

**Namibia: Water Supply System Ogongo-Oshakati**

**Ex-post evaluation**

<b>OECD sector</b>	14030 / Water supply for the poor	
<b>BMZ project ID</b>	1190 66 341	
<b>Project-executing agency</b>	Department of Water Affairs (DWA) in the Ministry of Agriculture, Water and Rural Development; <u>since 01.04.1998:</u> Namibia Water Corporation Ltd (NamWater)	
<b>Consultant</b>	Consortium Consulting Engineers Salzgitter GmbH / Windhoek Consulting Engineers (CES/WCE)	
<b>Year of ex-post evaluation</b>	<b>2004</b>	
	<b>Project appraisal (planned)</b>	<b>Ex-post evaluation (actual)</b>
<b>Start of implementation</b>	Q4 quarter 1991	Q I 1992
<b>Period of implementation</b>	39	77
<b>Investment costs</b>	EUR 29.04 million	EUR 25.56 million
<b>Counterpart contribution</b>	EUR 10.12 million	EUR 6.64 million
<b>Financing, of which Financial Cooperation (FC) funds</b>	EUR 18.92 million	EUR 18.92 million
<b>Other institutions/donors involved</b>	-	-
<b>Performance rating</b>	4	
<b>• Significance / relevance</b>	3	
<b>• Effectiveness</b>	4	
<b>• Efficiency</b>	4	

**Brief Description, Overall Objective and Project Objectives with Indicators**

Under the project, the water supply system in the northwest region, which was built in the 1970s and is operating at the limit of its capacity, was to be expanded to provide a reliable and adequate supply of drinking water for around one-third of Namibia's total population. Owing to the salinity of the groundwater many people depend on the central system for their drinking water. The project was planned as a cooperative project together with the GTZ, in which the measures financed from FC funds were to focus on water production and the TC-financed measures on water distribution. The overall objective of the project is to provide adequate quantities of drinking water to the population in the catchment area of the central water supply system to meet their basic needs in order to reduce water-induced health risks. Indicators for measuring the achievement of the overall objectives were defined as:

- The number of people supplied by the expansion horizon 2005 (Because of a lack of data their quantification was not possible until after a socio-economic study was conducted prior to the start of implementation. The measures were therefore planned on the basis of a rough estimate of 480,000 to 718,000 inhabitants in 2005, with the inclusion of 250,000 livestock units);

- average per-capita consumption of 30-40 l/c/d after six months following entry into operation;
- bacteriological water quality according to WHO recommendation, chemical quality at least Standard B of the national standards.

The project objectives were to enable water production, transport and distribution to keep up with the demand trend until 2005 (indicators: production in 2005 16-21 million m<sup>3</sup>/a at 30% technical losses; sales of 12-17 million m<sup>3</sup>/a) and to have water made available continuously (indicator: from 6 months after start of operation; interruptions in the supply were not supposed to occur on more than 10 days per year and for not more than 24 hours.

There are two problems regarding the extent to which the overall objective and the project objective are currently being achieved. First, the data available at the time of appraisal were so inadequate that the indicators were quantified only within target corridors that were to be specified in the course of the project. This was not done, however. Second, to measure the achievement of the project objectives, indicators were selected that by today's standards measure only the results of the activities. Suitable indicators for measuring the achievement of the project objectives would be the number of inhabitants supplied, per-capita consumption, water quality and water supply continuity. In this case the indicators were recorded but attributed to the overall objective. We have based our judgment of the degree of target achievement on current standards and formulated the overall objective as a "contribution to the reduction of water-induced diseases".

The project objectives were achieved as described in the following: The project co-financed from FC funds contributed to securing the water supply for around 600,000 people year-round and continuously. During holiday periods the system supplies a further 200,000 people, particularly migrant workers from mines in southern Africa. Thanks to adequate storage capacities, water is being supplied continuously. Per-capita consumption is around 20 to 25 l/c/d and so is less than the forecast consumption levels. As consumption is lower, the actual quantities of water produced and water sold are 52-68% of the forecast levels (actual production in 2003: around 10.8 million m<sup>3</sup>/a) and 56-80% (amount invoiced from date of transfer in 2003: 0.5 million m<sup>3</sup>/a), respectively. Consumption is still sufficient to achieve significant positive health effects. However, according to WHO studies, per-capita consumption of less than 30 l/c/d is sufficient to largely prevent diarrhoeic diseases but inadequate for fully preventing skin and eye infections. From the Oshakati waterworks the drinking water meets WHO standards. Given the extremely long distribution network, however, around 20% of the probes taken in 2003 no longer met these quality standards.

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

The project measures were mostly carried out as planned. The existing raw water channel was extended by around 53 km, a drinking water purification plant with a nominal capacity of 40,000 m<sup>3</sup>/day and storage volume was built, as was a pumping station and a distribution mains.

As a result of the sometimes technically inadequate planning and execution of the construction measures, however, sand is regularly washed into the raw water channel during the rainy season. With the cracks that have appeared in the slabs on the embankments and the risk of collapsing embankments or ruptures, the raw water channel is the backbone of the entire water supply of the northwest region; despite the buffer capacities provided for by the system any major collapse or rupture could cause a prolonged interruption in the water supply. While the channel is still fulfilling its purpose adequately although it has not been cleaned last year for lack

of funds and its carrying capacity is at least 40% lower because of sedimentation (but still sufficient), its lifetime will presumably be much shorter than planned.

