



MINISTRY OF WATER DEVELOPMENT, KENYA
MINISTRY FOR FOREIGN AFFAIRS, FINLAND

**KENYA – FINLAND
RURAL WATER SUPPLY DEVELOPMENT
PROJECT IN WESTERN PROVINCE
OF KENYA**

REPORT ON THE FEASIBILITY STUDY ON
DECENTRALIZATION OF THE DISTRIBUTION
SYSTEM OF PUMPS AND THEIR SPARE PART

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REPORT ON THE FEASIBILITY STUDY ON
DECENTRALIZATION OF THE DISTRIBUTION
SYSTEM OF PUMPS AND THEIR SPARE PARTS:

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SOCIO-ECONOMIC SECTION

MARCH 1990.

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1. ACKNOWLEDGEMENTS

In carrying out this important task of looking into the viability of the decentralization of the distribution system of pumps and their spares, many individuals were of great assistance in providing information and in many instances took the time to discuss with us what we set to undertake.

This has been an original and in many ways a unique approach of the bringing into being of an activity which is of such importance to the community.

We wish to take this opportunity to thank all those who helped in one way or the other for the intense effort which they put into this task and for the great patience and understanding which they displayed in dealing with people who were kept busy, while on the job, learning about their fascinating country side. They turned what might have been a routine assignment into an exciting and rewarding experience.

First and foremost we wish to record our personal appreciation to the Head of Operation and Maintenance Section Mr. Mohammed Asman, for finding the Socio-Economic Office worthy of conducting this feasibility study. They provided us with vital information consisting of data on pump breakages and repairs which proved a good basis for the study to commence.

We feel that Ms. Julia Kunguru, Head of the Community and Training Department under which our Section falls should be specially thanked. Her guidance and wisdom not to forget the great encouragement she gave us all along was our greatest source of inspiration. This report would never have been complete without her help.

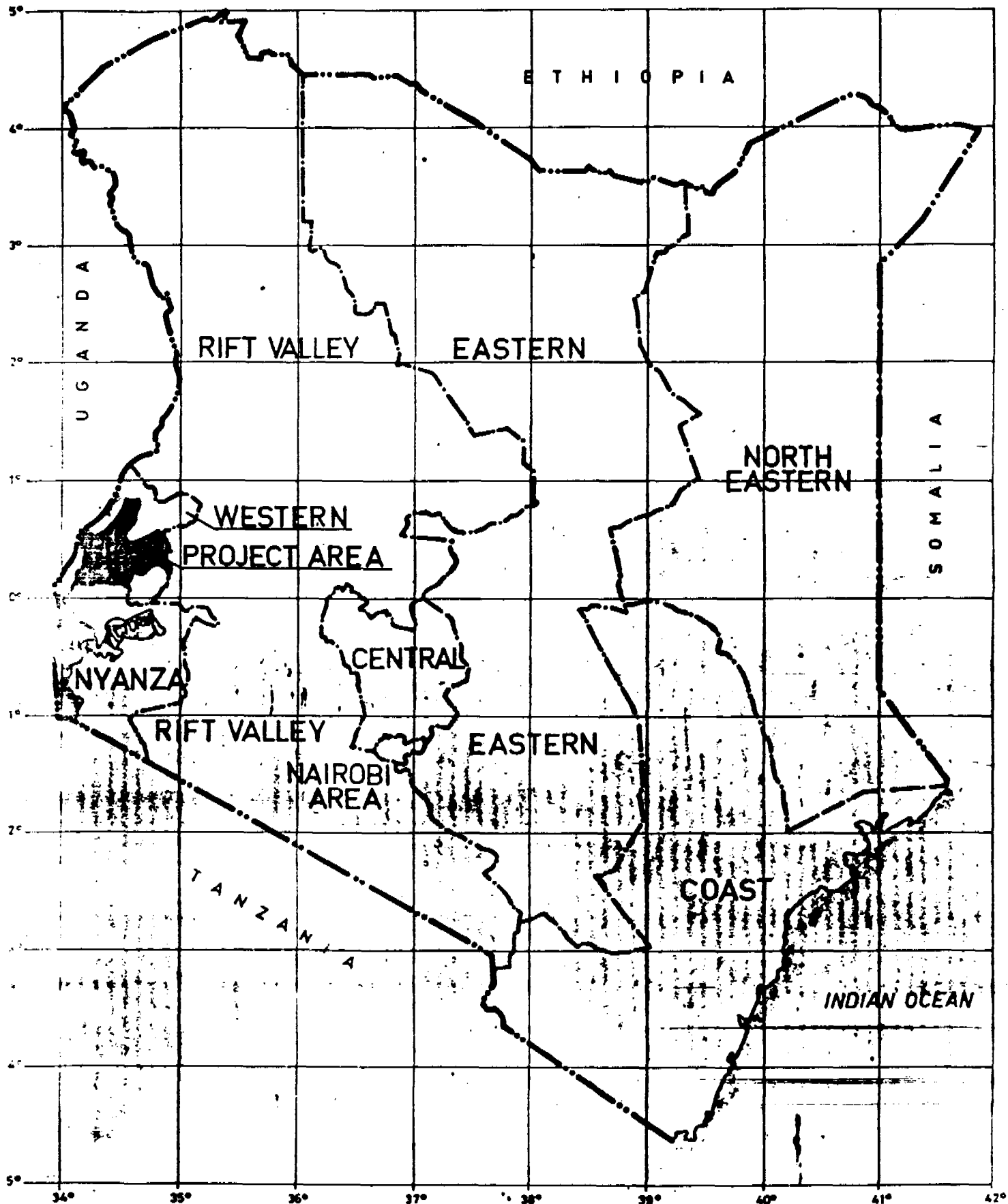
Special mention is also made of the following:

Ms. Brenda Rakama, Head of our Socio-economic Section, who was our source of inspiration, Mr. Reijo Hakkinen, Head of Training Section, and Mr. Timo Tuominen, the Project Manager for availing maps of the Programme Area. We also thank all the District Base Heads in the Programme Area, all the District Trade Officers in the Programme Area, the respective Chiefs, Community Development Assistants, Locational Representatives of KEFINCO and many other officials who provided a lot of useful back ground information and material and who cheerfully went back to secure additional information whenever it was asked for. Their commentaries proved to be of immense assistance and the sound advice which we have received has made it infinitely easier for us to arrive at what we believe are sound recommendations and conclusions.

Lastly, we would like to express a word of personal appreciation to the drivers who looked after us during the study. He was very much a part of the team and his cheerful greeting at the start of each new day helped to ensure that much would be accomplished before the exercise came to a close.

JACKTON SIKA.

MARCH 1990



SOURCE OF INFORMATION
National Atlas of Kenya, 1970

50 0 50 100 150 200
Scale Kms

LEGEND

- PROJECT AREA BOUNDARY.....
- PROVINCIAL BOUNDARY.....
- DISTRICT BOUNDARY.....
- LOCAL BOUNDARY.....
- MAJOR TOWN.....
- FOREST.....
- INTERNATIONAL BOUNDARY.....
- AREAS COVERED BY THE STUDY.....

10 km

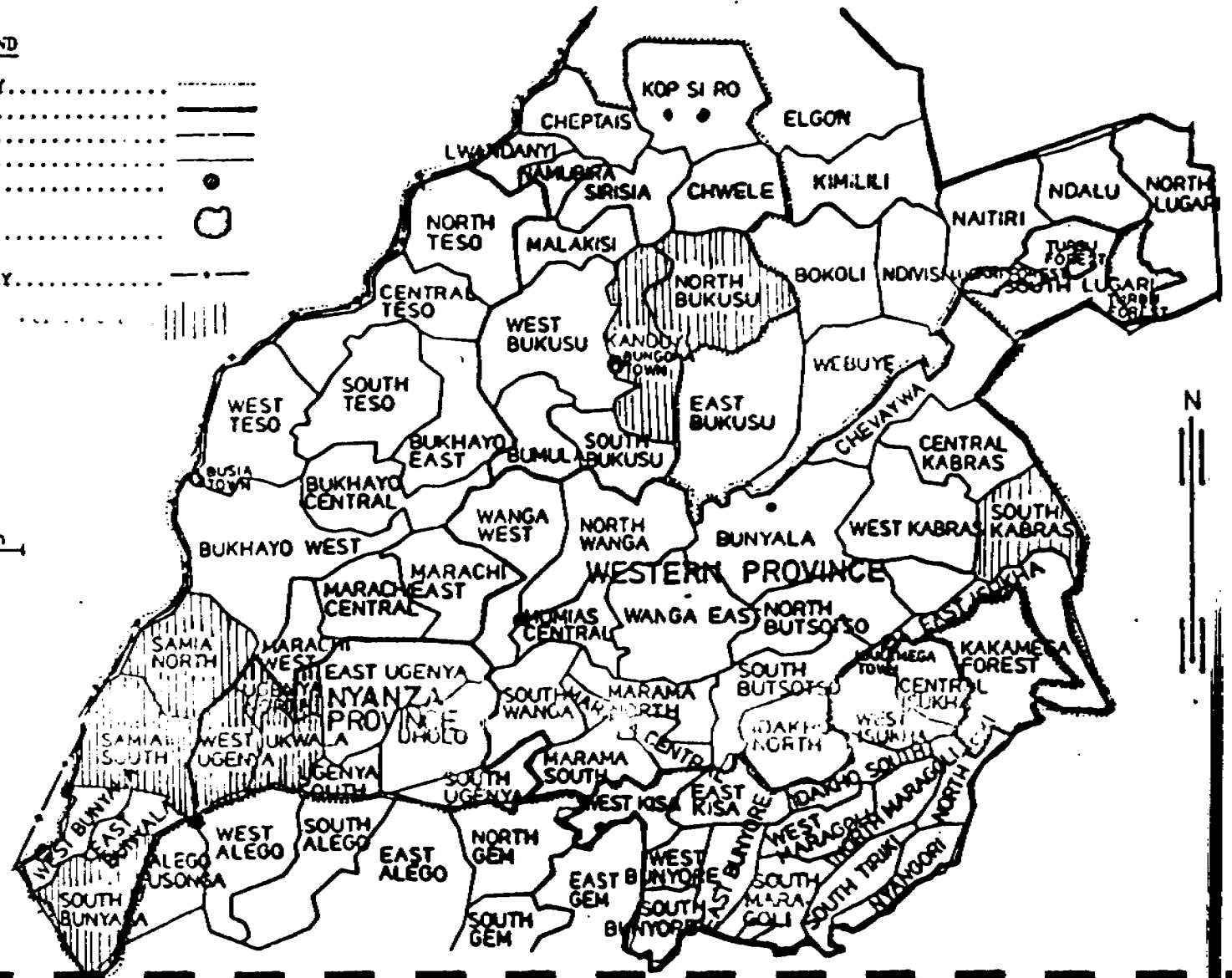


Fig. 2.1

LEGEND

- PROJECT AREA BOUNDARY.....
- PROVINCIAL BOUNDARY.....
- DISTRICT BOUNDARY.....
- LOCATIONAL BOUNDARY.....
- MAJOR TOWN.....
- FOREST.....
- INTERNATIONAL BOUNDARY.....

