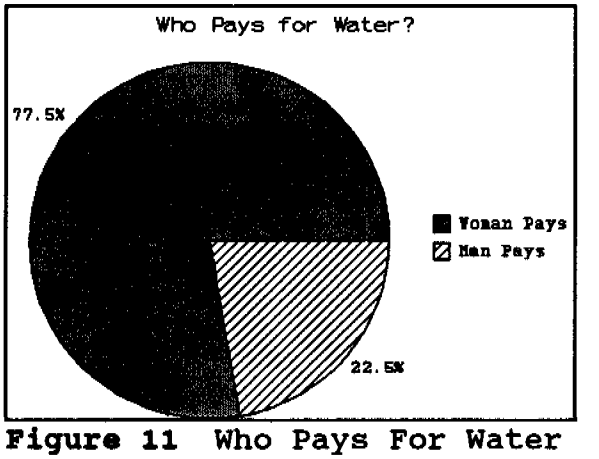

Figure 11 Who Pays For Water

The provision for additional facilities such as bathrooms, washing troughs, cattle watering points may enhance willingness to contribute. However they increase land demands which the landowners may not be willing to provide unless there is increased sense of ownership. These facilities increase the pollution risks at the source. Record keeping both in meetings and financial aspects is a new phenomenon. Receipts are not being issued, and as much as this has not raised any problems, it is an aspect that needs to be strengthened for the overall sustainability of community based management in the water supplies.

3.1.7 Technical Options

Ground water extraction by boreholes and dug wells is the most common option adopted by the programme. The other options are spring protection, Gravity schemes and rehabilitation of pipe schemes.

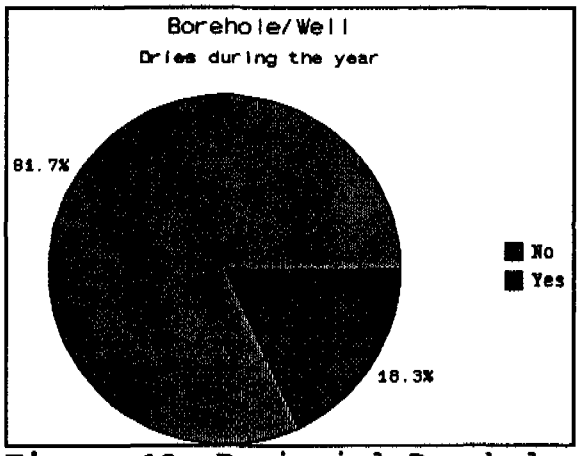

Figure 12 Perinnial Borehole / Well

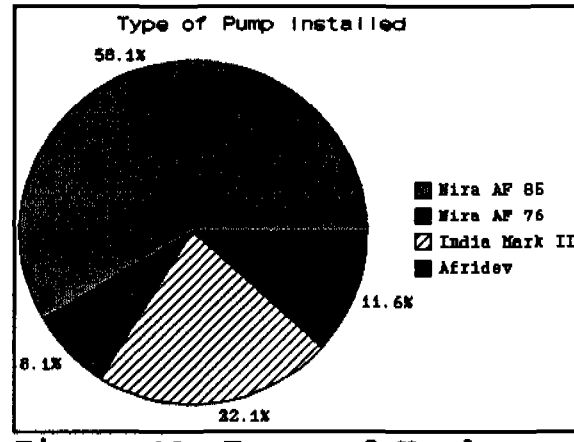

Figure 13 Types of Handpumps

The percentage of boreholes and dug wells that dry up during the year is given in Fig. 12. The programme is increasingly advocating for Nira AF 85 and replacing the old model Nira AF 76 handpumps. This replacement is due to a technological development in the design of handpumps. It however does not auger well for the provision of spare parts. A local manufacturing of spare parts may add to ease sustainability. Fig.13 gives the proportions of the various types of handpumps being used by the programme. Afridev has a local manufacture, while India Mark II is produced at Kakamega. The Nira models are imported.

3.1.8 Sanitation

Figure 14 to 17 indicate the various aspects of a clean hygienic environment conducive to good health. Over 35% of the latrines are dirty and the latrines visited were all of the traditional type. Over 40% of the households have no bathrooms, while over 21% of the homes cook in the main houses and 23% have no windows.

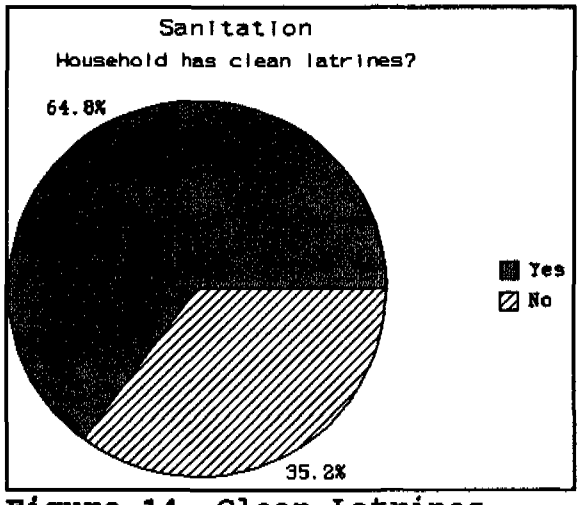

Figure 14 Clean Latrines

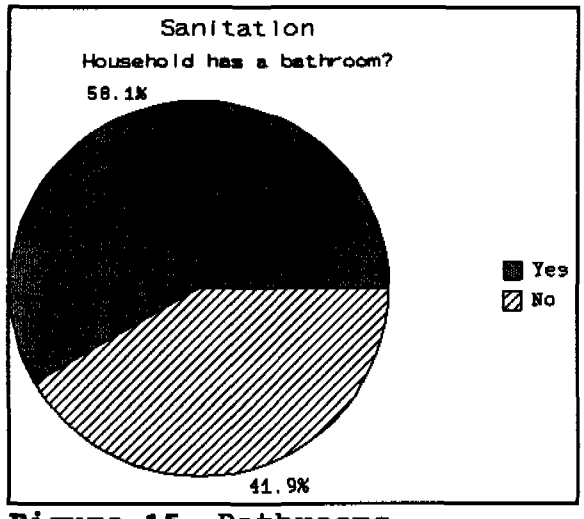

Figure 15 Bathrooms

Hygiene education and a sanitation improvement facilities are necessary. However the capacity of the water programme need to be assessed before such auxiliary activities are undertaken.

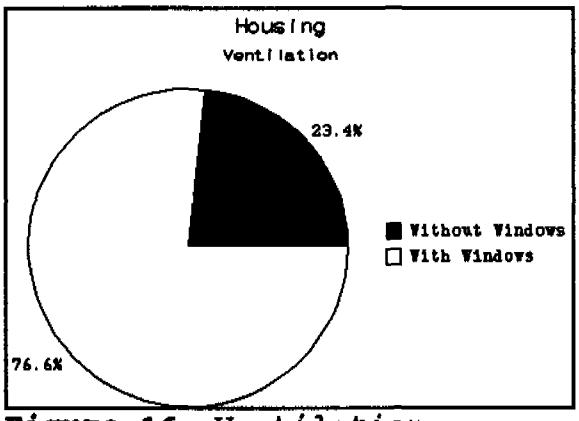

Figure 16 Ventilation

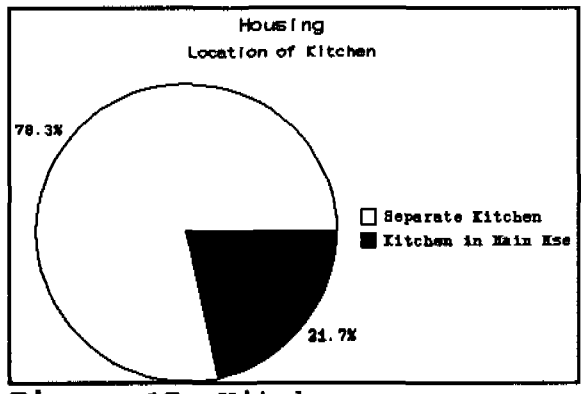

Figure 17 Kitchen

3.2 Bungoma District

3.2.1 General Information

In Bungoma some of the villages visited are as far away as 60 Km from Bungoma town. A total of 30 places were visited and during the rainy season 26 of the places are accessible while 4 of the them are not. The major means of transport for all the places visited are matatus and supplemented bicycles only. 13 of the places visited have bus services. All but one place visited have women groups. The main source of livelihood is peasant farming. The literacy level is over 50% in men and less than 50% in women. Many villages have organised various development committees. School building and building of health facilities are some of the development activities in the villages. The office of the Assistant chief is the government representative in the sub-location.

Table 3:1 Household Information (n = 113)

Item			Male	Female
Household Head			109	2
Sources of) Income for) household)	Employed		15	2
	Farmer		77	91
	Business		12	9
Educational level :	None		6	13
	Primary		49	19
	Secondary		27	20
	Tertiary		1	
Occupation : Household Heads	Employed	21		
	Farming	65		
	Business	9		
N/A		18		
Committees in village (n=30)				
Assistant Chief		30		
School		30		
Dispensary		17		
Water		28		
Cooperative		20		
Women groups		29		

3.2.2 Socio Economic

Table 3:2 Socio-Economic (n = 113)

Crop	No. of Families Growing	No. of Families Selling some
MAIZE	113	34
GROUNDNUTS	53	28
VEGETABLES	89	50
TOMATOES	61	41
BEANS	61	21
FRUITS	60	21
SUGAR CANE	25	22
COFFEE	2	2
CASSAVA	70	70
COTTON	81	26
TOBACCO	6	6
LIVESTOCK (CATTLE INDIGENOUS)	97	
POULTRY	106	

Number of People in Households

Adults 225
Children 597

Schooling

Nursery 62
Primary 254
Secondary 23
Tertiary 3

Housing (n = 113)

Wall	Floor	Roof	Ventilation	Kitchen
Brick/ block 5	Cement 12	Grass 72	Windows 97	Separate 87
Mud 106	Earth 97	Mabati 37	No windows 9	Not separate 24
N/A 2	4	2	7	2

Most of the households interviewed grow maize, groundnuts, sukumawiki, tomatoes, beans, fruits, cassava, potatoes and bananas for subsistence and very little is sold. The cash crops grown are sugar cane, coffee, sunflower and cotton. All the cash crops grown is sold. In general little of the crops grown in the areas visited is sold. It is basically for home consumption. Many of the children are of school going age. 254 are in primary school, 62 in nursery school and 23 are in secondary school. Most of the houses visited are of low quality and most of the money got from the sale of crops is spent on educating children and other household chores.

3.2.3 Community Participation

Table 3:3 Community Participation (n = 113)

	Yes	No	N/A
Awareness Campaigns	97	7	9
Planning Stage	59	6	48
Choosing site	72	16	25
Construction	99	1	13
Women Involvement	80	3	30
WATER SOURCE YIELDS			
Quantity sufficient	85	28	0
Quality good	97	11	5
Handed over	53	47	13
Any condition before handing over	30	33	50

Benefits

Good quality	101
Reduction in distance	95
Quantity increased	91
Tastes better	80

Time Saving: Other Activities

Brick making	18
Sand sieving	10
Vegetable garden	98
Farming	99
Join women groups	66
Join adult education classes	38

97 of the households interviewed had participated in the awareness campaigns. 59 of those interviewed were involved in planning while 99 of those interviewed were involved in construction. 80 of the women interviewed were involved in the construction of the system. It can generally be stated that there has been a high level of community involvement in the siting, planning and construction of the new water supply scheme.

The issue of handing over and the associated conditions are blurred in many consumers minds. The only condition that all seem to know is that of opening a bank account. It was therefore difficult to establish a dividing like between the Preliminary preparations, the Commissioning of the water point and the handing over.

All those interviewed feel that they have benefitted from the water supply improvements. Some of the benefits listed were good quality, reduction in distance, increase in quantity and better taste of the water. Any time savings are being spent on some other activities like vegetable gardens and some farming.

3.2.4 Willingness to contribute / water use

Table 3:4 Willingness to contribute/Water Use (n = 113)

		Before	After
Sources:	Unimproved source	96	10
	Improved source	17	103
Quantity:	Less 3 debes	80	32
	4-6 debes	26	64
	Over 6 debes	3	12
Time spent:	Less 1 hr	51	104
	1 - 2 hr	16	-
	Over 2 hr	36	3
	N/A	10	6
Collection Method:	Foot	108	107
	N/A	5	6
Who collected:	Women & children	103	106
	Other (Man)	4	3
	N/A	6	4
Uses:	Domestic	107	106
	N/A	6	7
Contributions :			
Yes = 80 No = 13 N/A = 20			
Less 10/- per month			76
Over 10/- per month			37
Who is responsible for paying:			
	Man		43
	Woman		52
	N/A		28
Who actually pays:			
	Man		15
	Woman		79
	N/A		19
Water rates:	Too high		4
	Right		64
	Low		12
	N/A		33

Before the new water supply was constructed, 96 of the people interviewed collected water from unimproved sources. 17 people collected water from improved source. However, now 103 people have access to improved sources, while 10 still collect from unimproved sources. There is apparent increase in water use and a decrease in time spent on collecting water. 80 of the people interviewed pay for their water while 13 did not pay for their water. 55 people pay less than 10/- per month for water and 37 pay over 10/-per month. Apparently there is lack of knowledge on what is covered by these contributions. Many people felt that the current rates are affordable and satisfactory. The issue of pump replacement and adding of new water points by the community has not been addressed. Contributions for maintenance of protected springs is not clear to the communities.

Many of the communities pay for water and have seen the importance of contributing for O & M. However, there are still a few who do not pay and have not seen why they should contribute. The fee is set by the committee in consultation with the communities and this varies from community to community. When asked under what conditions a consumer would be willing to pay more for the water, a few said if more water was available and the point source more reliable. Many are reluctant to consider such a view.

3.2.5 Women Involvement

Women have been involved from the planning to the construction stage. It was noted that there are more men than women who have taken up the roles of chairman and secretary but there are more women as treasurers. Also in committee membership, it was found that more members are men than women.

In Bungoma district where women have not had problems with the landowners they have vegetable gardens near the point source. The money gained from the sale of the produce is put in the water account. There were many who expressed the desire to have vegetable gardens near the point source but the land is not available to them.

3.2.6 Institution Building: Water Committees

Table 3:5 Water Committee (n = 28)

	Yes	No	N/A
Water Point has a water committee	28	0	
KFWWSP Staff attended water committee meetings	27	1	
Water point attendant: trained	14	12	2
: living in community	26	0	2
: paid	1	27	2
: need be paid	12	11	5
Records: Keeps written minutes	24	3	1
Minute book seen	14	9	5
Good	3	11	
Finance book kept well	25	0	3
Training: Book keeping	19	7	2
Management	18	7	3
Leadership skills	18	7	3
Hygiene education	18	7	3
Composition of Water Committee:	Men	Women	
Chairmen	26	2	
Secretary	23	5	
Treasurers	15	13	
Members	128	115	

Committee Meetings:

At least once a month	12
Once every 2 months	02
Once every 3 months	4
Once over 3 months	5
When need be	2
N/A	3

Communication between Committee & Community

Baraza	23
Messenger	1
Letters	0
N/A	4

Cash	Less 500	Over 500	N/A
Cash at hand	18	8	2
Cash spent on Repairs in last 6 months	2	1	

All the point sources visited have water committees. Many of them are active and meet at least once a month. A number also keep written minutes of meetings, and in many cases they inform the community about decisions through general meetings or barazas. Cash at hand is in harmony with the needs. Those that have had repairs replenish their accounts for future repairs.

Many of the committee members have been trained in management, bookkeeping, leadership skill and hygiene education. However, there are some who have not received training yet. All the pump attendants are living within the community and half have received training. Of those water points which have had breakdown, many committees had money at hand for repairs.

