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AFRICAN RURAL WATER SUPPLY: Where Have All the Women Gone?

Kirsten Jørgensen

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INTRODUCTION

Until 1972, the main emphasis in water programmes was put on technical problems. In 1972, however, White, Bradley, and White (1972) published their book "Drawers of Water. Domestic Use in East Africa" which marks a turning point in the study of the importance of water programmes to the local population. The book describes and defines the main part of the questions that have attracted attention during the last ten years. Among the questions are: use (and users) of water, the importance of the social structure, health (and its relation to hygiene), the quality of the water versus the quantity, as well as the local community's participation in the planning, construction and maintenance of the water supply system. By asking these questions, the importance of water programmes to women became apparent at the same time.

Before 1972 (where the main attention was paid to technological aspects), the quality of water was considered the most important factor based on the assumption that better water quality would result in an improved state of health. The advantages due to an improved access to a more reliable water supply, as well as the health effect of an increased volume of water, were only considered as secondary. It was implicitly assumed that the women would benefit from the programme.

As it was realised that many water projects did not function satisfactorily and that installations broke down, the priority was changed (White et al[1], Saunders[2]). At the international level, important resolutions were passed at the United Nations Habitat Conference in Vancouver (1976), United Nations Water Conference in La Plata (1977), and United Nations Women's Conference in Copenhagen (1980). These conferences marked a turning point in the recognition, at the international level, of the importance of water supply, especially to women.

After that time, increasing emphasis has also been put on questions of improved access, increased volumes of water, and greater reliability. These changed priorities have, on the other hand, increasingly stressed women's role in water supply programmes. This, however, has not yet received full recognition, partly due to "traditional ways of thinking" on the part of planners of water programmes, and partly due to lack of "knowledge" since women's role in relation to water supply problems has been given a very low priority in terms of research.

In this connection it is natural to start the paper with a discussion of the subject: Women as a target group in water programmes. The next section deals with problems related to the kind of technology applied in water programmes as well as how the problems of maintenance and repair might be solved. After a section concerning health aspects, follow certain considerations concerning the effects of an improved water supply system. The final section discusses the participation problem.

1. Women as a Target Group

In literature on water supply the target group - as a rule - is defined as the local population. This, however, is a trivial definition since a water supply programme always ought to benefit the local community. Experience shows that the definition is too "broad". It is necessary to divide the local population into user-groups (women and men); also children should be divided into girls and boys. Only in this way it will be obvious which persons are the users of water. Looking upon the division of labour in production characterising the African rural areas, one finds that it is women's work to water the crops. It is, therefore, women who are the group which obtains most advantages from a water supply project as to saving time.

Table 1. The Division of Labour: % of Total Labour Hours

	Men	Women
Cuts down the forest, stakes out the fields	95	5
Turns the soil	70	30
Plants the seeds and cuttings	50	50
Hoes and weeds	30	70
Harvests	40	60
Transports crops home from the fields	20	80
Stores the crops	20	80
Processes the food crops	10	90
Markets the excess (including transport to market)	40	60
Trims the tree crops	90	10
Carries the water and the fuel	10	90
Cares for the domestic animals and cleans the stables	50	50
Hunts	90	10
Feeds and cares for the young, the men and the aged	5	95

Source: UNECA, 1975.

This division of labour shows that men are almost universally responsible for the initial heavy clearing of the new fields. But from that time, women progressively share or more often take over the work of sowing, weeding, harvesting, storage, processing, and marketing.

Another important factor to consider is the division of labour between the sexes in domestic work. It appears that it is the women who are responsible for fetching water for the family's daily consumption.

In the planning of a water supply project it is, consequently, of great importance to divide the local population into user-groups in order to get a realistic picture of whom primarily will benefit from an improved water supply.

2. Technology of Water Supplies

In water supply projects, emphasis is often placed on low-cost systems available to everyone, using self-help and voluntary labour wherever possible to reduce the investments required. The technology should be capable of small-scale applications, suitable for village use and local control. There are three main aspects of technical appropriateness to be considered:

1. health and sanitary appropriateness - fitness of the water supply techniques with respect to improvements in health.

2. functional appropriateness - fitness of the equipment from the point of view of design and performance, and its relevance to the objective of providing more water of better quality in a more reliable supply.

3. environmental appropriateness - fitness of the equipment to operate in the physical environment of the region concerned, and to avoid adverse effects on the environment.

Here we shall consider some social aspects of the technology question. Every village of course deserves the best possible engineering design for meeting all the main objectives, but given the objectives which seem right for rural water supply, the "best possible" may not always look as a good solution when measured against western codes of practice. Take for example the source of water. Local communities traditionally accustomed to surface supplies may not respond with enthusiasm to groundwater supplies. Once a system has been installed, they may object to a mineralized taste of the water. Sometimes their objections are based upon traditional beliefs concerning spirits inhabiting underground water.