PUMP TYPES

- NIRA AF 96
- NIRA AF 85
- AFREDEU
- INDIA MK II

10 km

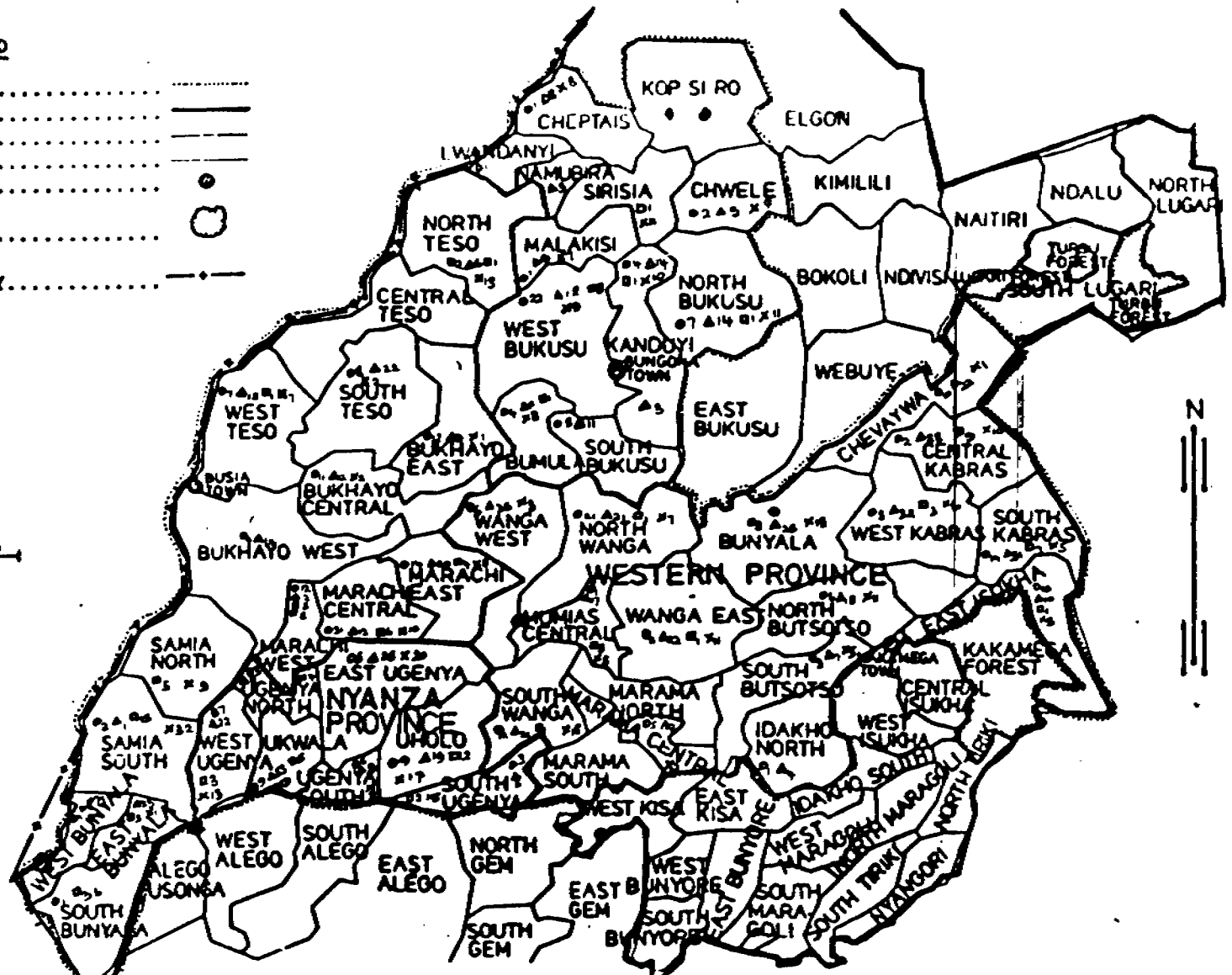


Fig. 2.1

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ii INTRODUCTION

The number of water supply systems in developing countries is expanding. Operation and Maintenance of these systems is unfortunately lagging behind and is now recognised as a bottle-neck for long-term success.

As a framework for the present study, the following definition for maintenance has been formulated; A maintenance system for rural water system is a semi-antonomus organizational and financial structure in an appropriate institutional framework. The system has to ensure and monitor performance of water supply system in a clearly defined geographical area on the basis of agreed standard.

Maintenance problems are reported to have occurred in many handpump programmes. (Hessing et al, 1984, Baldwin, 1984, UNICEF, 1985, Hufkes, 1982, Bannesman, 1986). Most reports point out at lack of a proper distribution system of spare parts as a hinderance to operation and maintenance of pumped water supply systems.

Summary of maintenance problem in existing water supply system is shown below for wells with water pumps:

- Lack of repair capacities and spare parts particularly in the long-run.
- Poor organizational structure
- Poor revenue collection
- Lack of preventive maintenance
- Inadequate pump selection

The Programme identified the following problems affecting their operation and maintenance of water pump systems in the programme area:

- Poor revenue collection
- Lack of a proper spare part distribution system
- Delay in revenue collection
- Defaulting in revenue collection
- Delayed information on pump breakages

If the water supply becomes inoperative, the community is bound to suffer.

Furthermore if the water supply scheme was constructed with help from the community, whether in kind or money, the people will probably view the breakdown of the supply as evidence that the contribution is wasted.

It is likely that they will be unwilling to further co-operate with the water supply agency or government.

The above factors are difficult to analyse from a strictly economic point of view. However, experience shows that installations remaining out of order for more than a four days are likely to suffer from pilferage and vandalism. It is not unusual that equipment is stolen from them.

Therefore not only the inconveniences and health hazards of inoperative small water supplies should be considered but also the loss of equipment, spare parts and construction materials.

Some breakdown of a water supply plant and equipment is inevitable in spite of the best maintenance measures taken. In order to deal with such breakdowns efficiently and with minimum delay, the programme has embarked on the following activities to enable its success:

- To conduct a feasibility study on the viability of the decentralization of the distribution system of spare parts.
- Avail workshop facilities.
- Ensure sufficient stock of necessary spares etc.
- Provide communication facilities.
- Avail trained technical staff
- Training programme

It is not uncommon that some sites become inaccessible for several months during the rainy season.

Under such circumstances, provision of more systems should be ensured, for example; Hand pumps, to reduce the risk of some people being left without water because not all systems will break at the same time.

And it is with this problem at hand that the Programme has brought forward the idea of decentralization of the distribution system of pump spare parts and repairs from their Head Office to the respective District Bases.

According to a report prepared for the Interregional Seminar on Improved efficiency in the Management of Water Resources:

" Such Centralized agencies lack effective outreach to the communities they are being asked to serve"

Decentralization can represent a major shift in administration policy as it may require changes within the implementing agency. For the highly centralized agencies, it is often the most bitter pill to swallow. Responsibility for preventive maintenance and repairs should be shared among community, district, regional and central levels, wherever feasible, because no one sector can cope with all repair needs at the local level. In the programme, we have assumed the responsibility of emphasizing the fact that under no circumstances should the great efforts which have already been made and which largely succeeded in the programme be obscured by remote or isolated matters which could be sorted out without sensation.

In the light of the foregoing, we approached the study with one main objective: to ascertain the practicability of decentralizing the distribution system of pumps and their spare parts by identifying businessmen and women groups within the programme area, who in turn could take up the activity on a pilot basis first, for a period and do service to their respective communities.

All said and done, ours was to develop a large heart and keep the fire of desire to complete the programme burning.

iii. JUSTIFICATION AND PURPOSE OF THE FEASIBILITY STUDY

Based on our experiences, there are findings to the effect that, in small rural communities where the provision of water is most important, the introduction of a new water supply is often a major activity.

Frequently, this activity also forms part of the health education towards the hygienic use of the water.

The Programme has been successful in the construction of water supply system and this is contributing towards the achievement of the National Target.

The initial maintenance system engaged at first by the Programme was the Mobile Maintenance System. It involved installation and repair activities. Labour costs and spares were acquired and settled at the Headoffice in Kakamega. This system proved unpopular because of the following:-

1. Costly to run
2. Information on breakages was delayed causing further delay on repairs.

The second system was a modification of the first with the addition of locational repairmen. These repairmen undertook labour costs but costs of spares were settled by the head office at Kakamega.

This system even though cheap to run, still experienced some delay in inform on breakages, thereby consequently causing delay in repairs. These shortcomings led to the introduction of the now existant system which incorporates pump attendants. These are women selected by the well committee to take care of the wells.

