

Water Supply and Sanitation Programmes Shinyanga Region, Tanzania 1990-2006

IOB Impact Evaluation | no. 305 | May 2007

Main findings, lessons and issues

Introduction

From 1971 to the end of 2006 the Netherlands has provided support to rural water supply and sanitation development in Tanzania, Shinyanga Region. Over the years, these programmes made the transition from construction and rehabilitation of improved water sources (mostly shallow wells) to support to water user communities to establish Water User Groups or Associations and manage their water and sanitation facilities for a long period of time. In addition, the programmes increasingly focussed on capacity building of stakeholders in the public and private sector to support communities to achieve this objective.

The recently completed Rural Water Supply and Sanitation Programme (2002-2006) had been designed and implemented in line with the National Water Policy (2002), and served as a reference for the national Water Supply Development Programme (2006-2010), rural water supply component. The Netherlands support to the Shinyanga programme has come to an end. The Netherlands now provides sector budget support to the Water Sector Development Programme.

To gain insight on the impact of the programmes on the rural population of Shinyanga Region, the Policy and Operations Evaluation Department (Dutch abbreviation: IOB) initiated an impact evaluation covering the period from 1990 to 2006. This is the first in a series of impact evaluations of Netherlands-supported water supply and sanitation programmes. The evaluation coincided with the final scheduled review of the Rural Water Supply and Sanitation Programme (RWSSP), a joint activity of the Ministry of Water and the Royal Netherlands Embassy. The impact evaluation and the final review have been merged. In addition to the impact of the programmes, the contribution of the institutional strategy to sustainable results was assessed.

The purpose of the evaluation is to account for the long term support provided and draw lessons for policy development and/or implementation by the concerned development partners at national, regional and local level.

The methodology for the evaluation has been a mix of quantitative statistical and qualitative methods and techniques. The main data collection technique for the quantitative impact analysis has been a survey using a random sample of communities with and without Water User Groups. In addition, test kits were used to assess the quality of the water from the main source used for drinking, and diagnosis data recorded in dispensaries were collected.

Main findings

1. A substantial increase in the coverage of the rural population of Shinyanga Region with access to an improved water source has been achieved. However, reaching the national targets for rural water supply is still a major challenge.

At the end of many years of support, the proportion of Shinyanga's rural population that has access to improved water sources has risen to about 43%, up from a reported 10.5% in 1992. The increase equals about 1.1 million people over a period of fifteen years. The large majority of water schemes are constructed with Netherlands support. Taking into account the scarce water resources, scattered population in Shinyanga region, and the estimated total cost of the programmes since 1990 of approximately EUR 20 million, this is a major achievement.

However, about two-fifths of the Water User Groups in the survey reported that, in addition to the well, other (unimproved) water sources are still used for drinking water, although varying by season and share of households. A little less than half of those Water User Groups surveyed reported that not all households in the community are members, and non-members are not allowed access to the well. The coverage of the population with access to an improved water source is still less than the estimated national rural average of 54% (2006). Rapid population growth (3.3% p.a. between the 1988 and 2002 censuses), increasing pressures on scarce water resources, and the necessity of more expensive technologies in areas where

shallow wells are inappropriate or population densities are higher, mean that the achievement of national targets for access to an improved water source (a coverage of 65% in 2010 and 90% in 2025) is still a major challenge.

2. The quality of the water from the wells requires more attention.

The water quality analysis facility of the Ministry of Water in Shinyanga has carried out physical and chemical analysis of the water in new wells. The wells were subjected to bacteriological analysis, and disinfected before being put to use. Thereafter, no regular bacteriological or other monitoring has taken place. The study included water quality testing in each of the communities included in the study sample. The quality appeared quite high for ammonia, nitrate, sulphide and iron. However, fluoride content is high: the levels found in most cases were lower than the norm set by the Government of Tanzania, but higher than the WHO norm. Three quarters of the wells yield water with coliform bacteria indicating that the water is not sufficiently treated with chloride.¹ Water quality may be further affected by both carrying it home from the source, and storage at the homestead. Members of Water User Groups are generally aware of water quality issues, and have been advised to boil water before drinking. However, the majority of users do not follow this advice. Many users refer to the supposedly standard procedure of chlorinating wells quarterly, but report that in practice this happens infrequently or irregularly, if at all.

3. The programmes have resulted in a significant reduction in the time women spend fetching water. They also resulted in gender-balanced management committees. However, women's effective participation and gender sensitivity in water supply management leaves room for improvement.

Fetching water is typically a woman's task and, to a lesser extent, a girl's. The mean time per trip to fetch water within Water User Groups is now little less than half an hour. Time use has fallen substantially, by about 60%. The 'extra' time women now have available is spent mainly on housework, firewood collection and field work. Girls spend their extra time partly on housework and firewood collection, while about 40% of the Water User Groups reported that it is used to go to school. In line with the national rural water supply policy goal on gender sensitivity, Water User Groups generally conform to the standard of a gender-balanced management committee. However, some women office bearers are still dominated either by male colleagues or by other senior men in the community. When water supply problems arise, there is less urgency for men to tackle the problem than for women, because it is the latter who must obtain water from alternative, usually more distant and difficult-to-draw sources. Most water collection continues to be done by women, while men are more prominent in commercial water selling.

