Ex post evaluation – Laos

Sector: Road transport (21020)
Programme/Project: Rural infrastructure Laos III and IV -
Phase III: BMZ No. 2008 65 212*, training component No. 1930 04 595,
Phase IV: BMZ No. 2009 67 323
Implementing agency: Ministry of Public Works and Transport (MPWT)

Ex-post evaluation report: 2016

	Phase	III (planned)	III (actual)	B+A (planned /actual)	IV (planned)	IV (actual)
Investment costs (total)	EUR million	5.52	5.42	0.50	6.55	6.64
Counterpart contribution	EUR million	0.52	0.58	0.00	0.55	0.64
Funding	EUR million	5.00	4.84	0.50	6.00	6.00
of which budget funds (BMZ)	EUR million	5.00	4.84	0.50	6.00	6.00

*) Project in the 2016 random sample

Summary: Phases III and IV are part of the ongoing "Rural infrastructure in Laos" (RIP) FC programme, which is helping to improve socio-economic living conditions of the rural population by expanding the rural road network. The following measures were implemented in the provinces Sayaboury and Attapeu as part of phases III and IV: 1.) Rehabilitation and construction of around 254 km of rural roads, 9 markets and other small-scale infrastructures 2.) Completion of surface sealings for roads built as part of the preceding projects RIP I & II, as well as measures to repair RIP IV roads due to flooding damage 3.) Consulting services to support the implementing agency with planning and monitoring of construction activities. Phase III also included a training component that supported the competent authorities in the fields of road maintenance and contract management.

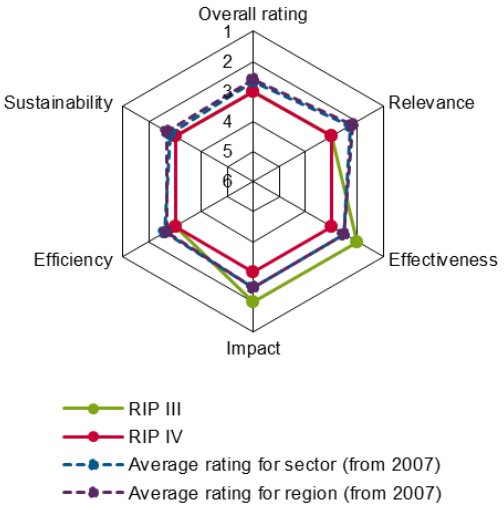
Objectives: The aim of the FC measures was to ensure the long-term and year-round usability of the selected roads and small-scale infrastructures. The aim of the training was to qualify the implementing agency for better road maintenance. The improved accessibility of the villages was intended to contribute to an enhancement of the socio-economic living conditions of the rural population in the programme areas (overall development goal). Specifically, the population's living conditions were to be improved with respect to poverty reduction, gender equality and the participation of minorities in society.

Target group: The target group of the measures was the poor rural population living in the selected programme areas along the improved or extended roads.

Overall rating: 3 (Phase III), 3 (Phase IV)

Rationale: The utilisation of the programme roads of both phases was high. Only some of the small-scale infrastructures built as part of RIP IV were accepted by the population. The sustainability of the roads covered by the programme is at risk. There are currently almost no resources available for the maintenance of low-category roads such as those upgraded in Phase IV. Phase IV is therefore just barely rated as satisfactory on the whole.

Highlights: The roads of Laos are increasingly suffering weather-related damage as a result of typhoons and heavy rainfall. In September 2013, immediately after construction measures had been completed, severe floodings in the programme province of Attapeu caused damage to some of the RIP IV roads. This damage was repaired as part of the project. However, these events show that despite their adapted design, the proper operation of the roads in the programme can only be ensured if financing is secured for the necessary repairs.



Rating according to DAC criteria

Overall rating: 3 (Phase III), 3 (Phase IV)

The roads financed in Phases III and IV exhibit a high intensity of use. However, the population did not accept the new markets constructed as part of RIP IV. The project had a developmental impact despite the fact that an increase in market-oriented production as central target indicator in Phase IV could not be achieved.. The capacities of the institutions in the Laotian road sector are weak with respect to the future financing of the programme roads' running costs. The scarcity of resources jeopardises primarily the sustainability of the RIP IV roads, since these roads are in a lower category and maintaining them is of relatively low priority for the Laotian government.