Pumping water from a deep well can be hard work and becomes unnecessarily exhausting if the pump handle is too long or too short, or is placed at the wrong height for the operator's arm muscles to be used efficiently. Few pumps are well designed from this point of view and, in addition, they are usually installed by men who may forget that women or children (who will mostly use the pumps) require a lower handle position than a man would. Some pumps are also badly placed in relation to well-head structures, making them difficult to use. Misuse and damage to pumps often arises due to poor ergonomic design.

Supply systems must also be designed to cope with peak demands which may occur early in the morning or during the evening. Sometimes there may be peaks at both times. The supply system must be designed to cope with this, since otherwise the women will tend to use their traditional sources of water.

An approach to the collection and storage of the run-off water, and one which is well suited to small-scale application, is harvesting of rainwater as it runs off roofs or specially made catchment surfaces. For the individual woman, the collection of rainwater from her house roof can be an attractive option, because the water is usually very clean and can be stored in a tank standing close to the house. In Kenya, for instance, women's group have initiated the improvement of water supplies by constructing rainwater collection systems. However, only limited volumes of water can be obtained this way.

The successful application of technology depends vitally on the organisation, the discipline and skill of the people who shall operate and maintain it. The selection of technology therefore, should be seen in relation to the local social organisation (including institutions, training facilities, and so on). There may be an organisation at village level concerned with the allocation of responsibilities for maintaining the equipment, but it will often need to be backed up by organisations at local government level, as regards training, extension, maintenance and purchase of spare parts.

Both levels of organisation are important during construction as well as concerning operation and maintenance. Practical problems of construction are presumably easier to solve in self-help projects, since the enthusiasm of people is fairly readily sustained until construction is complete. Alternatively, where self-help is not involved, a government unit can design and install water supplies regardless of the village organisation. But maintenance cannot be dealt with in that way. Here, women, as the primary users, must play an important role, if only by preventing misuse of equipment and keeping it clean.

3. Maintenance and Repair

It is well-known that a large proportion (up to 50 per cent) of the water supplies installed in the developing countries are not functioning after the first 5 years. See e.g. Imboden, 1977[4], White et Al., 1972[5], Saunders and Warford, 1976[6]. It is also well-known that it is the women who are responsible for the supply of water for the household for different purposes. This does not only apply to the water fetching as such, but also to the construction of small-scale water supplies. In many West African countries the women construct during the rainy season a provisional water supply situated nearer to the household than the wells used during the dry season. In Ghana and Upper Volta it is the women who decide when to build a new permanent water supply.

What is less well-known (or recognized) is that women therefore should be involved as direct responsible for the maintenance. A water supply system involves various tasks in maintenance and repair which necessarily should be learnt by one or more persons of the local population. As women traditionally are responsible for water, it seems obvious that they should be trained in this work. This has for example been the case in Angola, resulting in a marked decrease in the number of repairs (Elmendorf et al, 1981[7]). This represents, however, an exception; in most cases men are trained and paid for doing these tasks.

Women have only in very few cases been trained in maintaining and repairing water supplies. This must partly be seen in the light of "traditional thinking" on the part of the planners in the donor countries - partly as a consequence of the fact that it is almost always the men who "seize" new technology in the developing countries. In both cases operates the old myth that women and technology do no fit together.

4. Water Supply and Health

Up to the middle of the seventies, the problems of quantity of water, distance and reliable water supplies were overshadowed by the issue of water quality which in turn was motivated by health considerations. The prevailing opinion was that the quality of the water was the primary factor to be taken into account in order to improve health. The problems of water supply were, in a way, synonymous with the problems of improving water quality. Several studies (see White et al, 1972[8], Saunders,1976[9]) have shown, however, that e.g. the rate of diarrhoea attacks decreases with the introduction of an improved water supply. The term "improved water supply" is to be understood in a broad sense as increased quantities, shorter distances and a more reliable supply. Feachem (1977[10]) claims that when water supply is improved in this way, then water quality is of minor importance as far as (non-water-carried) diarrhoea as well as skin and eye infections are concerned.

Another question on which increasing emphasis has been placed is the following. Water, which safely can be drunk at the place where it is fetched, might be injurious at the time when it is actually used. The container in which it is carried and the conditions under which the water is stored in the house, entails possible risks of pollution. These factors have not received proper attention as the general assumption was that many water problems (including health problems) would be solved by improved public water supplies. But as long as all households do not have their own water taps, these problems can only be solved by additionally providing more information on hygiene, danger of infection, etc.

In this connection the possibility of boiling the water might be problematic: many African countries suffer from an increasing shortage of firewood, and a woman who is to choose between boiling the water or serving a hot meal for the family, will probably choose the latter.

