

Burkina Faso: Rural Drinking Water Supply Sourou

Ex-post evaluation

OECD sector	14030 / Water supply and sewage disposal for poor people	
BMZ project ID	1995 65 003 1995 70 086	
Project-executing agency	Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques	
Consultant	IGIP	
Year of ex-post evaluation	2004	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	Q1 1996	Q3 1996
Period of implementation	42 months	35 months
Investment costs	EUR 4.60 million	EUR 4.03 million
Counterpart contribution	EUR 0 million	EUR 0 million
Financing, of which Financial Cooperation (FC) funds	EUR 4.60 million	EUR 4.03 million
Other institutions/donors involved	None	None
Performance rating	1	
• Significance / relevance	1	
• Effectiveness	1	
• Efficiency	2	

Brief Description, Overall Objective and Programme Objectives with Indicators

Under the project, a total of 310 wells were drilled and equipped with hand pumps in two back-to-back phases in the provinces of Sourou and Nayala. Under the accompanying measure information and motivation events were carried out and advice was provided on the proper handling of hygienically safe water. A two-year extension phase supported the introduction of a preventive maintenance system for the pumps and the well superstructures.

The overall objective of the project was to reduce the health risk potential in the programme region. The programme objective was to ensure the supply of safe drinking water for the relevant village population year-round.

No indicators were defined to measure achievement of the overall objective. The following indicators were defined to measure the achievement of the programme objective:

- Number of people supplied with safe drinking water under the programme (60,000 – 70,000 residents with at least 300 users per well);
- Per-capita consumption of 10-20 l/d on average;

- Full-scale functionality of at least 80% of the wells 2-3 years after start of operation;
- Duration of repair work does not exceed 14 days in 90% of the cases;
- Water quality (90% free of E. coli; random controls upon acceptance of the wells);
- Appropriate hygiene behavior of the population when handling drinking water.

Project Design / Major Deviations from the original Project Planning and their main Causes

According to the original plans, 210 wells were to be drilled and equipped with handpumps in the province of Sourou (divided into the two provinces of Sourou and Nayala in 1996). In addition, around 50 wells were to be rehabilitated in the eastern part of Burkina Faso under a follow-up measure for past Financial Cooperation (FC) projects. However, this component was not carried out because the rehabilitation requirements had been considerably underestimated and, due to the distance to the rest of the project area, it would have been very difficult to manage logistically.

Owing to the cancellation of the rehabilitation component in the eastern region as well as to favourable tender results, the committed funds could be used to drill and equip another 100 wells in a second project phase, pushing the number of wells drilled under the programme up to 310 altogether. 298 of them were equipped with Volanta handpumps. UPM pumps were installed at twelve pumps with a high pumping head.

Volanta pumps were designed in the Netherlands and are built locally in Ouagadougou by the company OH & VS - Centre Sainte Famille (OH & VS stands for Ouvrages Hydrauliques et Volanta Système) under a concession. They are cost-efficient in terms of both purchase price and running costs, plus they are robust and easy to maintain. Another reason why this type of pump was selected is that, in the programme provinces, it is used the most by far.

At the time of the project appraisal, plans called for the accompanying measure to support the buildup and organization of well committees, train well workers and implement hygiene education measures. During implementation the Burkinabe government began to seriously consider approaching private businesses to help introduce preventive and sustainable maintenance systems to supply water in rural areas. The present project acted on these considerations by developing a system offering repair and maintenance services guaranteed by the pump supplier in exchange for annual lump-sum payments by the well committees. This repair and maintenance system (Système d'Entretien et de Maintenance [SEM]) was financed mainly out of funds provided under the accompanying measure.

Since this system initially encountered various problems after its introduction in October 1998, it was decided to carry out an additional project phase to consolidate the SEM system. Apart from follow-up support services by the consultant under the complementary measure, another 29 Volanta pumps that had been installed under other programmes were rehabilitated during this phase. During the consolidation phase a social marketing approach was applied under which the maintenance company also played an active role. As a result, once the project was completed the company was able to help take on the role of animator.

The first phase was already completed in October 1998, although its completion had not been scheduled until June 1999. The second phase was concluded in July 1999. The consolidation phase was finally carried out between September 1999 and February 2002.