3.2.7 Institution Building: Repairmen / Pump Attendant

Table 3:6 Pump Attendant (n = 28)

		Yes	No	N/A
Water supply as Water Committee		28	0	
Are you paid		1	26	1
Are you satisfied with arrangements		26	0	2
Are you trained		14	13	1
Is training adequate		13	3	12
Communication - On Breakdown				
Report to committee	13			2
Repair	2			
Never broken down	11			
Visits by KFWWSP staff				
At least once a month	16			8
Over a month	4			
Visits useful		26	0	2

All the water points visited had an attendant. Apart from one, all the other attendants are not paid but are satisfied with the arrangements. The issue of remuneration is crucial if their morale is to be maintained.

The attendants feel the visits by KFWWSP extension workers are useful. Half the attendants interviewed are not trained, while the other half are trained. Those not trained are anxious to receive training.

3.2.8 Technical arrangements: Boreholes and Dug Wells

Table 3:7 Boreholes/Wells (n = 20)

		Yes	No
Source falls dry in the year		3	17
Type of pump NIRA AF 85	11		
NIRA AF 76	1		
AFRIDEV	2		
INDIA MARK II	6		
Is pump working		17	3
Does pump break down often		2	18
How long last Break down lasted			
less than a week	4		
over a week - less than a month	2		
over a month	1		
Cracks on apron		0	20
Construction quality good		20	0
Drainage well maintained		20	0
Serious pollution problems		5	15
Site clean		18	2
Site fenced		20	0
Erosion evident		3	17

A total of 22 boreholes and shallow wells were visited in Bungoma district. Two of these were dry holes (C-6391, C-8393). Of the remaining 20, 17 are perennial, while three fall dry at sometime during the year. The pump models are Nira AF 85-11, Nira Af 76-1, Afridev - 2, India Mark II - 6. There were 17 operational water points, and three broken down. Two water points were said to be breaking down often, and sometime the breakage lasting as long as two months. All the points did not have any visible cracks and the quality of work said to be up to standard. All sites were fenced and clean, while 3 sites had signs of erosion. The drawing sprout is too large and needs to be reduced.

In Phase III, up to June 1990, a total of 41 boreholes had been drilled in Bungoma and 28 of these are successful. Bungoma district still have the highest number of dry holes drilled, despite the improvement made. The success rate is 68%. There were 25 new wells constructed, and 71 repaired. The rate of repair suggests initial low quality workmanship.

3.2.9 Technical arrangements: Springs

Table 3:8 Springs (n = 8)

	Yes	No
Spring Box Well Constructed	8	0
Leaks	2	6
Cover	6	2
Fittings	7	1
Accessibility	6	2
Drainage	8	0
Site Clean	8	0
Contribution for Maintenance	4	4
Fenced	8	0
Erosion	3	5

A total of 8 springs were visited. All were indicated as properly constructed. Two had leaks while 2 had covers poorly fitted. They all had good drainage and were easily accessible. All the sites were fenced and kept clean. In 50% of the points communities contribute for O & M.

During Phase III, up to June 1990, a total of 35 springs had been protected and 11 repaired in the district. The design of protected spring need to be improved to allow for overflow pipes and thus reduce the excessive overflowing that was noticed in many of the springs visited.

3.2.10 Sanitation / Hygiene

Table 3:9 Sanitation (n = 113)

SANITATION: Number of households with:-			
	Yes	No	N/A
Latrines	87	26	0
Clean	77	36	0
Bathrooms	45	66	2
Clean compound	97	13	3
Good water storage (Pots)	111		2
Probable contamination	18	89	6

87 of the people interviewed have latrines while 26 did not have any. 84 of those who have latrines are the traditional pit latrines, of which 77 are clean. 66 of the households interviewed have bathrooms while 45 do not have any. 97 of the households interviewed have clean houses, well maintained and proper drainage with no stagnant water. Almost all the households interviewed store their water in pots. Dirty receptacles were indicated as the main possible source of contamination. However many of the houses are of low quality materials and many have poor ventilation. The general sanitary condition in the area may be said to be unsatisfactory and needs enhanced efforts to improve it.

3.3 Kakamega District

3.3.1 General Information

All places visited are less than 10 km to a market centre. Only 6 out of the 30 places visited have difficulties in communicating during the rainy season. 26 Out of 30 places visited have access to public transport. The main means of transport in this area are matatus, and are supplemented by bicycles. Farming and employment are the main sources of income for men. Women are basically involved in farming activities. Literacy level is high in the areas visited. Of the 30 places visited 25 have women groups. All villages have an assistant chief and a school. This means that many villages have some form of organisation. Nevertheless none of the villages have any other active development project.

Table 3:10 Household Information (n = 110)

Item		Male	Female	N/A
Household Head		88	13	9
Sources of) Employed		23	2	
Income for) Farmer		48	61	
household) Business		7	6	
Educational level :	None	0		
	Primary	61	49	
	Secondary	31	8	
	Tertiary	1		
Occupation :	Employed 33			
Household	Farming 61			
Heads	Business 10			6

Committees in Village (n = 30)

Assistant chief	30
School	30
Dispensary	8
Co-operative	4
Women	25

3.3.2 Socio-Economic

Table 3:11 Socio-Economic (n = 110)

Crop	No. of Families Growing	No. of Families Selling some
MAIZE	107	60
GROUNDNUTS	79	39
VEGETABLES	99	68
TOMATOES	46	33
BEANS	110	54
FRUITS	56	23
SUGAR CANE	78	75
CASSAVA	53	39
MILLET	31	25
LIVESTOCK (CATTLE INDIGENOUS)	91	
POULTRY	110	

Number of People in Households:

Adults	264
Children	593

Schooling

Nursery	56
Primary	226
Secondary	34
Tertiary	9

Housing

Wall	Floor	Roof	Ventilation	Kitchen
Brick/ block 9	Cement 10	Grass 74	Windows 93	Separate 68
Mud 90	Earth 87	Mabati 36	No windows 17	No separate 32
N/A 1	13	0	0	0

Every household interviewed grow maize basically for their own consumption. Many households visited grow sukuma wiki, tomatoes and fruits for their own consumption. The other crops grown include millet, beans, cassava and potatoes most of which is consumed by the households. Little of these crops is sold. The major cash crop is sugarcane.

90 of the houses found in the area are made of mud wall, earth floor and grass roof. 226 children attend primary schools, 34 are in secondary schools, 56 attend nursery schools and 9 are in colleges and polytechnics. The little income the people get from the sale of their crops is spent on educating the children and other household chores.

3.3.3 Community Participation

Table 3:12 Community Participation (n = 110)

Community Participation	Yes	No	N/A
Awareness Campaigns	93	14	3
Planning Stage	87	12	11
Choosing site	76	11	23
Construction	76	14	20
Women Involvement	83	5	22
WATER SOURCE YIELDS			
Quantity sufficient	90	20	
Quality good	88	22	
Handed over	30	70	10
Any condition before handing over	12	15	83

Benefits

Good quality	88
Reduction in distance	80
Quantity increased	56
Tastes better	35

Time Saving: Other Activities

Brick making	5
Sand sieving	5
Vegetable garden	61
Farming	52
Join women groups	34
Join adult education classes	5

Over 80% of the households interviewed have been involved in the development and use of the new water supply system. 70 of the households interviewed reported that the system has not been handed over to the community and 30 reported it has been handed over to them. Many people are not clear what constitutes handing over and were therefore not able to indicate any conditions for handing over.

Almost all those interviewed feel that they have benefited from the new water system. The benefits mentioned include better quality of water (including taste), reduction in distance and increase in quantity. Since the new water supply has been complete, 39 of the households interviewed feel they have had time to get involved in other activities while 20 did not.

3.3.4 Willingness to Contribute / Water Use

Table 3:13 Willingness to Contribute / Water Use (n = 110)

	Before	After
Sources: Unimproved source	105	16
Improved source	0	90
N/A	5	4
Quantity: Less 3 debes	44	0
4-6 debes	61	65
Over 6 debes	4	30
N/A	1	15
Time spent: Less 1 hr.	70	68
Over 1 - 2 hrs.	13	16
Over 2 hrs.	2	0
N/A	25	26
Collection Method: Foot	110	110
Who collected: Women & children	110	108
N/A	0	2
Uses: Domestic	110	108
Other (construction)	0	2
Contributions :		
None Yes = 80 No = 30		
Less 10/- per month		40
Over 10/- per month		7
N/A amount		63
Who is responsible for paying:		
Man		33
Woman		33
N/A		44
Who actually pays:		
Man		17
Woman		48
N/A		45
Water rates: Too high		1
Right		46
Low		17
N/A		46

Before the new water supply was constructed 105 households did not have access to safe water. During the Programme activities 90 respondents have now access to clean water and only 16 have not. There is apparent increase in water use and a decrease in time spent in collecting water.

Many of the communities have set fees for operation and maintenance. Although a large number of communities have understood the importance of contributing for the O & M and have bank accounts, it was noted that there are still a number of the communities who do not contribute for the O & M.

It was seen that 80 of the households interviewed pay for their water and 30 do not pay for their water. 40 of the household interviewed paid less than 10/= per month and 7 paid more than 10/= per month. The rest of the respondents did not respond to the question. However only 11 indicated that they would be willing to pay more for their water if it was adequate for irrigation and was nearer home. The high figures relating to the none payments is due to lots of spring protection where communities are reluctant to contribute for their maintenance.

43 of the households interviewed reported that it was the wife who pays for the water and 17 say it is the husband who pays. 75 of the household feel the way they are contributing for the water system is satisfactory. The payments were commonly collected at the water point. Many feel that the rates are satisfactory. However the revenue earned may not be enough to cover the pump replacement costs in case of boreholes and shallow wells.

3.3.5 Women Involvement

It was noted that a large number of women are involved in the programme alongside with the men. Of the women interviewed, 83 were involved in the construction of the water supply system. All pump attendants are women. Those trained have already felt a rise in their status in the community as they have gained entry into professions previously reserved for men.

There are more men in post of Chairman than women, but the posts of secretary and treasurer, are taken up equally by both men and women. There are more women committee members than men.

Nevertheless, there are still some women in the communities who have not been involved in the programme. Seminars for leaders should include more women so that they can follow-up the programme activities and disseminate information to their communities.

3.3.6 Institutional Building: Water Committees

Table 3:14 Water Committee (n = 25)

	Yes	No	N/A
Water Point has a water committee	25	0	0
KFWWSP Staff attended water committee meetings	14	10	1
Water point attendant: trained	8	11	6
: living in community	19	0	6
: paid	3	17	5
: need be paid	3	9	13
Records: Keeps written minutes	20	5	0
Minute book seen	14	11	0
Good	4	10	0
Finance book kept well	14	9	2
Training: Book keeping	3	22	
Management	4	21	
Leadership skills	7	18	
Hygiene education	13	12	
Composition of Water Committee:	Men	Women	
Chairmen	20	6	
Secretaries	15	11	
Treasurers	10	15	
Members	74	125	

Committee Meetings

At least once a month	21
Once every 2 months	0
Once every 3 months	1
Once over 3 months	1
When need be	1

Communication between Committee & Community

Baraza	23
Messenger	1
Letters	1

Cash	Less 500	Over 500	N/A
Cash at hand	11	9	5
Cash spent on Repairs in last 6 months	4	1	

Committee formation has taken place in most of the water points. They are registered and most of them have opened Postal Bank Accounts. Many of these committees are active and are able to collect money from consumers for O & M.

Many of the committees have been trained in hygiene education, but have not received training in management, bookkeeping and leadership skills. There is need to intensify training in the relevant skills. All pump attendants are living in the community.

3.3.7 Institutional Building: Repairmen / Pump Attendant

Table 3:15 Pump Attendants (n = 25)

		Yes	No	N/A
Water supply has Water Committee		22	0	3
Are you paid		5	12	8
Are you satisfied with arrangements		9	4	12
Are you trained		13	5	6
Is training adequate		4	6	15
Communication - On Breakdown				
Report to committee	8			
Report to KEFINCO	5			
Repair	3			
N/A	9			
Visits by KFWWSP staff				
At least once a month	11			13
Over month	1			
Visits useful		15	1	9

All the water points visited had an attendant. A small number of attendants got some kind of remuneration. The issue of remuneration is crucial if their morale is to be maintained, and many of the attendants were unwilling to discuss whether or not they should be paid. This may be a silent indication of their desire to be paid.

The attendants graded visits by KFWWSP extension workers as useful. Many of the attendants feel that the training is not adequate. Those that have not been trained are anxious to receive the training.

3.3.8 Technical Arrangements: Borehole and Dug Wells

Table 3:16 Borehole/Wells

		n	Yes	No	N/A
Source falls dry in the year		21	2	16	1
Type of pump NIRA AF 85	10				
NIRA AF 76	1				
AFRIDEV	4				
INDIA MARK II	3				
Is pump working		18	18	0	
Does pump break down often			2	16	
How long last B/down					
less than a week	1				
over a week - less than a month	0				
over a month	1				
Cracks on apron		18	4	14	
Construction quality good		18	16	2	
Drainage well maintained		18	16	1	
Serious pollution problems		18	2	16	
Site clean		18	17	1	
Site fenced		18	14	4	
Erosion evident		18	1	17	

In Kakamega district, 12 boreholes and 9 dug wells were visited, of the 21, 16 are perennial, two require deepening and other three are not in use.

The types of pumps are Nira AF 85-10, Afridev-3, Nira AF 76-1 and India Mark II-3. All the pumps we in a working condition at the time of the visit.

It was indicated that 2 of the 18 pumps breakdown often. These two breakdowns were one Afridev and one India Mark II. One breakdown lasted two months.

The construction quality is good, as only 4 out of 18 point sources had cracks in the aprons. The maintenance of the point sources is adequate as 17 out of 18 were clean at the time of visiting, of the 18, 14 were fenced while only 1 of the 18 had signs of erosion. Many of the point sources had adequate yield. The drawing sprout is too large and the consumers have improvised a reducer. This is a cause of contamination. The sprout needs reduction. The communities at the two dry points visited KA-11 and C-7068, are still hopeful that they too shall get water.

During the Phase III, up to June 1990, a total 115 boreholes were drilled, with 108 being successful. This gives a 94% success rate. There were 46 new dug wells and 110 repaired wells. The high rate of repairs is indicative of initial work being of low quality.

3.3.9 Technical Arrangements: Springs

Table 3:17 Springs

	Yes	No	N/A
Spring Box Well Constructed	8	1	0
Leaks	3	5	1
Cover	5	3	1
Fittings	7	1	1
Accessibility	8	0	1
Drainage	7	1	1
Site Clean	8	0	1
Contribution for Maintenance	4	4	1
Fenced	8	0	1
Erosion	0	8	1

A total of nine springs were visited, by the survey team. Many of the sites were kept clean, despite that a few had inactive committees. The quality of construction is good while erosion is not evidenced at many of the sites. The design of protected spring needs to be improved.

Springs seem to be the option with least community motivation as they have always co-existed with the communities. The communities therefore find little reason to be excited about their protection. Hygiene education need to be intensified in these communities, to enhance the proper use of the protected springs.

In Phase III up to June 1990, 83 springs were protected, and 51 repaired. This may also have indications of the quality of work initially, as that of low quality.

3.3.10 Sanitation/Hygiene

Many of the households have traditional latrines. Many of these latrines are not properly kept. The general condition of the homes is satisfactory. All the households keep water in pots. The water receptacles are one single greatest course of contamination. The general sanitary condition in the area may be said to be unsatisfactory. Efforts to improve the sanitation aspect in their area need to be initiated.