Relevance

The programme's approach of ensuring that the villages covered by the programme have year-round access to markets, social infrastructure and administration centres by extending the rural road network, and thus improving the population's living conditions, is still coherent. The districts covered by the programme are among Laos's 72 poorest districts. The insufficient transport infrastructure in these districts was a key obstacle to their development at the time of the programme appraisal and still remains so today. The national poverty strategy emphasises the construction of roads and tracks with respect to the alleviation of poverty. Scientific studies indicate that in rural parts of Laos, access to a road increases the chances of escaping poverty by 10%[1]. Evaluations of comparable donor projects also point to the high relevance of rural road construction in the fight against poverty. The projects coherently fitted into the Laotian sector strategy, and were closely connected to the German DC's approach to "Rural development in the poor regions of Laos", which is based on that strategy. The approach followed as part of RIP IV, of building roads to complement smaller-scale infrastructure measures (boat launches, bus stops and markets) can boost the developmental efficacy of the measures. However, it proved difficult even during the feasibility study to identify sites to construct new markets. Especially in sparsely populated and very poor areas that are dominated by the subsistence economy such as the target province of Attapeu, demand for new market infrastructure is low. In programme regions that fit this description it would make more sense to expand highly frequentedmarkets to ensure that the population really benefits from the measures.

Looking back, the capacities of the Laotian institutions in the sector with respect to the future financing of the programme roads' running costs were overestimated at the time when the programme was designed. Funds for maintaining the rural road network are scarce in every country as a result of the low priority attached to rural as opposed to national roads. However, the situation in Laos is particularly difficult, since the road sector as a whole has substantial financial challenges to overcome. As a result of joining the Association of Southeast Asian Nations, Laos is required to extend 2,300 km of national roads in order that these meet the regional standard. The Ministry of Public Works & Transport also has to provide budgets for the substantial damage inflicted on infrastructure every year by typhoons and heavy rainfall. The programme proposal for a preceding project (RIP I) already made reference to the fact that willingness of the German federal government and/or other donors to also get involved in maintaining the programme roads inthe medium term is an important prerequisite for the success of the programme. In Phases III and IV which are being evaluated here, the decision was made not to implement this kind of model despite the fact that increasingly remote areas with low economic power were being connected, while experience shows that these areas are particularly affected by the scarcity of funds.

Relevance rating: 3 (both projects)

Effectiveness

The aim of the measures was to achieve the long-term and year-round utilisation of the expanded rural roads as well as the smaller-scale infrastructure such as markets. It proved possible to completely achieve the intended physical outcomes of the two programme phases. Indicators 1 through 4 were used

[1] World Bank Group (2015), Drivers of Poverty Reduction in Lao PDR, Lao PDR Poverty Policy Notes, October 2015

to measure the achievement of the programme's objectives, and were specified in more detail compared to the programme proposals in some cases (indicators 3 and 4). The evaluation of the extent to which the objectives have been achieved is based on an analysis of the results of socio-economic studies carried outas part of the project.[2]

Indicator	Target	Status at ex post evaluation			
	RIP III+IV	RIP III		RIP IV	
		Mid-term	Ex post	Mid-term	Ex post
(1) Increase in average volume of motorised traffic	+20 %	+106 %	+133 %	+107 %	+156 %
(2) Year-round passability of the roads in the programme	Given	Given	Given	Given	Given
(3) Reduced journey times (a) along the programme roads, (b) to administrative centres, (c) to markets.	-20 %	(a) -52 % (b) -50 % (c) -44 %	(a) -61 % (b) -54 % (c) -52 %	(a) -36 % (b) -36 % (c) -28 %	(a) -16 % (b) n/a (c) n/a
(4) Reduction in transportation costs* (a) per person per km (b) per tonne per km	-20 %	n/a	(a) -31% (b) -33%	(a) -12% (b) -45%	n/a

