

Ex post evaluation – Cameroon

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Sector: 2102000 Road transport
Programme/Project: Bridge rehabilitation II / III
 BMZ No. 2002 65 439* / 2004 65 260
Implementing agency: Ministère des Travaux Publics



Ex post evaluation report: 2016

		(Planned)	(Actual)
Investment costs (total)	EUR million	9.32	8.32
Counterpart contribution	EUR million	2.86	4.06
Funding	EUR million	6.47	4.25
of which BMZ budget funds**	EUR million	6.47	4.25

*) Random sample 2016

**) The difference in the BMZ funds was used to finance the additional costs of Phase 1 of the bridge construction programme.

Summary: Both of the projects were originally open programmes to renovate a large number of bridges and viaducts. Owing to the sharp price increases and delays, in the end two large bridges over the Sanaga River at Edéa were rehabilitated (Bridge 44 and Bridge 45). Both of these bridges sit on the most important transportation axis in the country, the Route Nationale (RN3) between the political capital of Yaoundé and the country's economic centre, the harbour city of Douala. This road is also an important transit route to the two inland countries of Chad and the Central African Republic.

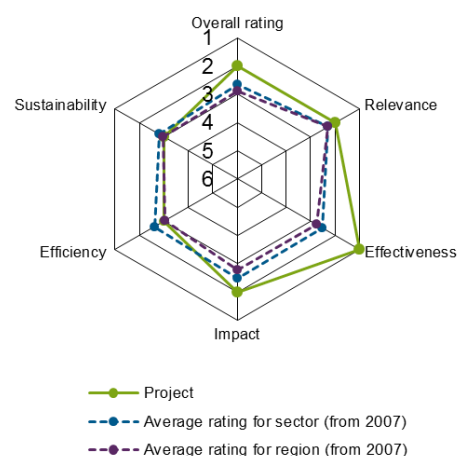
Objectives: The updated project objective of the two evaluated projects is "Safeguarding high-priority transportation corridors for the transport of people and goods within Cameroon and to the neighbouring inland countries of the Central African Republic and Chad." This was designed to contribute to the economic and social development of the regions in the RN3's catchment area and to serve the population of those regions efficiently (ultimate objective).

Target group: Road users and the population in the catchment area of the rehabilitated road traffic infrastructure.

Overall rating: 2 (both phases)

Rationale: Two highly relevant bridges for the country were rehabilitated, and are used even more than was originally anticipated. In spite of the weak sector, especially with regard to road maintenance, this key infrastructure is expected to have sustainable impacts. This means the projects offer good development effectiveness.

Highlights: The economic damage of a long-term closure of the bridges over the Sanaga River at Edéa would be huge because the alternative route is not prepared for the additional traffic and there would be significant additional costs per road user. This could trigger severe economic, social and even political effects in the country. For this reason – and due to a threat of attack by a terror organisation – Cameroon has substantially increased surveillance of the bridges at Edéa in recent months, including surveillance by the Cameroonian military.



Rating according to DAC criteria

Overall rating: 2 (both phases)

The renovation of the two bridges over the Sanaga River at Edéa (bridges 44 and 45), carried out as part of Phases II and III of the bridge rehabilitation programme, can be viewed as a success when considered in its own right. The relevance of these measures is very high. With regard to the achievement of programme objectives (effectiveness) and development policy goals (impact), the projects have far surpassed the expectations made at the time of the appraisal. However, significant delays and cost increases in the construction exerted a very negative influence on the production efficiency. Nevertheless, these measures can be evaluated positively from a macroeconomic perspective (allocation efficiency), as their major positive effects make up for the increased costs. The sustainability of these measures is primarily threatened by the very difficult overall framework conditions in this sector. However, the quality with which the rehabilitation operations were executed, and the resulting good condition of the bridges, mean that there should not be any great need for maintenance and repair in the next few years. Due to the great economic and strategic importance of the two bridges, it is also very probable that the government of Cameroon will carry out any necessary maintenance and repair work.

