



Water and livelihoods

Author: Stef Smits, February 2005

Quality assurance: Patrick Moriarty, Jo Smet & Sandy Cairncross

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People require water for a wide range of activities essential to their livelihoods, including both domestic (drinking, washing, cooking and sanitation) and productive needs (vegetable gardening, livestock, brewing beer, brick making, etc). Supplying water for these different needs can contribute to poverty alleviation. However, formal domestic water services often fail to address these different water needs in an integrated way. They typically focus only on the health benefits and not on the other livelihood impacts water can bring. The discrepancy between the needs of people and the design and management of water services leads to a number of problems, particularly by failing to capitalize on the benefits that catering to multiple needs can bring, and sometimes jeopardizing the sustainability of water services. This fact sheet illustrates these issues on the basis of a number of case studies. It also presents an alternative approach to the provision of water services in an integrated way based on peoples' livelihoods.

Policies and practices on water and poverty in South Africa

Current water services policy in South Africa aims to contribute to poverty alleviation through 1) the delivery of (free) basic water services and 2) the promotion of higher levels of water service that will support economic development and the use of water for sustainable livelihoods (this is called "stepping up the service ladder") (DWAF, 2003). Municipalities (in their role as Water Services Authorities) receive funds from the national treasury to provide Free Basic Water (FBW). Costs for higher levels of service are supposed to be borne by the users.

However, the reality is that stepping up the ladder is often made impossible by basic investment decisions. For example, the Alfred Nzo District Municipality (Eastern Cape) has advanced significantly in the implementation of FBW by paying for all Operation and Maintenance (O&M) and management costs of water supply in the district. The total costs of this are affordable to the municipality. However, the municipality limits the supply to about 25 litres per capita per day (lcd) for all users. The service is limited by providing street taps and not household connections. In addition, very small pipes are used to limit the actual supply capacity of the infrastructure. In other words, in Alfred Nzo people are not given the option to step up the ladder, as that would imply a more difficult form of management, possibly including metering and billing of the water for those who use more than the basic quantity. This sometimes leads to users making unauthorised connections, affecting sustainability of the services and conflicts within the community.

Other municipalities are also struggling to implement FBW. For example, they run services that provide higher amounts of water, but without proper metering or billing systems in place. Users often receive 'free water' instead of 'free basic water'. This puts enormous strains on municipalities' budgets and makes these free water services unsustainable. In other places, communities have stopped paying for their water services, while the municipalities do not yet have FBW arrangements in place. Many of these services have collapsed (see for example, Kgalushi et al., 2003).

At the other end of the spectrum we see rural communities that manage their water service without any outside interference. In Tshiungani (in Vhembe district), for example, all users pay the same fixed amount per month to cover the O&M costs of their systems. In return they receive a continuous water service of above 25 lcd, including water for cattle and other productive uses. The community has stepped up the ladder. However, some families consider the tariff system unfair as everybody pays the same amount, irrespective of their consumption. Those not engaged in productive uses subsidise those who are not.

In conclusion, the current policy on water and poverty has led to water services provision characterised by varying degrees of sustainability, equity and impacts on people's livelihoods. Despite the good policy intentions there is more work to be done to reach the full benefits. These endeavours are not unique to South Africa, nor do these cases stand on their own, as will be clarified in the sections below.

Water and livelihoods

Water plays an important role in people's livelihoods. Chambers and Conway (1992) refer to livelihoods as "comprising people, their capabilities and their means of living, including food, income and assets. A sustainable livelihood is one which can cope with and recover from stress and shocks, and provide for future generations. Capability, equity and sustainability are the fundamental means and ends of sustainable livelihoods". water plays an important role in many aspects of people's livelihoods. Access to adequate water supply can enhance a wide range of assets; both tangible and intangible (see Box 1).

Box 1. Potential livelihood impacts of improved water supply

- **Better health** – more and better quality water contributes to reducing disease. Healthy people are able to work and live more productive lives.
- **Time savings** – time and effort spent collecting water can be reduced. This time can be put to other activities.
- **Expenditure savings** – improved water supplies lead to reduced expenditure on water provided by water vendors, and less money is spent on the treatment of illness.
- **Empowerment** – water projects may help to empower the powerless to participate in community decision-making.
- **Community capacity** – This is a pre-requisite, and often an outcome. Capacity building of local organisations will be needed to sustain water services. If properly done, these can also strengthen the capacity of local organisations in areas like decision-making and financial management.
- **Food security/ nutrition** – improved water supplies can make backyard irrigation or keeping livestock easier. Home-based production may be small in amount, but is often nutritious. It may be a secure form of food in case of shocks.
- **Productivity and income** – improved water supplies can make other productive use of water possible and generate employment and income.