Table 3:18 Sanitation (n = 110)

Number of households with			
	Yes	No	N/A
Latrines	95	14	1
Clean	65	44	1
Bathrooms	43	63	4
Clean compound	89	15	6
Good water storage	105		5
Probable contamination	29	75	6

3.4 Siaya District

3.4.1 General Information

In Siaya, the distance from the farthest village to Ugunja is less than 10km. During the rainy seasons 90% of the villages are accessible. 17 of the places visited use Matatus as the main means of transport and supplemented by bicycles. Farming is the main stay for livelihood followed by employment. The literacy level is about 30% both in men and women. Of the 20 places visited, only 8 have women groups. The area is well served by public infrastructure. The main Kisumu-Busia road passes through the area and it has well to do hotels in its vicinity. The office of the Assistant Chief in all the 20 places. All have schools. Only 7 are starting dispensary/health committees. It can be said that the village organizational structure here is not as extensive as other areas in the Programme area. Only water has some kind of committee at the village level.

Table 3:19 Household Information (n = 66)

Item		Male	Female	N/A
Household Head		48	18	
Sources of) Employed		2		
Income for) Farmer		32	44	
household) Business		7	7	
Educational level :	None	27	24	
	Primary	17	3	
	Secondary	2	0	
	Tertiary	0	0	
Occupation : Employed		11	0	7
Household Farmer		23	7	
Heads Business		7		
N/A		7	11	

Committees in the Village (n = 20)

Assistant chief	20
School	20
Dispensary	7
Water	20
Co-operative	6
Women	8

3.4.2 Socio-Economic

Table 3:20 Socio-Economic (n = 66)

Crop	No. of Families Growing	No. of Families Selling some
MAIZE	63	14
GROUNDNUTS	13	4
VEGETABLES	45	15
TOMATOES	10	4
BEANS	29	6
FRUITS	26	15
SUGAR CANE	2	2
COFFEE	7	3
CASSAVA	52	22
COTTON	1	1
SORGHUM	21	3
LIVESTOCK (CATTLE) (INDIGENOUS)	40	
POULTRY	57	

Number of people in Households:

Adults	145
Children	206

Schooling

Nursery	13
Primary	86
Secondary	11
Tertiary	1

Housing

Wall		Floor		Roof		Ventilation		Kitchen	
Brick/ block	3	Cement	8	Grass	46	Windows	40	Separate	50
Mud	58	Earth	58	Mabati	19	No windows	21	No separate	13
N/A	5		0		1		5		3

Most of the households grow maize, sukumawiki, beans, cassava, sorghum, fruits, groundnuts tomatoes,sorghum and cassava for their own consumption. Little is sold. A few households visited grow cash crops like tea, coffee and sugarcane. Most of the houses found in this area are of mud wall, earth floor and grass roof and many have poor ventilation. Of the households interviewed 13 of their children attend nursery schools, 86 attend primary school, and less than 10 children attend secondary school.

3.4.3 Community Participation

Table 3:21 Community Participation (n = 66)

	Yes	No	N/A
Awareness Campaigns	51	7	8
Planning Stage	46	13	7
Choosing site	49	10	7
Construction	41	19	6
Women Involvement	46	1	19
WATER SOURCE YIELDS			
Quantity sufficient	39	24	3
Quality good	49	16	1
Handed over	19	23	24
Any condition before handing over	16	14	36

Benefits

Good quality	38
Reduction in distance	25
Quantity increased	24
Tastes better	29

Time Saving: Other Activities

Vegetable garden	16
Farming	16
Join women groups	16
Join adult education classes	3

Communities have been involved in the siting, planning and construction, use and operation and maintenance of the water points.

Although 19 of the people interviewed have claimed the water system has been handed over to the community only 1 acknowledged having the certificate for handing over. This shows that many people have not really understood the idea of handing over, many believe when the system has been constructed and complete, then it is handed over to them. Many were not sure of the conditions to be met before handing over can be done. Increased efforts in educating communities may be called for.

Many of the people interviewed stated that they have benefited from the new water system by having good quality water, the distance reduced, water quantity increased and the water tastes better. There are apparent time savings which have been devoted to farming and women groups.

3.4.4 Willingness to Contribute/Water Use

Table 3:22 Water Use (n = 66)

	Before	After
Sources: Unimproved source	66	36
Improved source	0	30
Quantity: Less 3 debes	31	24
4-6 debes	29	29
Over 6 debes	2	3
N/A	4	10
Time spent: Less 1 hr.	52	64
1 - 2 hrs.	6	2
Over 2 hrs.	2	-
N/A	6	0
Collection Method: Foot	65	60
N/A	1	6
Who collected: Women & children	66	66
N/A	0	0
Uses: Domestic	66	66
Other (construction)	0	
Contributions :		
None Yes = 45 No = 17 N/A = 4		
Less 10/- per month		37
Over 10/- per month		4
Who is responsible for paying:		
Man		8
Woman		50
N/A		8
Who actually pays:		
Man		12
Woman		47
N/A		7
Water rates: Too high		7
Right		37
Low		6
N/A		16

Before the new water supply was constructed all households had no access to improved water sources. Currently 50% of the households have access to some improved source. There is an apparent decrease in time spent in collecting water. Nonetheless there is no corresponding increase in the quantity of water used.

Many of the communities contribute for the operation and maintenance. However there are still quite a number who do not contribute despite their knowledge on what the money is used for. Contributions do not take into account the pump replacement costs. It is the woman who is paying for the water in many households and all consider current rates are satisfactory.

3.4.5 Women Involvement

Women have been involved from the planning to the construction stage. 50 of the households interviewed reported that women were also involved in the construction stage. All the pump attendants are women. There are more women as committee members than men and positions like secretaries and treasurers are taken up by more women than men. Although a few have been trained, there is need to train those that have not been trained.

3.4.6 Institution Building: Water Committee

Table 3:23 Water committee (n = 20)

	Yes	No	N/A
Water Point has a water committee	20	0	0
KFWWSP Staff attended water committee meetings	9	8	3
Water point attendant: trained	3	11	6
: living in community	12	2	6
: paid	0	12	8
: need be paid	3	5	12
Records: Keeps written minutes	15	3	2
Minute book seen	4	16	0
Finance book kept well	12	4	4
Training: Book keeping	8	10	2
Management	7	11	2
Leadership skills	7	11	2
Hygiene education	10	8	2
Composition of Water Committee:	Men	Women	
Chairmen	15	5	
Secretary	8	12	
Treasurers	4	16	
Members	74	104	

Committee Meetings:

At least once a month	15
Once every 2 months	0
Once every 3 months	0
Once over 3 months	1
When need be	2
N/A	2

Communication between Committee & Community

Baraza	17
N/A	3

Cash	Less 500	Over 500	N/A
Cash at hand	15	3	2
Cash spent on repairs in last 6 months	4	1	

All the water points visited have water committee. They are registered and a few have opened postal bank accounts. There are also very few communities where the water points have been preliminarily handed over, despite the communities lack of understanding the implications of handing over.

It was encouraging to note that in many of the water points women have taken up leadership positions. There are more women committee members than men.

Training has been done in management, bookkeeping, leadership and hygiene education. It was noted that more training had been done in hygiene education than in management, bookkeeping and leadership skills. There is need to intensify training in these areas. The issue of attendants being remunerated need to be revised as many shied away from indicating whether they wish to be compensated.

3.4.7 Institution Building: Repairmen/Pump Attendant

Table 3:24 Pump Attendants (n = 8)

		Yes	No
Water supply as Water Committee		8	0
Are you paid		1	7
Are you satisfied with arrangements		6	-
Are you trained		6	5
Is training adequate		6	7
Communication - On Breakdown			
Report to committee	4		
Report to KEFINCO	1		
Repair	1		
Visits by KFWWSP Staff			
At least once a month	7		
over a month	1		
Visits useful		8	0

All the water points visited had attendant, however only 8 were available for interviewing. Apart from one, no attendant got remuneration of any kind. The issue of remuneration is crucial if their morale is to be maintained.

The attendants valued visits by KFWWSP extension workers and said the visits were useful. A few have been trained, but there are a large number who have not received training.

3.4.8 Technical Arrangement: Boreholes and Dug Wells

Most of the points have adequate yield. A total of 12 borehole/wells were visited, of these C-6474 is dry while C-5145 is incomplete, while SI 65 is abandoned. Of the nine (9) that are operational,8 were working at the time of the visit. The pump models were Nira AF 85-3, Afridev-1, India Mark II-4. One point SI-23 had its pump removed. No reason could be found at the community. The deeper boreholes seem to have the higher number of breakdowns, many of which, the communities indicated are repaired within a day. The construction , is satisfactory and the maintenance of the sites is good. All the sites are fenced and cleaned regularly. Erosion was not evident at all the sites visited. The drawing sprout is too large and is often a cause of contamination. It needs reduction.

During the Third Phase III, up to June 1990, 28 boreholes were drilled and 100% were successful. Dug wells constructed are 5 in number, a total of 31 dug wells were repaired over the same period. This may be indicative of the low quality of work done initially. There is need to consolidate efforts towards good quality work, as this will reduce costs and enhance sustainability.

Table 3:25 Borehole/Wells

	n	Yes	No	N/A
Source falls dry in the year	12	1	7	1
Type of pump NIRA AF 85 3				
NIRA AF 76 0				
AFRIDEV 1				
INDIA MARK II 4				
Is pump working	8	8	0	
Does pump break down often	8	2	6	
How long last B/down				
less than a week 3				
over a week - less than a month 0				
over a month 0				
Cracks on apron	9	1	8	
Construction quality good	9	8	1	
Drainage well maintained	9	6	3	
Serious pollution problems	9	1	8	
Site clean	9	8	1	
Site fenced	9	8	1	
Erosion evident	9	0	9	

3.4.9 Technical Arrangement: Springs

Table 3:26 Springs (n = 8)

	Yes	No
Spring Box Well Constructed	4	4
Leaks	4	4
Cover	3	4
Fittings	6	2
Accessibility	6	2
Drainage	5	3
Site Clean	5	3
Contribution for Maintenance	6	2
Fenced	4	4
Erosion	3	5

A total of 8 springs were visited in Siaya district. SP-71 and SP-155 were not found at ground. There were 4 springs with leaks and several did not have covers. Accessibility was good in 6 out of the 8, while all had pipes fitted well. The drainage in 5 springs was good while 3 had poor drainage arrangements. The design of protected spring needs to be improved.

Cleanliness was good in 5 out of the 8 points, while all the points have water committees and contributions done for the O & M. Fencing was seen at 50% of the sites.

During the Phase III, up to June 1990, a total of 30 springs have been protected in Siaya district. There is need to review the design of spring protection, to allow for the varied nature of the spring sites. Almost all spring protection have one defect of another.

3.4.10 Sanitation / Hygiene

50 of the household interviewed have latrines and 16 did not have latrines. 31 have bathrooms and 32 did not. At 43 places, the area around the house was clean, well maintained, with proper drainage and no stagnant water. 65 of the household store their water in pots,and dirty receptacles are one single commonest cause of contamination. The general sanitary condition is unsatisfactory, and measures to improve on it are necessary.

Table 3:27 Sanitation (n = 66)

SANITATION: Number of households with:-			
	Yes	No	N/A
Latrines	50	16	0
Clean	31	22	13
Bathrooms	34	32	0
Clean compound	43	18	5
Good water storage (Pots)	65	0	1
Probable contamination	18	25	23

3.5 Busia District

3.5.1 General Information

All villages visited are within 10 km distance to a market centre. 22 places visited have difficulties in communicating during the rainy season. Of the places visited, 29 have public transport supplemented by bicycles. Of the 53 places visited, there are women groups in 29 places. The mainstay for livelihood is peasant farming. The literacy levels is 50% in men and about 30% in women. The organizational structure in the village level is not well developed. The programme may wish to put more effort in this area.

Table 3:28 Household Information (n = 229)

Item		Male	Female	N/A
Household Head		167	35	27
Sources of Income for household	Employed	37	4	
	Farmer	120	154	
	Business	11	12	
Educational level :	None	49	98	
	Primary	84	59	
	Secondary	29	14	
	Tertiary	3	0	
Occupation of Household heads:				
Occupation : Household Heads	Employed 47			26
	Farming 146			
	Business 10			

Committees (n = 53)

Assistant chief	53
School	52
Dispensary	4
Water	50
Co-operative	6
Women	29

3.5.2 Socio Economic

In Busia, all households grow maize. Many also grow groundnuts, sukuma wiki, tomatoes, beans, fruits, sugarcane, cassava, cotton and sorghum. Much of the produce is for home consumption and little is sold. The main cash crops are coffee, tobacco, sugar cane and cotton.

146 of the households visited are farmers, 47 are employed and 10 are in business. Of the households visited,there were 105 children in nursery schools, 516 in primary schools, 71 in secondary schools, 5 in college and 2 in polytechnic. It seems most of the income got from the sale of crops is mostly spent in educating children. Almost all the houses visited were of low quality and many without adequate ventilation.

Table 3:29 Socio-Economic (n = 229)

Crop	No. of Families Growing	No. of Families Selling some
Maize	225	130
Groundnuts	142	89
Vegetables	131	72
Tomatoes	97	67
Beans	186	75
Fruits	80	53
Sugar Cane	32	18
Coffee	14	9
Cassava	186	132
Cotton	50	48
Tobacco	4	4
Sorghum	79	54
Livestock (Cattle Indigenous)	163	-
Poultry	209	-

Number of People in Households:

Adults	714
Children	1142

Schooling

Nursery	105
Primary	516
Secondary	71
Tertiary	7

Housing

Wall	Floor	Roof	Ventilation	Kitchen
Brick/10 block	Cement 22	Grass 186	Windows 163	Separate 191
Mud 214	Earth 207	Mabati 41	No windows 66	No separate 30
N/A 5	0	2	0	8

3.5.3 Community participation

Many of the households interviewed have been involved in the development and use of the new water supply system. Most of the women interviewed have been involved in the construction of the water system. The idea of handing over has not been understood well by the communities. They believe that when the water system has been constructed and complete,then it is handed over to them. Most of the people interviewed feel they have benefitted from the new water system, and many are now using the saved time in farming, vegetable gardens, women groups and other income generating activities.

Table 3:30 Community Participation (n = 229)

	Yes	No	N/A
Awareness Campaigns	185	32	12
Planning Stage	162	37	30
Choosing site	130	59	40
Construction	148	21	60
Women Involvement	117	33	79
WATER SOURCE YIELDS			
Quantity sufficient	139	87	3
Quality good	106	43	80
Handed over	35	141	53
Any condition before handing over	43	68	118

Benefits

Good quality	139
Reduction in distance	134
Quantity increased	89
Tastes better	119

Time Saving: Other Activities

Brick making	1
Sand sieving	1
Vegetable garden	33
Farming	56
Join women groups	11
Join adult education classes	3

The question on women involvement was not answered at many points, as many of the respondents were men. And many respondents did not express their feelings on the water source yields on quantity, quality. On handing over, the idea is not clearly understood by the recipient communities.

3.5.4 Willingness to Contribute/Water Use

Table 3:31 Water Use (n = 229)

	Before	After
Sources: Unimproved source	194	43
Improved source	20	164
N/A	15	22
Quantity: Less 3 debes	136	76
4-6 debes	61	98
Over 6 debes	26	42
N/A	6	13
Time spent: Less 1 hr.	140	188
1 - 2 hrs.	60	13
Over 2 hrs.	27	7
N/A	0	21
Collection Method: Foot	217	198
N/A	12	31
Who collected: Women & children	229	215
N/A	0	14
Uses: Domestic	227	210
N/A	2	19
Contributions :		
N/A = 12 Yes = 161 No = 56		
Less 10/- per month		152
Over 10/- per month		4
N/A		73
Who is responsible for paying:		
Man		72
Woman		93
N/A		64
Who actually pays:		
Man		42
Woman		123
N/A		64
Water rates: Too high		24
Right		106
Low		16
N/A		89

All the communities use the water points and 77% of them contribute regularly for the maintenance of the point sources, and understand why they contribute. The water rates were fixed by water committees in consultations with the communities and all feel that the mode of contribution is satisfactory. The contributions however do not include pump replacement costs. The protected springs suffer from lack of maintenance funds as many consumers are reluctant to contribute for their maintenance.