The two phases were evaluated identically. The impacts of these measures cannot be attributed separately to the two BMZ numbers.

Relevance

The original plan was to rehabilitate a large number of smaller bridges. In light of increasing costs, as well as the high priority of the bridges at Edéa, this plan was changed as follows. Before the start of renovation work in May 2011, the two bridges over the Sanaga River at Edéa were in a dilapidated state. The technical experts in charge of the pre-inspection warned that without renovation work, the bridges' stability could be at risk. Due to the great economic and strategic importance of these two bridges as part of Cameroon's most important thoroughfare, which connects the economic centre and harbour in Douala with the political capital at Yaoundé and the inland countries of Chad and CAR, any closing of the bridges would have had major economic, social and probably even political consequences beyond the borders of Cameroon. The bridges direct National Route 3 (RN3) over the two branches of the Sanaga River, as illustrated in the figure on the following page.

Regional economic integration within the Central African Economic and Monetary Community (CEMAC) is an important priority for the government of Cameroon. In recent years, all large infrastructure projects have been carried out by the government of Cameroon in cooperation with various international development partners. From Cameroon's point of view, this is beneficial not only in terms of cost-effective funding, but also in that it helps to improve the quality of project execution. Among the most important projects that have received technical and financial support in recent years from the African Development Bank (AfDB), the Islamic Development Bank (IDB), the European Union (EU) and the German FC programme has been the extension of the national road network that connects Cameroon with the neighbouring countries of Chad and CAR. The rehabilitation of the two bridges over the Sanaga River at Edéa is thus consistent with Cameroon's strategy, and an important precondition for the effectiveness of other measures to be taken in this sector. The objective of contributing to the country's economic development by safeguarding high-priority transportation corridors and their utilisation appears logically coherent from an ex post perspective as well.

These projects fell under the former priority area of road transport in the German cooperation with Cameroon.

With regard to the project's relevance, we view the decision to finance two high-priority bridges rather than many smaller bridges as a positive one.

Relevance rating: 2 (both phases)

