

**Benin: Highway between Cotonou and Porto Novo**

**Ex post-evaluation report**

<b>OECD sector</b>	21020/Road transport	
<b>BMZ project number</b>	1994 65 220	
<b>Project executing agency</b>	Originally: Direction des Routes et Ouvrages d'Art in the Ministère des Travaux Publics et des Transport (MTPT); later: Direction Générale des Travaux Publics in MTPT	
<b>Consultant</b>	Beller Consult, Freiburg	
<b>Year of ex-post evaluation</b>		
	<b>Project appraisal (planned)</b>	<b>Ex-post evaluation (actual)</b>
<b>Start of implementation</b>	1 <sup>st</sup> quarter 1995	1 <sup>st</sup> quarter 1995
<b>Period of implementation</b>	24 months	77 months
<b>Investment costs</b>	EUR 68.0 million	EUR 61.9 million
<b>Counterpart contribution</b>	EUR 2.7 million	EUR 2.6 million
<b>Finance, of which FC funds</b>	EUR 21.8 million	EUR 19.0 million
<b>Other institutions/donors involved</b>	EUR 43.5 million	EUR 40.3 million
<b>Performance rating</b>	3	
• <b>Relevance</b>	2	
• <b>Effectiveness</b>	3	
• <b>Efficiency</b>	3	
• <b>Impact</b>	3	
• <b>Sustainability</b>	3	

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

The project comprised the partial four-lane extension of the heavily frequented 28.1 km-long asphalt road from Cotonou to Porto Novo. The overall objective was a permanent improvement in the efficiency and cost effectiveness of the delivery of goods and services to the population. No indicators were defined for measuring overall objective achievement. The project objective was the faster and more economical operation of current and future road traffic and improved financial and administrative capabilities for maintenance. The indicators for project objectives achievement were changes in the volume of traffic, accident statistics and expenditure on road maintenance, although no appropriate targets were explicitly defined.

### **Project Design/Major Deviations from Original Planning and Main Causes**

As planned at project appraisal, the extension of the dual-lane asphalt road, which was in a poor condition and no longer able to cope with the volume of traffic, resulting in severe traffic jams, was divided into three separate lots, with Lot A financed from FC funds, Lot B by the African Development Bank and the West African Development Bank and Lot C by the European Development Fund. Altogether, 18.3 km of road was extended in four lanes and the remaining 9.8 km in two lanes. The existing route was retained due to pre-existing constraints (built-up areas). To improve the insufficient finances for road maintenance in Benin at project appraisal, the project road was designed as a toll road, with revenue expected to far exceed the costs of maintenance needed for the project road's upkeep. An axle load control station was set up as planned to monitor heavy vehicle traffic.

The physical building measures were mostly executed as planned. The detailed planning of the entire highway, the support for the executing agency in preparing tender documents and selecting the building contractors as well as works supervision were carried out as planned by a consultant financed from FC funds.

On the one hand, major deviations from original planning arose because the start of construction was heavily delayed by the belated financial contribution of the African Development Bank, which was only forthcoming some three years after the original scheduled date and on the other due to the longer time needed for the detailed planning of the project road than envisaged.

The total costs of the project were considerably lower than planned, enabling the implementation of various additional beneficial building measures (e.g. improved drainage, better design of the roundabouts). One reason for the lower costs was keen competition amongst the building firms, another was the strict works supervision by the consultant.

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

A major outcome of the project measures is the clear improvement in the road link between Benin's two major cities, Cotonou and Porto Novo.

Traffic on the project highway did not increase to the extent originally anticipated. Amounting to between 11,700 and 17,200 vehicles per day on the various stretches in 1993, traffic was forecast at project appraisal to reach 29,400 motor vehicles/day by 2005 and toll revenue at FCFA 3.9 billion a year. On average in 2005, 20,800 vehicles/day were actually recorded at the toll station in Ekpé (near Sémé) and toll revenue amounted to FCFA 1.5 billion. When comparing this with the situation at project appraisal, however, we must bear in mind that the feasibility study on which the forecasts were based anticipated an earlier start of construction work than was actually the case. No figures on accidents were available at project appraisal. The Centre National de Sécurité Routière registered a distinct reduction in the numbers of accidents in the Cotonou area between 2002 and 2005, but these remained approximately the same on the project road in this period.