According to IRC, INTERNATIONAL REFERENCE CENTRE FOR COMMUNITY WATER SUPPLY AND SANITATION: SMALL COMMUNITY WATER SUPPLIES:

It is a misconception to regard small community water supply system as "Scaled down" versions of urban installations requiring less engineering skills or ingenuity. The exact opposite may be the same. Simplicity and smallness should not be regarded as a back or second-rate, but rather as appropriate for the purpose.

The delegation of operation and maintenance tasks to a community is more common today than it was some years back.

These delegated responsibilities vary widely from checking and reporting or basic routine maintenance upto the training of Caretakers and Operators. Our experiences show that small community water supplies are often more difficult to be kept running than to construct.

Two factors contribute to most failures:

1. Small community water systems;
 - a) Equipments and materials are used under conditions for which they are not designed.
 - b) Operators, who due to ignorance or disinterest, do not recognise the indications which precede breakdowns and failures.

The following reason makes it particularly important to provide for proper Operation and Maintenance:-

1. The effect of an inoperative water supply on the health of the users.

This may be difficult to quantify but many studies and surveys have shown that the incidence of intestinal diseases is related to the use of polluted water.

Improvements in the health situation that can result from the supply of safe water, are lost when the water supply breaks down. The long term results or attempts to organise maintenance and to identify maintenance tasks are often difficult to assess because monitoring data are rarely available and do not allow systematic comparison. The study focussed on community-based women groups and local businessmen.

In accordance with the findings of the UNDP/World Bank Rural Hand Pump Testing Project, and analysis by Van Wijk (1985);

- None of the projects had originally developed activities specifically oriented to the role of women in water supply, but in some projects women's participation proved essential for maintenance of facilities. These women were motivated to maintain branch lines because they had an interest in the functioning of the facilities.

Yet despite the importance of women's role in water supply being recognized development planners appear to have difficulty in overcoming prejudices about women and technology.

In the materials for the international drinking water and sanitation Decade, women and children are shown bearing the biggest burden in fetching water for household needs, yet the great majority of illustrations show men building and running them.

However:

The number of projects where women take active roles in planning, executing and maintaining projects are growing. The programme views women as users of the water facilities, and has allowed women to participate jointly with their male counterparts during the siting, construction and maintenance of waterpoints.

As a result, over 750 women have been trained in pump repairing and general maintenance of water facilities. So much so that 3 or 4 women can lift the entire pump out of the well and repair it themselves.

- As may be expected women may be more reliable, consistent and effective than men within the users community in maintaining water and sanitation facilities.

(WORLD BANK: THE COSTS TO THE DECADE)

At the end of the training, the women receive certificates. While in their groups, they have found ways and means of starting income generating activities such as repair shops, motor mechanics, selling and buying of grain, sand selling, and selling of blocks and bricks.

In view of the above, the programme embarked on the feasibility study on Decentralization of the Distribution System of Pumps and their spares.

The programme finds it necessary to identifying potential businessmen and community based women groups to control the distribution system in the respective programme areas, reason being firstly to offset the unnecessary transport costs incurred in transporting pumps and their spares from the Head office. Secondly, to eliminate the bureaucracy that entails every order made for implements at the head office.

And lastly to try and involve the local community in running the water supply systems as much as possible.

iv. METHODOLOGY

In carrying out the feasibility study, the following methods were used in order to arrive at the needed information:-

- Reviewing the existing literature and published reports on Operation and Maintenance Systems for rural water supplies. (See the list of references at the end of the report).
- Interviewing of individuals, women groups and organization.
- Making specific field visits to the following:
 - Kakamega District - Visited South Kabras location and met Kabras Women Group.
 - Bungoma District - Visited Kanduyi location, North Bukusu, met District Trade Officer, Women Groups, CDAs, Locational Representatives and Businessmen.

- Busia District - Visited North and South Samia, met women groups.
 - Interviewed the District Trade Officer.
 - Interviewed respective CDAs and Local Leaders.
 - Interviewed Businessmen.
- Siaya District- Visited Ukwala in West Ugenya and met women group
 - Interviewed local businessmen

During the interviews 2 questionnaires were administered. One for the businessmen and the other for the women groups.

Oral interviews were also held to supplement information in the questionnaire.

v. FINDINGS OF THE STUDY

The 4 locations covered in this study can be characterized as follows:-

KABRAS : KAKAMEGA DISTRICT

Has an area of about 33km². The Terrain is relatively flat, descending towards the west, where the river Matiti forms the present sub-location border. The area is crossed by a number of rivers and streams originating from the escarpment. Parts of the area are swampy.

Because of the rivers, streams and springs, it has not had any great water problems. This area enjoys the highest annual rainfall in the project area. It is 17 km. from Kakamega District Base; HQ.

UKWALA : SIAYA DISTRICT

Total population is 195,896 from projections on population census 1979, it is dominated by Luo speaking community but has pockets of Luhya speaking people.

It serves as a destination point for potential rural-urban migration, and a supply point for agricultural inputs as well as a delivery point for agricultural output.

It has rough terrain of sloping ridges and hills which rise to 1,430m above sea-level, yielding high rainfss = 250mm per annum.

The division has a high potential in sub-surface water resources which when fully exploited should meet the demand for human and livestock consumption as well as irrigation purposes.

It had 334 points and 2 piped schemes as of last year. It is 80km. from Kakamega Head office.

SOUTH AND WEST BUNYALA

This region falls within the Lake Victoria Basin. The central point chosen was Nambale trading centre.

As per 1979 census the total population was 58,731. Its total area is 329sq km. with a population density of 166 per sq. km. Mean annual rainfall is 1,766mm. The shopping centre is well established, with shops being well stocked.

We were able to identify several water points in this region. This region is 115km. from Kakamega Head office.

KANDUYI : BUNGOMA DISTRICT

This area has a population of 262,336 as of now according to 1979 projections. It is well covered by service centres. It is growing steadily, being an important commercial centre. It is well connected to Bungoma, Webuye and other surrounding centres by murram road.

It has water supplies, telephone services, education and health facilities. It is a growing rural centre. It is 60km. from the Head Office Kakamega.

Information on the level of breakages and repairs done on water pumps in general in the programme areas and in the selected of the study was also gained and then an analysis made of the data availed.

NB: Please turn over for data.

Below is a summary of the number of wells and well types and type of breakages and other repairs done.

PUMP BREAKAGES AND REPAIRS FOR OVERAL PROGRAMME AREA

| WELL TYPE | TYPE OF PUMP AND NUMBER IN TOTAL | BREAKAGES AND REPAIRS | | | OTHERS |
|--|----------------------------------|---|---|-----------------------------|--|
| | | SECTION OF BOTTOM VALVE REPLACEMENT PERIOD COVERING | EXCESSIVE WEARING OF FULCRUM AND BEARING JANUARY 1986 - | BROKEN PISTON DECEMBER 1989 | |
| Shallow wells | AF 76 - 303 | 60 | 211 | 37 | There were 115 other repairs entailing the following: - Pipe renewal - Changing of handle - Servicing - Lubrication - Changing of pump to AF 85 - Cylinder replacement |
| | AF 83- 3 | 1 | 2 | N11 | |
| | AF 84 - 1 | 1 | 1 | N11 | |
| | AF 85 - 6 | - | - | - | |
| <u>PERIOD COVERING JANUARY 1986 - OCTOBER 1989</u> | | | | | |
| Bore-holes | AF 76 - 130 | 43 | 84 | 120 | There were 20 other repairs of -Replacement of pipes and belts. -Changing of pump to AF 85 * SOURCE: OPERATION AND MAINTENANCE OFFICE 1990. |
| | India Mk II 389 | 206 | 144 | 254 | |
| | Vergnet - 1 | N11 | 2 | N11 | |
| | Volanta - 1 | 2 | N11 | 3 | |
| | AF 83 4 | 2 | 1 | 2 | |
| | AF 84 5 | 5 | 2 | 2 | |

PUMP BREAKAGES AND REPAIRS FOR SELECTED AREAS
PERIOD COVERED IS BETWEEN JANUARY 1986 - OCTOBER 1989

| WELL TYPE | AREAS | TYPE OF WELL AND NUMBER IN AREA | SUCTION OR BUTTOM VALVE | EXCESSIVE WEARING OF FULCRUM AND BEARINGS | BROKEN PISTON RODS | |
|---------------|-----------------|---------------------------------|-------------------------|---|--------------------|--|
| Bore-holes | Ugenya | MK II 15 | 2 | 3 | 2 | There were 5 other repairs done which included: - Replacement of pipes and belts. Lubrication. |
| | | AF 76 - 2 | - | 1 | 1 | |
| | Samia | India MK II - 77 | 61 | 18 | 111 | |
| | | Volanta 1 | 2 | Nil | 3 | |
| | | AF 76 - 3 | 2 | 4 | 3 | |
| | N. Bukusu | India MK II - 5 | 8 | Nil | 2 | |
| | | AF 76 - 1 | Nil | Nil | 1 | |
| Kanduyi | India MK II - 7 | 4 | 2 | 2 | | |
| Shallow Wells | Kanduyi | AF 76 - 8 | 2 | 8 | Nil | There were 20 other repairs consisting of: - Replace of pipes and belts. - Changing of pumps to AF 85. |
| | | N. Bukusu AF 76 - 34 | 5 | 15 | 3 | |

* SOURCE : OPERATION AND MAINTENANCE OFFICE 1990.

DATA ANALYSIS

From the data, AF 76 displayed the highest number of breakages of the shallow wells, for the period covering January, 1986 to December, 1989. Of the boreholes India Mk II displayed the highest number of breakages. Excessive wearing of fulcrum bearings tops the list in breakages recorded for the shallow wells, with AF 76 showing the highest figure - 211. Among the boreholes, the highest number of breakages was recorded on broken pistons 383, followed by Suction or valve replacement - 258, then lastly excessive wearing of fulcrum bearings. A breakdown of the figures shows that India Mk II recorded the highest number of breakages, this is automatically by virtue of it being the most dominant pump type.