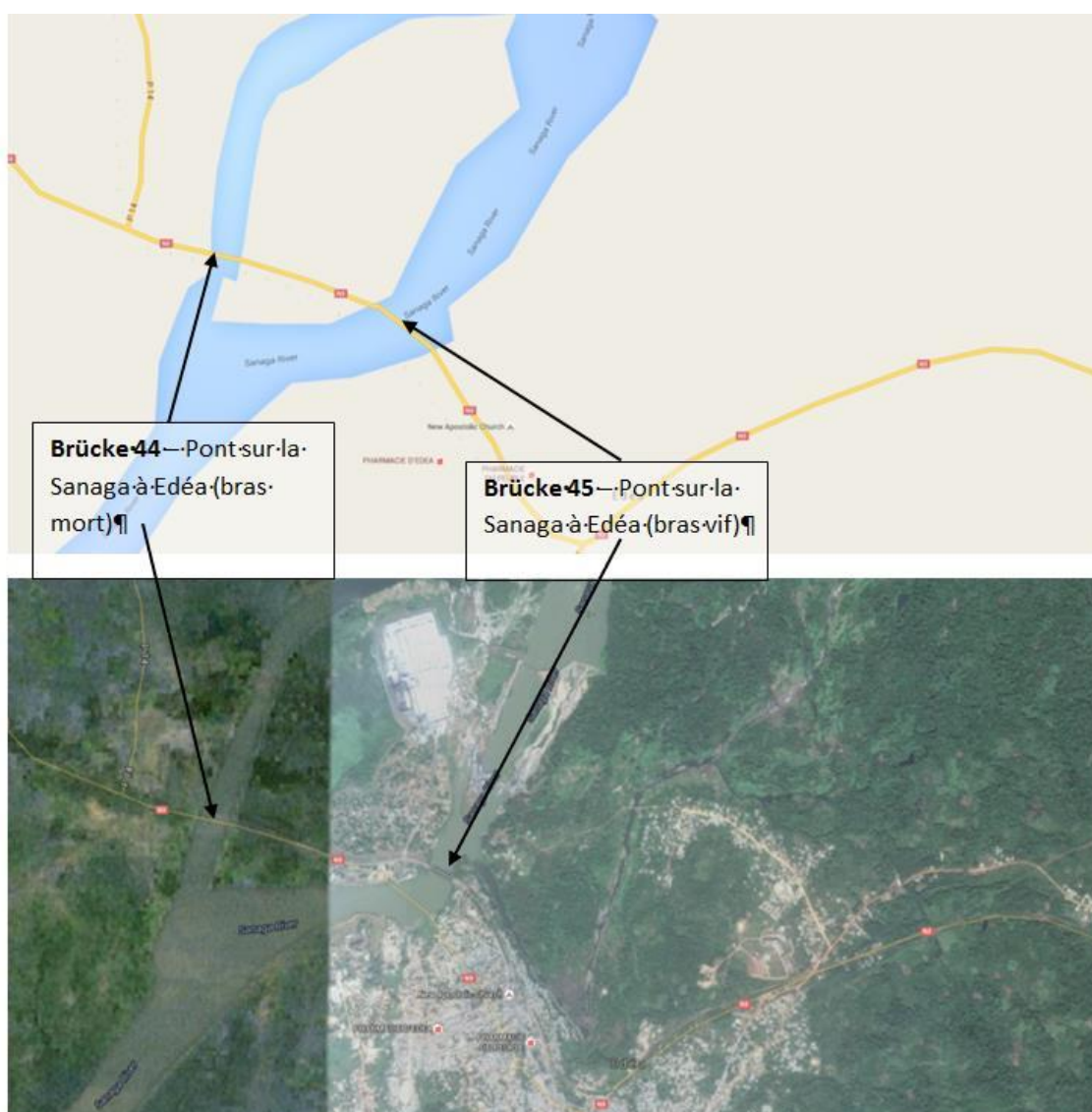


Abbildung 4: Karte und Satellitenaufnahme der beiden Brücken über den Sagana-Fluss bei Edéa (Quelle: Google Maps)

Effectiveness

The programme objective as modified in the context of the ex post evaluation is: “Safeguarding high-priority transportation corridors for the transport of people and goods within Cameroon and in the neighbouring inland countries of the Central African Republic and Chad”. The utilisation of the transportation corridors is measured by the following indicator.

Indicator	Status PA	Ex post evaluation
(1) Traffic volume on the two rehabilitated bridges grows at least proportionally to traffic volume in Cameroon as a whole.	Traffic volume: 3,027 vehicles / day (as of 2009) No. of vehicles in Cameroon: 336,000 (as of 2007)	Exceeded. Traffic volume: 8,750 vehicles / day (as of 2014) No. of vehicles in Cameroon: 674,000 (as of 2013)

Traffic volume on the relevant portion of the RN3 has almost tripled between 2009 and 2014 (to 8,750 vehicles / day as of 2014¹). Over approximately the same period (2007-2013), the overall number of vehicles in Cameroon (as a proxy indicator for traffic volume in the country) has approximately doubled, from 336,000 to 674,000 vehicles. We can therefore conclude that the significance of the RN3 transit corridor, which crosses over the two rehabilitated bridges, has again increased significantly over the past few years. The great economic importance of this segment of road also becomes clear when we consider that lorries and buses account for more than half of the traffic volume.

The utilisation indicator for the rehabilitated bridges clearly being exceeded points to the conclusion that the effectiveness of the measures carried out in the context of this project is very high.

Effectiveness rating: 1 (both phases)

Efficiency

Similarly to other projects in the roads sector in Cameroon, Phases II and III of the bridge rehabilitation programme were subject to (1) major delays in the project definition, the invitation to tender for construction work, and the execution of construction work, and (2) significant cost increases relative to the original plans. When Phase II of the bridge rehabilitation project was appraised in December 2003, and when Phase III was appraised in December 2004, a project duration of 30 months was proposed. The actual project duration up to project completion ultimately came to 118 months, almost four times longer than originally planned. In 2005, the estimated costs for the renovation of the two bridges over the Sanaga River were approximately EUR 3.8 million. The final construction costs ultimately exceeded EUR 7 million, while the cost of consultancy services over the same period rose from EUR 960,000 to EUR 1.25 million.