The franchise agreement with the private operator for the project road, the Franco-Beninese syndicate Uniroute, was terminated in 2003, only 6 months after it had accumulated arrears for the agreed leasing fee, had not met its obligations in full and subsequent negotiations failed. A renewed franchise was delayed, which is why the station was operated from 2003 to 2006 by Fond Routier (FR). Since March 2006, the toll station has been run by the private Beninese company Société d'Electricité Industrielle et de Bâtiment (SEIB). The fee for the five-year licence amounts to at about FCFA 1.5 billion (approx. EUR 2.3 million) a year and is renegotiable depending on the annual volume of traffic. Maintenance costs for the project road (about EUR

0.9 million a year including periodic maintenance) are much lower than the revenue generated by the leasing fee.

Measured against the traffic volume indicator, the project objective of ensuring the safe management of increased traffic has not been met to the extent anticipated. At project appraisal, the volume of traffic was expected to increase by an average of about 3.8% a year within the first three years after completion, but the actual annual rise came to about 2%. The project did, however, attain the objective of improving finances for maintenance. At EUR 2.3 million, the franchise income for the project road well exceeds the funds (EUR 0.9 million a year) needed for upkeep. So the project makes a clear contribution to raising the insufficient funds for road maintenance overall. Leaving aside temporary support from the EU at present, only 50% of the requisite funds are available for periodic and routine maintenance (about 80% including EU grants).

The project did not seek to promote a specific target group, aiming instead at improving the macroeconomic efficiency of transport services. No precise data is available on how costs have developed in freight and passenger transport. A rough estimate of the macroeconomic return shows that the project has made considerable savings in transport costs. Since competition is keen in road transport in Benin, we may assume that the population derives considerable benefit from the transport cost reductions effected by the project.

The routine maintenance measures on the project road carried out by the executive unit responsible, Direction de l'Entretien Routier, have been satisfactory so far. The first periodic maintenance is not required until after about 10 years of operation. The project road is in a good condition.

The microeconomic benefits of the project for the Beninese state are the generation of additional income (toll revenue from road operation by the FR and franchise fees from the renewed licence issued in 2006). The positive microeconomic return from the toll road forecast at project appraisal failed to materialize due to the longer implementation period and the smaller increase in traffic than anticipated and less toll revenue as a result. A rough estimate yields a return of -2%, although the toll revenue well exceeds the requisite maintenance expenditure.

A rough calculation accounting solely for a reduction in motor vehicle operating costs yields a macroeconomic rate of return of 14%, less than forecast at project appraisal (29%). Besides differences in method (the calculation at project appraisal also accounted for time savings), major reasons were the longer construction time and the smaller increase in traffic than forecast. The macroeconomic return comfortably exceeds the minimum threshold for projects in economic infrastructure (3%) for a least developed country (LDC) such as Benin.

Besides reducing transport prices, the measures financed under the project also shortened transportation times for freight and passengers. In the densely populated Cotonou-Porto Novo region, where a major part of Benin's non-farming economic activities is concentrated, relatively smooth goods and passenger transport is very important for commercial activities. The rehabilitated and extended stretches of roadway form part of an important transport corridor connecting the two largest and economically most important cities in the country and linking it with the Nigerian border and Lagos. Commercial long-distance traffic makes up a substantial part of the whole.

The project can be plausibly expected to have made a contribution to poverty alleviation, largely for the population living in the urban area of the project road, where trade and commerce have been established. Indirect benefits also result from the contribution made by improved transport facilities to national economic growth. The project was not aimed at a specific target group. It afforded no scope for improving gender equality and no relevant information is available on this.

Nor did it aim at improving governance or the environment. Altogether, we gauge the adverse environmental impacts of the project road (land consumption due to the extension and emissions caused by the resultant increase in traffic) as tenable. Prior to project implementation, traffic jams and stop-and-go were commonplace on the heavily frequented project road.

We assess the developmental efficacy of the project as follows:

Relevance: With increasing volume, the intention was to make a contribution to improving traffic flow by rehabilitating and extending the main road between the cities of Cotonou and Porto Novo, which was congested at project appraisal, and to raise the efficiency and cost effectiveness of delivering goods and services to the population as a result. This causal hypothesis was plausible. The project was appropriately aligned with the efforts of the partner country and major donors (EU, African Development Bank) participating under a parallel financing arrangement. We assess the relevance of the project as good (Subrating 2).

Effectiveness: The project objective was to speed up the safe flow of increasing traffic between Cotonou and Port Novo and strengthen finances for maintenance through toll revenue. No exact targets were defined for achieving these objectives (volume of traffic) at project appraisal. The actual increase in the volume of traffic was less than implicitly forecast in the economic assessments at project appraisal, which detracts from objectives achievement. Without the extension and rehabilitation measures on the project road financed together with the other donors, the actual rise in traffic together with mean travelling speed would not have been possible. The objective of improving finances for maintenance has been met as the toll revenue well exceeds the costs of project road upkeep. Altogether, we assess the effectiveness of the project as satisfactory (Subrating 3).

