

Who cares about water?

by Jan-Olof Drangert

Successfully supplying water to households in rural areas is only partly a matter of technology; mainly, it is a question of improving or adapting the existing ways in which rural people organize their human and physical resources. A study carried out in Sukumaland, Tanzania, looked into what individuals had done (or had not done) — and why — by using a combination of observation, interviews, and water-testing.

ONE ESSENTIAL STEP towards gaining some understanding of people's actions in this context is to find out what rights and obligations apply to their water sources. In rural areas, these sources are rarely owned or used exclusively by one family; they are developed by one man or several men, and then function as one of the women's 'workplaces'. There is no evidence that wells and springs are considered to have any connection with private ownership. The source may have been developed by an individual, but it is for the benefit of the whole community; the use is for all, and no one can be denied the right to fetch household water from any source (unless, for some reason, the community decides otherwise). What incentives are there, therefore, for individuals within a tight-knit community to develop a *new* water source?

In a society in which there is little cash flow, it is quite possible to gain

status or be rewarded, simply by your neighbours knowing and acknowledging that you have provided the water source for the community. In the Sukumaland study area, it is clear that all the sources are available to each family. Cattle-watering ponds which, in fact, are for the exclusive use of the owner's cattle, are still open for household use by neighbours, even to the extent that, should there be a drought, the owner of the pond will remove his cattle (except the calves) and turn his pond into a resource almost exclusively for his neighbours' consumption.

Gift from God

The belief that water is a gift from God which no one can be denied, is so strong in these rural communities that, when it comes to analysing rights to the rainwater caught in pipes and tanks, an interesting ambiguity emerges. This form of rainwater catchment is a

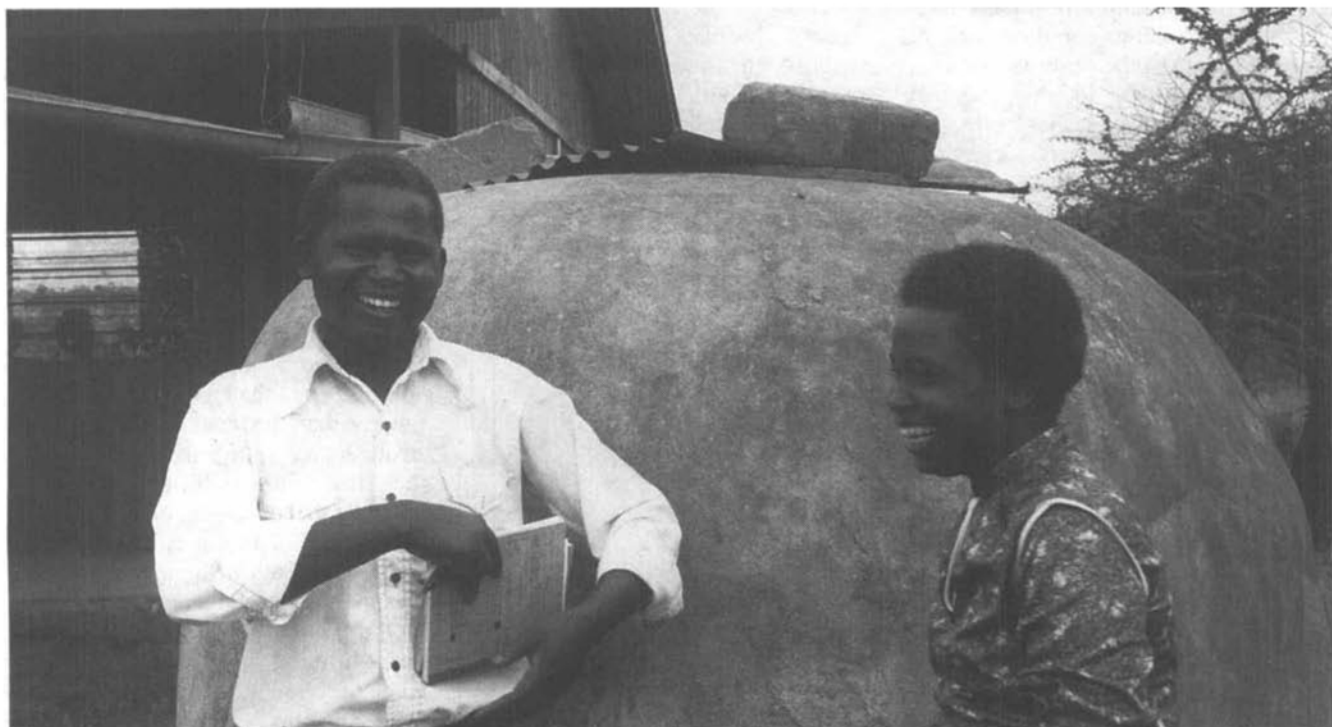
relatively recent technology, introduced after the Second World War, when iron-sheet roofing became popular. The tanks hold such a small amount of water that only the owner's close friends will be allowed to draw water. The villagers' discussions about the construction of large storage tanks for rainwater were influenced strongly by the idea of others using their *investment* without contributing anything themselves:

'The reason for not making a rainwater tank is that many people would be interested in drawing water from it and it will be emptied quickly. If I refuse them water, they will find me unco-operative, and this will destroy everything. I could charge a fee to recover my expenses, but they may then cause other problems, like *uchawi* (witchcraft). Without such drawbacks I would have tried to develop a tank.'