Due to these long delays in execution and the large cost increases, the production efficiency of this project must be viewed as “unsatisfactory”.

The project’s allocation efficiency, which is calculated over the payback period for the investment costs, and based on transport cost savings due to utilisation of the bridges (relative to an alternative scenario with the bridges closed), is nevertheless highly satisfactory even with the higher costs (see Impact). In light of the clear assessment regarding the payback period for the investment costs, calculating the internal rate of return was deemed unnecessary.

Weighing up the poor production efficiency and good allocation efficiency, the efficiency sub-rating was deemed as only just satisfactory.

Efficiency rating: 3 (both phases)

Impact

The ultimate objective (impact) of both projects was to contribute to the economic and social development of the regions in the RN3’s catchment area, and to serve the population of those regions efficiently. In the case of the two bridges over the Sanaga Bridge at Edéa, almost the entire country of Cameroon, with a population of about 24 million, as well as the neighbouring inland countries of Chad (population 12 million) and CAR (population 5 million), belong to the catchment area of the rehabilitated bridges in a broader sense.

The great importance of the two bridges over the Sanaga River is reflected in the high costs of bypassing the bridges, both for individual travellers (microeconomic view) and for Cameroon and the neighbouring inland countries (macroeconomic view). At the present time, there is practically no alternative to the two Sanaga bridges at Edéa. Crossing the Sanaga on Provincial Road P10, which would be associated with a detour of “only” 140 km, is only possible with off-road vehicles, according to statements from the Ministry of Transportation and Public Works (MinTP). The closing of one or both Sanaga bridges in Edéa would therefore lead to a lengthy detour that would more than double the driving distance from Yaoundé to Douala, from about 230 km to just under 500 km. Were Bridge No. 44 to be closed, part of the traffic could possibly be redirected to the railroad, which established a non-stop connection for passenger transport

¹ Simple addition (unweighted) of the different vehicle types - two-wheeled and non-motorised transport not included.

between Douala and Yaoundé in 2014. An interruption in the availability of the combined road-and-railway Bridge No. 45, on the other hand, would cause long-term disruption of both road and railway traffic between Yaoundé and Douala. In such a case, it would first be necessary to construct a pontoon bridge from freight barges as a temporary solution, as when a bridge over the Mungo River in western Cameroon collapsed in 2004. However, it is doubtful whether such a bridge, made from components available in Cameroon, would be stable enough to support the heavy goods transport that crosses the Sanaga River here, as the Sanaga is significantly wider than the Mungo and experiences strong currents in the rainy season.

Indicator	Status PA	Ex post evaluation
(1) Payback period of investment costs through transport cost savings.	The investment costs are recouped through transport cost savings in less than one year (calculation based on additional costs of bypassing the bridges if they close).	More than fulfilled. The payback period comes to less than 9 days.

With a detour of about 266 km for a one-way trip from Yaoundé to Douala, the added costs of using the alternative route to bypass the two Sanaga bridges range from EUR 47 for a passenger vehicle to EUR 227 for an articulated lorry (see Appendix 5: micro- and macro-economic evaluation). This amounts to more than twice the original operating costs, and for road users in a country with an average per-capita income of EUR 1200, it represents a significant economic burden.

Based on the high traffic volume of 8,750 vehicles per day (of which more than half are lorries and buses), bypassing the bridge would involve additional costs for the economy of more than EUR 950,000 per day. Given that the total costs of the project are about EUR 8.3 million, the macroeconomic payback period for the project would be less than 9 days. Even if only half of the traffic is included in the calculation, on the assumption that some traffic could be transported by railway or pontoon bridge, the payback period for the project is still less than one month. This is far less than the period of no more than one year envisaged in the programme proposal. Of course, increased utilisation of the railway line would certainly be desirable in terms of development policy, i.e. with respect to climate protection.