*) adjusted for inflation and higher petrol prices

The increase in the volume of traffic on the programme roads in both provinces was much more pronounced than planned, and also generally exceeded the increase observed on the control roads selected for the purpose of socio-economic reporting. There was a particularly sharp increase in the volume of traffic in Sayaboury Province (210% (RIP III) and 201% (RIP IV)). Corresponding increases of 71% and 102% were observed in the province of Attapeu. The programme roads are still passable throughout the year, which means that an important programme objective was achieved. There are however signs that it may not be possible to ensure this year-round passability in the long term (please refer to the "Sustainability" section). The indicator of a 20% reduction in journey times was achieved in both provinces along the RIP III roads, but along the RIP IV roads it was only achieved in the target province of Sayaboury, where journey times along the programme roads were reduced by 30% as a result of the project. Journey times in Attapeu province fell sharply as soon as the roads had been completed (-30% mid-term). They rose again, however, due to the deterioration of the road condition, and have now returned to levels similar to those seen prior to the start of the project. The same has also happened with average driving speeds. The intended reduction of transportation costs along the RIP IV roads (in both provinces) could not be entirely achieved. Although vehicle operation costs along the programme roads consistently fell as a result of the higher standard of construction, no genuine competition has been able to develop (yet) between transportation providers on account of the region's remoteness. Such competition would have brought about a sharper reduction in transportation costs. There are still only a very small number of private transportation providers operating on many of the RIP IV roads.

[2] As part of the project, socio-economic data was collected along the programme roads in order to understandthe development of target indicators to a satisfactory degree. Baseline data (prior to the implementation of the project), mid-term data (immediately following the conclusion of the project) and ex post data (two years after completion of the project) were collected. Along the RIP IV roads ex post data could only be collected for some of the indicators (1, 2 and 3a). Data for indicators 1 and 3 is also available with respect to developmentsalong control roads.

The aim of expanding the markets and constructing new ones (which accounted for 4% of the investment costs of RIP IV) was to enhance the project's impact with respect to a market-oriented way of doing business in the areas covered by the programme. This objective was only achieved in part, as revealed by the intensity of useof the markets. Four of the five new markets were not put into operation, while two other, smaller, expanded markets are only utilised to a very limited extent (2/4 sellers). The markets in two district centres which were upgraded as part of the project and already highly frequented before the project was launched were operating. It was not possible to compare the extent to which the markets were utilised before and after the completion of the project, but a survey of visitors to the market revealed that they were highly appreciative of the markets' high construction standards, as a result of which it can plausibly be assumed that the project had a positive impact in this respect. One positive note is that the other, smaller-scale infrastructure built as part of RIP IV (such as bus stops and ferry launches) was accepted by the population. The expanded jetties in particular (6% of the investment costs of RIP IV) are heavily used, and generate income and employment for multiple families. The concreting of the ramps also makes river crossings safer during the rainy season.

The effectiveness of RIP III is categorised as "good" as a result of the full achievement of the target indicators. The effectiveness of RIP IV is only classified as "satisfactory" since target indicators 3 and 4 were only achieved in part and only two of the nine markets financed exhibit a satisfactory degree of utilisation.

Effectiveness rating: 2 (RIP III), 3 (RIP IV)

Efficiency

Implementation was on schedule, with some measures even carried out faster then planned. All of the planned roads could be rehabilitated to a high standard of construction. Damage caused to the rehabilitated roads in Attapeu in September 2013 as a result of flooding was promptly repaired. Significant delays of payments of the Laotian counterpart contribution did not have any negative impact on the progress of the programme in RIP IV. However, the challenging overall budget situation in Laos poses the risk that construction companies will price the likelihood of delayed payments into their quotes, causing costs to rise.

Unit costs have risen since the start of the RIP programme. The specific investment costs of the RIP III and IV roads amounted to EUR 33,500 and EUR 36,500 per kilometre respectively, up from just EUR 29,000 per km in the preceding phases I and II. In addition to price increases as a result of inflation, this can be attributed to the generally higher construction standard of the programme roads. As part of RIP IV, importance was explicitly attached to weather-proof construction which is considered sensible in light of the frequent and heavy rainfall experienced in the programme region. The approach is also consistent with the Laotian government's strategy of increasing the proportion of dirt roads with surface sealing in order to reduce maintenance costs. Despite these measures, the floods in Attapeu in September 2013 caused significant damage to the RIP IV roads, which had only just been completed. Given the relatively sparse population and the hilly terrain of the programme region, however, it does not seem expedient to raise the standard of construction so high as to be able to withstand these kinds of extreme weather events since the related costs would be out of all proportion. Instead, budgets should be made available for regular maintenance measures or repairs as needed.

