

Brazil: Basic Water Supply and Sanitation Santa Catarina

Ex-post evaluation

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| OECD sector | 14030 - Water supply and sanitation – small systems | |
| BMZ project ID | 1982 65 280 | |
| Project-executing agency | Companhia Catarinense de Águas e Esgoto (CASAN) | |
| Consultant | GITEC | |
| Year of evaluation | 1983 | 2003 |
| | Project appraisal (scheduled) | Ex-post evaluation (actual) |
| Start of implementation | 1985 | 1988 |
| Period of implementation | 2.5 years | 8 years |
| Investment costs | EUR 6.4 million | EUR 7.0 million |
| Counterpart contribution | EUR 1.3 million | EUR 1.9 million |
| Financing, of which Financial Cooperation (FC) funds | EUR 5.1 million | EUR 5.1 million |
| Other institutions/donors involved | none | none |
| Performance rating | 3 | |
| • Significance/relevance | 2 | |
| • Effectiveness | 3 | |
| • Efficiency | 4 | |

Brief Description, Overall Objective and Project Objectives with Indicators

The basic water and sanitation programme was aimed at improving the drinking water supply and sewage disposal situation of rural communities in Santa Catarina. Under the programme, 40 drinking water systems were successively constructed, rehabilitated or expanded in small rural communities of this Brazilian state. Complementary measures to eliminate sewage and faeces were implemented as well. The measures benefited a total of 47,000 inhabitants. The total cost amounted to approx. EUR 7 million, EUR 5.11 million of which was financed from FC.

The programme objective was to improve the inadequate basic sanitation in the interior of the federal state of Santa Catarina. As no indicators were defined at programme appraisal, the following auxiliary indicators for assessing the achievement of the goals were applied:

- increase of the number of rural inhabitants supplied by CASAN,
- specific water consumption of domestic connections between 100 and 120 l/c/d,
- supply of drinking water of satisfactory quality.

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

It was originally planned to set up basic water supply systems of different types for around 23,000 inhabitants in approximately 30 rural locations (250 to 3000 inhabitants) under an open programme. Delays in the start of the implementation and the unsatisfactory cooperation with the Health Ministry of the state led to design changes which affected primarily the connection criteria for the number of inhabitants of the locations, the planning horizon, the number of house connections and design changes to the sewage and faeces disposal. Altogether, water supply systems for approx. 47,000 inhabitants as well as decentralized waste water and faeces disposal facilities for about 20,000 inhabitants were built in 40 villages. Complementary hygiene education measures were carried out as well.

Key Results of the Impact Analysis and Performance Rating

The objective of improving the supply standard was achieved: The connection rate in the small rural programme locations is 90% on average, the average consumption of around 120 l/c/d lies along the upper limit of an acceptable average consumption but still within the limits of the consumption of 100 to 150 l/c/d assumed at the time of appraisal; the improvement of the supply of the population with hygienically safe drinking water and the sewage disposal facilities led to an improvement in the hygiene and health situation in the programme area. The connection rate increased to 81% in the programme area and could thus be clearly increased.

The target group of the project are 47,000 inhabitants of 40 rural villages in the northern region of Santa Catarina. While around 30% of the population of Santa Catarina State live in poverty, the share of poor people is around 46% in rural areas (with household income of up to BRL 400 or around EUR 125/month). The target group earns its income mostly from farming activity and partly in manufacturing and trade. Care was taken so as to select locations in which the measures would benefit primarily needy people. The water supply measures met with great acceptance by the target group. The sewage disposal measures are being considered important but the septic ponds are not always properly emptied.

The basic sanitation programme measures have proven to be sound and appropriate for eliminating the existing deficits in water supply and sewage removal, so that we consider the programme objective to have been achieved. The improvements achieved by the programme in the supply and sewage situation have led to an improvement in the target group's hygiene and health situation. The decline in water-induced diseases and infant mortality confirms these effects. Worm diseases and diarrhoea have been largely brought under control. Epidemics due to contaminated drinking water or inadequate sanitation, such as cholera, dengue fever, hepatitis and typhus, no longer pose a threat.

The financial situation of CASAN is critical. This is due in particular to inadequate cost recovery and to the fact that company policy is guided by political instead of commercial criteria. In the future, financial constraints may lead to a situation in which maintenance measures and replacement investments cannot be carried out to the necessary extent. As a regulatory policy framework for the water sector is lacking, the future of CASAN is uncertain. The partial transfer of water supply systems to the municipalities also means a financial loss to CASAN because the municipalities operate systems whose excess revenues used to cross-subsidize loss-making systems. Therefore, there is a high risk with regard to the future financial strength of CASAN.

The intended programme objectives (to improve the connection rate of the rural population, supply quantities, water quality) have been achieved and the capacities created are being utilized; some concessions regarding effectiveness must be made with regard to the utilization of the sewage disposal facilities by the target group. The lack of preventive maintenance measures on the water supply facilities hampers the technical sustainability of the systems, but the technical design (water supply by gravity, basic filtering facilities) mitigates the maintenance risk. We therefore rate the programme as having a **overall sufficient effectiveness (sub-rating: 3)**.

The sanitary situation in the programme locations and the target group's health situation have improved as a result of the programme measures; this has been confirmed by the decline in water-induced diseases and the decline in infant mortality. The programme effects benefit mostly poor groups of the population in rural areas which previously had to rely on a hygienically unsafe water supply. The programme measures reached a total of 47,000 inhabitants instead of the initially planned 23,000 inhabitants. Because of individual deficiencies in the operation of the decentralized sewage disposal there is a potential risk to the sanitation situation in cases where sewage flows into open rainwater drainage channels. We therefore rate the programme as having **satisfactory relevance and significance (sub-rating: 2)**.

The dynamic production costs of the systems are below those expected at the time of appraisal and are reasonable. The costs of operation incurred by CASAN are covered by tariff revenues but insufficient to generate the depreciations. Besides, the recovery of operating costs does not take into account that preventive maintenance measures are being neglected; if the cost of proper operation and maintenance (more qualified personnel, regular maintenance and upkeep of the facilities) were taken into consideration the total cost would be higher. Thus far only minor repair costs have been incurred for facilities that are still new. These have a propensity to increase, however, and will raise the cost of operation in the future. The specific cost of investment is roughly the amount expected at the time of appraisal. Cost-effective, adapted water and sanitation systems were financed and the funds have been used reasonably. The production efficiency of the programme is thus given. However, the allocative efficiency is unsatisfactory owing to the high water losses, the lack of preventive maintenance measures, the deficiencies in the operation of the decentralized sewage disposal facilities and the precarious financial situation of the project-executing agency (**sub-rating for efficiency: 4**).

In a summarized assessment of the above impacts and risks we rate the programme as having an **overall satisfactory developmental effectiveness (sub-rating 3)**.

General Conclusions applicable to other Projects

In order for the decentralised sewage disposal facilities to be utilized and operated properly it must be ensured at project appraisal that sufficient hygiene campaigns are conducted which are continued also beyond the project period - embedded in local structures or through appropriate multipliers. A lasting improvement in the hygiene and environmental awareness requires continuous education for the target group and cannot be achieved with campaigns conducted only once during programme implementation. Furthermore, it must be clarified what monitoring and supervision mechanisms exist or have to be introduced and what institutions are responsible for them to ensure that private cesspits are emptied on a regular basis.

Key

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| 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 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**, which is a key aspect of project evaluation, as a separate category (as the World Bank does) but instead consider it as a cross-cutting element that concerns all four fundamental questions of 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.