The figures presented here probably still considerably underestimate the actual economic damage that would be caused by a long-term closure of the bridges over the Sanaga River at Edéa, as the alternative route is not prepared for the additional traffic, which would presumably lead to major delays and additional traffic accidents. This extreme crippling of goods and passenger transport between the country's economic centre in Douala, its political capital in Yaoundé, the northern and eastern parts of the country, and immediately neighbouring countries could trigger a severe economic, social and even political crisis in the country. For this reason – and due to a threat of attack by a terror organisation – Cameroon has substantially increased surveillance of the bridges at Edéa in recent months, including surveillance by the Cameroonian military.

In terms of reducing poverty, the project's effects are at best indirect. The economic importance of the RN3 would suggest a role in poverty reduction through its effect on employment, but this cannot be verified. The increased costs of bypassing the river would be an especially large burden for the poor.

Increased traffic volume inevitably goes hand-in-hand with increased vehicle emissions. These negative environmental impacts should be taken in the proper perspective, however, as the potential detours would lead to even higher emissions from the same volume of traffic. Nevertheless, rail transport of freight in particular, and of individual passengers as well, would yield a more positive evaluation in terms of environmental impact.

One negative point relating to impacts on development policy is the fact that, according to studies, a majority of tropical timber exports from Cameroon, the CAR, Chad and the northern part of the Democratic Republic of the Congo are transported to the port of Douala over the bridges that were rehabilitated in the context of this project, and shipped from there to destinations around the world. Current traffic counts indicate that over 600 lorries carrying tropical timber pass over these bridges every day. This represents

about 20% of total heavy goods traffic over this segment. The proportion of illegally logged timber is not known. However, direct negative environmental impacts, such as increased tropical timber logging motivated by the project, cannot be attributed to the project itself. In light of the extremely high traffic volume, even without timber Lorries, the project's impact is still evaluated as good.

Impact rating: 2 (both phases)

Sustainability

Maintenance and repair of road infrastructure represent a major challenge in Cameroon. Already at the programme proposal stage, this was identified as one of the primary risks to the sustainability of the rehabilitation measures financed as part of the programme. The inadequacy of maintenance operations in the roads sector has become even more acute in recent years. Due to its lack of autonomy, the Fonds Routier (FR, roads maintenance fund) can only fulfil its mission to a very limited degree. Public invitations to tender and the execution of operations are subject to extreme delays, and in many cases, the quality with which maintenance operations are carried out leaves much to be desired. As a result, the MinTP reported in 2015 that some 88% of all roads in the country were in poor condition. For investments in normal road infrastructure, sustainability can therefore not be guaranteed.

For the Sanaga River bridges rehabilitated in the context of this project, however, the sustainability situation is somewhat more positive. Due to the high quality of the rehabilitation work carried out for this project, there should not be any need for major maintenance and repair operations in the next few years. Furthermore, the MinTP conducts regular inspections of the bridges, so that minor damage should be detected in a timely fashion and repaired quickly. Due to the great strategic importance of the two bridges, it also seems reasonable to assume that Cameroon will take the necessary steps in the coming years to ensure their usability.

In light of the severe deficiencies in the roads maintenance system in Cameroon in a general sense, and the somewhat better outlook for the maintenance of the two rehabilitated bridges in particular, the sustainability of these measures can be evaluated as "satisfactory".

Sustainability rating: 3 (both phases)

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

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

Level 1	Very good result that clearly exceeds expectations
Level 2	Good result, fully in line with expectations and without any significant shortcomings
Level 3	Satisfactory result – project falls short of expectations but the positive results dominate
Level 4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
Level 5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
Level 6	The project has no impact or the situation has actually deteriorated

Rating levels 1-3 denote a positive assessment or successful project while rating levels 4-6 denote a negative assessment.

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 is very unlikely to improve. 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. Rating levels 1-3 of the overall rating denote a "successful" project while rating levels 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (level 3).