

Ex Post-Evaluation Brief

Brazil: Pernambuco Sanitation Project



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| Programme/Client | Pernambuco Sanitation Project – BMZ no. 1989 66 376 (inv.), 1989 70 378 (accomp. measure) | |
| Programme executing agency | Comp. Pernambucana de Saneamento/ COMPESA | |
| Year of sample/ex post evaluation report: 2012/2012 | | |
| | Appraisal (planned) | Ex post-evaluation (actual) |
| Investment costs (total) | EUR 11.24 million EUR 1.02 million (accompanying measure) | EUR 12.31 million EUR 1.02 million (accompanying measure) |
| Counterpart contribution (company) | EUR 4.57 million | EUR 5.66 million** |
| Funding, of which budget funds (BMZ) | EUR 6.65 + 1.02 million EUR 7.67 million | EUR 6.65 + 1.02 million EUR 7.67 million |

* random sample

Project description: Appraised in 1989, this project was initially designed to provide basic central sanitation systems in small and medium-sized cities and towns in Pernambuco State. There were also plans to conduct individual improvement measures on the appertaining rainwater sewers, as well as smaller supplementary rehabilitation measures on the water supply systems that were operational at the time. Project design was modified in 2001, with the concept only provideing for measures in the three towns of Moreno, Nazaré da Mata and Barreiros, which today have a combined population of around 100,000. The intervention included rehabilitation of the existing water supply systems, development of the almost non-existent central sanitation systems and selected measures for rainwater drainage.

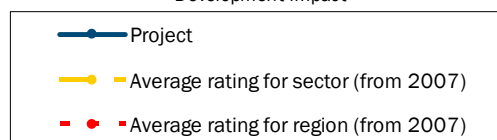
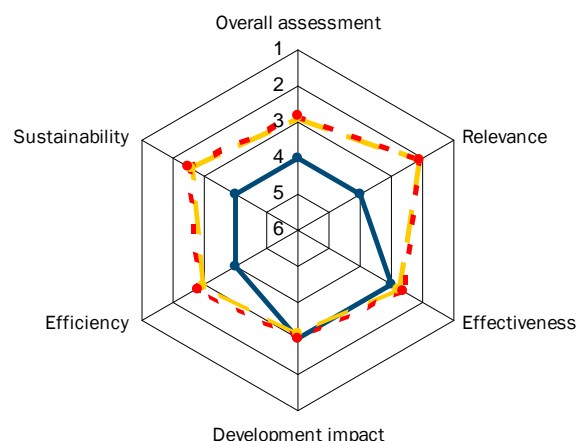
Objective:. The intended outcome was to provide the population in the three towns of Moreno, Nazaré da Mata and Barreiros with a year-round and continuous supply of adequate quantities of safe drinking water. The project also aimed to provide hygienically safe central collection and treatment of sewage at the project sites, and sustainable operation of the infrastructure. This was to be measured by the connection rate, water and waste water quality, rates of loss, number of staff and key economic data (cost recovery and billing rates, collection rate, receivables). As key impact,, the project aimed to improve health conditions by reducing water-borne diseases at the project sites (overall objective). **Target group:** The inhabitants of Moreno, Nazaré da Mata and Barreiros, with a combined population of around 86,400 in 2001,; this figure is projected to reach some 110,000 by the end of the planning horizon (2025).

Overall rating: 4

The project was rated unsatisfactory, particularly because of high water losses, a lack of preventive maintenance and weak incentive systems for sustainable operation of the infrastructure.

Of note: The project had to be completely redesigned due to initial delays of over twelve years.

Rating by DAC criteria



EVALUATION SUMMARY

Overall rating: Based on the DAC criteria, the project was rated as unsatisfactory. The project did lead to a significantly improved sanitation and especially water supply, conditions at the project sites. However, assessment is negatively affected by shortcomings in the project design (especially the lack of measures to reduce water losses, to decentralise sanitation and to reduce institutional weaknesses); those flaws reduce the project's relevance. The project also displays major weaknesses with regard to its efficiency (in particular low performance incentives, and cost increases caused by years of delay until ultimately beginning with project implementation), and its sustainability (no preventive maintenance of the infrastructure, low level of investment with a limited development horizon and low structural impact). **Rating: unsatisfactory (4).**

Relevance: Concerning the relevance of the project, design weaknesses outweigh strengths:

The objective of the project, which was appraised in 1989, was revised in 2001 due to administrative difficulties in achieving readiness for disbursement (including the fact that the loan agreement was not ratified until 1998). This involved aligning the objectives with the changed conditions in the programme region (growth in population, deterioration in the water supply situation), following a progress review that resulted in a modification of the project design. The initial project had been designed only to improve sanitation in a large number of small and medium-sized cities and towns (open programme). However, the delays and the unchanged financial framework, in conjunction with the broadened objectives to include water supply improvements, made it necessary to reduce the programme to a small number of locations.