From the data, there were other repairs effected which include - pipe renewal, changing of handle, servicing, lubrication, replacement of pipe and belts, and cylinder replacement. Our findings indicate that pump type AF 85 is fast replacing AF 76 and is set to become the dominant pump type in the programme.

This should be borne in mind in the distribution of spare parts.

We interviewed a total of 20 women groups and 40 businessmen. Out of these we selected a few from each group, who were able to meet the set criteria, to be able to take up the activity on a pilot basis for 1 year. (see recommendation on businessmen and women groups)

A few prominent personalities within the programme and without were also interviewed who expressed their opinion on the viability of the proposed activity. They reached a consensus in expressing their desire to see the activity commence.

Prominent among these were the respective District Base Heads who felt that the Decentralization would go a long way in helping alleviate the delays that affect the repairs in the Programme at the moment.

They felt this system will lift much weight from their shoulders and in a way avoid the bureaucracy that entails every order made for repair of damages.

One area covered by the study revealed that a piped water scheme is in the process of being implemented by the government. Much of the area is already covered in the implementation plan. This area is Nalondo in North Bukusu. Therefore our findings indicate this area as unsuitable for the activity the Programme intends to undertake.

The findings revealed a problem with the amount distribution system of pumps and spare parts.

Individual interviews also served to strengthen the fact that whereas breakages do occur frequently in the areas under study, repairs and availing of spare parts take long. The businessmen and women groups interviewed showed enthusiasm in undertaking the activity.

vi. RECOMMENDATIONS

1. We recommend that efforts be made in the industrial sector to enable the manufacture of spare parts and water pumps locally.

At the moment, the Programme supply is imported.

With local manufacture, the country will save alot of foreign exchange in terms of import duties imposed on the imported goods, and even cut down on the high transportation costs involved.

Liason between existing learning institutions, engineering establishments and the manufacturing sector could see a breakthrough towards the success of this activity.

It should be noted that success can only be gained with the support of the government throughwaiving of some taxes and duties imposed on the raw materials that accompany local manufacture.

2. Of the women groups and businessmen interviewed, using the criteria shown below, we came up with the following as best suited to take up the activity or the selected area .

a) Criteria for businessmen

- i) Must show some link to the programme activities especially related to water.
- ii) Must be financially stable
- iii) Should be operating a hardware business.
- iv) Should be willing to undertake this activity.
- v) Must be operating a lawfully registered establishment.

b) Criteria for Women Groups

- i) Should have some link to the programme activities.
- ii) Should be engaged in a viable income generating activity.
- iii) Pump Attendants groups have added advantage since this eliminates the costs of hiring repairers.
- iv) Should be a lawfully registered group.
- v) Must be financially stable in comparison to other women groups and be able to get funds either through donor agencies or financial institutions.
- vi) Must be possessing a warehouse. if not should show capability of possessing one to be used as a store for the implements.

The following were found most qualifying after attaining most of the qualities the criteria demanded:-

1. BUSIA DISTRICT
Jase Otwoma
Otwoma Investment
P O Box 12
SIO PORT
2. BUNGOMA DISTRICT
Kanduyi Hardware
P O Box 664
BUNGOMA
3. KAKAMEGA DISTRICT
Judith Wanambiuro
P O Box 289
MUMIAS

It is only after the pilot period that ~~viewing~~ ^{the} from ~~the~~ success of the activity, women groups can be incorporated in the contract.

3. A monitoring system should be established to ensure the smooth running of the operations. This can be facilitated by the Operation and Maintenance Department at the Headquarters.
4. We recommend that when the items arrive at the headquarters there is a direct linkage despatching them to the respective businessmen at their areas of operation. This avoids having to send them through the district bases.
5. We recommend that this system of decentralization be tried on a pilot basis for a period of one year, in these selected areas.

Then depending on the degree of success it can be extended to other programme areas. After that period will the O & M office be able to decide on what course of action to take.

6. We recommend that some system be established to enable the groups that at one period or the other might not be able to effect payments, be aided through reduction of deposit to enable them purchase the spares and pumps.
7. A follow-up system should be established at the District Bases to monitor the activities of the women groups and the businessmen so that there is smooth facilitation of the whole activity.

vii. CONCLUSION

Even though maintenance of rural water supply systems is increasingly being recognised as a major problem (WHO, 1986), Many systems are still being constructed without due consideration to maintenance and community participation.

Because of lack of financial resources and efforts to reduce cost, the programme expects users to take a share in the maintenance tasks, or to take over the facilities very often without adequate higher level support.

Current thinking on maintenance is developing towards a more systematic approach which takes into account environmental conditions, affordability and users involvement. The involvement of users in decision making about the level of service, the type of technology and the maintenance system is a basic condition for successful maintenance.

The decentralization programme aims to reach out to the users. This should go hand in hand with the current decentralization plans; undertaken by the government. Consensus on these points and formal agreements need to be reached before new facilities are implemented.

In conclusion, we find this decentralization of the distribution system of pumps and spare parts a viable activity, capable of only being introduced to the selected area but expanded to other programme areas. We wish it well, because it comes at an appropriate time when our government after initiating the District Focus For Rural Development to decentralize its activities would like to see the ~~idea~~ extended to other projects and activity areas.

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PARTICIPATION AND WOMEN'S INVOLVEMENT IN KENYA FINLAND RURAL

WATER DEVELOPMENT PROJECT

MULESHE R, REPORT ON THE TRAINING NEEDS OF WOMEN

viii.

ANNEX I

Areas visited for the study:

- | | | | |
|-----|-------------|---|-----------------|
| (a) | District | - | Siaya |
| | Division | - | Ukwala |
| | Location | - | East Ugenya |
| | Chief | - | Martin Obwar |
| | Asst. Chief | - | Hilary Okia |
| (b) | District | - | Bungoma |
| | Division | - | Kanduyi |
| | Location | - | Musikoma |
| | Chief | - | Joseph Matanda |
| | Asst. Chief | - | Paul Shamala |
| (c) | District | - | Busia |
| | Division | - | Funyula |
| | Location | - | Samia South |
| | Chief | - | |
| | Asst. Chief | - | Ososo |
| (d) | District | - | Busia |
| | Division | - | Funyula |
| | Location | - | North Samia |
| | Chief | - | Boaz O. Ojiambo |
| | Asst. Chief | - | Arthur Edwa |
| (e) | District | - | Kakamega |
| | Division | - | Malava |
| | Location | - | Kabras |
| | Chief | - | |
| | Asst. Chief | - | |

ANNEX II

INDIVIDUALS AND WOMEN GROUPS INTERVIEWED

Mr. Matti - Head of Operation and Maintenance Dept.
Mr. Adika - District Base Head, Kakamega
Mr. Barasa - District Base Head, Bungoma
Mr. Eliud Okumu - Community Coordinator, Busia
Mr. Peter Okaka - Community Surveyor, Bungoma
Mrs. A. Onyait - District Trade Officer, Busia
Mr. Logan Busolo - Liason Officer
Mr. Allan S. Kadima,- A.S.K. General Store, Funyula
Jase Otuoma - Otuoma Investment, Box 12, SIO PORT
Alloys Ajwang, Jerra Inn, P.O. Box 14, SEGA
Asha Herse, P.O. Box 284, BUNGOMA
Kanduyi Hardware, P.O. Box 664, BUNGOMA
Ambwere Hardware, P.O. BUNGOMA
Margaret Akoth, P.O. Box 14, BAR OBER
Justo Asewe, Justo Asewe Group, P.O. Box 125, UKWALA
Kabras Pump Attendants, P.O. Box 58, MALAVA
Bukhayo East/Central Joint Women Group, p.O. Box 104, NAMBALE
Ukwala Pump Attendants, UKWALA.
Marakaru Women Group, Box 35, MAYANJA.
Sutabicha Women Group, Box 116, BUNGOMA
Supep-Self Help Group, Box 50, BUNGOMA.
Mungeti Women Group, Box 850, BUNGOMA
Lukosi Women Group, Box 552, BUNGOMA
Kanduyi Sunrise Women Group, KANDUYI
All CDAs in the respective areas under study
" Locational Representatives in the areas under study

ANNEX III(a) - FOR BUSINESSMEN

KENYA - FINLAND WESTERN WATER SUPPLY PROGRAMME

QUESTIONNAIRE:

Date.....
 District.....
 Division.....
 Location.....
 Chief.....
 Ass.Chief.....
 Name of Respondant.....
 Occupation.....
 Name of establishment.....

- (a) Is your establishment located in town?.....
- (b) If not, state where it is; market place, shopping centre etc, specify;

How far from the nearest main road is your establishment?

State clearly the activities of your establishment

.....

At your establishment what is your source of water? Indicate if piped scheme, roof catchment etc,

.....

If your home is not situated at your establishment, what is your present source of water indicate whether; piped scheme, protected spring/borehole/shallow well and quote the well number, if possible.

.....

Indicate which activities you would be interested in;

- a) Selling water pumps
- b) Selling spare parts
- c) Both

For the purpose of our survey, we need to have a rough indication of the income gained from your business annually.

- a) Less than 50,000 per year
- b) 50,000 - 100,000 per year
- c) 100,000 - 500,000 per year

How did you generate the funds to begin your businesses?

.....

.....

.....

What are your future plans? what activities do you intend to take on in future?

.....

.....

.....

Where do you intend to get the funds to purchase these pumps and their spares?

.....

.....

.....

What is your view on the idea of taking up the selling of these spares?

.....

.....

Do you have any loaning facilities available to you from financial institutions?

Specify;

.....

.....