Before the new water supply was constructed most of the households interviewed collected water from unimproved sources and only a few had access to potable water. There is an apparent increase in quantity of water used and a decrease in time spent on collecting water and many families have now access to safe water.

123 of the households interviewed reported that it is the women who pay for the water while 42 reported that it is the men who pay. 102 of the people interviewed are satisfied with the way they are contributing money for the water system and 17 were not satisfied.

3.5.5 Women Involvement

Women have been involved from the planning to the construction of the water points. It is noted that the number of men and women involved in the water management is in the ratio 1 to 1. More women are likely to get involved with time.

3.5.6 Institution Building: Water Committees

Table 3:32 Water Committee (n = 53)

	Yes	No	N/A
Water Point has a water committee	52	0	1
KFWWSP Staff attended water committee meetings	24	23	6
Water point attendant: trained	17	25	11
: living in community	38	6	9
: paid	1	38	14
: need be paid	10	26	17
Records: Keeps written minutes	29	15	9
Minute book seen	10	35	8
Good			
Finance book kept well	34	9	10
Training: Book keeping	4	42	7
Management	6	39	8
Leadership skills	3	42	6
Hygiene education	23	25	5
Composition of Water Committee:	Men	Women	
Chairmen	44	5	
Secretary	33	21	
Treasurers	14	35	
Members	83	87	

Committee Meetings:

At least once a month	25
Once every 2 months	1
Once every 3 months	3
Once over 3 months	7
When need	4
N/A	13

Communication between Committee & Community

Baraza	21
Messenger	9
Letters	15
N/A	8

Cash	Less 500	Over 500	N/A
Cash at hand	24	12	17
Cash spent on Repairs in last 6 months	10	0	

All the water points visited had water committees. Many of the committees meet at least once a month, and keep written minute, and in many cases use barazas to communicate with the communities. It may be noteworthy to indicate that a majority of the minutes are poorly kept and financial records need improvements. Training of the committees in managerial and financial skills need to be intensified.

In the committees 65% of the treasurers are women and 50% of the committee membership is women. The role of Chairman and secretary is still dominated by men.

Many of those that have had breakdowns, had cash at hand for repairs The lack of funds causes long delays in the repairs. Community training and awareness campaigns need to be intensified so that the sense of ownership can be cultivated. Compensation for pump attendants is an issue.

3.5.7 Institution Building: Repairmen / Pump Attendants

Table 3:33 Pump Attendants (n = 53)

		Yes	No	N/A
Water supply as Water Committee		32	0	21
Are you paid		1	28	22
Are you satisfied with arrangements		22	9	
Are you trained		14	18	22
Is training adequate		6	22	25
Communication - On Breakdown	(n = 41)			14
Report to committee	9			
Report to KEFINCO	1			
Repair	2			
No Breakdown	15			
Visits by KFWWSP Staff				
At least once a month	16			16
Over a month	9			
Visits useful		27	1	13

The pump attendants are an added advantage to the sustainability of the O & M of the water points. In Busia all the water points had an attendant. It was indicated some of the attendants have moved out of the community.

Many of the water committees feel it would be useful to pay attendants. The issue of who should pay together with that of replacing the pumps need to be discussed with the communities. Approximately, 50% of the attendants have not received training. Only one receives some kind of pay while the rest do not. All attendants indicated their satisfaction on the existing arrangements. However, in order to keep the attendants motivated some compensation is necessary.

The repairmen do not have enough work per location to keep them busy. It has resulted in outward migration of 6 repairmen. It is recommended that more women be trained as repairmen and if men be trained then they should be above middle age, to ensure a reduction in outward migration.

3.5.8 Technical Arrangement: Boreholes and Dug Wells

Table 3:34 Borehole/Wells (n = 41)

		Yes	No	N/A
Source falls dry in the year		9	27	5
Type of pump NIRA AF 85	26			
NIRA AF 76	5			
AFRIDEV	3			
INDIA MARK II	6			
Is pump working		39	0	2
Does pump break down often		6	33	2
How long last break down				
less than a week	6			
over a week - less than a month	4			
over a month	2			
Cracks on apron		12	28	1
Construction quality good		28	13	0
Drainage well maintained		28	11	2
Serious pollution problems		1	24	16
Site clean		33	7	1
Site fenced		37	2	2
Erosion evident		1	40	

In Busia district, 75% of the boreholes and dug wells visited are perennial. The other 25% need deepening. The majority, 65% have Nira -AF 85 pumps, while 12.5% have Nira 76, 7.5% have Afridev and 15% have india Mark II. All the pumps were working at the time of the visit. However, visits to other points not on the schedule of visits, revealed that India Mark II pumps break down often and are cumbersome to O & M. It was indicated that 15% of the pumps breakdown often. This is consistent with the number of the heavy pumps in use. Some of the breakdowns last a long time. A breakdown on C-5305 (Bulemia) which occurred in mid December, was still unattended. The type of pump was India Mark II. The point sources with cracks were 30%, and a similar 30% showed signs of poor workmanship but only a small percentage of the cracks seriously impaired the proper use of the facility. Many of the sites were clean, fenced and had no signs of erosion. The drawing sprout is too large and needs reduction. It is often the cause of water contamination at source, due to improvised reducers.

In the Phase III, up to June 1990, a total of 79 boreholes have been drilled in Busia district, with a success rate of 90%. No dug wells have been done, while 60 have been repaired. The high rate of repairs indicate initial poor quality workmanship.

3.5.9 Technical Arrangement: Springs

Table 3:35 Springs (n = 12)

	Yes	No	N/A
Spring Box Well Constructed	7	4	1
Leaks	3	7	2
Cover	7	4	1
Fittings	10	1	1
Accessibility	9	3	0
Drainage	9	3	0
Site Clean	8	4	0
Contribution for Maintenance	1	7	4
Fenced	7	4	1
Erosion	4	8	0

A total of 12 springs were visited. SP 593 on the visit schedule could not be found on the ground. Many of them were found to be constructed properly. However, 30% had leaks, 30% had poor accessibility. This may be due to inadequate design and supervision coupled with lack of experience on the contractors part. 60% were clean, while 60% were fenced. Only one community contributed for the O & M. It was observed that 50% had poor drainage system and 30% showed signs of erosion. The design of protected springs need to be improved in order to allow for overflow pipes. This shall reduce chances of the spring overflowing the protection walls as was evidenced in many cases.

Spring protection in Busia district are mainly concentrated in certain division that have the potential. Community motivation, mobilization and education may help bring about positive change in the O & M of the point sources in these areas.

During the Third Phase up to June 1990, a total of 23 springs have been protected and 20 repaired. This is indicative of the low quality work at the initial stages of the programme.

3.5.10 Sanitation / Hygiene

Table 3:36 Sanitation (n = 229)

SANITATION: Number of households with:-			
	Yes	No	N/A
Latrines			
Clean	151	70	8
Bathrooms	94	43	92
Clean compound	159	43	27
Good water storage	214	0	15
Probable contamination	57	136	36

151 households visited had latrines which were the traditional pit latrines. 70 households did not have any latrines. 94 of the households interviewed had bathrooms, while 43 did not have any. 159 households visited had their areas around the house clean, and well maintained with proper drainage and no stagnant water. 214 households visited stored their water in pots. The general sanitary condition in the area is unsatisfactory. Efforts to promote positive changes are necessary.

Although most of the households interviewed reported that the water is clean, the water receptacles seem to be one single greatest cause of contamination.

3.6 Findings from Discussions with Various Groups

3.6.1 Focused Group Discussions

Focused group discussions were conducted in pre-selected areas. One group discussion was done per every three divisions. The group discussions were done in Malava division in Kakamega district, Ukwala division in Siaya district, Kanduyi division in Bungoma district and Amukura and Nambale divisions in Busia district.

In each division there was a random selection of a cluster of water points and consumers of these water points attended the discussions. In a few cases women who did not have improved water sources also attended and identified themselves during discussions.

The discussions were particularly useful in soliciting views, feelings, opinions, problems and solutions. To fully utilize the group discussions, the groups were allowed to discuss the various issues among themselves and care was taken that the shy and less forthcoming persons also got a chance to put their views.

Issues Highlighted

Some of the highlights during the focused group discussions were:

(i) **Community Participation**

It was indicated that in may cases women were involved in the development of water points. However, active participation was limited in the meetings for various reasons listed below.

- Traditionally, women are not expected to address men in public gathering, due to cultural inhibitions.

- Lack of background knowledge and information on the programme activities.

Endeavouring to hold separate meetings for women in some areas may enhance their contribution in meetings.

It may also be useful to educate and encourage the women to get directly involved as they are the direct beneficiaries of the water development. During construction women worked hand in hand with men, as they also prepared food for the people who were working.

Most of the women felt that meetings were held during hours when their services were required at home. Women's workload and balancing of roles makes it difficult for them to attend meetings at certain times of the day.

It was felt that special time convenient for women should be set. In many cases, women did not feel involved, and there was no feeling of ownership. They felt that things have to be done the way 'Kefinco wants'. A lot of time need to be taken by the Community Development and training department with the community, educating and making them aware that the programme is only helping them develop their water resources.

It was also noted that when there are self - perceived needs for improvements, in the water supply, as in self - help water projects, communities are highly motivated to undertake projects. Sometimes, women draw water from improved sources, but refuse to contribute to the maintenance fund. This unwillingness to pay points to lack of mobilization and understanding. There is need for more education and community mobilization.

(ii) **Training**

All the pump attendants trained are women. They have been trained in handpump maintenance and repair. Training has not been done in all the communities, although women have already been identified. This needs to be done. Also the training of women has proved to have a positive effect on the women's self confidence.

Pump attendants who are already trained felt they lack practice as pumps do not break down often. Refresher courses may help them retain the skills in handpump repair and maintenance. Pump attendants are not paid for work which they do, some compensation is necessary.

(iii) **Committee**

The composition of water committees is evenly distributed between the men and the women. About 60% of the members are men, while 40% are women. There are more men chairmen and secretaries than women. While more treasurers are women. It was hoped that with time more women will take up the task of chairmen/secretaries.

In cases where women groups have initiated the project most of the leaders are women. Many of the women expressed the view that men have the time to undertake the task and responsibilities of chairman and secretaries. And as women do not have the time they opt to choose men.

Many treasurers are women as they can be trusted better with money. However when collecting money from fellow women it would either be chairman or secretary who are men who can do this. In this way the problem of refusing to pay is minimised when it is a man handling it than when it is a woman.

(iv) **Funds**

The collection of money for the operation and maintenance was no fully understood in many communities. Many of the women have not understood why they should contribute, and some of those who have understood simply refuse to pay. Many committees have become inactive where consumers have been unwilling to contribute. Some communities have contributed and have bank accounts. Educating the communities on the benefits of using clean water may help enhance the communities willingness to contribute.

In cases where point sources are close to natural water source it is difficult to convince consumers to contribute. Also when two points are close by enforcing contributions is difficult, despite the point sources supplementing each other when breakdown occurs.

When point sources are in schools or hospital compounds, care should be taken to provide for the needs of the surrounding communities.

(v) **Bathing and washing facilities**

Many of the groups expressed the need for bathing and washing facilities. Livestock watering facilities were also an expressed need. This two measures if implemented would be a serious source of contamination and soil erosion, as well as increase land demand.

(vi) **Location representative**

Women living in trading centres, and those in organizations like Kanu Maendeleo ya Wanawake and women groups, acknowledged the existence of the locational representatives. Otherwise the majority of the women knew little about the locational representatives. Two factors contribute to this. First, the locational representatives have too many water points to man. Secondly, there may be a tendency for locational representatives to be working between the chief's centres and the more accessible areas. Training and using women volunteers from the communities may help reduce the work load on the locational representatives. The community development assistants may be another useful group that the programme may utilize.

(vii) **Benefits**

The benefits the women spelt out were:

- Time saved: This has enabled women to undertake other activities, like farming, vegetable gardens, small businesses and organizing women groups.
- Good quality water: This has contributed to the reduction of diarrhoea incidence in children.
- Reduction in distances: This has reduced the burden of carrying water over long distances.

3.6.2 Discussions with District Water Engineers

A summary of the issues highlighted during discussion with the various District Water Engineers within the programme area is provided here below:

(i) **Historical**

The success rate is good. The Programme started as a project in 1981, rather independently, as a feasibility study. At this time neither the District Water Engineer nor the communities were involved.

- In 1987 - the programme was incorporated into the DDC reporting, and attending meetings of the DDC and DEC.
- In 1989 - it was decided that all reporting by the programme be done through the district Water Engineer. It was later agreed that reporting to the DDC was not adequate, and hence means were provided to the DWE's to get involved somewhat in the activities of the programme.

(ii) **District Base**

This is expected to be a section in the DWE's establishment in each district. these bases comprise of workshop, stores, vehicles, materials , field staff. The main functions are to

coordinate, liaise and execute the district specific activities. The liaison is to four points: The programme head office in Kakamega, the DWE, the Community and the Local Administration. In order to enhance the collaboration between the MoWD and the programme, for better utilization of the resources being put to the disposal of the districts, the DEW's felt that:

- The head of district base be appointed by the MoWD.
- The position of staff to head district bases be upgraded to that of an engineer.
- That the head of the district base be directly responsible to the District Water Engineer.

(iii) District Development Plan

The programme needs to pay more attention to:

- Rehabilitation of existing water supplies. Conventional treatment works need to be favoured in lieu of imported package units. In urban areas where surface water sources are available, the utilization of surface sources should be favoured in lieu of groundwater extraction.
- Point sources (boreholes, wells and springs)
- Gravity piped schemes

(iv) Training

Water supplies with treatment facilities need adequate training. the training should extend to operators, mechanics, pipe fitters, and electricians.

(v) Design

The KFWWSP standard drawings need to be reviewed. The Resident Engineer (currently PWE, Western Province) should seek comments on designs from the user district, before the designs are implemented.

(vi) Cost and Financing

District specific funds should be spent in the district.

- In the past, printed estimates have given figures for which the district do not have detailed itemized breakdowns.
- The districts know not what is spent in their district.
- Payment vouchers even for local contractors are paid in Kakamega and the respective DWE have no input to it especially on the quality of workmanship.
- Certificate of completion are not certified by DWE in order to effect payment, this gives rise to lack of checks and balances.
- Tender system - locally available materials should be tendered through the DTB.

(vii) Work Plan

The head of district bases works directly under the supervision of the head of construction department. This gives little way for the DWE to supervise the day to day activities of the programme. It also gives the DWE no opportunity to comment on the quality of work being done by the programme and/or before local contractor can be paid.

It is imperative that for overall sustainability, work plans be provided to enhance inputs by DWE's.

The distribution and allocation of water points is done by the programme with little input from the respective DDC's. This is an anomaly and needs to be corrected in line with the District Focus Strategy for Rural development Policy.

(viii) Locational Representatives

Many of them have too many water points to man. There is need to bring them to sub-locational level. The use of CDA should be encouraged.

(ix) Staff

The programme staff working in the district are not responsible to the DWE. This is an anomaly and calls for corrective measures.

(x) Shallow Wells

Those dug during the rainy season often require deepening. It may be useful to organize work to dig shallow wells during the dry season. The local contractors need enhanced training to manage dispersive soils. The percentage of reconstruction seems to be high. Initial good quality work could reduce costs.