This is typical of the views commonly expressed by the Sukumaland villagers who, when discussing the building of large tanks to collect rainwater, seemed to favour individual ownership. This appeared to be because of the cash investment necessary for such an enterprise, rather than because of the tank's limited capacity. It is worth noting that the concept of private ownership only applies to a previously unknown kind of arrangement (in this case, the large tank introduced relatively recently) which is not loaded with tradition.

Who and how — maintenance

The upkeep of communal water sources is becoming a major issue in



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The introduction of a new technology comes complete with problems of ownership versus traditional rights. Is it worth it?

most villages, basically because the village populations continue to grow. In Sukumaland, a number of villages each has more inhabitants than the area covered by the former political unit (chiefdom). To compensate, not only have the villagers developed more water sources over the years, but each source is also used more intensively. This means that more people have to be involved to ensure the effective maintenance of each water source. In the past, the person living next to the water source took care of much of the maintenance, and there existed a tacitly agreed code of behaviour. If, for example, the number of families using a particular well had increased from ten to 30, keeping the area tidy would become a major burden for the self-appointed caretaker; he or she could not know all the drawers well and, probably, he or she would feel less enthusiastic about serving a larger group.

Making the switch to organize the users in a maintenance scheme, however, would be very complicated. In a Tanzanian village, a situation may arise in which the formal decision-makers either interfere, or are thought to be interfering, thus complicating the issue further. The village council is expected to be in charge of all village matters: any individual who takes on a new responsibility may be viewed as challenging the leadership. No one is going to feel comfortable with performing this role, and efforts to do the work in a more co-operative way will also be hampered.

If the result is that a water source is neglected, therefore, there may be no grounds for attributing it to the villagers' lack of interest, or their lack of knowledge about the benefits of taking appropriate action. In this type of situation, external agencies' offers of training and awareness 'creation'

would appear to be inappropriate, but this is often what happens. Consequently, the users may expect outsiders to continue to give support, as they have proved to be interested in the issue. To avoid this, an alternative system is essential, the most workable being a new division of tasks and responsibilities between different stakeholders in the community.

Quality as incentive?

In January 1993, researchers counted the faecal coliforms present in water samples taken from various sources of drinking-water in Sukumaland, during a relatively dry period between the short and long rains. No faecal coliforms were found in one-third of the water sources; four had less than 10 per 100ml., and one contained 21 coliforms. This can be classed as good-quality water which can be supplied untreated if treatment is not feasible. Another two unprotected springs, and two dug wells each contained less than 300 faecal coliforms and, therefore, should be improved by simple measures. Water from the two remaining village sources — each with more than 300 faecal coliforms, but less than 1000 per 100ml. — should be treated in some way before drinking; and all but one of the five rainwater samples collected fulfilled the World Health Organization's stringent recommendations. Most of Sukumaland's water sources were, therefore, of fairly good quality.

Source to mouth

Figure 1 illustrates what happens to the bacteriological water quality 'from source to mouth' by contrasting the data on the number of faecal coliforms present in the water at the source, with

the amount in the scoop, kept on the lid of the storage vessel.

The faecal count shows that 15 households experienced almost no change in the number of faecal coliforms, including eight homes in which there was no evidence of coliforms. Three households had improved the quality slightly before the water was drunk, while ten households had 'added' faecal coliforms at home or en route. But this is not the full story. There are two different ways of interpreting alterations in bacteriological quality 'from source to mouth'.

First, we assume that the villagers were accurate when they identified the source of the water contained in their storage vessel. The data shows, therefore, that about two-thirds of the 28 Sukumaland households had managed their water sensibly; and it was of good quality. Four households increased the number of faecal coliforms to above 100 per 100ml., while the water sampled from another four homes was equally contaminated on collection. In such cases, it is clear that the water had been contaminated by dirty fingers, as almost all the families' storage jars were covered with a lid to protect against animals.

