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**ACCESS TO SANITATION AND SAFE WATER:
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS**

Sustainability of rural water supplies through monitoring

A. G. Koestler & L. Koestler, Norway

Several years of experience from rural water supply projects in Uganda show the importance and potential of collecting and processing data at different stages and levels in the project process. Through established reporting and monitoring systems, the implementing agency and donors are provided with important information, both for a more effective follow up of the project and to document lessons learned that can benefit future projects. In addition, monitoring routines have shown to have an immense positive impact on the motivation of local communities to properly administrate, operate and maintain their water supply system, a key factor to achieve the overall goal of sustainability.

Introduction

In the process of working towards sustainability of rural water projects, both the developing agency and the community go through an extensive learning process. Through our water projects in Uganda we have been able to observe how Fontes as the implementing NGO progressively acquired information about the unique setting of each project, and how the community simultaneously learned how to run and maintain a water system and supply their own village with safe drinking water. This learning process has proven to have an important potential that is often underestimated in similar projects. The examples in this paper are drawn from water projects based on water treatment plants that use simple filter technology with a diesel driven pump, sedimentation with aluminium sulphate, a sand filter, a coal filter and disinfection with chlorine. The first system was installed in 2004 (see Koestler 2005), and five additional systems were installed during 2006 and 2007 together with a Norwegian Company (Scan-Water) and the Ministry of Water and Environment in Uganda.

Sustainability as a goal

The concept of sustainability implies the achievement of meeting the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland 1987). It formulates the goal to achieve long-lasting, well-functioning and affordable solutions accommodating the potentials and limitations of a given setting. In the context of a water project, sustainability can be understood as the capacity of the local community to look after the water system with minimum external assistance, and to deliver a sufficient amount of water to a reasonable price. This is achievable despite the fact that technical components often have a relatively low potential for sustainability. In addition to the selection of appropriate technical solutions, a decisive factor to approach sustainability is the motivation of the local community to take care of their environment. The best way to illustrate this point is to think of a car (Koestler 2005). The car is always running not because the tires, chassis or motor components taken individually are sustainable. It is the motivation of the driver to maintain the car, his or her personal enthusiasm or simply his or her individual laziness to walk which makes the car to a long-lasting tool. This has also shown to be true for water supply systems. As soon as it is understood and experienced that water is essential for the living and well-being of people, it motivates people to properly operate and maintain their system. Having realised the importance of genuine motivation for sustainability, monitoring becomes the indispensable tool.

Monitoring in a broad sense

For our purpose, monitoring is an integrated part of the project process from the very start and is approached at different levels of the project integration (see Fig. 1). Communication within the community, between the

implementing partners and the community, and between the community and the authorities has to consist of an open, challenging and free flow of information relevant to the water project. This means that monitoring is everything from the reporting of water quantity from the local technicians to the water committee, to a socio-economic baseline survey carried out by the NGO. What makes the established methods of collecting various data at different intervals a monitoring system, are established routines of data flow in addition to proper means to report and process data. For us, the monitoring process is not finished until information is transformed into lesson learned, and necessarily, lessons implemented.