4. The hygiene and sanitation strategy has raised awareness on the importance of good hygiene and basic sanitation. Some evidence of good hygiene practices was found, but not at all critical times. Most households use simple pit latrines made of local materials.

The Participatory Hygiene and Sanitation Transformation (PHAST) approach, adopted in 1997, has become an integral part of the approach to rural water supply. Members of Water User Groups clearly revealed knowledge of good hygiene and sanitation practices promoted by this approach. The vast majority of the Water User Groups in the survey reported that children wash their hands before meals, but not after toilet use. On a very positive note, simple pit latrines were already being promoted by the Government of Tanzania (GOT) in the 1970s; most households continue to use this type of latrine made of local materials.

¹ The water quality test kit used detects general coliform bacteria and does not give specific information on the presence of *E. coli*.

5. The population's health has been improving over time, even in communities without a Water User Group. In addition, a strong and significant effect on health improvements was found of a community's status as Water User Group.

Water User Group members reported substantial improvements regarding the incidence of a number of diseases. Statistical analysis indicates that the switch from unsafe (open) water sources to wells is an important factor in explaining these health improvements: communities which have made such a switch have experienced a substantial reduction in the incidence of those diseases. These coefficients were statistically significant for eye infections and scabies. A similar analysis was performed using data on the incidence of diseases collected from records kept at local dispensaries. This analysis indicates that the use of improved water sources for drinking water is an important determinant of the incidence of a number of water-related diseases. The effect is statistically significant and remarkably strong for four diseases: malaria, diarrhoea, intestinal worms and scabies. For example, if households' use of improved sources for their drinking water increases by twenty percentage points, this then reduces the incidence of each of the four diseases by over 20%.

To investigate whether the differences in incidence could perhaps be due to factors other than improved water sources, 'fixed-effects' regressions² (that can eliminate the effect of such differences - at least to the extent that they do not change over time) were run. In this case, significant (and strong) effects for dysentery and diarrhoea were found. However, the fixed-effects results could still be due to the confounding effect of a trend (a variable that *does* change over time): health is generally improving over time, even in communities without Water User Groups. Survey data were used to test this hypothesis and found that, in addition to a positive general trend in health (which in itself is a very encouraging finding), there is a strong and significant effect of a community's status as a Water User Group.

6. The institutional strategy adopted has contributed significantly to the achievement of sustainable results. However, sustainability is not yet assured.

Commencing in the 1980s, the transition from a focus on construction and rehabilitation, to a step-by-step process approach towards support by government and private sector to user communities owning and managing their water facilities, has been crucial for the success of the programmes. Roles and responsibilities of all parties concerned have now been clearly defined, and are generally well known, understood and practised. These arrangements represent a significant step forward. So too does the harmonisation of programme planning with district council planning cycles. Much progress has been made in developing capacity at all levels, notably among Water User Groups and Regional and District Water and Sanitation Teams, as indicated by the speeding up of implementation over the years and the increase in the percentage of constructed wells that are operational (currently about 90%). NGOs and the private sector have increasingly important roles to play but still lack the capacity to fulfil them adequately or at all. At all levels the emphasis so far has been on implementation: installing technical and institutional capacity without necessarily ensuring that the institutions at user level will function in the long term. There is growing awareness of key environmental sustainability issues, but little capacity so far to address them. Operational technical sustainability is not assured because financial sustainability is not yet assured: it is not clear that users will have the resources for future maintenance and replacement of the infrastructure. Prescribed maintenance bank accounts have often proved of little use and have even resulted in a financial loss for many Groups. Although the shallow well technology developed in Shinyanga is cost-effective from a construction point of view, its sustainability is not yet fully assured for financial and institutional reasons. Most fundamentally, more needs to be done to secure the (gender sensitive) institutional sustainability of water user organisations on which positive impact in the sector ultimately depends.

² A brief guide on regressions, a statistical technique for data analyses, is included in the report as Annex 3.

Current backstopping and monitoring arrangements are inadequate for this purpose. Results-based monitoring is largely restricted to outputs, and monitoring information is only partially used to ensure longer term sustainability of community managed facilities. Although stakeholders are looking for solutions, the remaining issues in ensuring the sustainability of institutional capacity are the principal reason why the overall long-term sustainability of the results in rural water and sanitation in Shinyanga is still in doubt.

