

Burkina Faso: Rural Water Supply in Bam Province

Ex-post evaluation

OECD sector	1430 - Water supply and sewage disposal for poor people	
BMZ project number	1992 65 745, 1992 70 190	
Project-executing agency	Direction Générale de l'Approvisionnement en Eau Potable	
Consultant	Gauff-Ingenieure	
Year of evaluation	2003	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	Q 2 1993	Q 4 1994
Period of implementation	45 months	58 months
Investment costs	EUR 3.94 million + EUR 0.66 million	EUR 3.91 million + EUR 0.60 million
Counterpart contribution	None	None
Financing, of which Financial Cooperation (FC) funds	EUR 3.94 million + EUR 0.66 million	EUR 3.91 million + EUR 0.60 million
Other institutions/donors involved	none	none
Performance rating	1	
• Significance/relevance	2	
• Effectiveness	1	
• Efficiency	1	

Brief Description, Overall Objective and Project Purposes with Indicators

The project comprised the drilling of 274 wells and their equipment with hand pumps as well as the rehabilitation of 86 drilled wells in the provinces of Bam, Passoré, Kourwéogo and Oubritenga. In addition, animation and hygiene education measures were carried out.

The recipient of the financial contribution was the Republic of Burkina Faso, represented by its Ministry of Economics and Finance. During implementation the programme-executing agency was the Ministry for Environmental Protection and Water (Ministère de l'Environnement et de l'Eau, MEE). Since a reorganization, the functions are being carried out by the Ministry of Agriculture, Water Resources and Fishery (Ministère de l'Agriculture, de l'Hydraulique et des

Ressources Halieutiques, MAHRH). The total programme costs amounted to EUR 4.5 million and were fully financed through FC funds. Of this amount, EUR 0.6 million were spent on the complementary measure. The counterpart contribution of our Burkinabe partners covered the salaries, out-of-pocket expenses and transport expenses of the executing agency staff involved, and the well users financed the initial provision of working funds.

The overall objective was to contribute to reducing the potential health risk to the rural population in the programme region. The programme goal was to ensure the drinking water supply to the target group year-round.

Indicators of achievement of the overall objective were to be the water quality, measured in random checks by taking samples during acceptance of the wells (90% of the wells must be free of escherichia coli) and appropriate hygiene behaviour (random observation of the use of drinking water, 2-3 years after start of operation). The following indicators of achievement of the programme goal were defined:

- full functionality of at least 75% of the facilities, 2-3 years after start of operation (determined by random surveys);
- repairs that are carried out within 14 days in 90% of the cases;
- per-capita consumption of 10-20 l per day on an annual basis (indicator of acceptance of the facilities, determined by random surveys).

The target group comprised approx. 90,000 inhabitants of the programme region who did not have adequate water supplies. Above all, the measures were to improve the situation of the women who, apart from their burden of fetching water, must also care for sick family members. The programme targeted both the majority population of the Mossi and the Peulh, who inhabit mainly the northern part of the programme region.

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

The project was designed as an open programme. Originally the construction of 220 new drilled wells and the rehabilitation of 20 existing drilled or dug wells were planned in 17 Départements. Owing to the devaluation of the FCFA, the investment costs per well were lower than originally estimated, and so 274 new drilled wells were constructed and an additional 86 were rehabilitated in 19 Départements in two stages. An assessment of the situation in 1,619 villages carried out at the beginning of the project revealed that the number of existing wells in the programme area was higher than assumed during the project appraisal, but that many of the hand pumps were defective. As a result, the share of rehabilitated wells in the programme increased compared to the original planning. To comply with the hygiene standards, no dug wells were rehabilitated – only drilled wells. The increase in the number of wells brought about an extension of the period of implementation of 13 months.

Under the complementary measure animation and hygiene education campaigns were carried out, well mechanics were trained, the development of a sustainable maintenance system was promoted, and support was provided for the water supply planning of the regional direction North-Central.

After the hand pumps were installed they were left for use by the villagers. The well committees, founded during programme implementation, are responsible for maintenance and any necessary repairs. They were usually founded with seven members (president, secretary, treasurer, two well technicians, two members for hygiene issues), but frequently had more members. The work of the well committees is voluntary. The fluctuation is very low. Around 40% of the members are women, of whom nearly all are in charge of hygiene issues.

Each well committee concluded a maintenance agreement including a price list for the spare parts and the prices for individual services of the local well mechanics. An agreement was usually reached in the first programme phase according to which the well committees paid for maintenance work based on actual work performed. In the second phase the conclusion of long-term maintenance agreements (regular visits by the well mechanics for preventive maintenance) between the well committees and the local representative of the pump manufacturer HYDRASS for a lump sum of FCFA 67,500 p.a. was encouraged through corresponding advisory measures (also retroactively for pumps installed during the first programme phase). In total, 200 well committees concluded a long-term maintenance agreement.

Key Results of the Impact Analysis and Performance Rating

During the final evaluation it was noted that the goals were, for the most part, achieved and in some cases even exceeded significantly. When the wells were accepted, only 3% of the water samples showed traces of escherichia coli. These wells were disinfected. Analyses performed since then revealed that the water quality was usually adequate. The random surveys showed that the hygiene behaviour improved substantially, but that it is not adequate in all programme areas to effectively reduce the water-related health risks. In some of the locations, problematic water sources are still used for drinking water, especially in the rainy season. At the time of the final evaluation 96% of the hand pumps (not just 75%) were still operational 4-6 years after installation. The repair times as of notification of the well mechanics are usually quite brief (1-2 days). However, occasionally the well mechanics are only called after enough funds have been collected by the well committee to cover the repair work (in the dry season up to 14 days in some cases, and in the rainy season the delay was reported to be even longer). The specific consumption ranges from 10-20 l/cd, as during the project appraisal; thus, it is still low, yet it is within the expected range and is sufficient to at least cover direct consumptive needs.

