

Ex post evaluation – Cameroon

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Sector: 2102000 Road transport
Programme/Project: Rehabilitation of National Road 5, BMZ No. 2000 65 409 (A)* and 2002 65 454 (B)
Implementing agency: Ministère des Travaux Publics



Ex post evaluation report: 2015

		Project A (Planned)	Project B (Actual)	Project A+B (Planned)	Project A+B (Actual)
Investment costs (total)	EUR million	12.12	8.49	20.61	33.07
Counterpart contribution	EUR million	4.96	2.99	7.95	19.40
Funding	EUR million	7.16	5.50	12.66	13.67
of which BMZ budget funds	EUR million	7.16	5.50	12.66	13.67

*) Random sample 2015

Summary: The project comprised rehabilitation measures as well as periodic maintenance on part of National Road 5 (RN5) in Cameroon. The first project (A) initially planned the rehabilitation of roughly 44 km. The second commitment (B) extended this section to a total of roughly 67 km between Loum and the Nkam bridge.

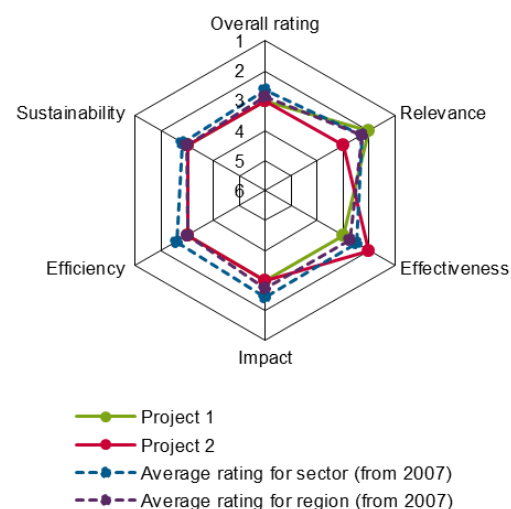
Objectives: The project objective was to achieve a lasting cost-effective solution to the heavy road traffic between Loum and Pont Nkam. The ultimate objective was to contribute towards macroeconomic efficiency of transport services in the catchment area around RN5.

Target group: The target group was road users as well as the population living in the catchment areas of the road sections.

Overall rating: 3 (both phases)

Rationale: The rehabilitation of National Road 5 can be assessed as barely satisfactory. An important section of road for Cameroon was rehabilitated effectively and key developmental impacts were achieved. However, ongoing weaknesses in maintaining the road constitute an acute risk to sustainability. The layout of the road failed to take the risks of accidents into proper account. There were significant cost increases and delays. Both phases were graded in the same way as the measures cannot be evaluated separately by BMZ number. This is because the impacts of both phases cannot be isolated.

Highlights: The Cameroon government provided an unusually high counterpart contribution to fund the investment, thus making it clear how important the project was for the country. During the project appraisal, the state of the road reflected the decade-long neglect in its maintenance. In this respect there has been no improvement whatsoever. Still today, 15 years later, maintenance in the road sector is flawed and reforms are urgently needed.



Rating according to DAC criteria

Overall rating: 3 (both phases)

The high relevance of the project is positive, which is mainly due to the selection of roads. That said, the target system is very much limited to transport impacts, in accordance with a "traditional" Financial Cooperation project. From today's perspective, it would be desirable to expand the project framework to include training measures for construction companies, measures to improve maintenance as well as structural alterations to reduce accidents. The effectiveness of the project can be rated as good, although the condition of the roads is not the best due to lack of maintenance. Significant delays and cost increases in the construction exerted a very negative influence on the project's production efficiency. Nonetheless, the allocation efficiency is higher than the - conservative - targets. All told, the efficiency is barely satisfactory.

The developmental impacts, especially with regard to reducing transport costs and combating poverty, are positive. Accidents are unfortunately a major problem, and the project failed to tackle this with either construction or organisational measures during the operating term. There is room for improvement here in relation to future projects.

Sustainability is at risk owing to what the donors consider the "disastrous" situation concerning road maintenance in Cameroon, a view that this evaluation shares. Road sector reforms are most certainly required here, which should be expanded with further and advanced training measures for road construction companies. Development cooperation can factor in further and advanced training measures in future without significant cost increases in the invitations to tender for construction projects, thereby making a contribution towards sustainability.

Relevance

The very first KfW project appraisal report in 2000 emphasised the urgent need to rehabilitate the RN5. The second project appraisal report from 2002 (new commitment to expand the project) spoke of "substantial damage obstructing traffic" with "extensive cracks and holes in the lanes" of the RN5.