KENYA - FINLAND WESTERN WATER SUPPLY PROGRAMME

QUESTIONNAIRE

INTERVIEWER

DATE
DISTRICT
DIVISION
LOCATION
SUB-LOCATION
CHIEF
ASS. CHIEF
NAME OF GROUP
DATE OF ESTABLISHMENT
NO OF MEMBERS.....
NAME OF RESPONDANT.....
HOW FAR IS YOUR ESTABLISHMENT FROM THE NEAREST MAIN ROAD?.....
IS YOUR ESTABLISHMENT SERVED BY A CONSTRUCTED WATER POINT? IF YES, CAN YOU QUOTE THE WELL NUMBER?

INDICATE WHICH ACTIVITY YOU WOULD BE INTERESTED IN:

- (a) Selling water pumps.
- (b) Selling spare parts
- (c) Both

| Group Leaders | Education | Occupation |
|---------------|-----------|------------|
|---------------|-----------|------------|

- (i) Chairperson
- (ii) Secretary
- (iii) Treasure

Objectives of the group.....
.....

Activities undertaken by the group.....
.....

Approximately how much money do you earn currently from the activities mentioned?

TICK WHERE APPROPRIATE

- (a) <50,000 per annum _____
- (b) 50,000 - 100,000 per annum _____
- (c) 100,000 - 500,000 per annum _____
- (d) Over 500,000 per annum _____

How much money did you begin with initially? KSH.....

How did you generate the initial funds for the group activities?.....
.....

| Item | 27.12.1989 | Description | |
|------|------------|-------------|--------------------------------|
| 4001 | pcs | 2,356.00 | Pump Head (Thr) |
| 4002 | pcs | 2,356.00 | Pump Head Flanged |
| 4003 | pcs | 190.30 | Head Flanged Gasket (Rubber) |
| 4004 | pcs | 837.00 | Pump Stand Pipe (Thre) |
| 4005 | pcs | 837.00 | Base Plate (Round Thre) |
| 4006 | pcs | 184.00 | Round Base Gasket (Rubber) |
| 4007 | pcs | 1,675.70 | Stand Pipe/W 200 (Plain) |
| 4008 | pcs | 1,843.00 | Stand Pipe/W 230 (plain) |
| 4009 | pcs | 1,675.70 | Stand (Sq. Sect/W 200 p.) |
| 4010 | pcs | 1,860.00 | Stand (Sq. Sect/W 330 PL) |
| 4011 | pcs | 251.00 | Sput Screen (Bronze) |
| 4012 | pcs | 12.00 | Allen Screws M6 x 15mm |
| 4013 | pcs | 489.80 | Handle |
| 4014 | pcs | 2,120.00 | Fulcrum (W/Rubber AsB Comp) |
| 4015 | pcs | 1,860.00 | Fulcrum (W/Rubber Asb. Brass) |
| 4016 | pcs | 74.00 | Shock Absorber Rubber |
| 4017 | pcs | 6.00 | Quarter Pin |
| 4018 | pcs | 1,296.00 | Fulcrum (W/Nylon Absorber Bra |
| 4019 | pcs | 2,604.00 | Fulcrum (W/Nylon Absorber Bra |
| 4020 | pcs | 174.00 | Shock Absorber (Nylon) |
| 4021 | pcs | 19.00 | Hex Bolt M6 x 40 |
| 4022 | pcs | 3.00 | Hex Nut m6 |
| 4023 | pcs | 911.00 | Main Pin (Complete) |
| 4024 | pcs | 707.00 | Main Pin (Steel) |
| 4025 | pcs | 25.00 | Main Pin Lock Nut M20 |
| 4026 | pcs | 6.00 | Spring Washers M20 |
| 4027 | pcs | 12.00 | Grease Nipple |
| 4028 | pcs | 81.00 | Main Pin Bushing 2515 Teflon |
| 4029 | pcs | 316.00 | Rod Hanger Pin 8Steel9 |
| 4030 | pcs | 9.00 | Split Pin 6m x 45mm |
| 4031 | pcs | 74.00 | hanger Pin Bushing 2025 Teflo |
| 4032 | pcs | 248.00 | Rod hanger (Brass) |
| 4033 | pcs | 124.00 | Anchor Bolt M12 x 130 (S.S.) |
| 4034 | pcs | 415.00 | Primary Rod M10 x 1.37m (S.S.) |
| 4035 | pcs | 279.00 | Pump Rod M10 x 0.5m (S.S) |
| 4036 | pcs | 329.00 | Pump Rod M10 x 1.0m (s.s.) |
| 4037 | pcs | 384.00 | Pump Rod M10 x 1.5m (s.s.) |
| 4038 | pcs | 763.00 | Pump Rod M10 x 3m (s.s) |
| 4039 | pcs | 1,798.00 | Cylinder Body (Brass) 50mm |
| 4040 | pcs | 163.00 | Bottom Valve (Rubber) 50mm |
| 4041 | pcs | 12.40 | Nut m10 (For Bottom Valve) 50 |
| 4042 | pcs | 763.00 | Plunger Complete (s.s.) 50mm |
| 4043 | pcs | 273.00 | Plunger Valve C.I. 50mm |
| 4044 | pcs | 74.00 | Plunger Valve Seal(Rubber) 50 |
| 4045 | pcs | 335.00 | Plunger Follower (Brass) 50mm |
| 4046 | pcs | 335.00 | Plunger Valve Seat (Brass) 50 |
| 4047 | pcs | 18.00 | Hex. Nut 1/2" (For Plunger) 5 |
| 4048 | pcs | 1,798.00 | Cylinder Head (Brass) 75mm |
| 4049 | pcs | 31.00 | Top Seal Rubber Flat 75mm |
| 4050 | pcs | 1,984.00 | Cylinder Body (Brass) 75mm |
| 4051 | pcs | 28.00 | Bottom Seal (Leather) 75mm |
| 4052 | pcs | 158.00 | Bottom Valve Retainer 75mm |
| 4053 | pcs | 113.00 | Bottom flap Valve Rubber 75mm |
| 4054 | pcs | 502.00 | Bottom Valve Seat(Brass) 75mm |

CONSTRUCTION STORE ITEMS

19/12/90 F

| Unit price | Min stock | Order qty | Description |
|------------|-----------|-----------|-----------------------------------|
| 0.00 | | | Pipe vice No.24 |
| 0.00 | | | Coupling 6" (s s) 2355 |
| 288.00 | | | Die Nuts M12(Round) |
| 0.00 | | | Die wrench 1m |
| 0.00 | | | Pipe vice No. 24 |
| 0.00 | | | Ring Spanner 30 x 27m |
| 0.00 | | | Round File Rouh |
| 0.00 | | | Allen Key |
| 0.00 | | | Fix/Ring 10mm |
| 0.00 | | | Fix/Ring 11mm |
| 0.00 | | | Ring/Fixed spanner 16 |
| 0.00 | | | Ring/Fixed spanner 17 |
| 0.00 | | | Fix/Ring Spanner 18mm |
| 0.00 | | | Nira 6B Hand Pump |
| 0.00 | | | Suction Seals 6B |
| 0.00 | | | Flap Valves |
| 0.00 | | | O - Ring Seals |
| 0.00 | | | Cylinder 2"x 1m |
| 850.00 | | | Afridev Pump Complete |
| 000.00 | | | Afridev Cylinder 2" x 1m |
| 440.00 | | | Steel Cone Seat |
| 750.00 | | | Afridev Handle |
| 200.00 | | | Afridev Plunger |
| 440.00 | | | Afridev Repair Kit |
| 620.00 | | | Rising Mains P.V.C (O 63mm x 6m) |
| 000.00 | | | Hooked Pump Rod 3 1/8 x 3m |
| 000.00 | | | Pinned Pump Rod 3 1/8" x 3m |
| 250.00 | | | S.S. Steel Rod M12 x3 x 12mm coup |
| 100.00 | | | Rising Mains Centralizer (rubb) |
| 120.00 | | | Rising Mains Centralizer (Nylon) |
| 150.00 | | | Solvent Cement 250grams |
| 300.00 | | | Afridev Sapnners 24mm |
| 600.00 | | | Fishing Tools 1.5m x m10 |
| 250.00 | | | Stainless Rod 12mm x 3m (One End |
| 70.00 | | | Afridev Top Sleeves |
| 440.00 | | | Rubber Cone (Afridev) |
| 440.00 | | | Afridev Bearing Sets |
| 000.00 | | | Afridev Hanger Housing |
| 000.00 | | | Afridev Hanger Pin |
| 200.00 | | | Afridev Fulcrum Pin |
| 25.00 | | | Bolts M16 |
| 10.00 | | | Nuts M16 |
| 100.00 | | | Pump Rod Centralizer (rubber) |
| 200.00 | | | Suction Pipes (Afridev) |
| 000.00 | | | Hooked Pump M10 x 3m |
| 320.00 | | | Rising Mains P.V.C. (O 63mmx 3m) |
| 000.00 | | | Polyproplene Rolls |
| 000.00 | | | U.P.V.C. Cylinder 2" x 0.5m |
| 250.00 | | | Stainless Steel Rods Hanger |
| 650.00 | | | Afridev Pump Head |
| 500.00 | | | Afridev Pump Stand (Pedestal) |
| 140.00 | | | Solvent Cement 500gms |
| 0.00 | | | Nica Pump Rod M10 x 1.22mm |