Key Results of the Impact Analysis and Performance Rating

The key development-policy challenge of decentralized drinking water supply projects in rural areas, in particular in sub-Saharan Africa, is to ensure a high level of availability of the installed pumps on a long-term basis. In the past it became obvious that frequently, well committees alone are unable to ensure the long-lasting functionality of their well. Until the SEM system was introduced, in the provinces of Sourou and Nayala - as in other provinces - money had been raised on a cost-sharing basis in order to send for a repairman to repair any damages that exceeded the capabilities or the means of the well committee. The risk of this system was that due to unsystematic maintenance, damages occurred more frequently, thus leading to higher costs, and depending on the harvest cycle, sometimes not enough money can be raised, no spare parts are available, and the repairs are not carried out properly. All of these facts can bring about longer downtimes and, ultimately, can prompt the population to resort back to unsafe sources of water. In the mid-1990s the Burkinabe government reacted to this situation by intensifying its efforts to give repair and maintenance of water supply facilities in rural areas a more systematic and sustainable base.

The SEM system developed under the project is based on a contract system involving four groups of stakeholders. In a framework agreement between the competent regional directorate of the Water Ministry and the pump supplier OH & VS, the latter is obliged to guarantee the functionality of the SEM via contracts to be concluded with the user committees. The regional directorate is the patron and acts as mediator in disputes. In the actual maintenance agreements initially concluded for five years, the user committees are obliged to pay FCFA 60,000 (approx. EUR 90) to OH & VS each year. In exchange, the company guarantees semi-annual visits by trained well technicians to perform preventive maintenance. In addition, the company commits itself to repairing any and all damage to the pumps (not to the borehole) within 48 hours after being notified of the damage. The water committees make the payments regardless of the actual need to perform repair work at each well, turning the payments into a type of insurance premium. The repair and maintenance work is performed by seven well technicians with whom OH & VS has concluded contracts for work and services. The company provides the mechanics with tools and a base stock of spare parts. They are guaranteed their own limited area of assignment. The repair and maintenance work performed by the mechanics is paid according to a contractually agreed price table.

Of the altogether 339 wells (310 new wells and 29 rehabilitated wells), a few are out of the question in terms of concluding a repair and maintenance contract. OH & VS cannot conclude any contracts for the 12 UPM pumps because it does not market this type. 14 wells equipped with a Volanta pump are having technical difficulties (low yield, discolored water) and 8 wells are too far from the villages. These 22 wells are used so seldom that it is not worth it for the villagers to raise money to pay the maintenance fee. Therefore, a repair and maintenance contract could be concluded for a total of 305 wells. The number of user committees that have signed maintenance agreements with OH & VS has increased steadily since 1998. At the end of 2002 the total number was 272, corresponding to 89% of the wells in question. The SEM system is working well overall: the reaction time of less than 48 hours is being adhered to, and the availability of the wells maintained under the SEM system is close to 100%. The availability of the wells in the two programme provinces that are not included in the SEM system is estimated to be below 70%.

The annual fee due from the user committees for the maintenance services of FCFA 60,000 is based on an offer by OH & VS and is not supposed to be increased, at least during the first five years. Under these circumstances, the economic sustainability of the SEM depends above all on the number of contracts concluded between OH & VS and the user committees, since the higher the number of contracts, the less relevant the fixed system costs become, which mainly comprise the costs of the two antennas of OH & VS in Tougan and Toma as well as the pro-rata

shared costs of the branch office in Dedougou. According to the company's calculations, the SEM can function profitably in the first few years if 200 or more contracts are concluded. In later years, once pump components increasingly require exchanging, the number of contracts needs to be higher to avoid putting the economic sustainability at risk. The company estimates that the number of contracts concluded must rise to 600 to ensure availability of the pumps for 20 years.

The potential for a significant rise in the number of contracts definitely exists in the programme regions. Apart from the pumps installed or rehabilitated under the project, there are 400 more Volanta pumps in the project area. Yet, these additional pumps cannot simply be added to the SEM system. Certain conditions must be met: the technical condition of the pumps must be adequate, and the user committees must be organized appropriately. OH & VS has developed procedures to make it possible for new user groups to join the SEM system. The two preconditions for joining described above are relatively hard to fulfil, however, so that at best a slow increase in the number of maintenance contracts is to be expected, unless there is renewed external support.

If, in the medium term, the number of maintenance contracts is insufficient to ensure the economic viability of the system, in around five years the annual maintenance fee will have to be adjusted accordingly.

In the past few years the well technicians received an average of around FCFA 14,000 (approx. EUR 21) in fees per month for their services, part of which they had to spend on fuel for their mopeds. This amount may seem low, but measured against the socio-economic conditions in the project region it is quite substantive. The well technicians do not work solely for the SEM - they also repair wells that are not connected to the SEM system. For instance, two well technicians received training in how to repair damages to the twelve UPM pumps. The fact that there is almost no fluctuation among the well technicians indicates that for them, working for the SEM system is financially attractive.