Back then and today, the relevance of the RN5 can be described on the basis of the traffic function of the rehabilitated segment of the road, which is part of the triangle that connects Cameroon's main agglomerations, Yaoundé, Douala and Bafoussam. The RN5 links the 1.8 million inhabitants of Douala with the densely populated and economically dynamic regions of the west and north-west, where 3.5 million people live and where 20 % of Cameroon's industries can be found. The RN5 is particularly crucial for connecting the upstate areas of Douala with the largest port (rehabilitated using FC funds) and also the largest industrial centre in Cameroon. In the opposite direction, the Mungo-Nkam basin uses the RN5 to provide food supplies to Douala. The importance of the RN5 can also be gauged using the investments made in Cameroon: the new construction of a bridge over the river Wouri and the Douala-Békoko section totalling EUR 230 million improved the RN5 connection to Douala.

During the planning phase, the measure was closely linked to transport projects of other donors, especially the EU, which provided technical assistance for maintaining earth and bituminous roads and funded key national roads, especially in the north of the country. As part of the Road Maintenance Initiative, the World Bank played a key role in sector reform too, financing roads in Douala and in the west of the country.

The target system was generally focused on generating a lasting, cost-effective solution for road transportation. The indicators related to (1) speed, (2) road condition, (3) accidents, (4) vehicle operating costs and the internal rate of return calculated from these values. As explained below, the objective for preventing accidents was not quantified and a very conservative internal rate of return was set. The target system was appropriate for a "traditional" Financial Cooperation road project. Given the problems to be expanded on later, which arose during project implementation, a broader definition of objectives and thus also a wider project framework are recommended in the future. Additional issues include:

1. Measures supporting the maintenance of the rehabilitated road before and after its completion.
2. Training and advanced training of small and medium-sized enterprises (SMEs) in relation to road construction.

3. Construction and organisational measures that prevent accidents on the rehabilitated stretches of the road.

Given the great importance of road connections for Cameroon's economy, the relevance rating of phase 1 is good. The project approach could have been optimised at concept level, especially in a multi-phase project such as this, which is why the relevance of phase 2 is rated as satisfactory.

Relevance rating: 2 (Phase 1), 3 (Phase 2)

Effectiveness

The project objective was to achieve a lasting cost-effective solution to the heavy road traffic between Loum and Pont Nkam. The achievement of the project target defined at the project appraisal can be summarised as follows:

Indicator	PA target value	Ex post evaluation
(1) Average attainable speed outside built-up areas	80 km/h	Achieved. A speed of 80 km/h can be reached comfortably.
(2) Road condition three years after commissioning	No target value was set, in retrospect, a "good" condition is expected	Assessment after inspection (3 or 6 years after the end of the construction work, depending on road section): Partially achieved 42 km good 13 km average 12 km poor
(3) Number of vehicles after completion of construction work	Annual increase of 3 %, 4,956 vehicles daily	Partially achieved. Annual increase of 2.2 % to 3,700 vehicles per day today. The target value at the PA was based on data that deviates from that provided by the Ministry of Transport (MinTP) today. The figure achieved should be evaluated as positive

A road condition report from the MinTP found that 33 % of national roads were in good condition in 2014, 36 % in an average state and 30 % in a poor state. The condition of the RN5 was deemed good, while the approach and exit roads were either average or bad. The difference in the state of the roads referred to above (63 %, 19 %, 18 %) was identified during inspections conducted by the mission.

No regular maintenance work has been carried out on the rehabilitated stretch of road since the first section was completed in 2008. While the section between Nkongsamba and Pont du Nkam is generally in good condition, clear damage is visible between Loum and Nkongsamba, caused by the lack of maintenance: small potholes and cracks in the lanes, lack of road signs in some cases, indistinct road markings as well as vegetation growing on roadsides and on bridges.

This section of the road was used by 3,700 vehicles per day in 2015. The average daily traffic volume rose by 2.2 % p.a. from 2005 to 2013. In the project appraisal report (2002) some 4,956 vehicles were expected in 2015, which corresponded to annual growth of 3 %. In light of the insufficient data, it is not possible to make a comparison with developments throughout the country.

The general fulfilment of the indicators results in a good evaluation of the effectiveness in the second phase. The road damage, particularly on the Loum - Nkongsamba section, which was attributed to the first phase, results in an unsatisfactory evaluation of the first-phase effectiveness.

Effectiveness rating: 3 (Phase 1), 2 (Phase 2)

Efficiency

The production efficiency of the project can be described via two aspects that are closely related: significant delays in the completion compared to the original plan and considerable cost overruns. It must be emphasised that none of the partners involved were solely responsible for the problems; rather, it was a chain of various causes. Cameroon covered the major share of the additional costs, while the German contribution was topped up by EUR 1 million.

