

Indonesia: Water supply Bengkulu

Ex-post evaluation

OECD sector	14030 - Water supply and sanitation – small systems	
BMZ project ID	(a) 1993 65 461 (investment measure) (b) 1994 70 014 (complementary measure)	
Project-executing agency	(a) + (b) Ministry of Public Works/ PDAM Bengkulu	
Consultant	(a) + (b) Lahmeyer International	
Year of ex-post evaluation		
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	(a) Q2 1993 (b) Q1 1995	(a) Q2 1994 (b) Q1 2002
Period of implementation	(a) 5 years (b) 3 years, 5 months	(b) 8 years, 5 months (b) 2 years, 2 months
Investment costs	(a) EUR 23.7 million (b) EUR 2.0 million	(a) EUR 14.5 million (b) EUR 1.0 million
Counterpart contribution	(a) EUR 9.8 million (b) ./.	(a) EUR 5.3 million (b) ./.
Financing, of which Financial Cooperation (FC) funds	EUR 13.9 million	EUR 9.2 million
Other institutions/donors involved	GTZ	GTZ
Performance rating	5	
• Significance / relevance	5	
• Effectiveness	5	
• Efficiency	5	

Brief description, overall objectives and project objectives with indicators

The purpose of the project “Water Supply Bengkulu” was the rehabilitation and expansion of the urban water supply system in Bengkulu in southern Sumatra. The overall objective of the project was to reduce the health risks from water-induced diseases caused by irregular and/or insufficient supply with drinking water. The project objectives were the continuous supply of 169,000 inhabitants of Bengkulu and 4,000 inhabitants of the surrounding villages situated along the planned main water pipeline and the improvement of the operations management by the project-executing agency, the PDAM Bengkulu water utility. The following indicators were defined to measure the achievement of the project objectives: increase in water consumption, decline in supply disruptions, compliance with water quality standards and reduction in water losses.

In parallel with the investment project an FC complementary measure was planned to ensure training for the staff that has to operate the financed facilities. The present project was designed as a cooperation project linked with the project “Water supply and sewage elimination Bengkulu” implemented under Technical Cooperation (TC), which

aimed at strengthening the urban water utility PDAM Bengkulu in the areas of financing, administration and management and in the preparation of the planned sewage elimination, waste disposal and drainage measures.

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

The construction measures in Bengkulu comprised the rehabilitation and extension of the existing central drinking water systems. Moreover, the project comprised measures to improve the water production, such as the construction of a new river water treatment plant, and measures to improve and expand the distribution of water. The rehabilitation of the old network, the construction of standpipes and the installation of the tertiary network including house connections and the replacement of defect water meters were to be effected by the water utility PDAM Bengkulu on its own account. The measures in the area of water production were implemented without any major conceptual changes. However, due to financing bottlenecks on the part of the water utility the component 'rehabilitation of the distribution network' and the component 'construction of distribution pipes and installation of house connections' were not implemented to the originally planned extent and in consequence the project objective referring to the connection rate was not achieved.

The measures implemented in the context of Technical Cooperation (TC) comprised the components 'management and administration including reorganisation of the water utility, tariff reform and introduction of liquidity control'. However, since the framework conditions were difficult (low priority of the drinking water supply, among others) no substantial contribution was made to improving the situation of the project-executing agency. The goals concerning the tariff system were not achieved and the measures to improve the collection efficiency and the connection rate were not sustainable.

Due to the fact that the TC support for the executing agency was terminated ahead of schedule the overall concept of the complementary measure was modified. In addition to a training measure, a component to reduce water losses was also introduced.

Key results of the impact analysis and performance rating

The current indicator values for the connection rate and water consumption are clearly lower than the target values. This is due on the one hand to the fact that the tertiary network was not sufficiently expanded by the water utility and the statutory constraint to install house connections was not satisfied and on the other hand to the fact that free alternative water sources were available in the form of shallow and deep wells. Around 55% of the population use their own wells. For this reason most of the standpipes built in the context of the project are not in use.

It can thus be stated that the target value for the quantitative reliability of supply was not achieved.

The microbiological water quality, measured by the proxy indicator 'coliform bacteria contents', was not achieved. Water samples are taken and analysed on a regular basis by the urban health authority. As the water quality is unreliable the drinking water is still boiled by most people. This leads to a waste of energy.