| Item | Existing Unit price | Unit price | Min stock | Order Qty | Description |
|------|---------------------|------------|-----------|-----------|-------------------------------|
| 4247 | pcs | 0.00 | | | Top Coupling Valve Seat |
| 4248 | pcs | 0.00 | | | Bottom Coupling Valve Seat |
| 4249 | pcs | 0.00 | | | Top Coupling 60mm Cylinder |
| 4250 | pcs | 0.00 | | | Brass Cylinder 2" x 50mm x 5 |
| 4251 | pcs | 0.00 | | | Shock Absorber Rubb. AF 8320 |
| 4252 | pcs | 0.00 | | | G.I. Pipe 1 1/2" x 3m |
| 4253 | Pcs | 0.00 | | | G.I Pipe 1 1/2" x 3" |
| 4272 | pcs | 40.50 | | | Fix Spanners (17 x 16)mm |
| 4272 | pcs | 0.00 | | | Fix Spanners (19 x 22) mm |
| 4273 | Pc | 0.00 | | | Fix Spanner No. 19 x 22 |
| 4274 | pcs | 0.00 | | | Fix Spanners (10 x 11)mm |
| 4275 | pcs | 0.00 | | | Wire Brushes |
| 4276 | pcs | 180.00 | | | Tape Measures 5m |
| 4277 | pcs | 0.00 | | | Pliers 6" |
| 4278 | pcs | 518.40 | | | Ring/Fix Spanners (30 x 30)mm |
| 4279 | pc | 405.00 | | | Ring/Fix Spanners (24x24)mm |
| 4280 | pcs | 250.00 | | | Grease Gun |
| 4281 | pcs | 150.00 | | | Flat Files 10" |
| 4282 | pcs | 100.00 | | | Shank Drill Bit |
| 4283 | pcs | 0.00 | | | Pad Locks 50mm |
| 4284 | pcs | 22.50 | | | Flat Screw Drivers 8" |
| 4285 | pcs | 0.00 | | | Flat Screw Drivers 12" |
| 4286 | pcs | 0.00 | | | Star Screw Drivers 6" |
| 4287 | pcs | 60.00 | | | Fix Spanner (18 x 19)mm |
| 4288 | pcs | 0.00 | | | Ball Pein Hammer 0.5kg |
| 4289 | pcs | 0.00 | | | Center Punch 4" |
| 4290 | pcs | 0.00 | | | Mallet hammer |
| 4291 | pcs | 68.00 | | | Hacksaw Frame |
| 4292 | pcs | 35.00 | | | Hacksaw Blades 12 T.P.I. |
| 4293 | | 0.00 | | | Ring Spanner (24 x 30) mm |
| 4294 | pcs | 0.00 | | | Allen Key Sets |
| 4295 | pcs | 108.00 | | | Grip Pliers 8" |
| 4295 | pcs | 0.00 | | | Grip Pliers 8" |
| 4296 | pcs | 0.00 | | | Oil Can |
| 4297 | pcs | 405.00 | | | Pipe Wrench 24" |
| 4298 | pcs | 553.00 | | | Pipe Wrench 36" |
| 4299 | pcs | 0.00 | | | Pipe Wrechn 12" |
| 4300 | pcs | 157.00 | | | Pipe Wrench 18" |
| 4301 | pcs | 0.00 | | | Chisels 6" |
| 4302 | | 630.00 | | | Tape Measures 50mm |
| 4303 | pcs | 0.00 | | | Vernier Caliper |
| 4304 | pcs | 0.00 | | | Adjustable Spanner 300mm |
| 4305 | pcs | 0.00 | | | Adjustable Spanner 250mm |
| 4306 | pcs | 0.00 | | | Dier Nut M10 (Round) |
| 4307 | pcs | 0.00 | | | Die Nut M10 (Square) |
| 4308 | pcs | 0.00 | | | Split Die Nut M10 Round |
| 4309 | pcs | 0.00 | | | Die Wrench 1 1/2" |
| 4310 | pcs | 0.00 | | | Die Wrench 1" |
| 4311 | pcs | 0.00 | | | Die Nut Split M12 x 1.75 |
| 4312 | pcs | 10.00 | | | Hex Die Nut M12 x 1.75 |
| 4313 | pcs | 100.00 | | | Pliers 8" |
| 4314 | pcs | 0.00 | | | Hand Files Sets (small) 4" |
| 4316 | Pcs | 0.00 | | | Die stock 1/2-2" |

CONSTRUCTION STORE ITEMS

19/12/90

| Existing Unit price | Unit price | Min stock | Order qty | Description |
|---------------------|------------|-----------|-----------|-----------------------------------|
| | 0.00 | | | Bottom Valve Body AF 84 (brass) 5 |
| | 600.00 | | | Cylinder S.S. AF 84 60mm |
| | 400.00 | | | Plunger & Bottom Valve 84 60mm |
| | 0.00 | | | Reducer Coupling 2" (AF84 tOP) 60 |
| | 0.00 | | | Reducer Coupling 1 1/4" (Brass) 6 |
| | 0.00 | | | Rubber Rings AF 84 50mm |
| | 1,000.00 | | | Bottom & Valve Body AF 84 60mm |
| | 0.00 | | | AF 84 x 6mm Cyl. (Brass) 60mm |
| | 0.00 | | | Top R. Socket 1 1/4" x 50 Cylind |
| | 0.00 | | | Ring Seal Rubber AF 84 63.5mm |
| | 0.00 | | | Cylinders AF 84 (Brass) 50mm |
| | 0.00 | | | Top Coupling 1 1/4 |
| | 0.00 | | | Afriders Pump stands |
| | 0.00 | | | Allen Screw M12 x 35m |
| | 0.00 | | | Nuts M12 |
| | 1,500.00 | | | Pump Head AF 83 |
| | 0.00 | | | Bottom Seal AF 83 62mm |
| | 0.00 | | | Stainless Pipes 1 1/4" x 3m |
| | 0.00 | | | Cylinders AF 83 62mm |
| | 0.00 | | | Plungers AF 83 62mm |
| | 600.00 | | | Cylinders AF 83 72mm |
| | 0.00 | | | Fulcrum Bushes AF 83 25.20 |
| | 0.00 | | | Foot Valve Body AF 83 62mm |
| | 0.00 | | | Foot Valve Body AF 83 72mm |
| | 0.00 | | | Plungers AF 83 72mm |
| | 0.00 | | | Fulcrum Arm AF 83 (Head) |
| | 0.00 | | | Handle AF 83 x 1m |
| | 0.00 | | | Bottom Flap Valve AF 83 62mm |
| | 0.00 | | | Suction Seals AF 83 62mm |
| | 0.00 | | | Bottom Flap Valves AF 83 72mm |
| | 600.00 | | | Rod M8 x 3m AF 83 |
| | 0.00 | | | Bottom Seal AF 83 72mm |
| | 500.00 | | | Dempster Cyl. Sleeves 12x2x1 1/4' |
| | 0.00 | | | Bottom Coop. cast/iron 2" 50mm |
| | 0.00 | | | Flat Washers m16 |
| | 0.00 | | | Dempster Plunger Valve (Rub) 50 |
| | 0.00 | | | Dempster Ring Seal 63.5mm |
| | 0.00 | | | Dempster Top Cyl. Coup 2"x 1 1/4' |
| | 500.00 | | | Dempster Bot. Cyl. Coup 2x1 1/4" |
| | 150.00 | | | Leather Caps. Demp. Cyl. 20x400mm |
| | 0.00 | | | Dempster Plungers 50mm |
| | 0.00 | | | Dempster Valve (Brass) 50mm |
| | 0.00 | | | Cylinder (Brass) 50 x 400mm 50n |
| | 0.00 | | | Dempster Gasket Leather Seal 2x1 |
| | 1,500.00 | | | S/S Pipes AF 83 3mx 34mm |
| | 0.00 | | | Plunger Valve Seal (Rubber) 50mm |
| | 0.00 | | | S/S Pipes Gaskets |
| | 0.00 | | | Dempster Cylinder 12" x 3" |
| | 0.00 | | | Dempster Cylinder 12" x 2" |
| | 0.00 | | | C/Iron 3x12" Cyl. Demp. Bott. Co |
| | 0.00 | | | Cylinder Cap Gasket Leather |
| | 0.00 | | | 63.5mm x 40mm Cyl. Dempster Compl |
| | 0.00 | | | 50mm x 40mm Dempster Valve Seals |