While the original plans in 2000 foresaw the completion of the RN5 section by 2003, this was in fact delayed until 2011. It was agreed in 2002 to extend the original section to 67 km. The consultant was contracted in 2003 and the tender took place in 2005. A syndicate launched the construction measures in 2006. The bridge over the Nkam was finished in 2008, and a 47 km section to Manjo was rehabilitated. Following conciliation between the building syndicate and the MinTP, who were in dispute over the costs to be paid for the remaining 20 km, the remaining section until Loum was rehabilitated by 2011 by another company.

The reasons for the delay were the conceptual changes made in 2002, unforeseen difficulties with the construction and very ambitious planning. Both project appraisal reports warned that the "time schedule was fraught with risk over which we had little influence". One reason for this pressing deadline could have been the elections in Cameroon in 2004.

The 60 % cost overrun can be partly explained by these delays and the increased construction costs. After the project was agreed, the MinTP carried out no or only very superficial maintenance measures, as the rehabilitation project was already in the pipeline. The continued delays led to a greater damage and higher volumes of maintenance work. Interestingly, all parties mutually agreed that the scale of the feasibility study from 2004 was such that only a superficial analysis was possible and the actual costs were therefore greatly underestimated. A more detailed study would only have been 20 % more expensive, but would have avoided substantial consequential costs.

The rise in costs for consulting services can be explained by the additional tasks for two subsequent claims from the first construction company and the monitoring of the work of the second construction company.

Alongside the production efficiency, which is rated "unsatisfactory", the evaluation also looks at the allocation efficiency, which is quantified using an internal rate of return calculated on the basis of saved vehicle operating costs. The target value was set "conservatively" at > 8 % and is significantly below both the calculations of the two project appraisal reports (13 % to 33 %) and the usual requirements of the World Bank. For lack of reliable data, two calculations were carried out using data obtained from the MinTP and from KfW's final inspection report (2012)¹. The calculations produced a rate of return of 16 % and 18 % respectively. Since a high return was achieved despite the cost overruns, the allocation efficiency can be considered good.

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 was to contribute to the macroeconomic efficiency of transport service in the catchment area of the RN5. From today's perspective, effects are expected at the impact level which transcend the transport sector, as a contribution to economic development. The following indicators confirm the impacts achieved:

¹ The calculations of the 2012 final inspection report contained methodological errors, which resulted in an incorrect evaluation.

Indicator	PA target value	Ex post evaluation
(1) Savings on vehicle operating costs on the rehabilitated stretch of road	60 FCFA/km per vehicle (on average)	Model calculation ¹⁾ for 2015: 91 FCFA/km
	after completion: FCFA 1 billion/a	Model calculation ¹⁾ for 2007: FCFA 2.1 billion/a
	after 15 years > FCFA 6 billion/a	Model calculation ¹⁾ for 2015: FCFA 8.6 billion/a
(2) Appropriate reduction in number of accidents on rehabilitated stretch of road (indicator not specified in more detail)	No target value given.	Data situation problematic. Growth in accident numbers in Cameroon 2001-2013: 2.1 % p.a. Rough estimate for RN5 section Loum - Pont du Nkam: 40 serious accidents p.a. with personal injuries and/or damage to property
(3) Internal rate of return based on savings on vehicle operating costs	> 8 %	MinTP data: 16 % Data from final inspection (2012): 18 %

1) These calculations are based on a lower estimate of vehicle running costs on the basis of transport data from the MinTP

The target group was road users as well as the population living in the catchment area around the maintained road links. The rehabilitation led to a reduction in vehicle running costs on the section between Loum and Pont du Nkam; these amounted to EUR 3.3 per car, EUR 6.6 for minibuses and EUR 17.1 for lorries with two axles.

Since many transportation companies offer their services on the RN5, the market can be assumed to be competitive, which means the aforementioned benefits not only can be passed on to their customers, but some 5.3 million consumers and producers in the catchment area profit from that too.

The Mungo-Nkam basin with 350,000 inhabitants (along the RN5), which provides the markets of Douala with food supplies, was labelled the bread basket of Cameroon for good reason. Even the farmers from the western and north-western regions export many products to Douala and overseas via the RN5. According to the producer surplus theory, the farmers in the catchment area benefit twice; firstly from the higher farm-gate prices, and secondly from the price-induced increase in production. Since most of products are produced by small and medium enterprises (SMEs), the project helps to reduce poverty.

Roughly one fifth of the industrial companies in the country are located in the west and north west, and therefore in the catchment area of the road. Additionally, large warehouses are situated in Bafoussam, in which consumer goods are stored and distributed throughout the country.