Since the rehabilitation measures were not implemented to the originally planned extent the water loss rate amounts to 63%, which is still very high.

The financial situation of the water utility PDAM Bengkulu is marked by over-indebtedness, high cost increases and a tense liquidity situation and is thus very strained. As the water utility does not receive any political support from the owner, the city of Bengkulu, the prospects for an improvement of the current situation are bad. The utility is caught up in a fatal downward spiral of decreasing willingness to pay on the

part of the population, which in turn leads a fall in revenues and a lower quality of the services provided.

Thus, due to the reasons described above and the lack of qualification and motivation on the part of the personnel the proper operation is not ensured on a sustainable basis. Already today the water quality does not meet the required standards.

According to the comparison between the dynamic production costs and the current average tariff revenues 98 % of the dynamic operating costs and 35 % of the dynamic production costs are covered. However, since the calculations are based on the actual operation and maintenance expenses of the water utility, which are clearly lower than the expenses that would reasonably be required, the coverage of operating costs is considered as not achieved.

Due to the low supply level and the continuing water quality problems is cannot be assumed that the project will have any substantial positive impacts on the health situation.

The project was not designed to reduce poverty. The project had the potential to support gender equality. However, since the project did not relieve the women in the area of care for sick family members it can be assumed that the project did not finally contribute to improving gender equality.

In a summarized assessment of all the above impacts of the project, we have arrived at the following rating of its developmental effectiveness:

- The targeted project objectives were not achieved (except for the component 'reliability of supplies'). The benefit of the measures is much lower than expected, both in terms of quality and quantity. This is true even if very low target levels are taken for comparison. Moreover, as the executing agency does not invest enough in the maintenance of the facilities it is to be expected that the technical operativeness of the financed facilities cannot be ensured for the entire expected useful life. Moreover, the standpipe capacities created are used far less than had been planned. After weighing the individual aspects, we have come to the conclusion that the programme's **effectiveness** is insufficient (**sub-rating 5**).
- The project concept chosen, i.e. to have the project components decisive for project success implemented by the executing agency on its own account, turned out to be very risky and was responsible in the final analysis for the fact that important success indicators were not achieved. As the connection rate was very low and the water quality often not satisfactory the project did not have any noticeable positive impacts on the health situation. Overall the developmental **relevance** and **significance** of the project are insufficient (**sub-rating 5**).
- Measured in terms of the specific investment costs, the project goals were reached, but required considerable funds. The resources used to ensure the operation and maintenance of the facilities are inadequate both qualitatively and quantitatively. Due to the high water losses of 63% and the very low collection efficiency it can be stated that the capacities created are used inefficiently. Thus, the **production efficiency** is insufficient. Tariffs do not cover the running operating costs. The debt service payments for the FC loans cannot be made. Due to the low cost coverage rate we assess the **allocative efficiency** of the project to be insufficient. Overall, we rate the **efficiency** of the project as insufficient (**sub-rating 5**).

Based on the criteria of significance/relevance, effectiveness and efficiency we rate the project "Water Supply Bengkulu" as **having a clearly insufficient degree of developmental effectiveness (rating 5)**.

General Conclusions and Recommendations

In the event of projects, for which it is a known fact from the very beginning that the executing agency is in a difficult financial situation, which is not only the result of an insufficient tariff level but also of management failure, it will not be sufficient simply to impose conditions with regard to tariffs. To support the achievement of the project objectives KfW should in such cases also make other implementation requirements with regard to other performance-related aspects that can be influenced by the executing agency itself, for instance the collection efficiency.

If it is required in a project that people's hygiene behaviour be changed in order to achieve the intended health impacts on a long-term basis, and if this cannot be achieved with a complementary measure that covers only a limited period of time, it should rather be considered if there are ways and means to lend long-term support by institutionalising the necessary process of change. In countries where Financial Cooperation pursues a long-term commitment in the water supply area it might be a helpful alternative to introduce cross-project campaigns similar to those pursued in the context of social marketing projects.

Abbreviations

FC	Financial Cooperation
GTZ	Gesellschaft für technische Zusammenarbeit (German Agency for Technical Cooperation)
TC	Technical Cooperation

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 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, organisational and/or technical support has come to an end.