The substantial increase in the volume of traffic in both target provinces indicates very good allocation efficiency when it comes to the selection of roads. However, the large geographical distance between the two programme provinces (1,300 km) presented the executing agency and implementation consultant with avoidable challenges in connection with the implementation of the programme. Efficiency could be improved by focusing the project on just one region, or at least neighbouring regions.

In the interest of efficiency, the construction of new markets as part of the programme should also be subjected to a critical review. Since it is the industry and trade departments and not the local roadconstruction departments that are responsible for the operation of the markets, the establishment of a new market requires very close coordination between various agencies. The industry and trade departments do not have the capacities for this, however.

According to the programme concept, simple, routine maintenance measures were to be carried out virtually free of charge by the village communities along the programme roads. However, this process only

works well along some of the road sections, and less well on longer sections through sparsely populated areas in particular. On the whole, training whole villages, providing simple tools and the need to coordinate and motivate villagers seems inefficient. The use of fewer, but paid, workers could increase the efficiency of routine manual maintenance.

Efficiency rating: 3 (both projects)

Impact

The overall development goal of the measures was to improve the socio-economic living conditions of the rural population living in the areas covered by the programme. Specifically, the population's living conditions were to be improved with respect to poverty reduction, gender equality and the participation of minorities in society. Looking back, it cannot be assumed with certainty that the intended developmental impacts were achieved since the pool of data on which the impact assessment is based is lacking in many respects. The data provided by the Laotian authorities regarding changes in household incomes in the region covered by the programme was incomplete. The development of poverty indicators could not be traced due to a change in the Laotian government's method for collecting the data. The high mobility of the population also limits the informative value of indicators that measure "per capita" access to education, health care or a supply of water in individual villages. Only a panel survey could provide reliable results.

Two indicators, (1) the increase in market-based production, measured using the annual income from market sales, and (2) the increase in the proportion of girls attending secondary schools, which were defined at the programme appraisal and monitored by means of surveys, are used to evaluate the achievement of the overall development objective. The latter is broken down into (2a) the increase in the rate of secondary school attendance among 11 to 18-year-olds and (2b) the reduction in the gender gap at secondary schools.

The indicator of an increase in market-oriented production was only achieved along the RIP III roads. As a result of the improved connection with markets and the lower transportation costs there was an increase in average earnings from agricultural sales along the RIP III roads in both target provinces. The increase averaged 65%. There were contrasting trends along the RIP IV roads in the two target provinces. Agricultural productivity in the target province of Sayaboury collapsed as a result of lower rainfall and a pest infestation, which meant that there were fewer goods available for sale on the markets and takings from agricultural sales fell by 21% in comparison to the baseline. In Attapeu, on the other hand, agricultral incomes rose as a result of the project. Of 100 households chosen at random in the villages covered by the programme, 55% indicated prior to the commencement of the project that they did not have any cash crops, meaning that they were solely involved in subsistence farming. Following the completion of the project, 100% of these households indicated that they were selling goods on the market, and those who were already growing cash crops had been able to significantly increase their income from market sales. The target indicator of an increase in market-oriented production was therefore achieved in part along the RIP IV roads.

The trend for the secondary school attendance rate among 11 to 18-year-olds in the villages covered by the programme (indicator 2a) was inconsistent. In other rural road construction programmes, improved connection to the provincial and district road network increased the proportion of young people in the programme villages attending secondary school. This was not observed in the programme villages in RIP III and IV. Rates of secondary school attendance rose by 12 percentage points in the RIP III programme villages in Sayaboury, but fell by 9 percentage points in Attapeu. The opposite was observed in the villages covered by the programme in RIP IV: the secondary school attendance rate in the programme villages fell 4% in Sayaboury and rose 4% in Attapeu. One possible explanation for the falling attendance rates despite the faster and more cost-effective connection to this type of school could be the strong influx of above average poor sections of the population into the programme villages. It is reasonable to assume that particularly poor households whose villages were not connected to the transport network have moved into the RIP programme villages. Therefore, the positive impacts of the project may have been underestimated. Unfortunately there is no data available regarding the particulars of the new residents. The intended narrowing of the gender gap was achieved in all of the villages covered by the programme.

