

Morocco: Drinking Water Supply Guelmim/Tan Tan and Youssoufia/Chemaia

Ex-post evaluation

Project name	Drinking Water Supply Guelmim and Tan Tan		Drinking Water Supply Youssoufia, Chemaia, Sidi Ahmed and Douars	
OECD sector	14020		14030	
BMZ project ID	1986 65 812		1992 65 505	
Project-executing agency	Office National de l'Eau Potable (ONEP)		Office National de l'Eau Potable (ONEP)	
Consultant	-		-	
Year of ex-post evaluation	2005		2005	
	Project appraisal (planned)	Ex-post evaluation (actual)	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	1st quarter 1988	3rd quarter 1989	4th quarter 1992	4th quarter 1992
Period of implementation	24 months	48 months + 5 years (complement)	44 months	46 months
Investment costs	EUR 24.8 million	EUR 24.3 million	EUR 29.4 million	EUR 19.5 million
Counterpart contribution	EUR 13 million	EUR 9.7 million	EUR 12.8 million	EUR 5.9 million
Financing, of which Financial Cooperation (FC) funds	EUR 11.8 million	EUR 14.6 million	EUR 16.6 million	EUR 13.6 million
Other institutions/donors involved	-		-	
Performance rating	2		2	
• Significance / relevance	2		2	
• Effectiveness	1		1	
• Efficiency	3		3	

Brief description, overall objective and project objectives with indicators

In the context of the two Financial Cooperation projects the cities of Guelmim, Tan Tan, Youssoufia, Chemaia and Sidi Ahmed were to be supplied with hygienically safe drinking water year-round and in sufficient quantity. In addition, 71 rural hamlets (douars) in the Youssoufia-Chemaia region were included in the project, as well as four villages on the Guelmim-Tan Tan line and the airports and seaports in Tan Tan (project objective). The total population supplied in the context of the project was estimated at 306,000 in the years 2000 and 2002. More precisely, the project covered the opening up of groundwater resources, the equipment of deep wells, the laying of transport pipelines, the construction of pumping stations and pure water tanks as well

as the expansion and rehabilitation of urban distribution networks. The overall objective of the project was to reduce the health risks to which the population was exposed. The Guelmim-Tan Tan project was intended to prevent a possible deterioration of the health situation in the event of non-realisation.

The following indicators were defined to measure achievement of the project objective:

For Guelmim and Tan Tan:

- The number of household connections reaches 65% (Guelmim) and 39% (Tan Tan).
- The average consumption is 90 l/c/d (Guelmim) and 56 l/c/d (Tan Tan).
- Standpipes are installed for the population that does not have house connections.
- The average consumption at public standpipes is 15 l/c/d.
- Water losses are reduced (max. 20% in Tan Tan, no percentage is defined for Guelmim; in Annex 2.6 of the project appraisal report a loss rate of 20% is forecast).
- The quality of the drinking water is hygienically safe and the salt content of the water is acceptable.

For Youssoufia, Chemaia and Sidi Ahmed:

- The number of household connections reaches 75% (Youssoufia and Chemaia) and 53% (Sidi Ahmed).
- Per-capita consumption is 65 l/c/d (Youssoufia and Chemaia) and 53 l/c/d (Sidi Ahmed) and 20 l/c/d at public standpipes.
- Technical water losses amount to 5% (production) and 25% (distribution).
- Drinking water quality is acceptable (nitrate content of max. 50 mg/l, fluorine content of max. 1.5 mg/l; this is in compliance with WHO standards).

Programme design / major deviations from the original programme planning and their main causes

In the context of the Guelmim-Tan Tan project the existing water supply systems were extended in both towns (including the villages along the long-distance pipeline) and the town of El Ouatia (formerly Tan Tan Plage) including the port and the regional airport near Tan Tan were newly connected. In addition, measures were conducted on the sanitation in Guelmim. In the context of the Youssoufia-Chemaia-Sidi Ahmed project the water supply systems of the three small towns were expanded. This measure included a component to connect approx. 100 villages to the supply system.