The project-executing agency is adequately qualified to remove the sedimentation in the channel but did not possess the funds to do so owing to its precarious budget situation in the past years. The neglect of periodic maintenance in favour of ad-hoc repairs is a major deficiency.

Overall, there are clearly discernible risks to the sustainable technical operation of the water supply system. In 2001 a rupture in the channel caused an interruption in the water supply lasting several weeks. This can happen again anytime. We do expect that the highest priority would be given, also politically, to immediately repairing any defective system components in the future as well, so that the supply of around one-third of the total population appears to be largely ensured. In general, however, the system does not meet the requirements for reliable and sustainable operation.

### **Key Results of the Impact Analysis and Performance Rating**

The actual project objectives, some of which are reflected in the indicators selected for the overall objectives at the time of the project appraisal, were achieved with regard to the size of the target group. Theoretically, continuous water supply has been possible most of the time in the past years, but most consumers tapping the standpipes have access to water for only 4 to 6 hours daily. Per-capita consumption is below the forecast levels but still sufficient to enable the main health effects. The WHO quality standards were met by the project-executing agency at the distribution points. As the distribution network is very long, however, around 20% of the samples at the final points of the distribution no longer meet the quality standards. This problem is allegedly being worked on. Particularly because of the problems with water quality and the unsatisfactory operating conditions we assume that the project objectives are just barely being missed at this time and that there are considerable risks to proper sustainable operation. We therefore rate the project's long-term effectiveness as slightly insufficient (sub-rating 4).

The FC project is an indispensable prerequisite for supplying around 600,000 people with sufficient quantities of drinking water, with water shortage continuing to be a prime developmental problem in many parts of Namibia. The project also contributed to reducing health risks from most water-induced diseases on a broad scale. But since the sustainability of the effects is jeopardised by the above factors the project can be said to have only a barely sufficient relevance and significance (sub-rating 3).

The construction of the widely branched distribution network caused relatively high per-capita investment costs. The investment costs of the long-distance water supply system would be reasonable if the facilities were to reach their intended useful life. This can hardly be expected to occur amid the above problems with the raw water channel, however. For the same reason the cost of operation is also much higher than expected. Production efficiency is therefore generally insufficient.

The project-executing agency NamWater has been able to cover the cost of operation but is not achieving full cost coverage in its area of responsibility (long-distance supply). The degree of operating cost recovery in the system as a whole (long-distance supply and distribution) is probably less than 50%. As the running costs are still being subsidised from the state budget (the Ministry of Agriculture and Rural Water Supply had to transfer around EUR 2.5 million to NamWater to pay for water supplies in rural regions last year, other ministries paid invoices of EUR 0.5 million to EUR 3 million), there is an obvious allocation distortion, although without wasteful consumption or overuse of water. From today's perspective it must be conceded that in

a country where water used to be given to the people free of charge until independence and in which vast portions of the population still live in poverty, especially in the project region, the introduction of cost-covering tariffs within a project period of only around 5 years was an excessively ambitious and, ultimately, unrealistic demand. As a result of the reforms introduced in the past years and the now gradual collection of tariffs it can be expected that the need for subsidies will decline in the medium term and cost-covering tariffs can be enforced in the project region within a period of at least 10 to 15 years. The allocation efficiency is currently inadequate. Overall, we rate the efficiency of the project (production and allocation efficiency) as slightly insufficient (sub-rating 4).

Despite the given significance of the project we rate its developmental effectiveness as generally insufficient (overall rating 4) because of its unsatisfactory effectiveness and efficiency. If the project-executing agency had restricted itself to the long-distance supply of water, our rating would have turned out more positive on the basis of the cost recovery it would then have achieved and the fulfilment of WHO standards, and we would have assigned the project adequate effectiveness. Ultimately the project has failed because of factors that lay beyond the realm of influence of the project-executing agency and KfW.

### **General Conclusions**

The influence that can be exerted by KfW and the German government on the project-executing agency and/or the government of the partner country to demand the implementation of necessary sector reforms is much greater before the signing of the loan/financing agreement than during the implementation of the project. To the extent that the fulfilment of the demands is possible in the short term, its fulfilment should also be demanded prior to the start of the implementation. For demands that can be met only over a lengthier period of time, the least that should be done – as in this case – is to have a clear commitment given by the government (e.g. a binding implementation plan) and to tie its implementation to the progress of the project (award of contract, first disbursement, etc.). This applies particularly to the introduction of cost-covering tariffs which usually cannot be enforced until after the supply situation has been improved for the users, that is, until after the investment is in place, since the users' willingness to pay depends on an improved supply. If the project-executing agency violates the agreement in an advanced stage of implementation there is often no effective means for intervention left in the framework of the specific project at hand. If even the sector dialogue bears no fruit and the sector deficits are severe the necessary conclusions must be drawn by reducing future cooperation or ruling out any further projects with the same partners. This has occurred in the present case.

If interventions are intended in a sub-sector or in one of several participating institutions under an FC project but measures in other sub-sectors or reforms by other institutions are indispensable for the success of the project, it must be ensured that these deficits that are apparently external to the project are actually addressed. If the partners are not capable of ensuring this by their own efforts and other donors are not available, then these components must either be added to the planned FC project or the project itself must be abandoned.

## 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 concept)?
- 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.