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UNICEF Assisted Wanging'ombe Projects

Gravity water supply and rural sanitation

Prior to 1978, the 80 000 people of Wanging'ombe had a long history of water shortage, especially during the 8 month annual dry season. This prevented their development keeping pace with that of their more fortunate neighbours in the Njombe highlands. For this reason Unicef tried to respond positively in 1976 when an initial request was made by the government to provide water as a basic service, thereby raising the living standards of the Wanging'ombe people and setting them on a course towards their development.

The eventual concept, in January 1978, was of a large gravity reticulation system covering all of the 50 villages within the area. Such a water supply, if successful, would be a permanent solution to the whole of the Wanging'ombe area.

Among several major objectives of the water project, one was to improve health by decreasing the incidence of diseases related to poor water supply. Another was convenience i.e. the reduction of the burden on the traditional water carriers, namely women and children who spent long hours each day in search of a few litres of mostly polluted water from unprotected sources.

The first phase of the project, completed in December 1981, brought the water through 270 Km of pipes to 43 village reservoirs for which it was intended. The seven additional villages since the original layout was designed in 1973 have now also been provided with water from the new gravity system.

Phase II of the project which began in June 1983 is well advanced to nearly 60%. It was recognized that additional water points beyond the one or two at each village reservoir would be necessary to reduce the walking distance in obtaining water. Some 8 to 12 public taps will be provided in each village during the second phase, hopefully in 1985/86, so that no villager will have to walk more than 400 metres to the nearest water point.

Included also in phase II is the completion of the slow sand filtration system of which a battery of 6 cells has already been constructed and part of which is presently being used as sedimentation tanks. Meanwhile pending the completion of the filtration system the Wanging'ombe people are being reminded through the

environmental health education campaign, of the importance in boiling the water before drinking.

COMMUNITY PARTICIPATION

The measure of success to date of this huge water supply has been sustained by the mass response from the villagers and their leaders towards community participation and their willingness to be involved in all aspects of the work. More than 80% of all unskilled labour is being provided by the Wanging'ombe people on a self-help basis. This in turn has helped to create a feeling of ownership which will be of vital importance in the role of organized "operation and maintenance" at community level.

As a significant component of the Wanging'ombe water project in terms of National Policy, and also as a pre-requisite for Unicef assistance, community involvement and participation in the actual implementation on a self-help basis was among the agreed conditions. This not only reduces capital costs, but also serves as an initial introduction to a new facility which the community itself as the owner, would eventually be called upon to operate and maintain as far as possible within its capacity.

Having identified water as one of their top-most priorities which would enhance their living standards, the Wanging'ombe people responded as a community determined to take up the challenge and rid itself of at least one obstacle impeding its development. When the time came for action, however, the marshalling of such an operation called for routine disciplines as hundreds of villagers queued for the distribution of digging tools, while others assembled along the routes of the pipe trench waiting to be shown their section of five or ten metres which each individual would dig for that day.

Not all villages were involved simultaneously in trench digging. This exercise was geared as far as possible to the pipe laying programme, or a specific schedule projected on a three or six months basis as it was found out in the early stages that trenches remaining open for long periods tended to collapse especially during wet weather, thus requiring to be re-dug at the time of pipelaying.

Community participation in the water project was therefore an on-going operation throughout the area for the total period of construction. The villages in the upper areas played their part first, and were actually using the new water for two or three years before their neighbours in the lower areas. The total period of actual concentration in each village was only approximately 2 to 3 weeks for the water supply. Community involvement included the excavation of all pipe trenches within the village boundary, not only within the residential area but within the total area related to each village including grazing and forest land. Together with this was the task of back-filling the trenches as the pipes were laid, and in many cases where access by lorry was not possible, it was necessary to carry the pipes some distance and place them alongside the trench before laying took place.

Although the Steering Committee, with its regular meeting proved to be extremely valuable in monitoring progress and resolving problems encountered during implementation of the project, other smaller committees were formed at the same time in 1978. These dealt specifically with the community participation component, with a feedback to the Steering Committee through the Divisional Secretary. These committees were established at Divisional, Ward and Village levels, with fortnightly, weekly and daily meetings respectively during the whole operation. Being closer to the community, the committees dealt mostly with practical matters on a day to day basis, such as organizing the trench digging schedule, fixing times and dates, also boundaries in consultation with neighbouring villages, checking and distribution of tools, and ensuring the general completeness of the exercise in all villages throughout the project area.

At site level, community participation was under the leadership of the Divisional Secretaries. There were altogether three Divisions involved in the water project, the largest being Wanging'ombe with 34 villages, next was Mdandu with 14 villages, followed by Makambako with 2 villages.

THE SANITATION PROJECT

In realising the close links between an abundant supply of clear water and proper sanitation facilities and improvements in the health standard of the people by minimising the incidence of water related diseases, it was agreed that the Wanging'ombe water supply should be accompanied by a comprehensive health education campaign and the introduction of better sanitation technology. This was supported by a cross-sectional survey of the area in four villages by the Regional Medical Officer, together with a TAG mission and Unicef in August 1980, and again in October 1980. In addition

villagers were prepared to take up a second challenge by participating in the same way as they had done in the water supply.

The Unicef assisted Wanging'ombe rural sanitation project began in April 1982 and is well under way in 34 out of an eventual total of 50 villages within the project area which is the same as that covered by the water supply, namely the same 50 villages consisting of approximately 17,000 households. The sanitation programme calls for 100% coverage throughout each village. This means that a newly designed ventilated improved pit latrine will be constructed by every single household which has access to the new water supply.