When examining the available water resources of the Khang Lahmam well field, which was planned to ensure the supply of Tan Tan, it was discovered that the available groundwater had a considerable salt content. For this reason Tan Tan was connected by a long-distance pipeline to the supply system of Guelmim and the Oued Sayad well field. In addition, it turned out in the course of the project implementation that contrary to assumptions made at the time of the project appraisal the groundwater reserves of the Oued Sayad might be endangered due to the discharge of untreated raw sewage from the town of Guelmim. For this reason a transfer pipeline was installed, which leads the sewage to a treatment plant which was also constructed additionally.

The Youssoufia-Chemaia project was implemented largely as had been planned.

Key results of the impact analysis and performance rating

As regards the achievement of the target indicators, the situation is as follows:

- The intended increase in the number of house connections was reached in all cases and was even exceeded by far in many cases. Due to the efficient performance of the project-executing agency and the strong demand from the population for house connections the original targets were greatly surpassed.
- The planned per-capita consumption was achieved in Youssoufia and Tan Tan but not in the other three towns. The lower consumption is due to the fact that people save drinking water or use it more efficiently – a strategy which has also been pursued by ONEP in the last few years. Thus, as water is a scarce resource and due to the lower consumption rates in the three towns (42 to 49 l/c/d) this failure to achieve the target values has to be judged positively.
- Public standpipes do no longer play a significant role in urban water supply and do not even exist any longer in most towns. The number of households that are not connected to the supply system (16% of the urban population covered by the project) is relatively low. This group usually receive water from neighbours connected to the system or from private water vendors, who also sell hygienically safe water. Average consumption in the “douars” around Youssoufia is approx. 13 l/c/d and, thus, below the target value of 20 l/c/d. This quantity is, however, not sufficient to ensure the minimum supply (approx. 5 litres for drinking and cooking purposes) and is supplemented if necessary from alternative sources of water (especially rainwater cisterns) for purposes such as personal hygiene or washing and cleaning. As the inhabitants of the “douars” are well aware of the importance of the better water quality at the standpipes they use the water carefully and only for specific purposes. Since the “douars” report no significant cases of disease which would suggest an under-supply or consumption of contaminated water, we do not consider a lower than targeted consumption as negative (this applies to roughly 5% of the total target group).
- The drinking water quality is regularly tested (physical and chemical composition/bacteriological analyses) and complies with the quality standards defined at project appraisal (including the salt content in Guelmim/Tan Tan) and WHO quality standards.
- There is a constant supply of drinking water at all project towns. Only in Guelmim and Tan Tan is the supply sometimes interrupted for short intervals during the summer months. These interruptions, however, do not last longer than 6 hours. Daily water supply time of at least 16 hours is ensured.

In consequence, the project objectives are considered to have been achieved. This also applies to the achievement of the overall objective. It can be assumed that due to the improved water supply after the implementation of the project measures the population in the project towns had to resort to a much lesser extent to alternative unsafe or salty water to cover their drinking water needs.

Despite adequate costs of production and distribution of drinking water it is not possible in any of the five project towns to cover the operating costs from the revenue generated from water sales. The reasons for the inadequate cost recovery are exclusively on the revenue side because the tariffs set by the government are not high enough. This cost coverage gap, however, is compensated for through supply services rendered by ONEP in other towns in a system of cross-subsidisation customary in Morocco, which provides for a “solidarity surcharge” on the water tariff.

The money required to pay the water bill usually matches the income situation of the population and rarely exceeds 2% of household incomes in the towns. The water supply in the “douars” varies substantially from hamlet to hamlet. On average, the costs of water supply amount to 0.6% of the poverty-line income. However, in rural settlements, where income is sometimes very low, the costs may reach up to 7% of monetary income. However, this statement has to be put into perspective given other costs of living in rural villages, as most of the villages are connected to the power grid and monthly electricity bills are many times higher than the water bills.