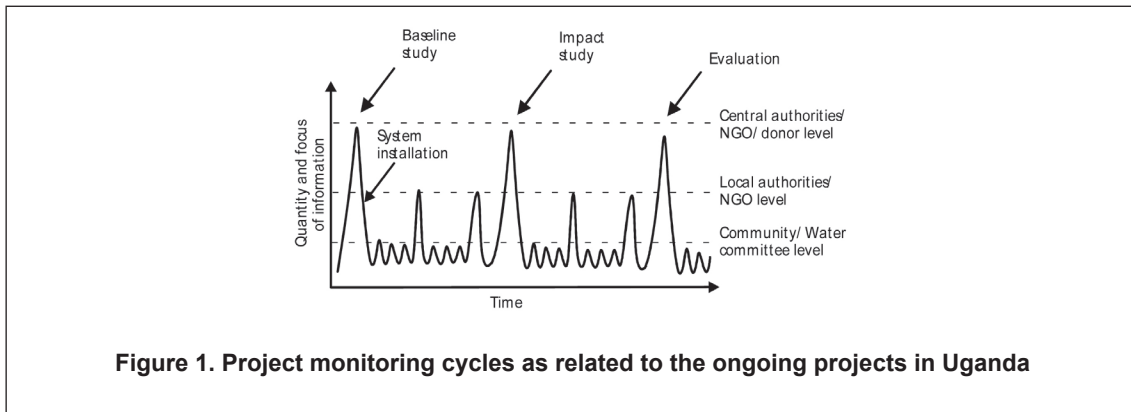


Figure 1. Project monitoring cycles as related to the ongoing projects in Uganda

Monitoring with a long-term perspective

From projects that have been running for years, such as the water treatment system in Katunguru, we have learned that different parties such as the community, our organisation as the implementing NGO, local authorities, partners and donors have been interested in different types of information at different stages of the project process. Controlled information flow between different levels also seems to positively influence the sustainability of the installations. In an initial phase, for example, it has proven to be important to closely monitor the quantity of water that the local technicians are able to deliver. Both for the water committee and the NGO the quantity of provided water was an immediate indicator of the well-functioning of the project.

On community level, monitoring systems result in more frequent communication, and enhance transparency. Where communities have to pay for water, which is usual in many parts of Uganda, there are often sources of conflict, corruption and mistrust. In Katunguru, the local technicians were several times faced with complaints and allegations that they were asking for more money for fuel and chemicals than was necessary for a certain amount of treated water. The difficulties for the water committee to control the water quantities and the mistrust eventually led to the consumers refusing to pay. With the installation of a water meter in June 2007, the consumers and the water committee are now able to control exactly how much water the technicians have produced, and incomes of the committee have again started to increase.

The water committee has a key role in administrating the water system. It is responsible for the accounting and financial issues, and also discusses technical problems or new investments for improvements of the system. Nevertheless, it has shown to be difficult to motivate community members to work on a voluntary basis, and a substantial effort of training has been necessary in order to give the committees the capacity they need to administrate a water supply. In Katunguru, after about 20 months of operation, there was a period with mismanagement and the committee members started to resign. Fontes helped to establish a new committee and a monthly reporting system was introduced in order to closely monitor the developments. Information about incomes and expenditures, water quantity and quality, problems and solutions were reported from monthly committee meetings to the NGO. This made it possible to address problems before production was affected, and it helped the project coordinator to plan for future activities and funding. Many of the ideas from the committee were interesting suggestions that have been included in the NGO strategy and used in other projects. At the same time, the need for proper reporting increased the frequency of meetings of the committee. This had an important impact on the whole management of the water supply. During the meetings, misunderstandings were cleared up and problems and solutions discussed. Because the committee had to submit reports, it was encouraged to take decisions and not only to talk. In this way, the local representatives learned how to work together, how to reach a consensus and how to solve problems in a democratic way. For many of the members it was an important experience to recognise that it is possible to change their living conditions through cooperation and working in an elected group. In addition, the committee served

as a model for other community based organisations. In Katunguru, experiences from the water committee have started to show creative results, and in February 2007 a micro-finance group was established at own initiative. We believed that a great step towards sustainable development is taken when the communities start to take their future into their own hands.

Providing some of this information to monitoring systems at district and national level, as well as to the implementing NGO and donors, has the relevance to interlink all involved parties with the operation and maintenance of the water system. Uganda is in a process of decentralisation where responsibility and authority is given to districts, but still needs time to institutionalise the changes. However, already now, sub-county and district levels are involved in these projects and receive all reports. Information feeds into the national plans to provide safe water to all rural growth centres, but substantial efforts are needed to properly coordinate these data for improving both the quality and quantity of water supplied.



