

Cape Verde: Water Supply Fogo (Fogo I)

Ex-post evaluation

OECD sector	14030 - Water supply and wastewater – small systems	
BMZ project number	1985 66 275	
Project-executing agency	Since 1992: Instituto Nacional de Gestão dos Recursos Hídricos (INGRH), formerly: Junta dos Recursos Hídricos (JRH)	
Consultant	1987-1990: Hydroplan 1990-1995: Consulting Engineers Salzgitter (CES), Lingen (formerly GWE)	
Year of evaluation	2002	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	Q 3/1986	Q 3/1987
Period of implementation	27 months	92 months
Investment costs	EUR 1.3 million	EUR 3.4 million
Counterpart contribution	EUR 0.1 million	EUR 0.1 million
Financing, of which FC funds	EUR 1.3 million	EUR 3.3 million
Other institutions/donors involved	None	None
Performance rating	3	
• Significance / relevance	2	
• Effectiveness	3	
• Efficiency	4	

Brief Description, Overall Objective and Project Purposes with Indicators

The project connected the northwestern section of the island of Fogo to the existing drinking water network including the required energy component. A drilling programme was also conducted to identify groundwater bodies in the supply area. In the project appraisal an effort was made to render the drinking water supply for the island of Fogo more cost-efficient and reliable in the long term through drinking water catchment at higher elevation. The total project costs amounted to approx. EUR 3.4 million, of which some EUR 3.32 million were financed through FC funds/ a grant.

It can be assumed that the project made a significant contribution to reducing the health risks to the population in the project area caused by contaminated water (achievement of the overall

objective) since, compared with the use of rain water collected from public and private cisterns (a frequent practice in the past), the sanitary supply situation consisting of a network of public standpipes fed by groundwater represents a significant qualitative improvement with direct, positive health effects.

In summary it can be said that the project purpose – to provide the target population with a continuous supply of safe drinking water – was achieved in terms of its specific percentage goal, albeit with some concessions. The target indicators - a) current average water consumption per resident (target indicators: 15 liters in rural region, 50 liters in São Filipe) for the entire supply area and b) rate of connections of over 90% in the project region through the installation of functioning public standpipes that can be readily reached – were clearly achieved. At the moment there are no reliable test results available for c) the quality of the water at the public standpipes (target: in accordance with WHO recommendations). Owing to the fact that only groundwater is used, the near-zero potential for contamination and the statements made by the target group and by the health services, however, it can be assumed that the water is safe, although microbial contamination of the water after it is fed into the drinking water system cannot be ruled out completely. Knowledge about and awareness of the importance of using drinking water properly as well as knowledge about water-induced illnesses (target: 65% of the population affected) as target indicator d) cannot be quantified. According to the head of the health services on Fogo, overall such knowledge is wide-spread thanks to, among other things, broad-scale health education in the schools and to the efforts of a specially appointed health services employee.

Major Deviations from the original Project Planning and their main Causes

The project conception in Fogo I defined two phases: Firstly, the northwestern part of Fogo was to be connected to the existing water supply system of São Filipe (chain of pumping stations PL/A) via supply mains and eight public standpipes (Phase 1) and, secondly, the requirements for utilizing groundwater at higher elevations were to be met via hydrogeological tests and exploratory drilling (Phase 2) in order to replace the costly chains of pumping stations in place. However, major changes needed to be made in the design and implementation conception.

The framework for the quantity estimate was already expanded considerably in Phase 1. Due to the high number of dry drillings and the complicated hydrogeological situation, it became necessary to expand the groundwater drilling programme considerably (12 deep drillings instead of 4). In the end 6 wells were expanded under the project. What is more, plans to replace the existing chains of pumping stations could not be realized. The goal set during the project appraisal of lowering the cost of the water supply could not be reached, either, owing to the geological conditions. The water is now being pumped via pumping stations up to an elevation of around 700 meters above sea level and stored temporarily in new main collectors, after which it is conveyed gravitationally to smaller storage tanks and the public standpipes.

In Phase 2 the scope of the project measures was reduced. The measures primarily covered the expansion of the wells, pumping houses, the rehabilitation of water storage tanks, the circular distribution main in the northwestern region, 8 public standpipes with meters and several measures to improve the power supply and distribution. Originally the water transport main was to follow the main road from São Filipe to Ribeira Ilheu. Since the construction of the section of the road beyond the Volta-Volta gorge has still not been completed, the connections could only be installed up to this point. The expansion of this section is now planned in Fogo II.

In the years 1990 (EUR 0.77 million) and 1993 (EUR 1.28 million) each of the original FC contributions was increased/extended by EUR 1.28 million.

The construction work was to be carried out as force-account works by “Gabinete Fogo y Brava,” which is supported by German TC and subordinate to the project-executing agency, and was to include the participation of the target group. Owing to the considerable delays in the

exploratory drilling phase the construction work was finally - on the basis of a public tender in one lot - performed by the local construction company ALICERCE without the participation of the population. Yet, it cannot be said that the subsequent poor identification with or acceptance of the project by the population was the result of their non-participation. Based on the overall conditions at that time the approach seems appropriate.