The people supplied in the context of the projects benefit from the desired effects of the improved drinking water supply. Signs of this are a reduction in drinking water costs, improved water quality and availability and an improvement in the health situation. In the framework of its ongoing activities in Morocco KfW continues to closely monitor the tariff policy pursued in the water sector and aims at achieving an increase in average tariffs charged in small towns in order to have cross-subsidisation reduced. The projects in Guelmim and Tan Tan have positive environmental effects because the construction of the treatment plant reduced the threat of groundwater contamination.

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

- The targeted supply level in terms of availability, quantity and quality of the drinking water supply was achieved through the implementation of the project measures and in some cases even greatly exceeded. Against the background of scarce water resources the low per-capita consumption in the towns is not rated negative. In the hamlets, too, per-capita consumption is sufficient to ensure the minimum supply (required for drinking water and cooking purposes). Health risks have not occurred due to low water consumption. We therefore rate the **effectiveness** of the project as **good (sub-rating 1)**.
- The intended health impacts, which had been defined as the overall objective of the project, were not achieved according to the information provided. A reduction of water-induced diseases was noted in particular in Youssoufia and Chemaia. However, there is no evidence available to suggest that health risks from inadequate drinking water supply had existed in the “douars” supplied from Youssoudia before the implementation of the project, nor does such evidence exist for the towns of Guelmim and Tan Tan. The project helped to eliminate the existing supply bottleneck in Guelmim and Tan Tan. Altogether the **significance and relevance are satisfactory for both projects** (sub-rating: 2)
- The supply facilities could be established with relatively low specific investment costs, though the technical conception was rather complex in some cases (transfer pipeline Guelmim-Tan Tan). The funds provided for the operation and maintenance of the supply facilities are sufficient but are earned only partially from the revenue generated from water sales. This is not due to unreasonably high maintenance costs but to the fact that in some areas water tariffs, which are fixed by the government, are not high enough. Owing to the principle of cross-subsidisation practiced in Morocco in favour of smaller towns the financial viability of smaller water supply systems is also generally ensured. The technical losses in the project towns, in particular however in Guelmim (31%) and Tan Tan (42%), are not acceptable especially with a view to the scarce regional water resources. Therefore, taking into consideration these factors we judge the **efficiency** of both projects as satisfactory (**sub-rating: 3**).

In summary, we consider the project as having an altogether **satisfactory degree of developmental efficacy (rating 2)**.

The project has contributed to direct poverty reduction at the sector level. No gender-specific impacts have occurred. The project did not pursue the goal of improving the participatory development or environmental protection.

General conclusions and recommendations

- It is difficult to establish whether the overall objectives of projects in the area of water supply and sanitation (improvement of the health situation) have been achieved at the time of the ex-post evaluation if no baseline study exists. Ideally, the health situation and the potential health risks should already be examined in the feasibility study in order to be able to assess the urgency of the project approach and compare it with the findings prior to the project appraisal.
- Particularly if there are strong regional disparities within a country, cross-subsidisation (of water tariffs in this case) of economically weaker regions by regions with higher revenues may be a suitable means to keep tariffs in poorer regions at a lower level. Nonetheless, in these cases the project appraisal should reveal to what extent the public agencies in charge of granting subsidies have the necessary financial capacities. This makes it possible to avoid financing the cost of operating an FC project that needs long-term subsidies with funds that may be urgently needed elsewhere. Especially in cases where tariffs are cross-subsidised it should be of particular importance to analyse the overall sector in addition to analysing the individual project as a commercial unit.
- In the evaluated projects the high collection efficiency achieved by the water utility ONEP is remarkable and partly due to the payment terms applicable to public consumers. Public entities have to purchase so-called vignettes at the beginning of each fiscal year which are used for paying the water invoices in the course of the year. In return for issuing the vignette the water company obtains access to the public entities' budget allocations made for this purpose. This has made it possible to substantially reduce the problem of unpaid invoices in this group of consumers in Morocco. Designing the payment conditions for public consumers in a similar way could improve their payment behaviour in other countries as well - provided the state maintains the necessary budgetary discipline.

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.