(xi) Technologies

Gravity schemes need to be given enhanced utilization.

(xii) Spare Parts: Handpumps

Currently being imported. A feasibility study to determine if a local business interest could break even if encouraged to venture into this business is necessary.

(xiii) Operation & Maintenance of Point Source

The capacity of MoWD to cope with the need for technical advise and guidance need to be developed in relation to the development of the point sources. standardization and/or limiting the types of pumps used in the country may be a step in the right direction. The attendant for the water point need some incentive e.g. exempt from contributing in cash.

(xiv) Communication

It was felt that issues emanating from a district be brought to the attention of the DWE before they are communicated elsewhere.

3.6.3 Discussions with Locational Representatives

The issues raised during the discussions included the following:

(i) Duties and Responsibilities

- To co-ordinate programme activities
- To liaise between the programme and the community
- To receive reports, problems and report the same to the programme
- To advise, educate communities
- To mobilize the community
- An agent of change
- To conduct hygiene education
- To train water committees and attend their meetings.

(ii) Remuneration

Two categories emerged here; Those paid through payroll and those paid by vouchers.

(iii) Transport

Basically bicycles and some have not received bicycles.

(iv) Terms & Conditions of Service

It was apparent that the yearly contract provided by the programme is at variance with the labour law. The extension workers voiced this concern. It implies that they look forward to being absorbed by the programme. Apparently, some extension workers have in the past been absorbed by the programme.

(v) Employer

Many of the extension workers were aware that they are not employed by the programme, and were expected to be community employees. However, not seeing a future permanent job with the community, the arrangement seems inadequate. Further they are initially chosen by the programme and not the community.

(vi) Age

Some of the extension workers are young, inexperienced school leavers. The programme may need to utilize middle aged elite group, and preferably from the local area. The present practice of "posting" workers across the locations need to be discouraged.

The elderly extension workers seemed to be more at home with the communities. Asked if they could continue working if the allowances were withdrawn, the elderly group answered positive. The young group seemed to be at loss even with the allowances without job security.

(vii) Job satisfaction and Workload

Many locational representatives man far too man water points. However those interviewed were positive on job satisfaction. An optimum number of water points a worker can handle is 30. It may be expedient to go to sub-locational level in those locations with more than 30 points.

(viii) Logistical Support

- It was apparent that communities expect that once a problem has been reported to the extension worker, immediate remedial action be taken. This support from the programme to the extension workers takes a while to comeby.

- Other programme staff carry out certain activities in the locations without informing the locational representative. This needs to be streamlined.

- The facilities for communication to the district bases and/or Kakamega are inadequate. The bicycle allowance which is expected to cover transport to and from the district base and/or Kakamega is inadequate. This forces many of the extension workers to wait until someone comes from the office or they themselves are coming to the office for salary, before they can report issues. There is need for an efficient reporting and information exchange system.

(ix) Community Awareness

Many of the water communities visited acknowledged the presence of the location representatives and thought they were doing good.

Communities near trading centres and women in Kanu Maendeleo, and active women groups acknowledged the presence for the locational representative. Many women did not know they existed and what their roles were.

CDA's and women volunteers of Kanu Maendeleo ya Wanawake if trained could also assist in extension work.

3.6.4 Geophysical Survey & Drilling Completion Reports

(i) Geophysical surveys

- Preliminary surveys are well done

- Field surveys and interpretation of the collected data were also well done

- Site selection from the interpreted data is in order, although this is subject to adjustment in the field depending on the physical feature of the site in question

- A good site on the topographical map may turn out to be unsuitable when the site is visited.

(ii) Drilling completion Report

- Proper sample identification is necessary for future study of borehole performance. e.g. if clay stone is drilled through and later there is a decrease in the borehole discharge - this could be attributed to silting - or poor transmissivity of claystone.

- The samples in most cases were not properly identified

- A qualified geologist using a geo-logger will compare the hand specimen and relate it to the resistivity on the geo-logger at the same depth, and he will arrive at a fairly precise lithology. Borehole C-5392 and C-5296 have fair drilling completion record. The geo-logger can also be used to determine heat flow in the borehole, rate of borehole re-charge and many other perimeters depending on the need.

- A geo-logger together with the resistivity machine is necessary.

- Borehole recovery records and chemical analysis are necessary, but were not indicated in most borehole drilling records randomly selected e.g. C-5691, C-7043, C-7528, C-6435, C-8379.

3.6.5 General Observation by the Survey Teams

(i) Community Mobilization not fully Intensified

- Most communities still take the projects as government projects and have not a sense of ownership.

- They have not learnt to be self reliant for they still expect everything from the government or programme e.g . to start fish farming or even to construct a cattle trough

(ii) Follow-ups not effectively carried out

- Committee members have failed to carry out their duties generally, except when a serious need arises

- Most wells are not well maintained and if done, only when visitors are expected

(iii) Community Participation very low

- Most sites have not started any income generating activities

- Maintenance funds collection not collected or contributed as agreed. (with time and amount) i.e. willingness to contribute

- General meetings poorly attended

(iv) Interactions between relevant governmental and non-governmental organizations and community not in practice

- Joint meetings between the above bodies and the entire community of a water point is never held. Thus, communities are not aware of roles played by others at the water points and each of the relevant institutions

(v) Policies of Programme not well understood by Committee and Especially Community Members

- They do not know or understand the aims and objectives of the programme
- They do not know or understand the by-laws of the programme

(vi) Most Communities are Staying under unhealthy Conditions

- There is low latrine coverage and use, especially the ventilated improved pit latrines
- Continuous use of contaminated or unwholesome water sources despite existence or provision of better wholesome sources. This, on our opinion, is due to ignorance
- Poor housing hygiene. Most houses do not have adequate ventilation, and smoothly finished floors
- Ignorance about water related diseases
- Cases of water and sanitation related diseases still prevalent in the area despite increased number of protected sources of water

(vii) Coverage of Wholesome Sources of Water and Demonstration V.I.P. Latrines is Low

Our general observation is that the protected sources of water provided so far (by various organizations) have brought just a little change, and also demonstration of the improved latrine (V.I.P) has not yet reached most community members.

(viii) Locational Well Committee

- Locational Water Committee for East Wanga was formed in 1990. It draws members from the well committees, one person from each well committee, it has 40 members
- Raising funds is done by planting vegetable in plots provided by the members, when these are sold the money is banked for the locational committee and each member pays shs 20/- for registration
- They help organize and register the well committees
- Assist those unable to open bank accounts by fund raising money for them to open accounts
- Are in the process of drafting a general regulation that will be used by all wells

(ix) Preliminary Handing Over

The following conditions have to be fulfilled:

- Forming a committee
- Registering the committee
- Opening bank account
- Land easement

The last condition is not followed properly by most land owners. Some agree to give the area on which the well stands, but not the access to the road/path as the access requires fairly big space. The land owners in this cases were not explained that they will ease both the site and the access to the site.

(x) Initial Local Mobilization

- Assistant chiefs and clan elders play a key role in preparing the communities for the programme

- Nevertheless many committee members were hand picked, are illiterate and not committed. In some places no committees were selected. Committees were considered after the installation of the water points

(ix) Construction Procedure

- The standard plans for construction may be rated at 90%

- The actual construction skill could be rated at 40% as most of the sites are wearing out fast due to lack of proper mixture of cement, sand and ballast and inadequate curing

3.6.6 Discussions with the DOs', Chiefs, assistant chiefs

A summary of the issues highlighted by the Provincial Administrators at Division, Locational and sub-location level are here below:

Coverage

The communities are welcoming the KFWWSP whole heartedly. However, the distribution of points is done by the Programme without adequate consultations with the respective government departments as stipulated in the District Focus Strategy for rural Development Policy. This leads to a concentration of water points in one area, while other areas are not adequately considered. In certain incidence areas to be covered are released to the people and takes a long while before they are done. This creates despondency. It was felt that the needy places always seem to be the ones left out in the coverage.

Technology

The people in the Programme area have not fully understood the programme objectives and rationale. They still expect that one day, they too shall receive piped water schemes. This is despite their unwillingness and may be inability to invest more in the development of the water supplies.

The local administration questioned the rationale of constructing and equipping point sources even when the quality of water is questionable, especially in the low lying areas, where many salty wells are completely developed and then abandoned.

Involvement of the Local Administrative Machinery

The Programme seems to be wishing to develop locational well committees that are independent and are not sub-committees to the Locational Development Committees.

This alienates the very people who are to be the beneficiaries and does not involve the local administration from the early stages of the development of the water points. Only when problems occur do the well committees realise that law and order is the prerogative of the provincial administration.

The question of linking the Kenya Afya Programme and KFWWSP was raised in order that when the two programmes have activities in the same place, synchronising those activities may be an added advantage.

Land Easement

In places where wells are in schools, alternative sources for the communities are necessary. The issue of land where there is not a forthcoming site, alternative sites are chosen, this is a problem that is reducing with time.

The issue of pumps being stolen, the local administration is trying to find solutions, through educating the communities on the advantages of clean water. This is hoped shall minimise the problem.

Benefits

The local administration felt that the Programme has helped reduce distances and the water is clean. However in certain areas, the digging of shallow wells to ground level is a difficult burden for the communities. Special tools and effort is required, the Programme need help in this.

The locational representatives, training of pump attendants is an advantage that is well appreciated by the local administration.

Drying of wells is a concern that needs a lasting solution and the water demand seems to be more than the supply in most cases. The Amukura Water Supply whose boreholes is said to yield 150m^3/d is to serve girls boarding schools (primary and secondary), a boys secondary school (boarding), two health centres, a market centre, DO's offices. At commissioning the supply will already be below the demand. This situation presents itself in many cases, leading to the overworking of the hand pumps and over utilisation of the wells.

3.6.7 Information on the Health Situation in the Programme area

A visit to Amukura, Chwele health centres, and interviews with public health technicians within the programme area indicate the following diseases as the most common:

- Malaria (with certain strains becoming resistant to chloroquin)
- Diarrhoea
- Worms
- Scabies
- Malnutrition
- Ulcers
- U.R.T.I
- STDs
- Conjunctivitis
- Burns/Accidents
- Anaemia

It is apparent that water related diseases top the list and may be attributed to using unpotable water as well as low latrine coverage in the area. Low standards of living and lack of knowledge, taboos and beliefs also contribute to this state of affairs.

3.7 Piped Schemes

A summary of findings from piped schemes visited in the four districts is given below:-

3.7.1 Chwele Water Supply

- solar powered. Built in 1986
- Operated by MoWD
- 2 boreholes - combined yield indicated as 170 m3/d
- No water treatment
- One borehole seems to be drying up (C-6179)
  (This is next to another borehole which had dried up earlier)
- Areas served - Market, Secondary School, Health Centre.
- No standby unit
- No water is pumped in cloudy days & in the mornings. Due to proximity to Mt. Elgon, quite a few days are cloudy (as per consumers)
- It was apparent that demand exceeds supply
- No water committee

3.7.2 Kutere Gravity Scheme

- Built in 1988
- Has 60 members
- Has three point sources (springs). One which is SP- 744 (visited)
- Expected to expand to Namwela School
- Has a water committee (active)
- No erosion at the spring site
- Erosion evident at cattle watering points
- The 2nd pipeline broken due to landslide
- No pipe fitter has been trained at this site
- Contribution Ksh. 60/year/man.
- Cash at hand 1,400/-
- Communal water points provided, the community seemed happy about this provision.

3.7.3 Webuye Water Supply

- Built 1974
- Rehabilitated in 1987 - 1990
- Intake by gravity
- Has two treatment works
- One conventional producing about 1200 m3/d
- One struja unit producing 600 m3/d
- Distribution chamber inadequate.
- Incoming pipe - 10 inches
- Outlet to conventional treatment - 10 inches
- Diversion to struja unit - 6 inches reducing to 4 inches after the chemical dosing chamber. This arrangement is causing overflow.

Struja unit:-

- No operation manual provided
- Staff need training.
- The filter unit was, repaired in 1990 (welding the base plate)
- The filter unit showing signs of leakage at one side.

Conventional treatment works

- The flocculation channel overflows
- The filter units not operated properly

Dosing

- The dosing of chemicals not properly done

Compound

- Kept clean

Future extensions

- It was indicated that the design is to provide boreholes. This is in my view inappropriate.

3.7.4 Chemoge-Kapsakwony Gravity Scheme

- On-going
- Has three point sources (springs)
- All the three springs seemed to have low yield.
- Kapsakwony 80 m3/d (dry)
- Chemoge 150 m3/d
- Kongit 80 m3/d

Connections

- Communal points provided
- Individual connections proposed. This seems an ambitious goal despite the inadequate yield from the springs. A review of this goal would be a welcome move to arrest disappointment to the community at later date.

Management

- The scheme has three levels of management.
- Management committee
- Sub-locational committee
- Water point (tap) committee

The tap committee collects the money and passes all to the management committee. In view of the vastness of the scheme, it is recommended that some funds be retained at each level of management.

- Contribution Ksh. 5.00/month/man

Environmental Conditions

- The areas are steep. Hence lots of erosion, not due to the project.
- Need for the community to undertake corrective measures, e.g tree and grass planting, terracing.

- The community still hopes that the programme provide distribution lines to enable individual connections. The main aim for individual connections is to enable the community do livestock rearing and some small irrigation activities. There is need to review, these possibilities and advise the community (management committee) accordingly.

Observation

- At Chemuge spring, a communal water point is provided, and yet women could be seen or wadding in the mud to draw water from an unprotected point in a nearby source.

- The management committee need to educate their community on the inherent health risks.

Benefits

The community was emphatic on:

- The reduction of incidence in typhoid
- Livestock watering
- Some gardening
- Good quality and reduction in walking

3.7.5 Kakamega Water Supply

- Rehabilitated (On-going)
- Has three separate treatment works
- Two conventional giving combined production of 5,500 m3/d.
- Two struja units giving a combined yield of 1,200 m3/d.
- At the time of visit all pumps were in a working condition.
- The compound overgrown, and the treatment work components were all very dirty.
- The operator indicated the need to train a number of staff cadres to man the supply. These are:-
  - o Operators
  - o Pipe fitters
  - o Mechanics
  - o Electricians
  - o Welder

3.7.6 Mukumu complex

- built 1990 (institutional)
- This is outside the programme area, a DDC request.
- A borehole and pump house built
- Apparently was turned on, on 20/1/91 despite completion 4 months earlier.
- Operator/pipefitter has had no training yet.
- Will serve the Primary School also

- Served by Shitoli Water Supply - which is said to be unreliable.
- The institution cannot run the water supply as it is within the gazetted area of Shitoli Water Supply.

3.7.7 Sega Water Supply

- Source C-6154 - Built 1987
- Rehabilitated - earlier source was a nearby spring.
- Yield - low
- Has a submersible pump which pumps to an elevated 100 m3 tank.
- Rate Ksh. 2/65 - m3
- In working condition
- Has 170 connections
- Seems to be developing a high iron content
- Has taste/smell during rainy season

3.7.8 Amukura Water Supply

- On-going
- Source is borehole
- Yield said to be 150 m3/d
- To serve market, health centre, DO's office, mission complex (with 2 boarding schools)
- A ginnery
- Currently the source of water for all the above is a nearby stream. The health centre has a pumping piped scheme, which is often broken down. There existed long ago a pumped County Council water supply, long since out of operation.

3.8 Income Generation Activities

The Socio-Economic Section of the programme has tried to pay special attention to women group activities. Women groups have been encouraged to have vegetable gardens around the water points. Measures are needed and should be taken in order to support beneficiary women groups in income generating activities. Care should taken to work with the groups at their pace. Priority should be given to motivating and educating the communities about the programme. It should be appreciated that this is a slow process and there should be constant follow-ups to make the communities understand the programme and what is expected of them, and thus enhance their long term involvement.

