Tanzania: Rehabilitation of Railway Bridges V and VI

Ex-post evaluation

OECD sector	21030 / Railway sector	
BMZ project ID	(1) 1994 65 931 Phase V, Fixed asset investment (2) 1995 66 894 Phase VI, Fixed asset investment (3) 1992 70 216 Phase IV, Complementary measure (4) 1998 70 155 Phase VI, Complementary measure (5) 1996 170, Training measure	
Project-executing agency	Tanzania Railways Corporation (TRC)	
Consultant	(1) - (5) DE-Consult / Gauff Ingenieure	
Year of ex-post evaluation	2004	
	Project appraisal (planned)	**Ex-post evaluation (actual)**
Start of implementation	(1) 01/1995 (2) 04/4998 (3) 01/1994 (4) 07/1998 (5) 08/1996	01/1995 08/1998 01/1994 07/1998 12/1996
Period of implementation	(1) 15 months (2) 20 months (3) 48 months (4) 15 months (5) 6 months	59 months 25 months 54 months 12 months 9 months
Investment costs	(1) EUR 5.37 million (2) EUR 5.32 million (3) EUR 1.12 million (4) EUR 0.20 million (5) EUR 0.31 million	EUR 5.14 million EUR 5.00 million EUR 1.16 million EUR 0.18 million EUR 0.28 million
Counterpart contribution	(1) EUR 0.51 million (2) EUR 0.41 million (3) EUR 0.10 million (4) - (5) -	EUR 0.28 million EUR 0.10 million EUR 0.14 million - -
Financing, of which Financial Cooperation (FC) funds	(1) EUR 4.86 million (2) EUR 4.91 million (3) EUR 1.02 million (4) EUR 0.20 million (5) EUR 0.28 million	EUR 4.86 million EUR 4.91 million EUR 1.02 million EUR 0.18 million EUR 0.28 million
Performance rating (Phases V and VI)	3	
Significance / relevance	3	
Effectiveness	3	
Efficiency	2	

Brief Description, Overall Objective and Project Objectives with Indicators

The projects were part of an investment programme for the rehabilitation of railway bridges of the Tanzanian Railway Corporation (TRC), which had been promoted under FC over several years. Under phases V and VI of this programme altogether 42 bridges were rehabilitated and repaired. These bridges had partly been destroyed during the large floods in December 1997. The complementary measure and the A+F measure served primarily to develop a bridge maintenance concept and its implementation in the context of the establishment of a bridge construction yard of TRC.

The objective of phase V was to ensure the safe passability of the Central line, the Mwanza line and part of the Northern line. In the wake of the above floods this objective was modified for both phases into a contribution to eliminate the flood damage caused by El Niño and, thus, to restore the safe passability of bridges in the western part of the Central line and the Mwanza line **(project objectives)**. Both projects were intended to contribute to providing the transport capacity required and improving TRC's profitability **(overall objectives)**.

The target group of the project comprises private railway users and commercial users of transport services.

The **indicators** for the achievement of the project objective were:

- The resumption of rail traffic and the elimination of bridge-related speed-reduced stretches on the Central (CL) and Mwanza Lines (ML) and
- the year-round paasability of the Central and Mwanza Lines with an axle load of 13.5 tons.

The **overall objective** was considered to be achieved if, after the conclusion of the measures to eliminate the flood damage caused to the CL and ML financed by FC and the World Bank, the transport capacity of TRC is on average not less than 100,000 t/month.

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

In the context of phase V six bridges on the Central Line, the Mwanza Line and the Tanga Line were rehabilitated according to schedule until August 1997. In reaction to the above-mentioned floods the concept was revised and mainly emergency repairs were implemented on the Central Line. The concept of phase VI was equally revised in the wake of the flood. According to the revised concept it was planned to use the funds available, first, to rehabilitate 17 of those bridges that suffered the most severe damage. Since the rehabilitation was implemented in a cost-saving and standardised manner it was possible altogether to upgrade 31 bridges.

Due to the rehabilitated bridges and passages and measures implemented under other donors' programmes the passability of the most important Tanzanian railways was restored and ensured in the longer term. With hindsight one can say that the package of measures was useful and sufficient.