A comparison with what the villagers claimed to do, such as always covering the pot, preventing their children from drawing water, and washing their hands, gave no indication of a correlation between behaviour and the incidence of coliforms. This indicates that finger-borne contamination occurs occasionally, or by bad luck. The food-item water is, therefore, destined for consumption, contaminated in the same way as all other food. Anyone infected by such drinking-water may be more correctly said to have been affected by finger-borne transmission, not by a water-borne one.

Which source?

The second interpretation makes sense if we assume that, in fact, some or all of the five householders, whose coliform counts had increased sharply, had fetched the water from lower-quality sources. Then the legitimate interpretation is that the contamination added 'from source to mouth', is less severe than the figure indicates. In fact, it could be that no household added more than some 50 faecal coliforms 'from source to mouth'. Moreover, for some reason, these villagers had collected their drinking-water from a source they knew to be of lower quality, ignoring what they knew to be sensible practices. The only way for the study team to find out which of these two interpre-

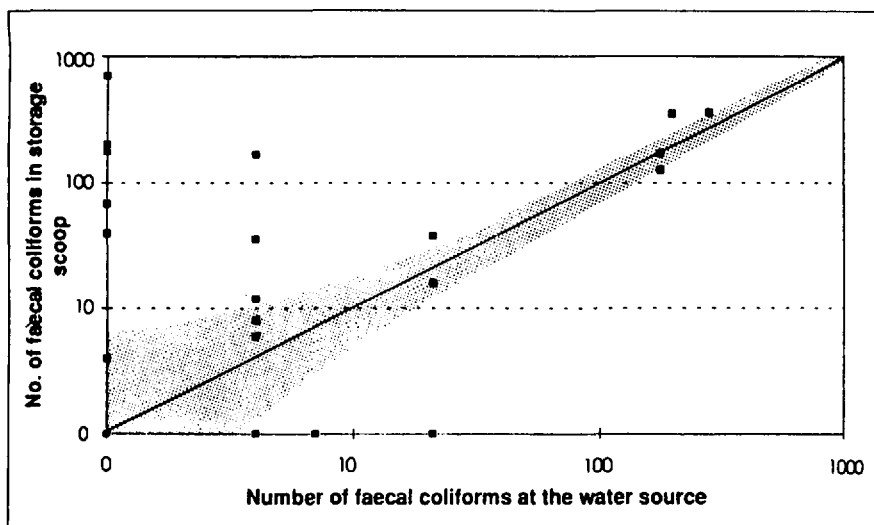


Figure 1. Variation in Sukumaland villagers' water from source to mouth.



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Many villagers cite long distances to drinking-water sources as their main 'water problem'.

tations was valid, was to observe the villagers' day-to-day handling of water, for a longer period.

Problems

Twelve villagers — six of the 17 men, and six of the 13 women — stated that water was a major problem. Seven cited the distance to the source as the main problem; four emphasized water quality; and one complained about queuing at the source. Of the 10 people who said that they lived more than a kilometre from their source of drinking-water in the dry season, seven were among the 12 who ranked water as a major problem. The other three rated distance as a secondary problem; one of these households used an ox-cart to fetch water, and the other two could call on several young people in the house to lend a hand. Only one villager — living less than 400 steps from the dry-season source of lower-quality water — considered distance to be a major problem.

Of the four villagers who rated unhealthy water as a major problem, two linked it to diarrhoea, while the others spoke of schistosomiasis. Only one person said anything about water tasting 'bad'; on the contrary, several said that their water tasted 'good'.

Distance

When the 18 people (11 men and seven women) who did not rate water as a major problem, were asked what, if any, water problems they did have, 16 specified long distances and the consequent drain on energy; and two mentioned unsafe water as a health problem.

One striking difference between the group claiming that water was a major problem, and those who thought of it as a secondary household problem, is the distance they had to travel to lower-quality sources. The discontented group faced a markedly increased distance in the dry season, whereas the others had to go about the same distance throughout the year. The actual distance does not seem to matter so much as the seasonal variation in the amount of time spent travelling to and from the source. It may be argued that, when the distance is considerable all year-round, people are used to it, or they use some kind of transport. If the distance fluctuates, people's routines and expectations change; is this an incentive for, or a constraint to, improvement?

Potential sources?

Another difference which could be gauged between the two groups

concerned the location of what are assumed to be 'potential' water sources. Those who considered that they had major water problems, had to travel approximately the same distance to both the existing wet-season sources of lower-quality water, and to the potential sites (already identified for new sources), while the 'potential' sites were much nearer to those who said that they did not have any major water problems. It may not be too far-fetched to suspect that some villagers, who could reduce their travelling times by developing these potential sources, had decided, for some reasons of their own, not to draw attention to their water problems. Whether they feared the consequences of developing the potential water sources on their own, or whether some other factor was at work, could not be determined. ●

References

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