Upon programme completion in 1999 the consultant estimated that each new well supplied 350 inhabitants and each rehabilitated well supplied 570 inhabitants, resulting in a total of 146,000 beneficiaries (compared with 90,000 inhabitants as planned). The random survey conducted during the final evaluation reveals an even higher current figure (over 180,000 inhabitants), with an average of 560 people (250 to 1000) supplied by each functioning well. The beneficiary is the respective local population. No ethnic discrimination was observed. Various ethnic groups are also represented in the well committees.

The maintenance and repair of the well facilities are satisfactory, and the pumps are – almost without exception – in good condition. The committee members in charge of hygiene issues are responsible for keeping the area surrounding each well clean, and the pumps are greased regularly by the well technicians. According to the well mechanics, the spare parts are always available from HYDRASS in Ouagadougou. As regards the storage facility in Kongoussi, there were occasional, minor delays in delivery. Nearly all of the mechanics are extremely well or well

qualified and motivated, they have mopeds to transport items and usually respond to calls within 24 hours.

The system of preventive maintenance did not prevail due to the fact that necessary repairs focused on a very small number of wells. Therefore, from the point of view of the committees those wells that did not have any deficiencies received very little service in return. The majority of the committees did not fulfil their payment obligations and factually changed over to the maintenance system based on services actually rendered. This system has functioned well thus far.

The investment costs per well financed are approx. EUR 10,900 (excluding the complementary measure). Based on 146,000 users, the specific investment costs amount to approx. EUR 27 per inhabitant. In comparison with the reference figure of the WHO for dug wells (EUR 25), these costs can be considered low.

Since the average annual per-capita income (approx. FCFA 70,000) is below the poverty line and the limited monetary income (approx. FCFA 20,000) is primarily used to purchase food, for Burkina Faso, unlike other countries, we cannot assume that users are able to spend 5% of their income to purchase water. A figure of between 3-5% of the monetary income seems more realistic for the programme region (FCFA 600 – 1,000). In contrast, the willingness to pay is far lower in all areas where inexpensive, alternative water sources are available. The consultant estimates the average annual operating costs to be around FCFA 210 per inhabitant supplied with water, or approx. 1% of the monetary income. Since the consultant's research showed that 75% of the repair costs were incurred by less than 8% of the pumps, the annual operating costs for the remaining pumps are only FCFA 85 per inhabitant. Therefore, in principle the target group can afford to pay the operating costs. Even the financing of the investment costs of spare pumps would be feasible based on the average period of use of the installed Kardia pumps of 15 years. However, the well committees do not have any saving mechanisms and do not have access to credit, so that the maximum individual investment depending on the size of the user group is approx. FCFA 150,000 – 500,000 (3 to 5% of annual monetary income). This confirms the observation that in individual cases, well committees can finance replacements of India pumps on their own (FCFA 50,000 – 370.000). At the moment, however, it is not possible to cover an individual investment of approx. FCFA 1.4 - 1.8 million for one Kardia pump.

In view of the high level of achievement of project goals, the intense use of the financed facilities, the very broad scale of the programme impact and the low risks to sustainable operation, the programme's effectiveness is very high (partial evaluation: rating 1).

Overall, the cost efficiency was very high. The selection of sites was based on need, so that most wells were used at high capacity and the specific costs per inhabitant were low. The pump times are long at only a few sites with a low groundwater level. Here very few inhabitants can be supplied with water and the specific costs are relatively high. The operating costs are factually covered, resulting in an allocation efficiency that is at least satisfactory. Overall, the project's efficiency is good (partial evaluation: rating 1).

The project targeted a clear supply bottleneck for the population. In a few cases the improved water supply even brought about a migration to locations with better, safer supplies. The water supply was significantly improved in the programme region. The project's developmental relevance is thus established. The changes in hygiene behaviour required for achievement of the overall objective took place in only certain cases, however, so that the health impacts could

not be realized everywhere. Overall the significance and relevance of the project are satisfactory (partial evaluation: rating 2).

After considering the above mentioned key criteria, we classify the project as having a high degree of developmental effectiveness (rating 1).

General Conclusions applicable to other Projects

In areas with a low groundwater level hand pump wells have a low yield and require more repairs. Therefore, the specific costs per inhabitant are relatively high, and sustainability at these locations is seldom assured. Wells with a problematic pumping head should therefore be excluded from support.

The failure of the long-term maintenance agreements in this programme is the result of an adverse selection. The repair costs for a few of the wells were considerable, while practically no repairs were needed for the vast majority of the wells. From the perspective of the user groups of the unproblematic wells, the services they received in return for their payments were minimal. Consequently, they factually bailed out of the system after a short time. Because a system of ongoing maintenance principally makes sense owing to its preventive nature, an attempt should be made to get it working in other projects by making appropriate modifications. One possibility may be to charge only for maintenance under the system but not for repairs, another one to define exclusion criteria for problematic wells.

Appropriate financing concepts are still needed for sustainable operation. In principle, it seems feasible that locations without hydraulic problems which supply a sufficient number of inhabitants with water can afford to pay for their own spare pumps.

Behavioural changes in the area of water hygiene are a long-term process. Since water supply is a priority of German development cooperation with Burkina Faso, it makes sense to support these behavioural changes by a long term approach comprising several FC-projects.

Legend

Developmentally successful: Ratings 1 to 3	
Rating 1	Very high or high degree of developmental effectiveness
Rating 2	Satisfactory degree of 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 a project's "developmental effectiveness" and its classification during the final evaluation into one of the various levels of success described below in more detail 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 conception)?
- 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.