Accidents are a major problem in Sub-Saharan Africa, and also on the RN5 according to the local authorities. The evaluation mission witnessed an accident with one fatality and 14 injured. Unfortunately there is no specific data to rely on so far, which means the number of serious accidents each year injuring people and/or damaging property can be estimated only roughly at 40 over the 67 km in question. There are various reasons: excessive speed, poor control, a mixture of fast and slow traffic as well as the poor state of the roads that leads to flooding when it rains.

Since roughly half of all accident victims in developing countries are non-motorised users of the road, it is also assumed that many of these victims are pedestrians. The MinTP vehemently rejected this view, but was unable to present any relevant data. From the perspective of the evaluation mission, accidents involving pedestrians could also be reduced by taking construction measures on the roads. In this respect, the RN5 was not optimally planned. The use of the road by pedestrians who often have no alternative is a source of risk. Extending the hard shoulder and separating it with kerbstones in built-up areas could help

to reduce the accident risk. Additionally, more theft-proof road signs and the provision of sufficient stops for taxis and lorries could also have helped boost traffic safety. For these reasons, the accidents on the RN5 have a negative influence on the evaluation of developmental impacts.

The environmental impacts are inconsistent: the growth in traffic causes an increase in harmful emissions, CO₂ and noise on the one hand. This effect is closely linked to the country's economic development process. On the other hand, specific emissions are being reduced thanks to the constant flow of traffic. Rigorous and regular technical vehicle controls could trigger significant positive effects on environmental and traffic safety.

The expansion of road infrastructure in areas with tropical rainforests entails the concern that the improved transport options will facilitate the illegal felling of protected tropical woods. Cameroon is covered in vast areas of tropical rainforest, mainly in the southern and eastern regions, where most of the timber industry is located. This harvesting in the catchment area round the RN5, the littoral, western and north-western regions has a long history, and the forests were cleared by farmers even before the colonial era. Intensive agricultural use by small farmers and large plantations is found here. There are four forests in the catchment area around the RN5, which are currently used for commercial purposes: the managed forest of Babong, the forest reserves of Mont Nlonako and Makombe and the managed forest of SIENCAM, whose timber is only transported via the RN5 during the rainy season. The MinTP counted an average of 5 timber vehicles each day between Loum and Nkongsamba from 2005 to 2013, which were in all likelihood headed to the export port of Douala. The tonnage transported on the RN5 is estimated at 30,000 tonnes per year, equating to roughly 6 % of the timber exported via the port of Douala. The impact of the project on local timber use cannot be measured. No significant, illegal felling could be identified in connection with the RN5.

In all likelihood, the rehabilitation of the RN5 improves access to social services such as health-care, education and administrative facilities for the population along the road.

Given the problem with accidents, the developmental impacts are deemed satisfactory in spite of the positive profitability assessments and the insignificant environmental effects.

Impact rating: 3 (both phases)

Sustainability

The most important criterion for evaluating the sustainability of roads is maintenance. The maintenance deficit referred to under "effectiveness" relates to all of Cameroon's roads over recent years. For example, the national roads were not maintained in 2013. There are various reasons for the "disastrous" situation according to the donors:

1. Laborious administrative procedures.
2. Functional limitations of road maintenance fund "Fonds Routier". Although the fund had resources of FCFA 59 to 67 billion each year between 2009 and 2013, spending fell from FCFA 52 to 23 billion. The unused resources accumulated in the fund and resulted in the Trésor Public (public tax agency) taking over its administration.
3. The shortcomings of the companies responsible for maintenance, especially SMEs, who are often not able to deliver work of the required quality on time.

This maintenance deficit meant that 55 % of the country's roads were in a poor state of repair in 2012. After an emergency programme was launched in 2013, this ratio sank to 45 %, only to rise again above 50 % the following year. The inadequate maintenance will negatively affect the lifetime of the RN5, though the extent of this effect cannot be defined.

In light of this problem, the five leading donors of the roads sector (EU, JICA, AfDB, World Bank, AFD) expressed their significant concerns to the Prime Minister. Road sector reforms are currently being discussed in Cameroon, especially in relation to the Fonds Routier.

While the maintenance is inadequate, the axle load inspection system in Cameroon can be described as "very efficient" and good practice in Sub-Saharan Africa. This made a significant contribution to protecting newly-built roads. No lane grooves were noticed on the RN5 and on the other roads visited. Cameroon

has a total of 17 weighing stations, of which two are found on the Douala to Pont du Nkam section. Some 11,458 lorries were weighed at the Njombe station (near to Loum on the RN5) in November and December 2014, of which one percent exceeded the permitted axle loads.

In light of the serious failings in the road maintenance system, the sustainability can only be deemed as just satisfactory because of the solid structure of the RN5, which ensures it can be used for some years to come.

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).