The sanitation programme began with the selection of 4 pilot villages in which household latrine construction commenced during the period 1981/82 after demonstration models had been built. The project was extended to a further 15 villages during 1982/83 as part of the main construction programme designed to embrace the whole target area in three stages at approximately 1½ year intervals. The project was extended to the second group of 15 villages during stage II in 1983/84 and was recently extended to the last group of 16 villages (March 1985) meaning that all 50 villages are now under an improved latrine construction programme.

TECHNOLOGY

The first step in the design of the project was to develop a variety of suitable low-cost pit latrines, using locally available resources and technology as far as possible. The objective was to create a selection of options, each of which would be an improvement on the existing latrine technology, and would also be readily affordable to the villagers, and from which they could choose in accordance with their needs and preferences.

Basically two types of ventilated improved pit (VIP) latrines were considered, and these were a) permanent type, of which two versions were offered, and b) semi-permanent type, of which 5 versions were offered. In all models the main component was burnt bricks with sand/cement mortar joints, as traditionally, Wanging'ombe is a "brick-making" area. The average number of burnt bricks used in the demonstration models was 1390, for the complete structure including the privy shelters and vent stacks was 630.

After initial construction at the Unicef base camp, all seven options were later built at each of the four pilot villages. This was eventually followed by a briefing from the Resident Health Officer, on the merits and demerits of each model, with the intention of assisting village councils in making the

most appropriate selection. The final result was a unanimous choice of the permanent alternating type latrine.

Soon after construction of household latrines began, some irregularities were noted in the measurements and shape of the twin vaults. To eliminate this problem and also to simplify further the construction up to slab level, a wooden template or frame was designed. This frame is the exact size and shape of the do-able pits, and when placed on the ground the householder has only to mark around the outside of the frame with a hoe to get the lines of excavation. When excavation has been completed down to 1.5 metres, the frame is again used, this time in the bottom of the pits, and the lines around the inside of the frame are the exact dimensions for the brickwork. One of these templates is being provided to each village. Unicef also provided a limited quantity of building tools to speed up the construction of new latrines, which had in some areas been retarded through lack of sufficient tools. In all 15 sets were issued to each village.

In areas where shortage of masons was a constraint, village councils decided to select a number of Std VII school leavers to be trained by the few existing masons to enable them to participate in latrine construction.

Lack of firewood within a reasonable distance for brick burning would seem to be a possible constraint in the near future. To try to eliminate this problem and also to try to enhance replicability of the project in other areas, the technology is under further review. The use of sun-baked bricks, and several alternative uses for the two bags of cement normally used for building the pit linings, are still being studied at the base camp.

COSTS - AT COMMUNITY LEVEL

In terms of input, the sanitation project is basically one of self-help, with assistance from government and Unicef only in providing materials not available within the project area. The Unicef input consists mostly of 'hardware' such as cement for building the pit linings and concrete squatting slabs and two pieces of fly-screen, whereas government input is mostly 'software', such as the health education campaign.

In 1982, the total cost, or 'face value' of one completed household latrine was established at T. Shs 1026/=, this included all construction materials and labour. The total value of the Unicef input for one complete household latrine was approximately T. Shs 198/=. This means that the value of the input by the householder was approximately T. Shs 828/=.

A table showing the relative costs, attached as an appendix to this paper, includes a complete breakdown of the various tasks assigned to both the householder and Unicef.

HEALTH EDUCATION

Albeit, after rather a slow start, this campaign has taken up new dimensions in the past 18 months. The provision of a visual aid kit for use by the resident health officer has greatly facilitated his work. More kits will be used by health education helpers, one being based in each of the five wards within the project area.

The object of the health education campaign which has been extended to 34 villages out of 50, is to create awareness of health hazards and means of prevention in every village and literally every household within the project boundaries. The magnitude of this work is just as great as that of the hardware component. The resident health officer together with his small group of helpers has tried to formulate a strategy to bring the health education component to every family.

PROGRESS

The most recent statistics on pit latrine construction prepared on 26 March 1985 show that in the four pilot villages there is 82.5% coverage (1343 latrines) whereas in the 15 villages in each of the second and third phases there is 6% and 16.7% coverage respectively (3573 and 775 latrines respectively).

APPENDIX 1

Item	Task/Materials	Unit	Quant.	No. of Man days	Value	House Holder	UNICEF
							Actual Cost
01	Prepare sun-baked bricks	EA	2,000	8	144/=		
02	Build Kiln for burning			6	108/=		
03	Collect Firewood for burning			2	36/=		
04	Collect sand for burning			2	36/=		
05	Excavate Pit - 1½m. deep			4	72/=		
06	Mason - Construction to slab level			4	72/=		
07	Labour - Attending Mason			8	144/=		
08	Construction of Privy shelter			12	216/=		
09	Steel Reinforcement - slabs	Kg	3.4				17/=
10	Cement for 1 set slabs	Kg	16				19/80
11	Cement for Pit Linings	Kg	100				123/75
12	Labour - slab making	Set	1				12/50
13	Wooden Moulds for slabs						2/=
14	Fibreglass fly screen	Ft ²	2				4/=
15	Aggregate for slab-making						2/=
16	Sand for slab-making						1/50
17	Transport slabs/cement to villages - per Unit						7/60
18	Transport firewood to villages - per Unit						8/=
Totals in T. Shs.					828/=		198/15
Total Value					T. Shs. 1,026/15		