The problem analysis emphasised the need – in parts of Pernambuco largely affected by drought – to stabilise water supply during regular dry spells and periods of drought; a model water resource management system was to be promoted that was economically and ecologically efficient. Further aspects to be addressed were the discontinuity of the water supply caused by rationing, and long downtimes caused by the production and distribution deficits, as well as the low rate of sewage disposal and treatment. From today's perspective, this analysis appears plausible in principle. It is, however, not very accurate, as the selected sites are all located in the comparatively humid *Mata Atlântica* region, which means they are barely affected by dry spells or periods of drought. Consequently, the desired “model solutions” were ruled out by default.

The design did provide for appropriate and urgently needed measures to reduce water losses at the three sites. However, there budgetary provision was insufficient from the outset, which prevented those measures from generating the intended results. The tight project budget also meant that a short project horizon was defined for the expansion of treatment capacities (10 as opposed to the usual 15 or 20 years).

The accompanying measure focused on instructing personnel in operational procedures, developing and institutionalising routine operations for preventive maintenance of the infrastructure, and information and communication measures to raise target group awareness. Other needs such as organisational development, strategic investment planning, performance-based company organisation and customer orientation were not included.

The institutional environment of COMPESA (supervision and regulation) was completely ignored in the project design. Since the water sector was not a priority area of German-Brazilian cooperation, the project was not integrated into either a regular sector dialogue, or harmonised donor approaches. It was implemented in parallel to investments being made by the partner side and other donors.

Since the programme objective of FC in the Brazilian water sector is to help reduce poverty in the north-east of the country, major importance was attached to a participatory planning process involving the target poor population. With this in mind, it is, however, not clear why the three towns of Moreno, Nazaré da Mata and Barreiros were selected. Furthermore, project design did not provide for any sanitation solutions in the peri-urban zones not reached by central sewer systems, which ignored about half of the target population. Furthermore, activities were neither foreseen for recycling treated sewage sludge (e.g. as agricultural fertiliser, largely for sugar cane production), nor for proper sludge disposal. Sub-rating: unsatisfactory (4)

Effectiveness: Due to deficiencies in available data, only the following can be stated with regard to achievement of programme objectives at present:

According to transparent and plausible information supplied by COMPESA, connection rates are just below the target value of 100% in Nazaré da Mata (98%) and Barreiros (87%), and significantly below in Moreno (69%). For sanitation, actual figures fall far short of the target (13-24% as opposed to intended 50-70%). However, it is estimated that 5-15% of the population have established illegal connections to the sewer systems, which means they too are being served.

No precise data are available concerning the quantity and quality of water supply. A considerable proportion of the population (an estimated 1/3 at least) do have an adequate, albeit intermittent, supply of water; however, this depends on private storage capacities in the form of household water reservoirs. At least in Barreiros, existing treatment capacities are being permanently overstretched by at least 70%, which tends to result in water inadequate quality. Precise data on waste water quality are lacking. At project completion, figures fell short of targets by a significant margin, though improvements were evident compared to the situation before the project.

The goal of limiting technical and administrative water losses to a maximum of 25% was not very realistic due to the lack of budgeting. With water losses at all three locations remaining at around 50-70%, this goal was clearly not achieved.

Indicators for operational performance are (1) staff numbers (up to 3 members of staff per 1000 connections; status: 4), (2) collection rate (> 80%; status: 68-87%), (3) operating cost recovery (positive; status: target achieved), (5) outstanding claims (at year's end < 1.5 times amount billed monthly; status: target achieved) and (6) regular tariff adjustments of in line with development of costs (status: target achieved). Those are either less critical or have been achieved. However, these figures are also the result of a rigid cost-cutting policy (see below), which ultimately compromises on proper operation. Sub-rating: still satisfactory (3).

Efficiency: Our assessment of the project's operational efficiency is as follows:

The design of the water supply and sanitation systems at all three locations is basically efficient with regard to operating costs. The pertinent programme objective indicators are largely being achieved. Due to inefficient planning and implementation of the infrastructure measures (including water loss reduction, implementation period, working relationship between the project executing agency and the implementation consultant), the efficiency of production is to be seen in a critical light. Moreover, total delays of 16 years in achieving readiness for disbursement and implementing the project led to additional costs for consulting services (over 20%, a 25% share of total costs at final inspection). Delays also caused construction cost increases f (around 15% due to changes in the quantities, price adjustment). This placed a strain on the planned investment budget. The average investment costs including consulting services of EUR 120 per inhabitant are relatively high, given the short 10-year development horizon, the high water losses and the low continuity of water supply.