Based on: Moriarty and Butterworth, 2003

Whereas the impact of water supply on health has been widely accepted (Cairncross et al., 2003), the other impacts are less well documented and accepted, although they are just as real. A study in Gujarat (India) revealed that rural women put the time saved by improved water supply to other

productive activities. In this way, each woman could save between £10 and £77 per year (James, 2004). In Nicaragua, rope pumps are not only used for domestic purposes but also for backyard gardens and other productive activities. The additional income out of these activities is on average US\$225 per year (Alberts and van der Zee, 2004). Pérez de Mendiguren Castresana (2004) found that poor people in the Bushbuckridge district (South Africa) obtained 17-33% of their average yearly income through small-scale productive activities, in which water was a crucial input. During the recent droughts in Zimbabwe, small productive water points proved to be a reliable input to small-scale food production when the major crops failed (Robinson et al., 2004).

However, the impact of water on poverty is not always clear or equally distributed. Hope et al. (2003) found that the better-off in a village in South Africa were actually the ones with best access to water supply and hence in a better position to get the full benefits of this water. Neither is water always the most important constraint to people's livelihood options. However, it is generally clear that improved water supply has the *potential* to have a positive impact on a number of aspects of people's livelihoods.

The problems

Despite the potential, few water supply systems, and the institutions governing them, have been designed with people's actual livelihood needs and behaviour in mind. Few water services really achieve their full potential, and worse still they often lead to new problems and conflicts. Like in Alfred Nzo district, many systems are only designed to provide basic amounts of water, and so deny people the opportunity to use water for small-scale productive uses. In other places, irrigation systems have been developed to provide water only for crop production, yet many people in arid areas, such as Morocco or Pakistan, depend on the irrigation canals as their only source of drinking water (see Jensen et al. 2001; Boelee and Laamrani, 2004).

When there is a mismatch between people's water needs and supply, sustainability, efficiency and equity of the services frequently become threatened. If the total amounts supplied are not sufficient, some villagers may use more than their fair share of water (often through unauthorised connections), leaving others without any. In other cases, water quality may be an issue. For example, in the village of La Castilla (Colombia) a conflict emerged when a new water treatment plant was constructed. Some users argued that the treated water is expensive and that it should not be "wasted" on irrigating crops. Other users depended on those crops for their livelihoods and were not so interested in good quality water; quantity was considered more important.

"We can always drink coffee instead of water, but we need water for our vegetables and cows".

Hugo Valdez, farmer in Colombia

Ignoring people's actual needs denies them the opportunity to get all possible benefits out of the water supply; it can also lead to the collapse of the water service itself. The root cause for this seemingly paradoxical behaviour, i.e. providing water supply services that only partially meet people's needs, lies in the division of the water sector into a number of discrete sub-sectors: drinking water and sanitation, irrigation, water and environment, etc. These sub-sectors hardly ever work together, coordinate their actions or try to address issues relevant to all of them in an integrated way. Traditionally, the drinking water sector has focussed exclusively on health benefits, and hence hardly ever considered the productive needs of poor people. Equally, the irrigation sector

is concerned with water only for crop production only. Water requirements for cattle are often not even considered by irrigation engineers. While users do not see their water needs from a sub-sector point of view, the reality is that institutions and projects operate almost exclusively within their own narrow area of interest.

A way forward: the MUS approach

In order to start addressing the different potential benefits of water projects, a Multiple Use Services (MUS) approach is proposed. The MUS approach is understood as *“an integrated way of planning and managing institutions, resources and infrastructure to sustainably and equitably meet people’s water demand’ for water for multiple uses to enhance their livelihood options”*.

In practice it means that in the different phases of the project cycle, discussions need to be held between end users and external institutions around:

- the multiple livelihood strategies and activities of people
- their multiple water needs and demands
- the multiple water resources available to them
- the infrastructure and institutions required to bring those together

The MUS approach consists of methodologies and tools to help making participatory decisions around each of these issues.

Demand for water in people’s livelihood strategies

The basis for the MUS approach is the analysis of the current and future role of water in people’s livelihood strategies and activities. A number of agencies have developed approaches to development based on a livelihoods framework. The UK Department for International Development (DFID) has been one of the first agencies to use this framework (for more information, see DFID and IDS, 2000). The MUS approach builds upon this and other livelihood frameworks by focussing on the role of water in people’s livelihoods. For an example of a methodology, currently being developed that tries to work this further out is SWELL (Securing Water to Enhance Local Livelihoods) (see AWARD, 2004).

Multiple sources for multiple uses

Another critical issue in the MUS approach is the recognition that people may access and use multiple sources for their multiple uses. Providing water for multiple uses does not mean that all this water has to come out of a single pipe. Improved planning may actually mean that good quality water for domestic uses is extracted from a borehole, while grey water may be recycled for use in the backyard garden. This may become especially important when water quality and quantity need to be balanced. In the case of La Castilla, for example, a solution might be to look at the possibility of using rainwater or grey water for the vegetable gardens and to use the good quality water for domestic purposes.

Appropriate technologies

The issue of appropriate technologies is very much linked to the previous point, as technology is the means by which water is abstracted and conveyed from the source to the place where it is used. A number of technologies have been developed that seem especially useful in the context of the MUS approach, as they are able to combine relatively good quality with a minimum quantity of water for production. These include the rope pump, village ponds, drip irrigation kits and combined piped systems from springs. A number of these technologies are described in NWP (2004).