Efficiency: The investment costs were reasonable (production efficiency). Considering the already high current volume of traffic (in part over 20,000 motor vehicles/day), which will increase further with progressive motorization in Benin, the 4-lane extension of part of the project road was warranted. Due to the lower volume of traffic and less toll revenue than expected, the microeconomic return comes to -2% as a rough estimate, below the figure anticipated at project appraisal (+6%), but the toll revenue is nevertheless higher than needed for project road maintenance. As to allocative efficiency, the macroeconomic return (29%) forecast at project appraisal has not materialized. In a rough estimate, which, unlike the appraisal, accounts only for economies in motor vehicle operating costs, the macroeconomic return of 14% well exceeds the minimum threshold for economic infrastructure projects in LDCs such as Benin (3%). Altogether, we assess the efficiency of the project as satisfactory (Subrating 3).

Overarching developmental impact: The overall objective of the project was a more efficient and more cost-effective delivery of goods and services to the population through improved transport connections. This objective was basically realistic. It is not, however, possible to ascertain exactly how far this has actually taken effect. On the one hand, no quantifiable indicators were defined for this at project appraisal and on the other no systematic results monitoring was carried out. The calculation of the macroeconomic return shows that even if sole account is taken of the reduction in motor vehicle operating costs, the project brought about considerable savings in transport costs. Since competition is keen in road transport in Benin, the population can be expected to benefit from this advantage. Trade and commercial enterprises have established along the urban segment of the project road and markets have arisen where local agricultural produce is also sold. Besides the urban population, parts of the rural population living around Cotonou have benefited from this increase in economic activity and sell their agricultural produce in the city. Other positive effects are the increase in passenger transport and the improved access to social infrastructure for the population in the project region.

Altogether, we assess the overarching developmental impact of the project as satisfactory (Subrating 3).

Sustainability: The financed stretches of road can be expected to be in operation for approx. 20 years. The prime criterion for sustainability is the ability of the Direction de l'Entretien Routier as the institution responsible to carry out the necessary maintenance measures on the project road. Experience so far is encouraging - the requisite routine maintenance has been carried out and the project road is in good condition. Another positive aspect is that the franchise fees earned from running the toll road are higher than the costs for the necessary upkeep of the project highway. This income, however, is channelled into the Fonds Routier so it is not directly available for project road maintenance. For the road sector as a whole, the FR funds are not sufficient for carrying out the necessary periodic and routine maintenance (at present with EU sector funds of about 80%, and without these funds around 50%). As part of a central traffic corridor in Benin, the project road is accorded high priority. We assume that the funds required for maintaining the volume of traffic will continue to be forthcoming in future, too. There is a considerable incentive for this, since a marked deterioration would reduce the franchise fee for operating the toll road. We therefore expect that even if the condition of the project road deteriorates for lack of funds it will be adequately maintained to sustain the beneficial impacts of the project for the relevant period. We consider sustainability to be satisfactory (Subrating 3).

Weighing up the above subcriteria, we assess the developmental efficacy of the project as satisfactory overall (Rating 3).

### **General Conclusions**

Designing and implementing sectoral reforms as part of a larger sectoral programme with the collaboration of several donors (EU, KfW, African Development Bank) in financing investments and advisory services with the resultant synergies has also proved effective in Benin's road sector. The necessary framework legislation for licensing has been adopted and also implemented, for example.

The set of objectives defined at project appraisal did not go far enough, baseline data and targets for indicators were not stipulated with adequate precision and the related results chains were not explicitly set out. In future projects the results chain for attaining the overall objective must be worded explicitly and the requisite premises scrutinized closely for plausibility. The effects of the project should be systematically recorded and analyzed in results monitoring.

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

Projects are evaluated on a six-point scale, the criteria being relevance, effectiveness (outcome), "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 rating that clearly exceeds expectations
- 2 Good rating fully in line with expectations and without any significant shortcomings
- 3 Satisfactory rating – project falls short of expectations but the positive results dominate
- 4 Unsatisfactory rating – significantly below expectations, with negative results dominating despite discernible positive results

- 5 Clearly inadequate rating – despite some positive partial results the negative results clearly dominate
- 6 The project has no positive results 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 a project which has no sufficiently positive results.

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.