

India: Rural water supply, Rajasthan

Ex post evaluation report

OECD sector	1402000 / Water supply, sanitation und sewage management	
BMZ project ID	1993 65 420	
Project executing agency	Public Health Engineering Department (Government of Rajasthan)	
Consultant	IGIP GmbH, Darmstadt/Hessen	
Year of ex post evaluation	2010 (2010 random sample)	
	Project appraisal (planned)	Ex post evaluation (actual)
Start of implementation	Q3 1993	Q4 1994
Period of implementation	65 months	144 months
Investment costs	EUR 72.10 million (without complementary measure)	EUR 91.24 million (without complementary measure)
Counterpart contribution	EUR 18.51 million	EUR 16.66 million
Financing, of which FC funds	EUR 53.58 million. EUR 1 million complementary measure	EUR 74.58 million EUR 1 million complementary measure
Other institutions/donors involved	--	--
Performance rating	4	
• Relevance	2	
• Effectiveness	3	
• Efficiency	4	
• Overarching developmental impact	3	
• Sustainability	4	

Brief description, overall objective and project objectives with indicators

The project comprised the construction of two central drinking water supply systems and sanitation measures for three districts in the province of Rajasthan between 1993 and 2005. The project objective was, through the continuous provision of an adequate supply of drinking water and improvement of the sanitation situation and hygiene awareness (project purpose), to contribute to reducing the health risk to the target population from water-borne diseases (development objective). The target group was the population living in the project area.

The project area concerned the small towns Sardarshahar und Taranagar in the district of Churu as well as a total of 385 villages in the three districts of Churu, Jhungjhunu and Hanumangar, with a total current population of about 780,000 inhabitants. The

infrastructure constructed for water treatment, transport and distribution in Phase I was targeted at a total population of 860,000 inhabitants in 2012, in line with the project appraisal. Furthermore, the purification plants and main pipes had already been constructed to supply a larger population and were also to be connected in a subsequent Phase II. Due to difficult sector conditions and poor performance of the executing agency, the investment project was no longer financed through Financial Cooperation. However, building upon Phase II plans the Indian Government had begun to construct the connection and distribution pipes with its own funds, so that population currently supplied by the system is approximately 1.37 million (rural: 1.02; urban: 347 thousand), distributed over 512 villages and a total of 6 small towns. Additional measures in the framework of the investment component concerned the drainage of sewage from low-lying depressions in both of the cities, the construction of latrines, as well as accompanying education campaigns and hygiene education. To ensure operation and maintenance as sustainable as possible, a corresponding complementary measure was determined which was implemented between 2007 and 2009, in particular with the goal of founding an autonomous operational organisation.

Corresponding indicators were defined to evaluate achievement of the project objective:

- Year-round, continuous provision of 35 litres of water per person and day in the villages and 70 litres in the cities,
- The drinking water quality at the point of supply conforms to WHO guidelines,
- Two years after completion of all water supply facilities, utilisation of the produced water volumes will be 90% in the cities and 80% in the villages (A), whereby supply interruptions do not exceed 14 days per year on average (B) and, depending on the individual case, are remedied within 48 hours (C),
- Meter readings calculate the utilised volumes, which are charged to and paid by the water user associations,
- In 2000 about 20% of the households in the villages are equipped with latrines and have a sufficient number of washyards, cesspits and refuse collection points (one each for about 50 inhabitants), which are also adequately used and maintained,
- In both the cities the critical low lying areas are regularly drained, whereby sewage/rain water collection is pumped to drainage basins outside of the construction areas within a maximum of 5 days.

Project design/major deviations from original planning and their main causes

The Public Health and Engineering Department (PHED), a department of the state ministry, is responsible for drinking water supply and sanitation. The PHED in the districts also operates the facilities and was the executing agency of the project. To implement the project a separate department was founded, the Project Management Cell (PMC), which also charges the water fees in rural areas. The support of the villages was taken over by a Community Participation Unit (CPU), whose staff was permanently taken from a combination of 5 NGOs. A total of 360 village user groups WHC (Water and Health Committees) together with the village inhabitants determined the location of distribution pipes and standpipes in the villages, contributed to the work of laying the pipes and continue to maintain the systems. Women's groups have tasks in the area of hygiene and maintaining the stand pipes. The WHCs collect most of the fees, which are usually apportioned according to a traditional system, administer the collected funds and pay the water bill to the PHED. An association of user groups from a grouping of villages that are supplied from a pump station (Pani Panchayat and P.P. Federation) represent the user interests to the provincial government and the operator. The

structure of users continues to function and demonstrates the continuing importance of the facility for the population.

Conception, detail planning and implementation of the project measures seem appropriate from today's perspective. By using technology implemented across India, water supply and faeces disposal facilities were created and rehabilitated that can generally reliably meet the needs of the target groups. There were no substantial changes to the concept compared to the project appraisal.

Key results of the impact analysis and performance rating

The overall objective and the project objectives were partly achieved.

Achievement of the overall objective: It is reasonable to assume that reliable, regular and adequate water supplies have contributed to the perceived health benefits. Random surveys of users confirm a significant improvement in the health situation. In particular cases of water-induced gastrointestinal diseases, which were attributed to the salty ground water, occur significantly less frequently in people and animals. Consequently the overall objective is considered as largely achieved, although clear data on the health situation were not available.

Achievement of the project objective: The per capita daily consumption is approximately 130 litres in the cities and up to 60 litres in rural areas. However, a 24-hour supply has only been achieved for 8% of inhabitants. Water quality checks are only performed on an irregular basis. The operation of the water treatment plants leads to the conclusion that the WHO standards are only achieved at certain times. The consumption rates are not attained due to technical loss rates of 30-40%. The collection efficiency of water bills is 100% in the villages and between 80 and 90% in the cities. The wash yards and latrines have been made available as planned and are also being used.