Lessons

The key lessons drawn from the findings are:

1. Rural water supply and sanitation programmes can achieve real benefits. In Shinyanga, the evidence shows that a large majority of wells are operational and that they result in better health and in time savings for women and girls. Time saved by girls contributes to school attendance. It deserves the attention that it is now receiving across Tanzania.
2. Most rural Tanzanians are poor, and the poor have been the major beneficiaries of rural water supply and sanitation programmes. In some but certainly not all cases, the very poorest may be excluded from use of improved water facilities; continued vigilance is needed on this point.
3. Not surprisingly, it takes time to develop a workable step-by-step approach and system for the installation and operation of rural water supplies and the promotion of hygiene and sanitation. Experience has shown that community ownership and responsibility are vital ingredients of success. Experience has also shown that the availability of capable support to facilitate the process towards the firm establishment of the approach is crucial. Partly as a result of efforts in Shinyanga, Tanzania now has a workable approach and system, appropriately linked to reformed local government structures. It should persevere with them, not leaving out any of the steps and recognising that it will take many further years of strong commitment and expanded resourcing to meet the national targets for the sector.
4. Tanzania is rightly giving more emphasis to the roles of the private sector in rural water and sanitation. But realism is needed about the capacity available. Ways must be found to strengthen the private sector for a growing role in supporting and providing services to community owned and managed facilities. With a growing role of the private sector, special measures may be needed to prevent exclusion of the poorest.
5. It is essential to take demographic and environmental realities into account into programming for rural water and sanitation. Populations are growing fast in some areas, meaning that extra effort is needed to expand water and sanitation systems even faster. AIDS is taking a toll on institutions, and AIDSaffected households need more water. Accelerating urbanisation increases the complexity and cost per capita of water and sanitation facilities. There are areas, including parts of Shinyanga, where suitable water resources are scarce and affordable water probably unobtainable. These realities increase the need for integrated regional, economic and natural resource planning and management: major governance challenges for a changing society like Tanzania.
6. In rural water supply and sanitation, as in many other development sectors, there has been an emphasis on installation and implementation, at the expense of long-term support and monitoring. Some of what is done may be unsustainable as a result. The sector needs much stronger efforts to support user institutions and to monitor technical and institutional performance – but not at the expense of expanded installation programmes.
7. Many challenges thus remain with regard to institutional sustainability. District Water and Sanitation Teams are rightly being strengthened, but need long-term attention with a special focus on front-line staff dealing directly with Water User Groups, if they are to remain viable and effective. Ward Development Committees have an important co-ordinating role to play and

could help village governments to link their monitoring of Water User Groups and sanitation issues into the structures of district councils. Water User Groups cannot be expected to fend completely for themselves once established. They should be monitored and, when needed, be helped to maintain and refresh their capacity.

8. Water quality is a key part of the monitoring challenge. Maintenance of adequate water quality in wells and other improved sources, and ongoing publicity about safe water and sanitation, are vital.

9. The policy of requiring Water User Groups to open and operate maintenance bank accounts has proved too rigid, and is often unhelpful or costly. Emphasising user responsibility for maintenance is important, but it should be realistic about user ability to pay for major repairs, and about the wider range of fund raising and saving strategies that Groups can adopt.

10. Rural water and sanitation programmes have made real progress in easing women's burdens and promoting women's management rights and capacity. However women's participation in management committees does not automatically lead to gender sensitive management of facilities. Continuing commitment and effort are needed in this regard.

Issues

The Netherlands has decided to continue support to rural water supply and sanitation development through budget support to the national Water Sector Development Programme. In view of the positive experience built up in Shinyanga Region, as well as the remaining issues that affect (long-term) results, some form of further collaboration is desirable to ensure these issues are addressed. The success of the rural water supply and sanitation component of the national programme ultimately depends on the quality of the approach, institutional arrangements and available funding for investments, operations and follow-up support at the local level, including in Shinyanga Region. Keeping track of processes, effects and issues at the micro-level is crucial for policy discussion at the national level. The main issues that arise from the findings at that level are the following:

1. Safety of water: apart from the existing inadequate monitoring arrangements, measures to ensure the safety of water are not in place.
2. Capacity of local (support) organisations: proper arrangements for ongoing (refresher) capacity building of Water User Organisations, District Water and Sanitation Teams and private sector facilitators to collaborate and implement the step-by-step approach, need to be ensured (with emphasis on staff that directly work with user communities).
3. The Participatory Hygiene and Sanitation Transformation approach: more research into the effectiveness of the approach and monitoring of progress is needed to ensure that remaining gaps are efficiently addressed.
4. Long-term results: the approach developed falls short of ensuring long-term results. Financial arrangements for payment of maintenance costs and infrastructure replacement in the long run are not adequate. A workable structure for support to Water User Groups (when needed), after the completion and handing over of the facility to the water user community, is lacking.
5. Result-oriented monitoring and evaluation: a monitoring system that tracks the community managed water facilities on whether these are operational, on safety of the water and on functioning of the institutions, is not fully in place. Evaluations are hampered by the absence of baseline information. Baseline information, notably on the water sources, water use and health status of the communities, and the time needed to fetch water, would make direct measurement of effects possible.