Raising FCFA 60,000 p.a. to pay the maintenance fee requires every family to pay FCFA 100 each month (based on 500 users per well and ten-member families). Even if cash income is extremely scarce in the programme area, this burden on the households has proven to be basically bearable. Although there have been repeated cases in which user committees did not make their payments to OH & VS on time, overall the continuing rise in the number of valid maintenance contracts illustrates that the population is willing and able to pay. The system of cost-sharing is organized quite differently from one village to the next (assessments based on ability to pay, distribution of the cost among the adults, distribution of the cost among heads of family, selling water at the well, combination systems).

Achievement of the programme objective is good overall. Instead of 60,000 – 70,000 people as intended, around 165,000 people are being supplied with drinking water from the programme wells. There is no precise data on per-capita consumption but in view of the intense use of the wells it probably ranges between 10-15 liters per day in the project area. The availability of the wells is around 90% after an average period of operation of six years – a good result. The reaction time in case of problems or damage is far below the required 14 days, at least for the wells covered by the SEM system. The water quality is problematic at only six of the wells (1.7%). Thanks to the intensive sensitization efforts during the consolidation phase, hygiene behaviour has improved (increasing cleanliness of the areas surrounding the wells, rising use of closed transport containers, more construction of latrines etc.) - although it still has room for improvement. The establishment of the SEM system keeps the sustainability risks to the stated impacts much lower than in similar programmes. Overall, the project's effectiveness is good (sub-rating: 1).

At the time of the project appraisal, water-related diseases did not play a major role in the programme region. Therefore, the project approach – to reduce the risk of catching such a disease by making drinking water available – is most definitely relevant. As a result of the project, around 50% of the population in both programme provinces were supplied with drinking water, and the project even had a far broader impact than originally planned. Available studies indicate that the health situation actually improved gradually even though water-related diseases still play a role. Today we can see that the establishment of the SEM system was a success, and this generated an important capacity-building effect that can have a heavy influence on the discussion on how to provide a very poor population living in rural areas with drinking water on a sustainable basis. Overall, we consider the project's relevance and significance to be good (sub-rating 1).

Based on current prices of approx. EUR 24 per capita of the supplied population, the specific investment costs are low. The 37% share for consulting costs (in terms of the investment and the complementary measure) is high; yet, when interpreting this figure it should be considered that these types of projects require a great deal of guidance, and the accompanying measure – for which a large share of the consulting expenses were incurred – is vital for the project's success. The ongoing operation by the user committees is satisfactory. The price they pay to OH & VS for maintenance services approximately corresponds to the average operating costs for the wells, so that the operating costs are in fact covered. Overall, we classify the project's efficiency as satisfactory (sub-rating: 2).

Overall, the project's developmental effectiveness can be considered good (rating 1).

Lessons Learned

A key element of sustainable drinking water supply projects in rural areas whose target group comprises very poor people is, apart from intensive animation to organize themselves and to sensitize them to the connection between clean water, hygiene and good health, the creation of a superstructure (public or private) to which the village communities can turn in case of technical problems with their water supply facilities that they are unable to solve on their own. In the case at hand, the concept of long-term maintenance contracts was proven to be a viable solution, also for poor user groups and low-technology systems.

Legend

Developmentally successful: Ratings 1 to 3	
Rating 1	Very high or high degree of developmental effectiveness
Rating 2	Satisfactory developmental effectiveness
Rating 3	Overall sufficient degree of developmental effectiveness
Developmental failures: Ratings 4 to 6	
Rating 4	Overall slightly insufficient degree of developmental effectiveness
Rating 5	Clearly insufficient degree of developmental effectiveness
Rating 6	The project is a total failure

Criteria for the Evaluation of Project Success

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail below concentrate on the following fundamental questions:

- Are the project objectives reached to a sufficient degree (aspect of project effectiveness)?
- Does the project generate sufficient significant developmental effects (project relevance and significance measured by the achievement of the overall development-policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the funds/expenses that were and are being employed/incurred to reach the objectives appropriate and how can the project's microeconomic and macroeconomic impact be measured (aspect of efficiency of the project concept)?
- To the extent that undesired (side) effects occur, are these tolerable?

We do not treat **sustainability**, a key aspect to consider for project evaluation, as a separate category of evaluation but instead as a cross-cutting element of all four fundamental questions on project success. A project is sustainable if the project-executing agency and/or the target group are able to continue to use the project facilities that have been built for a period of time that is, overall, adequate in economic terms, or to carry on with the project activities on their own and generate positive results after the financial, organizational and/or technical support has come to an end.