Another striking development is that the populations of the villages covered by both phases of the programme (and in both provinces) rose since the start of the project, but fell in the control villages. The populations of the programme villages rose 7% on average, which roughly corresponds to the growth of the national population during the same period. This could indicate that the populace now prefer to live in the programme villages on account of the improved transport connections. On the other hand, it cannot be entirely ruled out that the government's relocation policy aimed at increasing the concentration of the population in villages may have been a factor.

Because the important target indicator 1 was not achieved in RIP IV, the developmental impact of RIP IV is judged to be slightly worse than that of RIP III.

Impact rating: 2 (RIP III), 3 (RIP IV)

Sustainability

Maintenance is a key criterion for evaluating the sustaiability of the roads covered by the programme. Gravel roads are cheaper to construct than asphalt roads but more expensive to maintain. The costs of the annual maintenance work required for gravel roads in the provinces covered by the programme are estimated to be around 78% higher than for asphalt roads.

At the time of the ex post evaluation, the local consultants reported that the RIP III roads were all still in very good condition. Of the 18 road sections financed in connection with RIP IV, however, the authorities responsible for their maintenance reported that only seven were judged to be in "good" condition, with another seven only classed as "fair" and four as "moderate". It is striking that almost all of the roads reported to be in poor condition are in Attapeu Province.[3] According to the local authorities, the poor condition of the roads can be attributed to a particularly severe rainy season in 2015 as well as the use of the programme roads by heavy agricultural traffic. The high density of traffic may have accelerated the wear and tear on the roads. The tendency for the condition of RIP roads in hilly regions of Laos to deteriorate again very rapidly and running the risk of not achieving the expected useful life of at least ten years, had already been observed in the preceding phases of the project.[4] In addition to the heavy use of these road sections, this trend is often the result of inadequate maintenance work on the roads. Other donors operating in the target provinces, such as the International Fund for Agricultural Development (IFAD), estimate the risk of the inadequate maintenance of "their" programme roads to be "significant".

No regular maintenance work has been carried out yet on the roads covered by the programme, which is understandable given the fact that construction was only completed in 2013/14. As part of a basic and advanced training measure, employees of the provincial authorities were successfully trained in the fields of planning and monitoring maintenance measures. It can therefore be assumed that the quality of the implemented maintenance measures will improve in the future. According to the local consultant, minor routine maintenance measures are carried out by the village community, as planned. At the same time, it cannot be assumed that this work is performed to a satisfactory standard everywhere (please refer to the "Efficiency" section).

There are currently not enough funds available to maintain all of the roads covered by the programme. Before the project started, the executing agency announced its intention to increase the funding for the maintenance of the road network in the target provinces, as agreed by contract. However, the maintenance budget has fallen by about 35% in Sayaboury Province and 20% in Attapeu Province since the programme appraisal. The sustainability of the RIP IV roads is particularly at risk because, like many other countries, Laos allocates funds on the basis of priority and the RIP IV roads connect to very remote, economically weak areas.

At the same time, there are growing signs that Laos now takes the issue of maintenance very seriously. This is reflected, for example, in the drafting of a new decree regarding the management of the Road Maintenance Fund (RMF), according to which a fixed (and higher) percentage of the RMF's income will be made available for maintaining the rural road network, as well as the decision of the Ministry of Public

[3] The roads covered by the programme were not driven along as part of the ex post evaluation, as a result of which these facts are based on information provided by the local authorities.

[4] Please refer, for example, to the ex post evaluation "Rural road building Bokeo / Rural road infrastructure Northern Laos".

Works and Transport to reinstate the department for rural roads, which was dissolved in 2013. At the same time, the RMF's income is growing at a rate of 21% per year (since 2001), as a result of which it is plausible to assume that the overall funds provided for rural roads throughout Laos and in the provinces covered by the programme will rise in the years ahead. The involvement of the FC and other donors, who are supporting the executing agency by establishing a national training centre, introducing a road maintenance management system and co-financing the maintenance work, will have a positive impact on the sustainability of the programme roads.

In light of the positive trends, the sustainability of the RIP III roads is judged to be satisfactory while that of the RIP IV roads is considered only just satisfactory.

Sustainability rating: 3 (RIP III), 3 (only just) (RIP IV)

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 development impact.
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. Ratings 1-3 of the overall rating denote a "successful" project while ratings 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" (rating 3).