CONSTRUCTION STORE ITEMS

19/12/90

| | Existing Unit price | Unit price | Min stock | Order qty | Description |
|-----|------------------------|------------|--------------|--------------|----------------------------------|
| pcs | 297.60 | ----- | ----- | ----- | Riser coupling (W/Sleeve) HDPE (|
| pcs | 186.00 | ----- | ----- | ----- | Riser Coupling (HDPE) |
| pcs | 200.00 | ----- | ----- | ----- | Riser Coupling (Brass) 75mm |
| pcs | 868.00 | ----- | ----- | ----- | Rising Main (0.5 x 63mm) 63mm |
| | 992.00 | ----- | ----- | ----- | Rising Main (0.75 x 63mm) 63mm |
| pcs | 992.00 | ----- | ----- | ----- | Rising Main (1.0m x 63mm) 63mm |
| pcs | 1,116.00 | ----- | ----- | ----- | Rising Main (1.5m x 63mm) 63mm |
| | 514.60 | ----- | ----- | ----- | Rising Main (2 x 63mm) 63mm |
| pcs | 1,426.00 | ----- | ----- | ----- | Rising Main (3.0 x 63mm) 63mm |
| pcs | 204.60 | ----- | ----- | ----- | Rising Main (0.5 x 75mm) 75mm |
| pcs | 316.20 | ----- | ----- | ----- | Rising Main (1.0x 75mm) 75mm |
| pcs | 440.00 | ----- | ----- | ----- | Rising Main (1.5m x 75mm) 75mm |
| | 558.00 | ----- | ----- | ----- | Rising Main (2m x 75mm) 75mm |
| pcs | 793.60 | ----- | ----- | ----- | Rising Main (3m x 75mm) 75mm |
| pcs | 762.60 | ----- | ----- | ----- | Cylinder Pipe (1.5m x 63mm) 63mm |
| | 703.00 | ----- | ----- | ----- | Cylinder Pipe (1.5m x 75mm) 75mm |
| pcs | 347.20 | ----- | ----- | ----- | Bottom Valve Limited W/Thr 63mm |
| pcs | 347.20 | ----- | ----- | ----- | Bottom Valve Limiter (W/No Thre |
| pcs | 341.00 | ----- | ----- | ----- | Bottom Valve Body D - 575mm 63m |
| pcs | 341.00 | ----- | ----- | ----- | Bottom Valve Body D-59mm 63mm |
| pcs | 241.80 | ----- | ----- | ----- | Bottom Valve Body 75mm |
| | 290.00 | ----- | ----- | ----- | Belt Wrench (Red) |
| pcs | 290.00 | ----- | ----- | ----- | Belt Wrench (Green) |
| pcs | 69.00 | ----- | ----- | ----- | Allen Key 10mm |
| pcs | 119.00 | ----- | ----- | ----- | Fix/Ring Spanners 19mm |
| pcs | 43.40 | ----- | ----- | ----- | Sleeve Bearing Key |
| pcs | 0.00 | ----- | ----- | ----- | Handle 48mm x 76.5cm |
| pcs | 0.00 | ----- | ----- | ----- | Handle Local 54cm 75mm |
| pcs | 0.00 | ----- | ----- | ----- | Solid Nylon Bar 40mm x 1m |
| pcs | 0.00 | ----- | ----- | ----- | Solid Nylon Bar 32mm x 1m |
| pcs | 40.00 | ----- | ----- | ----- | Local Sleeve Bearing Key |
| pcs | 5.00 | ----- | ----- | ----- | Spring Washers M12 |
| pcs | 259.00 | ----- | ----- | ----- | Bottom Valve Body 75mm |
| pcs | 2,852.00 | ----- | ----- | ----- | Rising Main (Local) 63mm x 6m |
| pcs | 1,426.00 | ----- | ----- | ----- | Rising Main (local) 63mm x 3m |
| pcs | 334.80 | ----- | ----- | ----- | Pump Rods (Local) 40mm x 1m |
| pcs | 415.00 | ----- | ----- | ----- | Pump Rods (local) 40mm x 1.5m |
| pcs | 992.00 | ----- | ----- | ----- | Rising Main (local) 63mm x 1m |
| pcs | 1,116.00 | ----- | ----- | ----- | Rising Main (local) 63mm x 1.5 |
| | 266.60 | ----- | ----- | ----- | Pump Rod (Local) 63mm x 0.5 |
| pcs | 564.00 | ----- | ----- | ----- | Pump Rod (Local) 40mm x 3m |
| pcs | 415.00 | ----- | ----- | ----- | Pump Rod (H.P.D.E) 40m x 1.5 |
| | 452.00 | ----- | ----- | ----- | Pump Rod (H.P.D.E) 40m x 2m |
| pcs | 564.00 | ----- | ----- | ----- | Pump Rod (H.P.D.E) 40mm x 3 |
| Pcs | 0.00 | ----- | ----- | ----- | Cylinder 1m |
| pcs | 0.00 | ----- | ----- | ----- | Pump Rod (local)40 x 6m |
| Pcs | 0.00 | ----- | ----- | ----- | G.I.Pipe 2" x 1m |
| pcs | 0.00 | ----- | ----- | ----- | Ring Seal AF 84 (Rubber) 50mm |
| pcs | 0.00 | ----- | ----- | ----- | Cap Seal AF 84 (Rubber) 50mm |
| pcs | 0.00 | ----- | ----- | ----- | Cap Seal AF 84 (Rubber) 60mm |
| pcs | 0.00 | ----- | ----- | ----- | Plungers AF 84 (Brass) 60mm |
| pcs | 0.00 | ----- | ----- | ----- | Plungers AF 84 (Brass) 50mm |
| pcs | 0.00 | ----- | ----- | ----- | Plungers & Bottom Valves 50mm |

| Item | Existing Unit price | Unit price | Min stock | Order qty | Description |
|------|---------------------|------------|-----------|-----------|--------------------------------|
| 405 | pcs | 0.00 | | | Nica Pump Rod M10 x 3m |
| 411 | pcs | 0.00 | | | Nira 2000 Complete Pumps |
| 412 | pcs | 0.00 | | | Nira 2000 Ruber Centralizer |
| 413 | pcs | 0.00 | | | Stainless Steel Sockets |
| 414 | Pcs | 0.00 | | | Nira 2000 Gaskets Rubber |
| 415 | pcs | 0.00 | | | Nira 2000 Pipes |
| 416 | pcs | 0.00 | | | Nira 2000 Gaskets Rubber |
| 417 | pcs | 0.00 | | | Nira 2000 Cylinder |
| 418 | pcs | 0.00 | | | Nira 2000 Counter Weight |
| 419 | pcs | 0.00 | | | AF 2000 Handle |
| 420 | pcs | 0.00 | | | Piston and Button valve body |
| 425 | | 0.00 | | | Volanta Pump |
| 426 | pcs | 0.00 | | | Volanta Pump Rod M8 x 3m |
| 427 | pcs | 5,300.00 | | | Mark II Hand Pump Complete G. |
| 428 | | 5,500.00 | | | Mark II Pressure Pump G.I. |
| 429 | | 0.00 | | | Malawi Hand Pump |
| 430 | | 4,800.00 | | | Mark II Painted Pump |
| 431 | pcs | 176.00 | | | Mark II Ball Bearing |
| 452 | pcs | 350.00 | | | Galvanized Pipes 1 1/4" x 3m |
| 453 | pcs | 185.00 | | | Galvanized Pipes 1 1/4" x 1m |
| 454 | pcs | 770.00 | | | Mark II Main Axle |
| 455 | pcs | 660.00 | | | Mark II Chain M10 Coupling |
| 456 | pcs | 700.00 | | | Mark II Chain M12 Coupling |
| 457 | pcs | 1,000.00 | | | Ball Bearing Insector Tool |
| 458 | pcs | 855.00 | | | Mark II Piston Rod M10 x 3m x |
| 459 | pcs | 4.00 | | | Flat Washers 9/16" |
| 460 | pcs | 1,260.00 | | | Pump Head Mark II Painted |
| 461 | pcs | 1,200.00 | | | Stuffing Box |
| 462 | pcs | 1,250.00 | | | Mark II Handle G.I. 1.5m |
| 463 | pcs | 1,460.00 | | | Mark II Head G.I. |
| 464 | pcs | 0.00 | | | Foot Pump Cylinder 100mm x 1.2 |
| 465 | pc | 0.00 | | | Mono Pump Cylinder 75mm x 40cm |
| 466 | pcs | 20.00 | | | G.I. sockets |
| 467 | pcs | 1,050.00 | | | Mark II Handle 1m |
| 468 | pcs | 0.00 | | | Ground Fos Cylinder G.H.P. 250 |
| 469 | pcs | 0.00 | | | Ground Fos Repair Kit |
| 470 | pc | 3,000.00 | | | Block Chain 1/2 tone |
| 471 | pc | 0.00 | | | Mono Pump |
| 472 | pc | 0.00 | | | Hydrum Pump |
| 473 | pcs | 720.00 | | | Stainless Rods (Plain) M12 x 3 |
| 474 | pcs | 595.00 | | | Stainless Rods (Plain) m10 x3m |
| 475 | pcs | 15.00 | | | Thread Seals Tapes |
| 476 | pcs | 3.00 | | | Flat Washers 1/2" |
| 477 | Pc | 0.00 | | | Piston rods 12m x 1.5m S.S wit |
| 478 | Pcs | 0.00 | | | G.I. Pipes 1 1/4 x 0.5m |
| 479 | Pc | 0.00 | | | S.S plunger Rods 12m x 0.5m |
| 480 | | 0.00 | | | Pump Rod 10Mx1.5m 2448 |