The project's developmental efficacy is assessed below, based on the criteria of relevance, effectiveness, efficiency, overarching developmental impact and sustainability:

Relevance: The quantitatively and qualitatively inadequate water supply and sanitary situation generally constitutes a serious decline in the quality of life for the population in Rajasthan. The project area is among the poorer regions in India and it is precisely the poorest population groups that are particularly affected by the inadequate water supply and sanitary situation. Therefore the project is still seen as geared towards fighting poverty and highly relevant in terms of the population's needs. The Indian government continues to assign high priority to the drinking water and sanitary sector, as evidenced by the significant budget allocations in its 11th Five Year Plan 2007 - 2012. Project activities integrate with Indian structures and contribute to achieving the MDG 7. Similarly the German Federal Government also attaches the highest significance to the water sector in its sector concept, however in the framework of German-Indian cooperation they agreed on other priority sectors due to problems in implementing sector reforms. We rate the relevance of the project as good (sub-rating 2).

Effectiveness: Based on the applicable indicators for the project, from today's perspective only an ambivalent conclusion on the achievement of the project objective can be drawn. Although the targeted water volume was made available to and used by the target group, for over 92% of the users only intermittent supply is available due to the enlarged supply zone and operating deficiencies, requiring intermediate storage that reduces quality. In terms of meeting the WHO quality standards for drinking water, due

to minimal analysis data we can only make an indirect assumption - using the evaluation of the operation of the waterworks and statements made by the target group - that these were not always met. On the other hand, the objectives in the area of sanitary disposal were by and large fulfilled. The founding of an autonomous operating company to be supported by a complementary measure has still not been carried out, so that the objective of the complementary measure was not achieved. However, the executing agency is reportedly pursuing corresponding activities at the time of the ex post evaluation. Despite considerable deficiencies, due to the still currently functioning system we provisionally rate the project's effectiveness from today's perspective as still satisfactory (sub-rating 3).

Efficiency: In terms of production efficiency it can be stated that the relative costs in terms of structures built and services performed were appropriate. For the projects only Indian products were used that were cost-effective in international comparison. At all locations the facilities for the catchment, preparation and distribution of water are of simple and robust construction, however there are significant deficiencies in the durability of some technical equipment components, such as the water meter or components of the control technology. In terms of the investment costs per capita, only estimated figures could be made as the facility components for production (processing and long-distance pipelines), which were already completed in Phase I, were designed for 2.6 million inhabitants. In relation to the estimated 780,000 inhabitants currently supplied through this project, the specific investment costs of EUR 120 per user are thus very high, but are understandable in light of the significant expansion of the project region (Phase II) and associated pipeline lengths. An alternative, more cost-efficient decentralised supply system using groundwater is not possible due to its high salt content and led to the current concept, which is rather rare and cost-intensive for rural water supply projects. This fact was known from the outset of the project and is justified with reference to poverty reduction. The collection efficiency of 80% for urban areas and 100% for rural areas can be considered as acceptable to very good. However, according to project plans full recovery of operating and maintenance costs should be achieved 5 years after the start of operation with introduction of regular tariff increases. We determine that at present this has not been achieved despite the users' willingness to pay as well as functioning water committees, and 5 years after the start of operation only about 25% of the operating and maintenance costs have been covered (allocation efficiency). While the production efficiency is considered to be satisfactory, the allocation efficiency can be preliminarily considered to be unsatisfactory. Therefore, the project's efficiency is rated as unsatisfactory overall (sub-rating 4).

Overarching developmental impact: The impact chain, in which an adequate supply of drinking water in connection with sewage disposal measures and hygiene education achieves a reduction of drinking water related health risks, is plausible. Despite the mentioned deficiencies in operational management, based on random surveys a significant improvement in the target population's quality of life is expected in terms of a reduced frequency of water-induced diseases and less time and financial effort for supplying drinking water. Through a continuous supply the result could have certainly been significantly better. The project has no negative ecological impacts as the fresh water comes from a region rich in water resources. Therefore we rate the overarching developmental impacts as satisfactory (sub-rating 3).

Sustainability: The water tariffs were never increased although the government of Rajasthan had provided its consent. The average inflation rate of 8% in the past years thus contributes to the poor operational performance of the system. The necessary subsidies to maintain operation and compensate for inadequate cost recovery were not made available by the Government of Rajasthan in adequate amounts. These circum-

stances have led to the gradual neglect of the facilities. The available funds are only sufficient to operate the facilities and conduct repairs essential for operation. With the above limitations, the system is currently just functional. According to our assessment of the operating and maintenance status, further limitations in supply are to be expected in the near future. Therefore, from today's perspective the sustainability of development impacts cannot be assumed. However, according to provided information concrete efforts are being undertaken by the Indian side to improve the operational organisation by involving a private company. Despite these current considerations by the Indian Government, our critical estimates exceed the positive ones and we assess the sustainability of the project as unsatisfactory (sub-rating: 4).

Therefore, despite the positive impacts achieved in sub-areas, the summarised overall assessment is unsatisfactory (rating 4)

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

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

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

A rating of 1 to 3 is a positive assessment and indicates a successful project while a rating of 4 to 6 is a negative assessment and indicates an unsuccessful project.

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 an improvement is very unlikely. 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. A rating of 1 to 3 indicates a “successful” project while a rating of 4 to 6 indicates an “unsuccessful” project. It should be noted that a project can generally only be considered developmentally “successful” if the achievement of the project objective (“effectiveness”), the impact on the overall objective (“overarching developmental impact”) and the sustainability are considered at least “satisfactory” (rating 3).