It is however questionable as to what extent the KFWWSP can undertake auxiliary activities like income generation. As stated elsewhere a study to determine what auxiliary activities the Programme can undertake is recommended. The overall impact on sustainability should be the main objective of the study.

4 KFWWSP Organization and Management

4.1 Organizational Structure

The consultant (KEFINCO) has 4 departments, namely:-

- Community and Training
- Construction
- Operation and Maintenance and
- Planning and Design Departments.

The functions of each of the departments seem to be overlap in the workplans. There is need to streamline the operations of each department and to strengthen inter-departmental consultation and harmonize linkages. All planning activities need be done by the planning and design department. It may be useful to get a design engineer or redeploy one of the planning engineers and have the design section, to handle all matters and issues pertaining to design in the programme.

It will also be useful to place all issues of O & M under the O & M department. Rehabilitations and augmentation could best be handled in this section, while installation of hand pumps could best be done by construction.

Each of the departments need to work with the communities in issues pertaining to their respective disciplines. The community and training department need only prepare the communities to work with the other departments. Digging of wells up to groundwater level need to be supervised by the construction department, while the repairs of the handpumps is done by the operation and maintenance department. The current notion that it is only community department which can handle communities need to be discarded, as it overburdens the department. All the departments should work with the communities at appropriate times.

In order to synchronize activities, the planning and design department as well as the community department need to plan and execute their workplans a year a head of the construction department. This shall provide the communities with ample time to understand their roles and prepare themselves. The current practice pushes the communities very fast and they loose track of their involvement.

The workplans need to be staggered so as to give the planning and design as well as the community and training departments a one year lead time. This shall ensure that plans, designs are ready for implementation and the communities have adequate time to do land easement and other issues. This may call for the scaling down of construction activities over a two year period allowing 6 months lead time each time.

The district bases may wish to keep their identities to the programme. However staff working within each district may better be responsible to the District Water Engineer in their respective areas. It maybe useful to upgrade the position of the district base head to that of an engineer.

Strengthening the District Water Engineers establishment in order that they may assist communities manage the O & M of the point sources, may enhance efficient and effective management of the point sources.

The organization, staffing requirement, activities of the programme and their cut-off point need to be studied by an independent organ in order to bring them into focus. A management / technical consultancy may be a useful item to consider.

4.2 Institution Building

4.2.1 Pump Attendants / Repairmen

The use of women as pump attendant is paying dividends. This is a sustainable strategy as women are direct beneficiaries of any water development programme. The pump repairmen is too a good step. However, as there are very few pump breakdowns at any one given time, there is not enough business per location. Some of the repairmen are changing to local contractors to earn a living.

4.2.2 Extension Workers

The locational representatives who are currently receiving some allowance from the programme, still expect to be absorbed by the programme. It maybe useful to find ways and means of having them employed by the county councils and/or the relevant ministries.

Withdrawing them from the programme will definitely be a drawback in sustaining the community morale and motivation.

Logistical backup to the extension workers need to be streamlined, so that issues reported by the extension workers are dealt with quickly, otherwise communities start to loose confidence.

4.3 Planning & Construction of Water Points

The use for point sources, boreholes, dug wells and protected springs has gained popularity and acceptance in the programme area.

The success rate in drilled boreholes is encouraging in all the districts, with Bungoma having the lowest success rate of 68%.

Using gravity schemes need to be enhanced in order to cover those areas where they are feasible, and groundwater potential is limited.

The planning, design, construction, and O & M activities in the programme need to be geared towards merging into the organizational framework of the MoWD. The capacity of the MoWD to assist the communities in the O & M need to be built.

In the first two years of Phase III, a total of 865 new points were to be constructed. As at June 1990, a total of 484 new points had been constructed. This gives an achievement of 56% within 75% of the time.

The repair rate of the old water points is on the higher side. A total of 600 water points were repaired in the 1st eighteen months of Phase III, giving 124% of new point constructed over the same period of time. It maybe useful to scale down the construction activities somewhat in order to improve the quality of workmanship, design and supervision of the local contractors.

4.4 Operation and Maintenance

The activities of the O & M of the programme need to concentrate more on supporting communities on the O & M of the water points. Currently, the activities of this section seem to be more towards schemes operated by MoWD and undertaking activities that could better be handled in the planning and design department of the programme.

The O & M department needs to undertake seriously the development of capabilities the MoWD to respond to request for assistance by communities when the point sources and gravity schemes are finally handed over.

The task of preparing manuals for MoWD operated schemes need to be preceded by a comprehensive rehabilitation programme if the manuals have to be of use to the operators.

The issue of spare parts, a feasibility study has been done by the community department. A follow-up is necessary to bring the spare parts closer to the consumers. It is evident that the volumes of stock and their rate of utilization in any given location or division will be low for a long while to come. It may therefore be useful to bring the spares to the district level. Using women groups as an outlet for spares may be the immediate feasible alternative as commercial outlets may not find enough volume to stock.

4.5 Training and Manpower Development

Most of the training has been geared towards training on the job for the MoWD operators and attachment for practical training from various institutions offering courses in water technologies. Community training needs are enormous and have been assessed satisfactory. Training of water committees in relevant managerial skills, pump attendants, repairmen and the creation of awareness in the communities are good goals and will enable the communities, use, O & M the water supplies and thus contribute to the sustainability of the water points. The objectives for training at the programme level are not clearly stipulated. While the training for the MoWD staff is not linked to the main stream of the programme activities, namely water points. And very few persons in the programme have had training for better performance or in preparation for taking over from professional expatriates when they leave.

Locational representative receive some training through seminars, while pump repairmen and attendants receive some training to enable them undertake their duties. Local contractors too have received some training.

Practical attachments for field work for students from many institutions has attracted large numbers of students to the programme.

Overall training at lower levels seems satisfactory, while on the-job-training for professionals, Kenyan staff need to be intensified, so that the programme can create a critical mass of Kenyan personnel who can take over responsibilities whenever the need to do so arises.

4.6 Community Involvement

The inputs that the programme expects of the communities are realistic and the mode of getting these inputs from the communities seem adequate at the moment.

The issue of land easement is a time consuming exercise and efforts should be made by the programme to clear the backlog in this area.

The programme stipulates that income generating activities be started near water points. This raises the question of how much land, landowners can be reasonably expected to provide. The more important issue is that of the access road/path. This needs to be included in all cases of land easement.

4.7 Implementation support (Inputs)

4.7.1 Staffing

The programme document states that, after two years from the commencement of Phase III, the positions of all staff will be scrutinized and the proportion of Kenyan staff increased as much as possible.

The programme document further states that whenever an expatriate professional will leave his post, replacement by a Kenyan will be considered in the first place.

At the beginning of Phase III, there were proposed to be 14 expatriate staff in Kenya and 1 in the home office. This number was to reduce to 9 in the beginning of 1991. However, there were 14 expatriate staff at the end of the report period Jan-June, 1989, and this figure had risen to 15 at the end of the report period July 1989 to June 1990. This is contrary to the programme document.

The MoWD has seconded staff to the programme, of the planned 60 staff as at June 1990, only 37 had filled post. This situation deprives the programme of smooth efficient and effective implementation. Many activities have had to be rescheduled for lack of staff.

Recruitment either by secondment or directly and training of Kenyans so that they can fill posts held by expatriate staff whenever their contracts expire may contribute positively to the sustainability of the programme.

The posts of the Project Manager, Head of Construction and Home Office Coordinator may be the only three posts where the programme may need to keep expatriate staff for along time. The rest of the posts currently held by expatriate could be gradually taken on by Kenyan staff. A Kenyan understudying the system analyst need to be seconded to the programme as assistant system analyst which position is currently vacant. The other positions like those of head of planning, head of O & M, head of piped schemes, head of drilling, head of field investigation may be filled by Kenyans,as the MoWD has in its ranks officers with considerable experience in these areas.

4.7.2 Organization Chart

In the organization chart, the design activities are placed under planning and the position of design engineer is vacant. Design activities needs to be upgraded to a full section.

4.7.3 Resident Engineer

The office of the Resident Engineer was officially nominated by MoWD and took office towards the end of year 1989.

The current practice of paying local contractors, need to be reviewed to incorporate the approval of the Resident Engineer or District Water Engineer, so as to improve on the check and balances.

It may be useful to note that at any one time there maybe several points under new construction or being repaired. In order for the Resident Engineer to cope up with the actual supervision of the work going on, extensive travel is needed. This calls for qualified staff to be deployed under the Resident Engineer who doubles as Provincial Water Engineer, Western Province, this is more so that as the Provincial Water Engineer, Resident Engineer represents the Director Water in the programme area, and thus as a client he needs to check designs before they are implemented.

The Resident Engineer inspects water points before handing over to the communities. The long term sustainability of the programme calls for high quality work coupled with strict supervision of the local contractors, and the Resident Engineer needs to put more time in this activity. The arrangement is hoped to install checks and balances to take care of the interests of the MoWD (who may be said to be the client), employing Provincial Water Engineer as the Resident Engineer, KEFINCO employing employed by FINNIDA and MoWD as consultant-cum-contractor who is sub-letting some of the work to the local contractors and because they do not have qualified engineers could use the services of the Provincial Water Engineer to inspect their work.

It is hoped that these will give the beneficiaries (communities) good operational water points. The notion of looking at benefiting communities as the clients of the programme is misplaced, and tends to give the MoWD a low profile in the programme.

While financial costs (inputs) by MoWD maybe governed by allocations from the treasury, the MoWD needs to do all it can to ensure that its share of staffing in the programme is up to date.

4.8 Institutional Arrangements

The programme integration into the Kenyan organizational structure is of paramount importance in its long term sustainability.

- The district specific staff should report to the respective District Water Engineers who then reports to the programme.
- The locational representatives are of great help to the understanding of the programme activities by communities. Ways and means of getting them into permanency need to be explored.
- The strengthening of the capacities of the MoWD to cope with the O & M of the water points needs to be increased in line with the increasing number of water points in the districts.
- The integration/liaison with Lake Basin Development Authority (LBDA) need to be increased.
- The Primary Health Care Programme has a limited scope than the KFWWSP, and this contributes greatly to difficulties of cooperation.

4.9 Monitoring and Reporting

Work plans, budget timetables and reports timing need all to be synchronized to enable easy comparison of targets, costs and achievements.

4.10 Costs and Financing

The Review Mission to address itself to this component. No efforts were made by the survey team to solicit comments on it.

It maybe useful to consider providing itemized breakdowns of cost estimates to the respective districts for purposes of reporting to the respective District Development Committee.

4.11 Environmental Aspects

The programme has had very little negative impact on the environment. Once cattle troughs and washing slabs and bathrooms are provided at point sources, issues related to soil erosion will assume greater proportion and should be considered first.

5 Observation and Recommendation

The KFWWSP has made a positive contribution to the general improvement on the live of many people in the programme area. And in particular the easing of work load on women, which has led to the programme being regarded well. Many communities are eager to obtain services from the programme. The various discussions above contain most of the survey findings, however, a summary is given here to emphasize some of the findings.

5.1 The overall implementation success rate is very commendable and strategy adopted is suitable.

5.2 The reliance by the contractor on expatriate staff need to be reviewed in line with the programme document.

5.3 The training of Kenyan staff (either seconded or employed directly) is important in order to find ease replacement whenever expatriate staff leaves a position.

5.4 The secondment of MoWD staff to the programme need to be accelerated in order to reduce time losses on the programme activities, which lead to the programme not achieving its targets.

5.5 The district bases and programme staff in the districts should be responsible to the respective District Water Engineers. And the post of the Head of district base be upgraded to that of an engineer.

5.6 The quality of construction is not up to standard in many instances leading to many repairs. There is need for supervision and follow-up. There is also need for checks and balances to be built in. Agreed design standards on the programmes' part is essential. The RE,DWE and the communities need to have enhanced inputs into the improvements in physical facilities to enhance quality and sustainability.

5.7 The programme attitude needs to be changed from "provider" to "promoter." This will allow the programme swift emphasis from physical outputs to balanced hard/soft outputs. Allowing for individual (private) persons within the programme area to purchase handpumps may help create and increase the sense of ownership in the communities.

5.8 The role of KEFINCO as a Consultant has melted into a role of a contractor. This has led to dogmatic adherence to the programme document, and thus hampered the development of creative and innovative ideas within the programme outfit. KEFINCO as a consultant need be advising FINNIDA/MOWD on the changing focus with changing times in order to bring the programme activities abreast with peoples' wishes and aspirations.

5.9 The amalgamation of auxiliary activities into the water programme need to be reviewed to bring them into focus. A study to look into what auxiliary activities the programme can take without being heavily loaded and grounded need to be undertaken.

5.10 Some activities take a much longer time than others. Planning and design activities, as well as community participation procedures consume a lot of time. The programme needs to slow down the construction activities. This will give planning, design and community departments a one year lead. It will also give the communities ample time to consolidate their efforts to provide their required inputs.

5.11 It is recommended that all water systems developed (point sources, gravity schemes, and rehabilitated schemes), be handed over to the MoWD as a custodian, and promoter of water activities in the country, for coordination and management. The capacity of MoWD to cope with the need for technical advice and guidance need to be developed.

5.12 The water committees need to be registered as water undertakers.

5.13 The criteria of handing over need to be developed to incorporate good quality work, one year guarantee period, and a time limit within which a point source/gravity scheme must be handed over. This will allow for the collection of information on what aspects of community management need strengthening while the programme continues.

5.14 The current practice of land easement is commendable. However,it is a slow process. The programme need undertake special steps to clear the back log from previous years. All land easement must contain an access path/road to the water points.

5.15 The maintenance of handpumps require both spare parts as well as trained manpower. A distribution system for spare parts possibly to division level need to be worked out as a long term strategy. In the meantime decentralization to district level may suffice. A detailed feasibility study to determine if a local manufacturer could break if encouraged to venture into production of spare is recommended. It may be useful if the MoWD could start a handpump standardisation, as this would limit the types of handpumps used in the country.

5.16 Pump attendants for the ease of maintaining handpumps (Nira AF 85, and Afridev) are a sufficient arrangement. Some form of compensation need to be worked so as to keep their morale in the long run.

5.17 The technical options adopted by the programme are sustainable, replicable and easy to use, operate and maintain. Vigorous educational campaigns need to be undertaken to assist the communities in understanding that these technologies provide a level of service that is as good as piped water supplies and has a higher level of reliability. Gravity schemes need enhanced utilization. The design of the handpump draw-off sprout need to be reduced. The design of protected spring needs improvement.

5.18 The programme may wish to address itself to the question at what happens when a handpump breaks down, and how such a situation can be resolved. Two scenarios are possible, either

- Provide storage tank, which will call for some sophisticated pumping arrangement or
- Provide two point sources not too far apart to supplement each other.

The latter option is recommended. Even though it may influence maintenance negatively, it has the advantage of availing portable water regularly. Community understanding in the matter is vital.

5.19 The programme having extension workers who are not under any line Ministry or agency may not be sustainable. Extension services may be better rendered by relevant Government departments. The programme may wish to strengthen collaboration in this area. To help reduce the workload on the extension workers, women volunteers may be trained.

5.20 The role of women involvement in water and sanitation has always been advanced without adequate consideration of two important factors:-

- Does the involvement make the woman's task lighter or heavier?
- What has been the accepted/perceived/traditional role of the man in the provision of water for his household/family in the community/culture under review and/or development.

It is within knowledge that in certain cultures the availability of water in the vicinity of a family settlement is a man's responsibility. Keeping safe and care of that water source outside the home is the prerogative of the men singly and/or communally.