| | | | | | |
|-----|-----|----------|--|--|-----------------------------------|
| 56 | | 251.00 | | | Plunger Seat (Brass) 75mm |
| 57 | pcs | 62.00 | | | Plunger Flap Valve (Rubber) 75mm |
| 58 | pcs | 65.00 | | | Plunger Seal Rubber 75mm |
| 59 | pcs | 29.00 | | | Hex. Bolt M6 x 20 75mm |
| 60 | pcs | 3,280.00 | | | Comp. Cylinder 75mm x 40mm (Bra |
| 61 | pcs | 60.00 | | | Rods Centralizers |
| 62 | pcs | 3.00 | | | Spring Washers M8 |
| 63 | pcs | 20.00 | | | AF 76 Bolts M8 x 20mm |
| 64 | pcs | 29.00 | | | Hex Bolts M6 x 10 |
| 65 | pcs | 120.00 | | | Adaptors 12mm x 10mm x 50mm |
| 66 | pcs | 100.00 | | | Mild Steel Adaptors 2" x 63mm |
| 67 | pcs | 233.00 | | | Sq. Base Gasket Rubb 400 x 400 |
| 68 | pcs | 65.00 | | | Suction Valves (Plunger) 75mm |
| 69 | Pcs | 0.00 | | | Top Gasket |
| 70 | | 0.00 | | | G.I. Pipe 2"x3mtrs |
| 71 | PC | 170.00 | | | G.I. Pipe 2"x1m Solvent Cement |
| 72 | Pc | 0.00 | | | G.I. Pipe 2"x2Mtrs |
| 73 | PC | 255.00 | | | G.I. Pipe 2"x1.5m 2379 |
| 74 | Pcs | 1,443.75 | | | G.I. Pipes 2"x0.5Mtrs |
| 75 | pcs | 0.00 | | | Nuts M8 |
| 77 | | 1,543.80 | | | Handle 54cm Male S.S 75mm |
| 78 | pcs | 1,543.80 | | | Handle 540mm S.S. 63mm |
| 79 | pcs | 122.10 | | | Shock Absorber (rubber) (63 & 75) |
| 80 | pcs | 527.00 | | | Sleeve Bearing Plastic (63 & 75) |
| 81 | pcs | 527.00 | | | Sleeve Bearing Parallel (63 & 75) |
| 82 | | 322.40 | | | Handle Nipple(HDPE) |
| 83 | pcs | 1,550.00 | | | Pump Stand |
| 84 | pcs | 1,550.00 | | | Pump Stand |
| 85 | | 1,550.00 | | | Pump Stand (High) |
| 86 | pcs | 1,841.10 | | | Pump Stand Local |
| 87 | | 28.50 | | | Socket-Head-Hex Scr. M12x20mm |
| 88 | pcs | 31.00 | | | Socket-Head-Hex Scr. M12 x 30mm |
| 89 | pcs | 5.60 | | | Nuts M12 63mm |
| 90 | pcs | 1,178.00 | | | Base Plate (W/Two Carr. Steps) 63 |
| 91 | | 1,178.00 | | | Base Plate (W/fixed Step Plate) |
| 92 | pcs | 837.00 | | | Base Plate Ext,for step Plate 63 |
| 93 | pcs | 756.40 | | | Standing Plate 63mm |
| 94 | pcs | 837.00 | | | Cast-in-Pedestal 63mm |
| 95 | pcs | 252.00 | | | Gasket (For330 x 330) Rubber 63 |
| 96 | | 83.00 | | | Rod Plug (for 40mm) Rubber 63mm |
| 97 | | 93.00 | | | Rod Plug (For 50mm) Rubber 75mm |
| 98 | | 266.60 | | | Pump Rod (0.5m x 40mm) 63mm |
| 99 | pcs | 310.00 | | | Pump Rod (o.75 x 40mm) 63mm |
| 100 | pcs | 334.80 | | | Pump Rod (1.0 x 40mm) 63mm |
| 101 | pcs | 152.50 | | | Rod Nipple for 40mm (HDPE) 63mm |
| 102 | pcs | 25.80 | | | Plunger Nipple (HDPE) 63mm |
| 103 | pcs | 260.40 | | | Plunger & Botton Valve (Plas) 63 |
| 104 | pcs | 241.80 | | | Plunger Valve Rubber 75mm |
| 105 | pcs | 632.40 | | | Plunger Body Plastic 63mm |
| 106 | pcs | 531.30 | | | Plunger Body Plastic 75mm |
| 107 | pcs | 365.80 | | | Plunger Ring 63mm |
| 108 | pcs | 272.80 | | | Plunger Ring 75mm |

| Item | 27.12.1989 | Description |
|---------|------------|------------------------------|
| 001 | 0.00 | P.V.C. Pipes Plain 3" x 1M |
| 002 pcs | 0.00 | P.V.C. Pipes Plain 3" x 2M |
| 003 | 0.00 | P.V.C. Pipes Plain 3" x 3M |
| 004 | 0.00 | P.V.C Pipes Plain 3" x 4M |
| 005 pcs | 0.00 | P.V.C Pipes Plain 3" x 6M |
| 010 pcs | 0.00 | P.V.C Pipes Screen 3" x 1M |
| 011 pcs | 0.00 | P.V.C. Pipes Screen 3" x 2M |
| 012 pcs | 0.00 | P.V.C Pipes Screen 3" x 3M |
| 013 pcs | 0.00 | P.V.C Pipes Screen 3" x 4M |
| 014 pcs | 0.00 | P.V.C Pipes Screen 3" x 6M |
| 020 pcs | 330.00 | P.V.C Pipes Plain 4" x 2m |
| 021 pcs | 660.40 | P.V.C. Pipes Plain 4" x 4M |
| 025 | 0.00 | P.V.C Cosing Pipe 10x4m 2573 |
| 030 pcs | 264.70 | P.V.C Pipes Screen 4" x 2M |
| 031 pcs | 264.70 | P.V.C Pipes Screen 4" x 4M |
| 040 pcs | 264.70 | P.V.C Pipes Plain 5" x 2M |
| 041 pcs | 264.70 | P.V.C. Pipes Plain 5" x 4M |
| 050 pcs | 382.30 | P.V.C Pipes Screen 5" x 2M |
| 051 pcs | 382.30 | P.V.C pipes Screen 5" x 4M |
| 060 pcs | 808.00 | P.V.C Pipes Plain 6" x 2M |
| 061 pcs | 1,616.00 | P.V.C. Pipes Plain 6" x 4M |
| 070 pcs | 1,157.75 | P.V.C. Pipes Screen 6" x 2M |
| 071 pcs | 2,315.50 | P.V.C Pipes Screen 6" x 4M |
| 080 pcs | 1,182.50 | Casing Pipes (P.V.C) 7" x 2M |
| 081 pcs | 2,365.00 | P.V.C Casing Pipes 7" x 4M |
| 082 pcs | 1,100.00 | P.V.C Casing Pipes 8" x 2M |
| 222 | 0.00 | Tent |
| 223 | 0.00 | Gravel Filter Sand |

WESTERN COLLEGE OF ARTS AND APPLIED SCIENCES
P.O. BOX 190, KAKAMEGA, KENYA

ADMINISTRATION :TEL: (0331) 20455

PRODUCTION UNIT:TEL: (0331) 20067

PRICE LIST:

EFFECTIVE FROM JUNE 1ST 1987

I. India MK II Hand Water Pumps and Accessories:

| | | |
|---------------------------------------|-------|----------|
| Painted normal performance pump | Kshs. | 4,800.00 |
| Galvanized normal performance pump | Kshs. | 5,300.00 |
| Painted pressure-type pump | Kshs. | 5,500.00 |
| Galvanized pressure-type pump | Kshs. | 6,000.00 |
| Dia. 2"x12" cast iron cylinder | Kshs. | 3,000.00 |
| Dia. 2½"x12" cast iron cylinder | Kshs. | 3,500.00 |
| Dia. 2½"x12" stainless steel cylinder | Kshs. | 4,500.00 |
| Foundation frame with 4 studs | Kshs. | 180.00 |

(a) Galvanized iron connecting rods:

∅ 12mm rods with M12 thread for depths 23 - 70m:

| | | |
|-----------|-------|--------|
| 0.5 m rod | Kshs: | 100.00 |
| 1.0 m rod | Kshs. | 125.00 |
| 1.5 m rod | Kshs. | 140.00 |
| 3.0 m rod | Kshs. | 190.00 |

∅ 16mm rods with M12 thread for depths 13 - 23m:

| | | |
|-----------|-------|--------|
| 0.5 m rod | Kshs. | 125.00 |
| 1.0 m rod | Kshs. | 145.00 |
| 1.5 m rod | Kshs. | 175.00 |
| 3.0 m rod | Kshs. | 220.00 |

∅ 25mm rods with M12 thread for depths 5 - 13m:

| | | |
|-----------|-------|--------|
| 0.5 m rod | Kshs. | 185.00 |
| 1.0 m rod | Kshs. | 270.00 |
| 1.5 m rod | Kshs. | 300.00 |
| 3.0 m rod | Kshs. | 400.00 |

KENYA-FINLAND WESTERN WATER SUPPLY PROGRAMME
PRICE LIST OF AFRIDEV PUMP PARTS

| ITEM NUMBER | DESCRIPTION | UNIT PRICE | |
|-------------|------------------------------|------------|-----|
| | | KSHS | CTS |
| | BUSH ASSEMBLIES | 30 | 00 |
| | SET PINS | 550 | 00 |
| | 0 1 RING 44 x 3MM. | 7 | 00 |
| | " " 28 x 3MM. | 6 | 00 |
| | SEAL 50MM. | 30 | 00 |
| | BOBBIN | 12 | 00 |
| | PUMP ROD CENTRALISERS | 15 | 00 |
| | RISING MAIN CENTRALISERS | 34 | 00 |
| | RUBBER CONE | 25 | 00 |
| | RECEIVER | 25 | 00 |
| | PLUNGER / FOOT VALVE MOULDED | 60 | 00 |

KENYA - FINLAND WESTERN WATER SUPPLY PROGRAMM
PRICE LIST OF AFRIDEV PUMP PARTS

| ITEM NUMBER | DESCRIPTION | UNIT PRICE | |
|-------------|---|---------------------|----------------------|
| | | KSHS | CTS |
| 1 | PUMP HEADS: GALVANISED COMPLETE WITH PEDESTAL AND ALL ITS ACCESSORIES. | 5520 | 00 |
| 2 | RISING MAINS: 63 ϕ MM. O.D x 3M. - 16 BAR UPVC PIPES WITH 110MM LONG BELT SOCKET. | 210 | 00 |
| 3 | HOOK TYPE PUMP RODS: PASSIVATED ELECTRO - ZINC FINISH HOOK TYPE 3M. LONG 3/8" ϕ . B.S. | 150 | 00 |
| 4 | PASSIVATED ELECTRO - ZINC FINISH HANGER RODS OF 3M. LONG BRIGHT STEEL OF 1/2" ϕ CYLINDERS: BRASS SLEEVED 50MM. O.D UPVC CYLINDERS COMPLETE | 225 | 00 |
| 5 | MISCELLANEOUS PARTS: 1/4 LITRE - 'TANGIT' BRAND SOLVENT CEMENT 1/4 LITRE - CLEANING FLUID UPVC TOP SLEEVE POLYPROPYLENE SAFETY LINE PER M. | 85 75 50 3 | 00 00 00 00 |
| 6 | TOOLS: NICKEL PLATED FOLDABLE TYPE UNIVERSAL SPANNER PASSIVATED ELECTRO - ZINC FINISH TOOL TO SUIT HOOK TYPE PUMP RODS | 200 350 | 00 00 |
| 7 | SPARE PART KITS EACH SPARE PART KIT CONSIST OF 2 PCS VALVE BOBBINS 4 PCS PLASTIC BEARINGS, 1PC "U" SEAL, 1PC "O" RING, AND 2 PCS CENTRALISERS. EACH KIT IS SUITABLE FOR ONE YEAR OPERATION PER HAND PUMP | 225 | 00 |