Allocative efficiency was not high. First of all, this was due to the fact that too little was invested in water loss reduction. Secondly there were still too few consumers with functional water meters, and expenditure on operation was cut down excessively (barely any maintenance measures, outsourcing of services in conjunction with a low level of performance and quality control). This is adversely affecting continued operation. Moreover, a lack of customer orientation and incentive structures for sustainable operation of the infrastructure are having a negative effect on preventive maintenance of the systems and reliable service delivery. Ultimately, the provision of a "skeleton service" has virtually become the norm. As a result, the water supply and sanitation infrastructure is experiencing rapid wear and tear, and COMPESA is heavily dependent on the provision of concessionary funding by the national or state government, or donors. Sub-rating: unsatisfactory (4)

Overarching developmental impact: Due to the lack of disaggregated actual values for the three project sites, at the present point in time it is only possible to assess the plausibility of impact achievement.

The project locations experienced a significant overall decline in dengue fever, bilharzia and hepatitis A, and an increase in cholera. In Barreiros in particular, which is regularly flooded by the River Una, the incidence of cholera remains high. With regard to water supply, the intermittent supply to almost 2/3 of the target population and the overloading of the treatment plant in Barreiros by at least 70% represent the most significant constraints to achieving satisfactory health results.

The low connection rate to the central sanitation system, the continuing precarious sanitation situation in the peri-urban zones, and the lack of poverty orientation in sanitation mean the project is likely to generate a low impact on health. In Moreno at least, sewage sludge is in some cases being discharged into the nearby river.

In retrospect, the strong sanitation component would have called for the overall objective to be accompanied by environment- or health-based indicators (e.g. water quality at the downstream receiving waters, decrease in water-borne diseases in the watersheds) However, data are not available. Sub-rating: satisfactory (3)

Sustainability: The following main risks for the project's sustainability were identified: When the project design was modified (2001), the project horizon for expanding the water treatment plants was defined as 2010. The water treatment plant at Barreiros already reached its capacity limits of several years ago. The water supply plants in Moreno and Nazaré da Mata are working to full capacity, and regularly beyond that.

Major deficiencies are evident with regard to the operation and maintenance of the water supply and sanitation infrastructure. At all three sites, preventive maintenance is neither taking place at the clarification ponds nor in the water supply and sanitation systems. In the course of project implementation, rudimentary plans were drawn up with bullet points for developing and introducing corresponding operational procedures. However, these were not operationalised. Nor has the corresponding recommendation expressed at final inspection been put into practice. Overall, the continuity, quality and quantity of water supply, which are already limited, will be at even further risk in the future.

Planned infrastructure measures to prepare a public-private partnership, and statements made by the middle management of COMPESA ("water supply and sanitation outside of Recife is only possible with the help of subsidies"), indicate that future investment by the state government will continue to focus on the metropolitan area of Recife. This will tend to be at the expense of small and medium-sized cities and towns in the interior of the state.

So far, performance-based incentives for managing the investment and operation of the water supply and sanitation systems have been weak. Unless water losses are actually reduced (which would be an urgent imperative), future interruptions in the water supply are likely to affect a greater proportion of the target population, and to continue increasing.

Enabling legal frameworks (e.g. compulsory connection to the sewer system) and standards are basically in place for the water sector in Pernambuco. Nevertheless, the institutional risks resulting from poor enforcement remain considerable. Sub-rating: unsatisfactory (4)

Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being relevance, effectiveness, efficiency and overarching developmental impact. The ratings are also used to arrive at a final assessment of a project's overall developmental efficacy. The scale is as follows:

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| 1 | Very good result that clearly exceeds expectations |
| 2 | Good result, fully in line with expectations and without any significant shortcomings |
| 3 | Satisfactory result – project falls short of expectations but the positive results dominate |
| 4 | Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results |
| 5 | Clearly inadequate result – despite some positive partial results, the negative results clearly dominate |
| 6 | The project has no impact or the situation has actually deteriorated |

Ratings 1-3 denote a positive or successful assessment while ratings 4-6 denote a not positive or unsuccessful assessment

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability) The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The overall rating on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Ratings 1-3 of the overall rating denote a "successful" project while ratings 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (rating 3).