Institutional and financial arrangements

As with any water service, multiple use services require their own set of institutional and financial arrangements, at different levels. At national level, norms, standards and regulations must be developed in such a way that they promote and endorse a MUS approach.

At the district level, where the actual integrated planning will take place, this requires coordination and joint planning, monitoring and support between local authorities, NGOs, CBOs and the relevant private sector actors. At community level, internal mechanisms need to be defined for the day-to-day management of multiple use water services. These include amongst others rules and regulations, financing mechanisms, O&M arrangements etc. At the moment specific options and methodologies for these are still being developed.

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¹ Demand is understood neither as absolute economic demand nor as a vague 'wish'. Rather it implies a requirement for water based on a realistic understanding by the users of the likely costs and benefits associated with it.

Regional annex for East Africa: access to water and improved livelihoods

Author: Gerald Rukunga, David Mutethia and Titus Kioko, AMREF, Kenya , March 2005

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Introduction

Close to 40 million people in Uganda, Kenya and Tanzania do not have access to safe water supply services. In these countries water coverage in both rural and peri-urban areas is still low (see table below).

Country	Population in millions	Water coverage
Kenya	31.6	59%
Uganda	25.6	50%
Tanzania	35.9	54%

Most of the efforts in improving the coverage of water supply, only focus on providing water for basic needs such as drinking, washing and cooking. Health objectives are the moving spirit and the focus of the water (and sanitation) interventions, and they are found at the top of every logical framework.

At global level, there is a realization that water services can also have other benefits essential for improving people's livelihoods, not just health.

- Good health and growth
- Food security and nutrition
- Expenditure saving
- Time saving
- Environmental sustainability
- Poverty reduction

The reverse of this is that if safe and adequate water is not provided people suffer negative impacts, among them are:

- Poor school attendance
- Food insecurity
- Poor nutritional status among both children and HIV/Aids affected persons
- Decreased productivity

In East Africa, this realization has for now not been translated into mainstreaming a livelihoods approach to water projects. The main reason for this is that there has been very little examination of the specific ways in which water sector interventions address poverty and livelihoods in general. This fact sheet provides some case examples on how water projects can support livelihoods.

Improved food security

Malnutrition is common, mostly in rural and drought stricken areas. In Kenya approx. 30% of children under the age of five suffer from chronic malnutrition; almost 6% are severely malnourished and 20% are underweight. To a large extent a lack of water is to blame for this as most of the communities in these areas rely on agricultural activities for their livelihoods.

There is an increasing trend among the communities in East Africa, for example in the arid and semi-arid lands in Kenya, to use water for food production. The water available is used to grow vegetables and fruits which help improve communities' food security and nutritional status. Any extra being sold to generate disposable incomes for the households, thereby contributing to poverty reduction. Organizations such as Kenya for Water for Health Organization (KWAHO) now promote and support such initiatives.

Nguuru-Gakirwe a community based water supply project in Meru District of Kenya, was started in 1985 with a purpose of providing water for domestic use and for irrigation purposes. The farmers mainly grow horticultural crops such as cabbages, Okra, tomatoes, kales and onions for sale locally and in major towns. In addition, they also grow nipier grass for their livestock. On average the farmers have up to 1.5 acres under these crops. Consequently food security has improved according to the local catholic diocese reports. It is estimated that farmers' incomes have increased from an average of Kshs. 12,600 (± 145 USD) per household per year to an average of Kshs. 42,000 (± 485 USD) per household per year.

Income generation

Similarly, these communities are using water to establish tree nurseries and grow seedlings, which are used for afforestation in an effort to conserve the environment while revenue from the sale of the tree seedlings is used to improve the income status of the beneficiary communities.

Communities also use the water to make burnt bricks for construction of their own houses and the sale of bricks can also act as an important source of income for poor households.

Reducing expenditure

Providing safe water at affordable rates to the urban poor drastically reduces water expenditure which has been significantly high. The revenue saved can then be channelled to meet other family needs, as in the example below from Kibera.

WaterCan (NGO) has been providing safe water to the residents of Kibera slums in Nairobi, Kenya by constructing water storage tanks fitted with taps and connected to the main municipal water system. It reports that to date it has been able to provide water to 1000 slum dwellers who can now obtain safe water at a cheaper price. This has mainly benefited the poorest households who previously spent 50% of their income just to meet this basic need. They can now save money to cater for other family needs.

Reduced drudgery

The loss of time and energy in collecting and carrying water from afar only adds to the unfortunate direct threats of unsafe water.

Conclusions

Whereas the impact of water supply on health has been widely accepted, the other socio-economic impacts are less documented and accepted in East Africa. Although there are some good examples in which water projects have aimed to take a broader livelihoods approach, this is far from being mainstreamed. Addressing the challenge related to lack of water requires a subtle understanding of several factors which include the nature of the resource, the wider poverty environments in which millions of people live and the politics within which problems are framed.

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For further information contact Gerald Rukunga, AMREF, Kenya at rukungag@amrefke.org