Photograph 1. Water committee members in Lwanika, Uganda, discussing the water quality

Source: Koestler, Fontes

Designing an improved monitoring system

Many NGOs go through similar learning processes, and possess important experience about community work and the link to a technical water supply. Nevertheless, often the experience is not properly reported or documented, and lessons learned are not passed on to other agencies or implemented into new projects. This is another powerful reason for the design and establishment of a proper monitoring system. We emphasise the importance of the selecting, filtrating and limiting of relevant information, in order to avoid that the monitoring system becomes just another administrative procedure that increases paperwork. In addition, there are physical obstacles to overcome such as sending information back and forth to remote communities. Therefore, the data communicated at any time should be reduced to a minimum, also in order to ensure the privacy and the dignity of the local communities. The monitoring system is not part of an academic research, but should always have a clear focus on the community and the needs of the water project.

Table 1. Monitored project information at different time intervals			
Interval	Flow of communication	Type of data	Monitoring technique
Daily	From technicians to community	Water quantity	Water meter, communal notice boards
Monthly	From technicians to water committee	Technical information regarding system, need for funds for chemicals, maintenance etc	Discussions during water committee meetings, writing of reports
Monthly	From water committee to community	Accounting	Meeting reports, communal notice boards
Monthly	From water committee to NGO/local authorities	Quantities, price, accounting, problems encountered and proposed solutions, fund requests	Meeting reports
Every six months to two years	From NGO to donors/central authorities, from local authorities to central authorities	Indicators about changes in health situation, economic development, well being, hygiene practices, income etc.	Base line study, impact studies, evaluation

The monitoring system can be seen as a sequence of monitoring cycles (see Fig. 1) by giving information to different administrative levels within different time intervals. Table 1 indicates the type of data monitored. As argued above, some information should be monitored on a daily basis and made available to the community. Other types of data are monitored better on a monthly basis, such as water committee meeting reports. In order to study the impact of the water project on community health and economic development, the initial base-line surveys should be followed up after 6 months or one year, which has to lead to a proper analysis of the achieved changes. This information is also of interest to donors that are getting more and more interested in quantitative data to measure the impact of their funding.

However, the monitoring is not complete without the possibility to progress and learn. Therefore, in addition to establishing communication routines, a system is under development to process the figures on water consumption and related costs to provide immediate feed-back to the communities. With data technology and mobile communication over large parts of Uganda, there is a great potential to create a system where active monitoring will reduce time and resources of project coordination. Fontes is currently working to develop a system using GSM technology (mobile phone networks) where water quantity information and other related data are sent by SMS to the NGO headquarter in Uganda where data are processed and presented graphically through a specially programmed web-based "Cockpit".

Conclusions

A monitoring system does not only provide project coordinators and donors with reliable data, but has positive local effects that should not be underestimated. Through establishing a monitoring system from the early stages in a project cycle, we have tried to ensure that routines are continuously followed with the aim to mobilise and maintain the motivation of the people for their own water system. Especially committee members and local technicians have shown to become more enthusiastic about taking care of the water supply, something that represents a key factor for sustainability. Through different monitoring cycles based on different types of data collected in different intervals, a minimum of disturbance is ensured and respect of the local community and the personal dignity of the beneficiaries can prevail. Nevertheless, the positive impacts and benefits of a monitoring system have so-far been largely underestimated by developing agencies, something that often results in lack of allocated funds for this purpose. We argue that a monitoring system can be introduced with minimal efforts and resources, and should be an integrated part of the project process, from the beginning and even after the project is terminated from the view of the implementers. The improvement of the monitoring system in the course of our water projects in Uganda has created routines and communication patterns in the community that seem to persist also after we left the implementation sites, and if this can continue, the projects will have taken an important step towards sustainability.

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Contact details

Andreas G. Koestler
 Fontes Foundation
 Bernhard Herres vei 3, 0376 Oslo, Norway
 Tel: +47 907 52 856
 Email: andreas.koestler@fontes.no
www.fontes.no

Lucrezia Koestler
 Fontes Foundation
 Bernhard Herres vei 3, 0376 Oslo, Norway
 Email: lucrezia.koestler@fontes.no
www.fontes.no