It should be mentioned that actually there exist a number of traditional methods for cleaning water, used by women (Jahn[11]). Unfortunately, these methods have until now been relatively unrecognized in the discussion of improved water supply, especially with regard to health aspects.

5. Effects of Improved Water Supply

The problem of evaluating the positive effects of an improved water supply is complicated by various problems of quantification since many benefits cannot be evaluated in economic terms. Also, it may be impossible to isolate the benefits from an improved supply of water. As to health effects, see section 4.

In most cases, a water project will result in a considerable reduction of the distance the women have to walk to fetch water, and, therefore, the women save time and labour. However, although the effects for the family as a whole are positive, they might be negative for the woman. A study (Whiting and Krystall[12]) showed that, as the distance to the water supply was reduced, the quantity of water carried by the women increased. The reason was that the shorter distance led to less participation of the children in water fetching. Of course, this is positive for the girls who now got the opportunity to go to school. The study (which was made in 12 local communities in Kenya) also showed that as the distance was reduced, the number of trips for water increased. Further, the shorter the distance, the larger the increase in the household's consumption. Finally, it turned out that, although the distance to the water supply was short, it did not necessarily result in an increase in time used on productive activities.

On the other hand, there are examples that women have used their time saved to increase productive activities, such as beer-brewing, poultry breeding, etc. The hours saved in water fetching might also be spent on education: school as well as vocational training. A precondition for this is that the women actually can utilize the time saved to increase production and/or get education. Thus, the water project should include a job- and education component which could be offered to women who are interested.

If, in a new water supply, cash payment is demanded for the water, the otherwise positive effects might disappear for the poor houscholds (and among these, female headed households) who cannot afford to pay for the water. This method of payment is used in e.g. Kenya and it might be conjectured that it tends to widen class-differences between married women and single women. On the other hand, it is conceivable that some are not willing to pay for water from a new water supply, irrespective of price, because they have access to a nearby situated well.

6. Participation

This problem concerns the involvement of the local community at the various stages of a water supply project, from initialising and planning, to construction, financing, and maintenance. It should be a truly cooperative situation in which outside expertise is combined with local knowledge, capability, and motivation. Since it is the women who are responsible for the family's water supply, it should, consequently, be natural to consult the women as to the site as well as the design. Furthermore, the women should be involved actively in the maintenance.

It is not irrelevant, however, how the women participate in the work on a water project. An example from East Africa showed that although the women formally were represented in all committees, they actually did not participate in the work (Roark, 1980[13]). An explanation could be that the committees dealing with construction and administration originally consisted of men and were supplemented at a later stage by women.

Therefore, the women had every good reason to feel marginalized.

If women are to be integrated in the work on a water project, this must be done by taking as a starting point that women should participate in public matters on equal terms with men. Furthermore, attention must be drawn to the fact that women traditionally have an organized, mutual cooperation. Actually, women cooperate formally (for example in women's organisations) and informally (for example the Ghanesian women's "Susu's", i.e. saving clubs). Some of these "organisations" do have some political influence and it also seems obvious to select the leaders of these groups as potential subjects for training in e.g. maintenance (see above and Date-Bah, 1980[14]). It is likely that such traditional, local structures could be applied with greater success than western-oriented, formal organisation structures.

7. Concluding Remarks

Women's work load(measured in working hours) in agriculture is considerable. Women perform most of the household tasks, among other things the fetching of water. A male worker who installs water pipes in a house in the city is considered "economically active". On the contrary, a woman who (one or two times daily) fetches 40 litres of water, is only doing household work. The fetching of water is, except from being a hard work, presumably not of any economic value; a hundred women who walk for water 2½ hour per day, means 250 hours which could have been used in productive work.

Although many nice words have been said about the huge work burden of women fetching water, most water projects are still planned without women being considered as an explicit target group. What is needed now is a new approach to rural water supply problems and projects in order to make the women more visible, in the sense that their crucial role in the tasks of watering the crops and providing water for domestic use is duly recognized. For a recent survey of rethinking women's role, see Falkenmark[15].

Since women will be the ones who benefit most from an improved water supply, and in order to achieve the visibility just mentioned, we should start thinking of the water sector as a women's sector, and, consequently, the sector should be feminised.

This means that women should be involved at all levels in the water sector, i.e. during planning, construction, operation, and maintenance. For example, local women should play an active role in the planning process (see also above) as well as in operation and maintenance. The local woman should not just be thought of as a source of the paid labour during construction.

Also, at the planning stage, in the donor countries, in the international organisations, and in the water ministeries, the employment of female administrators and technicians should be much more common.

Only be involving women everywhere in the water sector, there appears to be some hope of progress toward a solution of rural water supply problems which is truly beneficial to the local population.

NOTES

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