The drawing, use, and management of the water within the house is the woman's responsibility. Ascertaining and developing water sources on the principle that splits responsibility between the man and the woman may enhance sustainability better than the current notion where the man is almost divorced from the provision of water for his family.

In order to enhance equitable distribution of responsibilities and demands within the household, a study to find out the traditional role/thinking on domestic water issues at family level by the man and society need to be undertaken.

5.21 Criteria for improving water supplies need to be further developed to balance better between need (i.e. the number of people) and distance to enhance equitable distribution of physical improvements.

5.22 The need to institutionalize the selection procedure and solicit adequate consultations from the DDC's need to be increased.

5.23 The rehabilitation and augmentation of existing water supplies need to be enhanced.

5.24 With the approval of FINNIDA and MOWD, it will be well for the programme to cover the whole of Western Province so as to tie in with boundaries of the DDC's. Such expansion of the programme area calls for increased resource allocation. It may be useful to hand over Siaya to LBDA or develop a separate programme for the Nyanza Province.

Annex 1 - Questionnaire and Checklists

KENYA - FINLAND WESTERN WATER SUPPLY PROGRAMME

PHASE III

MID-TERM REVIEW JAN - FEB 1990

QUESTIONNAIRE

Part 1: GENERAL INFORMATION

Section A: GENERAL

DATE: NAME OF INTERVIEWER:
DISTRICT:
DIVISION:
LOCATION:
VILLAGE:
DISTANCE TO NEAREST TOWN: NAME OF THE NEAREST TOWN:
[[OBSERVE WHETHER ROAD IS PASSABLE DURING RAINY SEASON]]
MEANS OF TRANSPORT: Matatu, Bus, Motorcycle, Bicycle, other:
INFRASTRUCTURE WITHIN THE COMMUNITY: School: Nursery, Primary, Secondary, Youth Polytechnic
Other facilities: Gov't Office, Church, Dispensary, Cooperative Society, Women groups, Shops
What committees do exist in the village: assistant chief, school, dispensary, water, cooperative, women
Name any development programmes active in the village:

Part 1: GENERAL INFORMATION
Section B: SOCIO-ECONOMIC
Name of the head of the household:
Occupation of household head:
Educational level: Primary, Secondary, Tertiary
Sources of income for the household (men):
Employment: Casual , type of work
Permanent , type of work
Farming Fishing
Business , type of business
Other (specify)
Sources of income for the household (women):
Employment: Casual , type of work
Permanent , type of work
Farming
Business , type of business
Other (specify)
Does the household hire labour during any time of the year?
Yes No If yes, for what?
Crops grown and/or sold during the last growing season

	Tick	All sold	Some sold	None sold
Maize				
Ground nuts				
Sukuma Wiki Cabbage				
Tomatoes				
Beans				
Fruits				
Sugar cane				
Tea				
Coffee				
Other				

Type of livestock: Cattle, Goat/sheep, Other
Do you keep poultry? Yes No
Do you have a vegetable garden? Yes No
Education level of mother (if not household head):
Number of people in the household: adults:.... children:....
Number of children attending school: Nursery /Primary / Secondary / College / Polytechnic

OBSERVE TYPE OF HOUSING! Main building only

Wall	Floor	Roof	Ventilation	Kitchen
Brick	Cement	Grass	Windows	Separate or
Block	Earth	Mabati	No windows	or in the
Mud		Tiles		main house

PART 2. SOCIAL ARRANGEMENTS
SECTION A: COMMUNITY PARTICIPATION

Were there any awareness campaigns done before the system was constructed/rehabilitated? Yes/No
Was the Community involved in the planning stage? Yes No
Elaborate
Was the Community involved in the construction stage? Yes No
Elaborate
Were you involved in choosing the site for the supply?
Were women involved in the construction of the system?
And in what way?
Is the quantity of water sufficient for your need? Yes No
If no, what plans do you have to increase it?
Is the quality of the water good? Yes No
If no, why not:
Has the system been handed over to the community? Yes No
If yes, how was the handing over procedure?

Are there any conditions to be met before handing over? Yes No
If so, which:
Do you feel the conditions are too hard to fulfil? Yes No
If yes, what condition was the hardest to fulfil?
In what ways do you feel you have benefitted?
good quality, reduction in distance, quantity increased,
tastes better.
Since the water supply has been completed, did you find any time to get involved in other activities: Yes No

brick making / sand sieving / vegetable garden / farming / join women group / school / other

PART 2. SOCIAL ARRANGEMENTS
SECTION B: WATER USE/WILLINGNESS TO CONTRIBUTE

BEFORE THE WATER SUPPLY WAS CONSTRUCTED

Where did you collect your water from?
Who usually collected the water?
How long did it take to go there, fetch water and come home?
How many debes of water did you use in a day?
How did you collect the water? Foot / Donkey / Vendor
What was the water used for?

AFTER COMPLETION OF THE NEW WATER SUPPLY

Where do you get your water now?
Who collects the water?
How long does it take to go there, fetch water and come home?
How many debes of water do you use in a day?
How is the water collected?
What do you use the water for?
Do you pay for your water? Yes No
If yes, how much per month or per debe?
Who in the household is responsible for the payment of water?
Who actually pays for the water?
What do you think about the price of water? high, fair, low
Under what conditions would you consider paying more for your water?
When there is a breakdown in your system, what action do you take?
Where then do you collect your water?
Have you ever contributed money for any repairs? Yes No
When the money is collected, do you know what it is used for? Yes No
If no, have you ever bothered to find out?
Is the way you are contributing for the water system satisfactory to you? If not why?

Part 3: INSTITUTION BUILDING
Section A: WATER COMMITTEES

Name of respondent position
Does this water supply have a water committee? Yes No
If no, who manages the water supply?
If yes, name the committee members?
Chairman/chairperson
Secretary
Treasurer
Members
When was the committee chosen?
How many years are they expected to be in the committee?
How are committee members replaced?
How often does the committee meet?
Does the committee keep written minutes of their meetings? Yes No
How is the community informed about decisions?
Which committee members do not attend meetings regularly and why?
Were committee members trained by the Programme in:
management Yes No
bookkeeping Yes No
leadership skills Yes No
hygiene education Yes No
Does the treasurer keep records of income and expenses? Yes No
Are receipts issued for moneys received? Yes No
if not, how are individual record kept

NOTE: ASK TO SEE THE MINUTE BOOK AND THE FINANCIAL RECORDS

Where is the money kept?
Do representatives of other agencies attend committee meetings?
Ministry of Water Development Yes No
Ministry of Culture and Social Services Yes No
Ministry of Health Yes No
KFWWSP Yes No
What are the responsibilities of your water committee?
Arrange repairs Yes No
Pay attendant Yes No
Pay repair men Yes No
Collect money Yes No
Educate/Advise community Yes No
Maintain the water supply Yes No
Other
How does the committee collect money?
How did you decide on your water rates?
How much money does the committee have at hand at present?
Does everybody always pay in cash? Yes No
What are the other arrangements for paying?

What are the responsibilities of the water agency?
MOWD
KFWWSP
What rules and regulations govern your water project?
Name of attendant
How was the attendant chosen?
Is the project attendant trained? Yes No
Is the project attendant still living in the community? Yes No
Does the attendant perform the tasks to satisfaction? Yes No
Is the project attendant paid? Yes No
If yes, who pays him? Community / MOWD / KFWWSP / Other (specify)
If not, do you think the attendant should be paid?
Who does the repairs? Give names:
Is he/she trained? Yes No
Is he/she paid or employed? Yes No
Is the repair man still in the community? Yes No
Does he/she actually do the repairs? Yes No
Does the community pay for the repairs? Yes No
In the last six months, how much has been spent on repairs?
Was the money at hand or did it have to be collected?
How are the spares obtained?
What is the cost of spares? very costly, fair, cheap
Where are the spares bought?
Where are the spares kept?
On whose plot is the system?
Did the community provide the plot? Yes No
Was the owner of the plot compensated? Yes No

Part 3: INSTITUTION BUILDING
Section B: ATTENDANT/REPAIR MAN
Name of respondent Indicate main occupation:
Does this water supply have a water committee? Yes No
What do you do when the system breaks down?
How often do MOWD/KFWWSP staff visit the project?
What do they normally come to do?
How do you find their visits? useful /desirable /unnecessary
Are you paid? Yes No
Are you satisfied with the arrangements?
What support do you get from the water committee?
Are you trained? Yes No
Do you feel the training was adequate? Yes No
Any comments:

PART 4. TECHNICAL ARRANGEMENTS - Boreholes/Wells
Borehole/Well no. : Year of construction:
Yield: Yield in debes per one minute testing.
Does the borehole/well fall dry during the year?
Depth of borehole: Water level at rest:
Number of households served:
Type of pump: NIRA 76, NIRA 85, AFRIDEV, INDIA MARK II,
other (specify) Date fitted

Is the pump working? Yes No
if not, why:
Any damage to be seen on the pump? (specify)
Does the pump break down often?
When did it last break down?
How long did the breakdown last? why:
Are there any cracks on the wellhead? Yes No
Are there any cracks on the apron Yes No
Is the construction quality up to standard? Yes No
Is drainage well constructed? Yes No
Is drainage well maintained? Yes No
Do inadequacies on any of the earlier components seriously endanger the functioning of the borehole/handpump or well.
Is the site clean? Yes No
Who cleans the well site?
How often is the site cleaned?
Is the site fenced? Yes No
Is erosion evident around the site? Yes No
Are livestock drinking troughs provided? Yes No
Are washing slabs provided? Yes No
Are trees planted around the site? Yes No

PART 4. TECHNICAL ARRANGEMENTS - PIPED SCHEMES

Name of scheme Name of operator
Year of construction: Or rehabilitation:
Yield: Yield in debes per one minute testing
Name of area served: Type: rural urban
Number of households served:
Type of scheme? Pumped Gravity
Type of pump? Electrical Solar Diesel
Treatment:

Coagulation	Yes	No
Sedimentation	Yes	No
Filtration	Yes	No
Chlorination	Yes	No

[IN CASE OF PUMPED SYSTEMS ANSWER FOLLOWING QUESTIONS]
Is the pumping equipment operational? Yes No
Does the pump break down often?
When did it last break down?
How long did the breakdown last? why:

Who operates and maintains the scheme:
MOWD
KFWWSP
Community
Other (specify)

Are there individual connections? Yes No
Are they metered? Yes No
Are there communal water points? Yes No

Is the area around the waterpoint clean? Yes No
Who cleans the site?
How often is the site cleaned?
Is erosion evident around the site? Yes No
Are livestock drinking troughs provided? Yes No
Are washing slabs provided? Yes No
How much are the water charges: individual: KSh
communal: KSh
Where are the charges paid:
Project site --
District H/Q --
Other (specify) --
How are spares acquired?
Where are the spares kept?
Is the compound tidy?
Is the compound fenced? Yes No

PART 4. TECHNICAL ARRANGEMENTS - SPRING PROTECTION

Name of the spring/number: Name of operator
Yield: Yield in debes per one minute testing
Year of construction:
Number of households served:
Has the spring box been constructed properly? Yes No
Observations: Leaks
Cover
Pipe fittings
Accessibility
Drainage
Is the area around the spring clean? Yes No
Who cleans the site?
How often is the site cleaned?
Are livestock drinking troughs provided? Yes No
Are bathrooms provided? Yes No
Are washing slabs provided? Yes No
Do people contribute money for the maintenance, if so how much:
Is the area fenced? Yes No
Is the drainage properly constructed? Yes No
Is the drainage properly maintained? Yes No
Is erosion evident around the site? Yes No
Were many trees cut down during construction? Yes No
Is any tree nursery started at this site? Yes No

CHECKLISTS
SECTION A: SANITATION/HYGIENE

For the Interviewer to Observe:

1) Does the household have a latrine? Yes No
   If yes,indicate type: traditional, VIP, Pour Flush, other
   check the condition: floor
   walls
   roof
   cleanliness
2) Does the household have a bathroom? Yes No
3) Is the area around the house clean and well maintained
   proper drainage, no stagnant water, etc?

4) Observe how villagers store their water.
5) Ask for a drink of water. Assess possible contamination.

CHECKLISTS
SECTION B: PROJECT STAFF

1) What are your responsibilities?
2) What were your targets?
3) What constraints?
   (I) resource allocation
   (II) transport
   (III) adequate delegation of responsibilities
   (IV) clear description of roles, etc...
4) Do you feel you are adequately trained to meet your responsibilities? Do you need more training? In which area?
5) Do you find your work in this Programme satisfying?
   [job satisfaction, working environment]
6) How do you think you can overcome these constraints and problems?

CHECKLISTS
SECTION C: GROUP DISCUSSION (WOMEN):

Has a dialogue been established with women, either direct or through ensuring that women are present at all meetings concerning the programme?
Do women participate in planning meetings at village level, in implementation, in evaluation?
Are women given equal access to training programmes?
Are women given positions of leadership in the programme?
   -at what levels?
   -involving what responsibility?
   -are women given adequate preparation for new tasks?
   -is new technology involved?
   -how well do women manage the position?
Has there been a reduction of the work load?
Is women's involvement in community development more accepted at community level as a result of their involvement in the programme?

Do women utilize the improved sources? If not why?
In what ways do women feel they have benefitted?
Do women feel their involvement has been satisfactory?
Do women have any suggestions for positive changes in the programme?
Who manages water as a resource?
Time budget information on collection, management and use of water by women.
What is the relation of this work to the other work-loads of women?
Who is responsible for O & M? In what ways?
In what ways do women & men contribute to ensure cost recovery?
Does the inclusion of women alongside men have implications for other areas of community life?
In women's perception has this increased their status in household and community.
Are women involved in leadership roles?

What roles do men & women have in water committees?