Key Results of the Impact Analysis and Performance Rating

The indicators for the achievement of the project objective (resumption of the rail traffic and the elimination of (bridge-related) speed-reduced stretches on the CL and the ML as well as the year-round passability of the CL and the ML with a 13.5 ton axle load) were fully reached. All bridges are in use. Transport times for the users of TRC's services were substantially reduced.

In addition to the investment measures, the complementary measures also helped to reduce the number of bridges with construction deficiencies. While the survey of the flood damage of 1997/98 was established and during the final planning of the rehabilitation and repair measures for the bridges, the importance of the bridge maintenance system introduced in the context of the training measures and of the bridge construction yard became clear. On the whole, we consider the complementary measure and the training measure as successful.

After the conclusion of the rehabilitation and repair measures no new damage occurred during the rainy season in the last five years. In the course of the complementary measures and the training measure, the organisational and material preconditions were created to ensure that TRC will in the future be able to perform the required maintenance tasks on its own and that the bridges will have an adequate useful economic life. Due to the stable construction there are hardly any sustainability risks for the rehabilitated bridges for the foreseeable future. Though the sustainability risk is higher for the other bridges, which were not rehabilitated in the context of FC projects, it can still be considered as manageable due to the establishment of the bridge maintenance depot, which ensures that at least the most urgently needed repairs are carried out. Overall, we classify the project's developmental **effectiveness** as sufficient (**sub-rating 3**).

The project was implemented within an acceptable time frame, at acceptable costs and in a good and lasting quality. The construction costs per bridge were low and in some cases much lower than planned during the project appraisal. Thus, production efficiency is given. The TRC time tables provide evidence that the rail sections on which there are rehabilitated bridges are strongly frequented. Whereas TRC had lived on its reserves in the past, it even achieved cost coverage in the last business year. In view of further staff cuts that are planned, full cost coverage also seems possible in the future. In comparison with other African railway companies the operating performance of TRC is good. In analogy with the project appraisal, we have not calculated the financial and economic rate of return of the bridge rehabilitation programme because this would cause methodical problems: assigning the total revenue earned on the CL and the ML to the bridges rehabilitated from FC funds would produce disproportionately high yields. Especially due to the high economic benefit (ensuring and increasing the transport capacity, reduction of transport times, impact on the environment) and the given production efficiency we rate the overall efficiency of the project as satisfactory (sub-rating 2).

As a result of the projects the efficiency of the Tanzanian railway network was restored and maintained. On the one hand, this enables the TRC to generate the urgently required foreign exchange earnings due to the resumed transit freight transport, and on the other hand, ensures that the particularly poor regions in the west of Tanzania, which have so far not been opened up by roads, are connected to the transport network. The access of the neighbouring landlocked countries to international trade could thus be maintained and the preconditions for regional cooperation and trade were created. The indicator for the achievement of the overall objective (establishment of an average transport capacity of at least 100,000 t/months on the CL and the ML) has been reached constantly since July 2000 and was even exceeded. However, there are sustainability risks in the event that the planned concessioning of TRC will not be implemented in 2005 as scheduled, which would imply that the required reinvestment in rolling stock and the rail network cannot be made. Since the FC commitment in the railway sector in Tanzania has been terminated, the German side is no longer able to influence the process of concessioning. Thus, we classify the project's developmental **relevance and significance** as adequate (**sub-rating 3**).

After weighing the above mentioned key criteria for the evaluation of the project's developmental success, we classify the projects overall as having a **satisfactory degree of effectiveness (rating 3).**

General Conclusions

Due to the use of standardised concrete parts for the standard bridge types and the prefabrication of these parts in a bridge construction yard it was possible to considerably reduce the costs of rehabilitation and repair of simple railway bridges. In countries with a high percentage of simple bridges in the rail network and an underdeveloped private construction sector the establishment of a specialised bridge construction yard at the railway corporation may be a more cost-saving alternative than the commissioning of an external building contractor.

Public railway companies should be supported in the context of Financial Cooperation only if reasonable concepts have been established and agreed for an efficiently working rail operator or for the privatisation of the rail services.

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.