There were severe operational and maintenance deficiencies from the assumption of responsibility by the community until this responsibility ended in 2001. Operating, work and maintenance plans in the water sector as well as operating instructions were nearly inexistent, and routine maintenance of the mechanical, hydraulic and electrical system components did not take place. Only curative measures were applied – the quality of which can be deemed satisfactory under the given circumstances - to indeed ensure the water supply.

After a brief period of operation it became clear that, unless the operator structure changed significantly, the sustainability of the measure Fogo I could not be regarded as assured. In concert with FC an integral part of the TC project, which has been carried out on Fogo simultaneously since 1997, is to focus on supporting the foundation and buildup of a municipal company in the water sector. After a few delays the autonomous operator Aguabrava was finally formally founded in 2002. This marked an important step towards a more systematic operating and maintenance concept applied according to economic criteria. The structure of the operations management of Aguabrava is principally suited to meet the pending requirements, even though deficiencies can still be noted due to its brief existence and the thus far limited support by the communities. The assumption of responsibility by Aguabrava is a positive factor. Within a short time noticeable improvements could be made.

Key Results of the Impact Analysis and Performance Rating

Overall it could be observed that the population is indeed supplied with qualitatively safe drinking water in the project region and sufficient water production a full seven years after completion of the investment measures, and that, therefore, Fogo I was able to solve or significantly reduce the key problems identified in the project appraisal report (poor supply situation in the northwestern section, risk of salt infiltrating the spring water). Groundwater resources at higher elevations that are worth tapping in order to replace chains of pumping stations and to arrive at lower operating costs could not be ascertained during the drilling programme. From today's perspective this is also unrealistic. Thus, the main impact is, overall, positive as the project's effects were strongly felt by the target group and as it played a relatively important role in solving the general problem. It can be assumed to have contributed to reducing the health risks (overall objective). Thus far some positive attempts to introduce structure-building effects have succeeded, primarily in connection with the foundation of the autonomous operator Aguabrava. With Aguabrava a model was introduced that could end up becoming a model approach for Cape Verde. (Significance/ relevance: partial evaluation rating 2).

Overall the project goals were achieved to a sufficient extent. However, serious deficiencies (up to non-existence) were noted with regard to maintenance and a sustainable operational concept in São Filipe, the community responsible for operation until 2001. Intensive use of the created capacities since operations began can be substantiated, but until the end of 2001 there was no long-term, sustainable capacity guarantee. Rather, the poor maintenance even negligently imperiled the operation. In our opinion, the foundation of Aguabrava is a late but positive step towards an operating concept that can principally ensure the sustainability of the project (effectiveness: partial evaluation rating 3).

On the basis of the unsatisfactory and cost-intensive planning phase (incl. replacement of the consultant) and numerous technical deficiencies in the design, we deem the production efficiency to be sub-optimal. The high per capita investment costs are another result of the required extensive drilling programme and the difficult conditions (e.g. location of the island,

volcanic rock). The allocation efficiency resulted from tariffs that did not cover costs during the first seven years of operation and, in some cases, from ignorance as to the optimal production amounts until 1999, which was also unsatisfactory. Taking into account the introduction of new tariffs in 2002 when the collection rate was high, the plans to have Aguabrava gradually increase the tariffs on a regular basis in the future and the feasibility study on Fogo II that was conducted in 1998 and during which maximum promotional capacities and well dependencies were determined, we now believe that the economic and resource-policy conditions have improved, and that the operational risks have decreased (efficiency: partial evaluation rating 4).

After weighing the above mentioned key criteria for the success of the project in terms of development policy, we classify the project as having overall sufficient effectiveness (rating 3).

For our evaluation of project success we assume that the need for funds under Fogo II remains high, that these funds also benefit the facilities supported under Fogo I, and that the TC measures will continue. The new executing agency Aguabrava has experienced comparatively positive development in a brief period of time, but it is still dependent on extensive external support. However, we still believe it has good chances of continuing to operate the facilities in the three communities in its area of responsibility sustainably once Fogo II is concluded. Development Cooperation (DC) should support the new operator on its way and consistently counteract a possible relapse into old operating and maintenance structures.

General Conclusions applicable to all Projects

The target indicator “quality of the drinking water” was to be measured and achieved according to WHO recommendations. In view of the degree of detail and scope of the guideline values as well as of the fact that most stakeholders are more or less unaware of these guidelines, it makes little sense to have such an indicator. For this reason it is recommendable to choose individual and relatively easily determinable target indicators to assess drinking water quality in similar cases in the future.

Initial indications that other Cape Verdean communities see the Aguabrava model in a positive light can already be noted. In terms of competences and responsibilities DC should support initiatives for the replication of the operator model and intensify the exchange of information with other bilateral donors, the World Bank and the national institutions (in particular INGRH and CNAG). The foundation of other autonomous operators would serve as a supraregional signal and, ultimately, would also strengthen Aguabrava institutionally and almost completely counteract the reasons behind the counterproductive practices of the past (e.g. in the community of São Filipe).

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 assignment during the final evaluation to 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.