CHECKLISTS
SECTION D: HEALTH AGENT

How many villages are you responsible for?
How frequently do you visit the villages?
How do you go to the villages?
What is your major constraint in carrying out your duties?
How do you communicate with your head office?
What do you think the villagers appreciate most about you work?
Are there village health committees? Yes No
If yes, how do you relate with them?
If no, what is your entry point into the village?
What changes have you noticed in the village since you began health education?
Do you discuss primary health care issues related to drinking water, drainage, vector control and sanitation during your visits?
In your work do you liaise with the KFWWSP project
In your opinion, what are the major diseases in this village.
On what data do you base your statement.
[[COLLECT DATA FROM DISPENSARY]]

Annex 2 - Point Sources Visited and Field Survey Schedule

BUSIA DISTRICT

AMAGORO DIVISION

LOCATION	SUB-LOCATION		DATE
N.Teso	Angurai	C7530	17.1.91
		BS 484	
		SP 563	
	Modeng	C7524	18.1.91
		BS 481	
		SP 562	

AMUKURA DIVISION

LOCATION	SUB-LOCATION		DATE
S. Teso	Apokor	BS 1	20.1.91
		SP 572	
		C5986	
W. Teso	Asinge	BS 453	21.1.91
		C 8804	
		SP 580	
	Chakol	BS 470	22.1.91
		BS 4	
		SP 593 (not on the ground)	
		BS 488	

NAMBALE DIVISION

LOCATION	SUB-LOCATION		DATE
C. Bukhayo	Kisoko	C7547	23.1.91
		BS 643	24.1.91
		SP 160	
		BS 500	
		SP 603	
Busia Township	Busia Town	C8780	25.1.91
		C3391	
		C3926	
E. Bukhayo	Buyofu	SP610	26.1.91
		SP 99	
		BS454	
		BS503	27.1.91

* Number on well slab

BUTULA DIVISION

LOCATION	SUB-LOCATION		DATE
C. Marachi	Bukhalalire	BS 571	28.1.91
		C6439	
		SP707	
		C8016	
		BS132	
	Kingandole	SP704	29.1.91
		C 6409 (C5319)*	
		BS 463	
		SP 962	
E. Marachi	Elukhari	BS 582	30.1.91
		C6432	31.1.91
		SP719	

BUDALANGI DIVISION

LOCATION	SUB-LOCATION		DATE
E. Bunyala	Mudembi	BS 24	25.1.91
		BS 533	26.1.91
		BS 27	
		BS 532	
S. Bunyala	Lugare	BS 10	27.1.91
		BS 11	
		BS 527 (BS517)	
W. Bunyala	Bulemia	BS 17	28.1.91
		BS 549	
	Sisenya	C 7941 (C7943)	28.1.91

FUNYULA DIVISION

LOCATION	SUB-LOCATION		DATE
N. Samia	L-Bukhululu	C7894	29.1.91
		C8592	
		C7901	
S. Samia	Butabona	C7906	30.1.91
		C9707	31.1.91
		BS 437	
		BS 436	
		C7906B	
	Sigalame	C7912	
		C7921	

* Number on well slab

BUNGOMA DISTRICT

KANDUYI DIVISION

LOCATION	SUB-LOCATION		DATE
Bumula	S. Myanga	SP 141	17.1.91
		SP 518	
		SP 515	
		SP 516	
N. Bukusu	N. Nalondo	BN 21 (C8533)*	18.1.91
		BN 27	
		BN 24 (C8609)*	
Kanduyi	N. Kanduyi	BN 62	19.1.91
		BN 100	
		BN 138 (BN128)	
		C 8565	20.1.91
		C 6105	
		C 8775	21.1.91
		C 6176 (C6106)	

SIRISIA DIVISION

LOCATION	SUB-LOCATION		DATE
Chwele	Chwele	C 6121	22.1.91
		BN 80	
		BN 82	
Lwandayi	Chepkuy (Chepyuk)		
		C 8401 (C8396)	23.1.91
		BN 129	
		BN 130 (BN135)	

CHEPTAIS DIVISION

LOCATION	SUB-LOCATION		DATE
Cheptais	Chepkube	BN 83	
		BN 136	24.1.91
		C 6391	25.1.91
		C 6392	
	Cheptais	BN 87	26.1.91
		C 8393	
		SP 107 (SP107)*	
Kopsiro	Chepyuk	SP 869 (SP497)	27.9.91
		SP 876 (SP498)	
		SP 872 (SP499)	

* Number on well slab

KAKAMEGA DISTRICT

MALAVA DIVISION

LOCATION	SUB-LOCATION		DATE
C. Kabras	Malava	C7068 C8588 (C8583)* KA477	17.1.91
S. Kabras	Chesero	KA 451 KA 11 SP 855 C 5121	18.1.91
W. Kabras	Lukume	SP 60 SP 716 C 7466 (C7092)*	19.1.91

LURAMBI DIVISION

LOCATION	SUB-LOCATION		DATE
Bunyala	Budonga	C8006 SP 797 KA 326	20.1.91
	Namirama	C 7489 KA 423 SP 15	21.1.91
N. Butsotso	Ingotse	C7031 C5123 SP 7 KA 240	22.1.91

MUMIAS DIVISION

LOCATION	SUB-LOCATION		DATE
C. Mumias	Ekero	KA 395 KA 417 C 5957	23.1.91
	Lureko	KA 408 C 8539	24.1.91
	Mumias	C 8010	24.1.91
E. Wanga	Eluche	SP 776 SP 362	25.1.91

* Number on well slab

	Muganga	SP 789	26.1.91
		KA 436 (C5153)	
		KA 436 not found on the ground.	

SIAYA DISTRICT

UKWALA DIVISION

LOCATION	SUB-LOCATION		DATE
E. Ugenya	Jera	C6452B	17.1.91
		C6454	18.1.91
		SP 50	
		SP 223	
		SP 232	
N. Ugenya	Sega	SI 65	19.1.91
		SI 213	
		SP 693	
		SP 71	
Ukwala	Simuru	SI 45	20.1.91
		C7476	
		C7478	

UGUNJA DIVISION

LOCATION	SUB-LOCATION		DATE
S. Ugenya	Ambira	C6474	21.1.91
		SI 23	22.1.91
		SI 140	
		SP 268	
Uholo	Sigomere	C 8783	23.1.91
		SP 682	
		SI 39	
		SP 155	

* Number on well slab

PROGRAMME/TIMETABLE - FOR THE SUPERVISORS/CONSULTANTS

Date	Supervision	Group Discussion	DWE's	Piped Schemes	Income Gen.	Dispensaries	Remarks
21.1.91	Kanduyi I.O/P.I	Kanduyi N. Nalondo Sikusi Church P.I	Bungoma I.O.	Chwele W/S Kutere W/S I.O.	N/A	Chwele H/C I.O	Proceed to Kakamega
22.1.91	Ingotse P.I/I.O	Lukume P.I/I.O Shikhome Church	Kakamega I.O	Mukumu W/S I.O	N/A		Proceed to Siaya
23.1.91	Sega P.I/I.O	Jera I.O Jera Church	Siaya I.O	Sega P.I	Sega P.I		Proceed to Busia
24.1.91	Nambale I.O/ P.I	Asinge Asinge Market PI/I.O	Busia I.O	Amukura I.O		Amukura H/C	BN
25.1.91				Kapsakwony W/S Webuye W/S			KA
26.1.91	In Kakamega - report writing						
27.1.91	In Kakamega - report writing						
28.1.91	In Kakamega I.O Receiving Questionnaires	Buyofu P.I/ Lwanikha Pr. School.					
29.1.91			Project staff				

30/1/91 - Analyzing Questionnaires
31/1/91 - Analyzing Questionnaires
1/1/91 to 4/1/91 - Report writing
5/1/91 - Presentation of draft report (summary)

GROUP DISCUSSION PROGRAMME

DISTRICT	DIVISION/ LOCATION	SUB-LOCATION	DATE
1. Bungoma	Kanduyi/ Kanduyi (BN 21, BN 27, BN 24)	N. Nalondo	21.1.91
2. Kakamega	Malava/W. Kabras (SP 60, SP 716, C 7466)	Lukume	22.1.91
3. Siaya	Ukwala/E. Ugenya (C 6452B, C6454, SP 50, SP 223, SP 232)	Jera	23.1.91
4. Busia	Amukura/W. Teso (BS 453, C8804, SP 589)	Asinge	24.1.91
	Nambale/ E. Bukhayo (SP 610, SP 99, BS 454, BS502)	Buyofu	28.1.91

* Number on well slab

Annex 3 - Photographs

Annex 4 - Maps

(Attached to envelope at the end of document)

Annex 5 - Terms of reference

MINISTRY FOR FOREIGN AFFAIRS OF FINLAND
Finnish International Development Agency
Bureau for Social Development

29.11.1990

TERMS OF REFERENCE FOR THE MID-TERM REVIEW OF KENYA-FINLAND RURAL WATER SUPPLY DEVELOPMENT PROJECT IN WESTERN PROVINCE OF KENYA, PHASE III

1. Background

The governments of Kenya and Finland have agreed that within their development co-operation programme one of the key sectors is water supply and sanitation.

Kenya-Finland Rural Water Supply Project in Western Province of Kenya was initiated in 1981. The project has now proceeded to its third phase covering the years 1989-92.

The agreement between the Government of Finland and the Government of Kenya concerning the Kenya-Finland Western Water Supply Project, Phase III, was signed in Nairobi on 10th March 1989. The competent authorities of the two Governments for the implementation of the Project are the Ministry for Foreign Affairs of Finland represented in Finland by the Finnish International Development Agency (FINNIDA) and in Kenya by the Embassy of Finland in Nairobi and the Ministry of Finance of Kenya. In matters pertaining to the substance of the Project and not affecting overall responsibilities of the Government of Kenya, the Ministry of Water Development has the right to represent the Ministry of Finance. The project is executed by the mutually selected consultant KEFINCO.

The Phase started its operation on 1 January 1989. The Project extends partially over four districts: Kakamega, Bungoma and Busia in Western Province and Siaya in Nyanza Province. The total population within the project are (5230 km2) is estimated to be around 1.7 million people in 1990.

The overall objective of the Project is to improve the water supply situation in the project area in order to achieve an improvement in general health and economic development. The more specific objective of the Project during the four year phase is to consolidate the existing water supply facilities and provide 400.000 additional inhabitants with safe, sustainable water supplies.

The Project has been divided into five main sectors:

* Water supply development
* Physical improvements
* Operation and maintenance
* Training and manpower development
* Community involvement

Each sector has been given development objectives and each sector has been divided into several components. In order to achieve the development objectives the outputs of the components will be measured by given indicators.

2. Purpose of the review

The main purpose of the review is to assess and analyse the progress made during the first half of the phase III, identify the problems and deficiencies in the plans, approach and strategy of the Project and to prepare detailed recommendations for future actions to be taken.

3. Scope of the work

The Mission shall make a thorough assessment of the targets, plans, approach, strategies, activities and results of the Project and give detailed remedial recommendations, if needed. The review shall particularly assess progress made and future strategies for institutional development and community participation, training and manpower development, and cost recovery in both community and MoWD operated schemes/point sources. In the review the mission shall cover, but not necessarily be limited to the following aspects:

3.1 Objectives of the Project

Have the objectives of the Project been realistic and appropriate?

To what extent has the Project achieved, or is likely to achieve objectives indicated in the Project Document?

How should they be revised, if necessary, in order to be more feasible?

3.2 Project strategy

Is the strategy chosen appropriate for the achievement of the objectives? How should it be revised, if needed?

Has the strategy been followed in project implementation? What measures should be taken in order to improve project performance?
Special consideration should be given to:

- integration of the Project to the organization of the Ministry of Water Development (MoWD) and of other relevant Kenyan organizations;

- strategy developed and support given to community involvement, and measure needed and taken in order to support beneficiary groups in income generation, especially women's groups;

- strategy in the development of the capabilities of MoWD; emphasis laid on development of production, operation and maintenance, management of water supplies and manpower?

3.3 Institution building

Are the targets feasible, and how should they be revised and improved, if necessary?

What measures should be taken to improve the performance?

Progress made in the following issues should particularly be assessed:

- development of the planning and monitoring and supervision systems of MoWD;

- development of an effective transport system;

- development of the management of stores and workshops.

3.4 Planning and construction of new and rehabilitated water points and piped water schemes

Have the targets been feasible considering the available resources? If not, how should they be revised?

Have the targets been feasible considering the available resources? If not, how should they be revised?

Have the outputs been achieved satisfactorily? Which measures should be taken to improve performance?

Special consideration should be given to:

- quality and applicability of studies on new and rehabilitated piped water schemes. Has the socio-economic and operational feasibility of the scheme been considered sufficiently?

- development of point source production methods and procedures;

- development of planning capacity in MoWD;

- appropriateness of the used technology.

3.5 Operation and Maintenance

How feasible are the targets set for development of operation and maintenance capacity in MoWD? Which revisions should be made, if required, to the targets?

Have the outputs been achieved successfully? If not, which remedial measures should be taken?

Special consideration should be given to:

- appropriateness of the community based systems for operation and maintenance of hand-pump wells. What should be the role of MoWD in support of communities?

- development of the O&M system of community operated water supplies. Are the procedures, manuals, management systems, financing and sparepart system appropriate? How should these systems be further developed?

- appropriateness of the O&N system of MoWD operated water supplies;

- quality of O&M procedures and manuals? Are the operators able to use the manuals and operate and maintain the equipment effectively? How could availability of spareparts be ensured?

3.6 Training and manpower development

Have the targets been realistic and appropriate? How should they be revised, if required?

Which measures should be taken in order to improve project performance?

Special consideration should be given to:

- appropriateness of the training and assessment?

- have the manpower recruitment and development policies of MoWD been taken into account properly?

- are the training materials and methods used applicable to the trainees and the skill development needs?

- involvement of the Kenyan training and educational institutions in preparation and execution of the training programmes?

- training to strengthen community based management and local government involvement?

- training for communication and extension?

- hygiene education and cooperation with the Kenya-Finland Primary Health Care Project and MoH and other relevant agencies?

- is the training system developed replicable and sustainable?

3.7 Community involvement

- feasibility of the objectives and approach in community involvement and progress made in implementing the project in such a manner that it relies on beneficiary participation in planning and execution of the project;

Special consideration should be given to:

- realistic level of community involvement in the operation, maintenance and management of water supplies in the long run considering the prevalent outmigration, women's workload versus time gains, water rights, legal status of the project and its management, etc.;

- considering women's active involvement in the project, how does it affect their workload, economic responsibilities in the household, interhousehold decision making, and what can be assumed of the change in their status in their households and wider communities?

- is the organizational set-up in community involvement appropriate and effective? How should it be further developed in order to achieve long-term sustainability?

- what should be the supportive role of different authorities and organizations?

- to what extent does the cost recovery system operate, and how could it be further developed?

3.8 Inputs

Have the inputs allocated been sufficient in order to achieve the targets set? Have they been used in a cost-effective manner?

Have the inputs of both the Finnish and the Kenyan contribution been supplies as planned and as needed?

3.9 Institutional arrangements

Are the institutional arrangements and cooperation between different bodies effective and smooth and have the roles and responsibilities been defined properly?

To what extent is the project integrated into the Kenyan organizational structure, particularly into the MoWD? How could long-term institutional sustainability be achieved?

Have the Kenyan administrative and decision making practises been taken into account properly?

How should the management of the project be improved and the institutional framework revised?

Has the project been satisfactorily integrated into the other rural development activities in the districts concerned? How should the integration be further developed?

3.10 Monitoring and reporting

Are the monitoring and reporting systems effective and appropriate considering the Kenyan and Finnish needs?

How successfully has the monitoring and reporting systems served as basis for planning and as a management tool?

3.11 Costs and financing

Are the targets being achieved cost-effectively? Has the cost-control system been appropriate and effective?

Have the funds been made available sufficiently and smoothly enough by the Kenyan and the Finnish authorities in order to ensure effective performance of the project? Has the project taken measures needed for timely fund-allocation?

Are the financial inputs provided by Finland sustainable in the long run without foreign financing?

What is a realistic frame for the further development?

3.12 Environmental aspects

Have any harmful environmental impacts occurred as a result of the project? In case of negative impacts, which remedial measures should be taken?

How could the project be used for the development of sustainable environmental conditions?

4. Composition of the team

A Kenyan subconsultant to the Mission shall work at the beginning of the review as a collector and assessor of information. This team shall be composed of two experts, a rural water supply engineer and a socio-economist, who will carry out sample surveys of the projects completed and under construction and do field surveys. Four local survey teams shall be recruited to assist them.

The Mid-term Review Mission proper shall consist of the following aspects:

- rural water supply expert with experience in O&M, sanitation and resources coverage:

- water supply expert with experience in institutional development, HRD and project organization;

- community based management expert with experience in gender and socio-economic issues.

The Government of Kenya is invited to nominate two members to complete the team. It is proposed that the Kenyan members would cover the following fields:

- MoWD representatives, in the field of engineering, with experience or responsibilities in either design or operation and maintenance;

- an expert (possibly from the local government or an NGO) with background in community mobilization or rural development.

5. Timetable and reporting

The mid-term review shall take place between the 10th of December 1990 and the 11th of February 1991.

The Mission shall prepare a brief of its findings and recommendations already in Kenya and discuss it with the Kenyan authorities and the Embassy of Finland. The review report shall be submitted to FINNIDA no later than by March 10, 1991, and FINNIDA will send it to the relevant Kenyan authorities for comments.

6. Authorization

Although the mission is entitled to discuss with the authorities concerned any matters relevant to its assignment, it is not authorized to make any commitments on behalf of the Government of Finland.

signed by

Glen Lindhom
Director
Bureau for Social Development