

Laos: Water Supply Luang Prabang I and II

Ex-post evaluation

OECD sector	(a) 14030 Water supply and sanitation – small systems (b) 14020 Water supply and sanitation – large systems	
BMZ project ID	(a) 1992 65 067 (preparatory project) (b) 1995 66 852 (main project)	
Project-executing agency	Nam Papa Luang Prabang	
Consultant	IGIP, Darmstadt	
Year of ex-post evaluation	2004	
	Project appraisal (planned)	Ex-post evaluation (actual)
Start of implementation	(a) Q 4 1993 (b) Q 2 1996	Q 2 1994 Q 4 1996
Period of implementation	(a) 27 months (b) 31 months	25 months 43 months
Investment costs	(a) EUR 1.32 million (b) EUR 5.16 million	EUR 0.68 million EUR 5.74 million
Counterpart contribution	(a) EUR 0.14 million (b) EUR 0.84 million	EUR 0.12 million EUR 1.24 million
Financing, of which Financial Cooperation (FC) funds	(a) EUR 1.18 million (b) EUR 4.32 million	EUR 0.56 million EUR 4.50 million
Other institutions/donors involved	none	none
Performance rating	(a) 2 (b) 2	
• Significance / relevance	(a) 2 (b) 2	
• Effectiveness	(a) 2 (b) 2	
• Efficiency	(a) 3 (b) 3	

Brief Description, Overall Objective and Programme Objectives with Indicators

In phase I of the programme “Water Supply Luang Prabang,” parts of the central water supply system of the city of Luang Prabang were overhauled. In the second phase the drinking water production and distribution facilities were expanded and targeted measures to dispose of solid waste and sewage were carried out. The programme was to contribute to preventing health risks resulting from dirty drinking water and, in the second phase, also from inadequate sewage and solid waste disposal (overall objective).

The programme objective of phase I was to improve the quantitative supply of drinking water for consumers living in the supply area to meet national standards. The indicators defined to

measure achievement of these goals were reattainment of the original capacity of the water treatment plant, the complete equipment of all house connections with water meters, a reduction in water losses and the elimination of E.coli bacteria in official water samples. In the ex-post evaluation the last indicator mentioned was replaced by an indicator to measure compliance with national drinking water standards.

The programme objectives for phase II were (1) to ensure need-based and continuous supply for the population and for industrial and public consumers in the supply area that meets national standards, and (2) to improve sewage disposal in areas at particular risk as well as solid waste disposal in the city center. Indicators of achievement of the programme objectives were an increase in the number of inhabitants supplied with drinking water, observance of maximum per-capita consumption, the number of interruptions in supply, observance of national drinking water standards and a reduction in water losses.

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

The project measures that were carried out in phase I comprised an overhaul of parts of the existing central water supply facilities in the city of Luang Prabang, especially the rehabilitation of the spring intakes, renewal of transmission mains, reservoirs and distribution systems as well as the replacement of defective water meters. In phase II the water production capacities were increased, partly through the construction of a river water intake plant, and the drinking water distribution facilities were expanded through the installation of additional main and distribution pipes. On the disposal side, the construction of a rainwater and sewage canal improved the hygiene situation in certain parts of the city, and the acquisition of a garbage collector resolved the bottleneck in the area of solid waste collection. Along with the investment measures, phase II also comprised an advisory and education campaign aiming to heighten the hygiene awareness of the population. However, it slightly underestimated the local tradition of boiling drinking water, which continues to be practiced by large parts of the population, even those with access to clean drinking water.

In both projects the measures agreed during the appraisal were implemented without any major conceptual changes. In phase II, apart from the envisaged measures additional distribution pipes were installed, some of them as a counterpart contribution by the project-executing agency, and more house connections with water meters were installed. From today's point of view as well the concept chosen for the water supply complies with the technical and economic requirements. However, the sensitization campaign should have been better adjusted to the local context.

Key Results of the Impact Analysis and Performance Rating

As a result of the programme, a water supply system was established that still functions technically three years after it began operating. For the most part, operation of the water supply system is smooth. The connecting rate of the population of Luang Prabang of 82% is far above the expectations at the time of the project appraisal. The project-executing agency is constantly expanding the system. At 144 l/day, per-capita consumption exceeds the maximum amount of 120 l/day that is recommended in the sector concept for water and sanitation and is therefore a shortcoming of the programme. The high consumption is due mainly to the fact that the existing block tariff system does not provide for sufficient progression and thus scarcely has any impact in terms of water saving.

The water quality is analyzed regularly and complies with the standard in every regard apart from the limit for residual chlorine. Owing to the occasionally low residual chlorine content, in

principle it is possible that the tap water is not always totally safe hygienically. We consider the associated health risk to be minimal, however. This is backed up by the results of the microbiological controls by the public health department at the local drinking water filling facilities, all of which were positive.

In most cases the sewage disposal is carried out properly by way of latrines or cesspools and via drainage ditches.

An economic assessment of the programme shows that based on static calculations, the maximum limit of 120 l/day for projects with per-capita consumption that is required by the sector concept to ensure full cost coverage is achieved, yet in dynamic terms this limit is only achieved if the dynamic production costs are calculated with a discount factor of 0%. In other words, the project-executing agency takes in its write-offs, but it does not earn any capital interest. Against the backdrop of high annual inflation rates in Laos and the planned expansion investments, regular tariff adjustments continue to be necessary.

A further risk to the programme's sustainable developmental effectiveness is the limited availability of foreign exchange to procure spare parts for equipment manufactured abroad.

Our overall assessment of the programme's developmental effectiveness can be summarized as follows:

- The intended programme objectives were achieved, except for compliance with the standard set for residual chlorine. We judge the resultant health risk to be minimal. After weighing the individual aspects, we have come to the conclusion that the programme's **effectiveness** is satisfactory (partial evaluation: **rating 2**).
- The programme contributed to noticeably improving the quality of life, also for the poor population. In so doing, it contributed to improving the health situation, although there are still potential risks due to the disinfection procedure, which needs improvement. The programme has had broad effect and supports the development of the economy and tourism in Luang Prabang. Overall the developmental **relevance** and **significance** of the programme are satisfactory (partial evaluation: **rating 2**).
- Measured in terms of the specific investment costs, the goals were reached, but required considerable funds. However, the dynamic production costs on the basis of full and operating costs are very low in comparison with projects carried out under similar conditions. Thus, the **production efficiency** of the projects is good. Due to the high per-capita consumption the sector concept for water and sanitation requires full cost coverage for the programme's eligibility for support. This is achieved in the static calculation, although a discount factor of 0% had to be applied for this to be achieved in the calculation of dynamic production costs. As a result, we judge the **allocation efficiency** of the programme to be sufficient. Taking the two partial criteria into account, we assess its efficiency to be sufficient overall (partial evaluation: **rating 3**).

Based on the criteria of significance/relevance, effectiveness and efficiency, we judge the programme "Water Supply Luang Prabang Phases I and II" to have attained a **satisfactory degree of developmental effectiveness overall (rating 2)**.

General Conclusions

In order to ensure the long-term sustainability of a project, project-executing agencies with limited access to foreign exchange should search for possibilities to acquire the spare parts for equipment within their respective region.

When designing sensitization campaigns for water supply projects, it needs to be taken into consideration that customs take a long time to change, such as the custom of boiling drinking water. For this reason, sensitization campaigns should be better adjusted to the local context, planned for the long term and, to ensure their sustainability, conducted in close collaboration with the local public health departments.

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.