Ex post evaluation – Ghana

Sector: Road facilities (2102000)
Project: Poverty focussed rural Transport Programme
BMZ no. 2003 65 486*, training component (BMZ no. 1930 03 555)
Implementing agency: Department of Feeder Roads of the Ministry of Roads and Highways

Ex-post evaluation report: 2017

		Project (Planned)	Project (Actual)	Training (Planned)	Training (Actual)
Investment costs (total)	EUR million	8.20	8.04	0.2	0.2
Counterpart contribution	EUR million	1.00	0.90		
Financing	EUR million	7.00	7.14**	0.2	0.2
of which BMZ budget funds	EUR million	7, 20	7.14**	0.2	0.2

*) Random sample 2016; **) Including residual funds of approx. €400k, from which one more road still under construction is being financed.

Summary: Within the scope of the Povertyfocussed rural Transport Programme, , rural routes were rehabilitated in three districts of Ghana, ensuring their year-round passability. Specifically, the following measures were implemented: 1.) Rehabilitation of 113 km of dirt road (6 km of which is still under construction) in in the districts of Nkoranza, Ejura-Sekyedumase and Sekyere West, 2.) Implementation of accompanying HIV information campaigns and impact-focused studies to gauge success, 3.) Consultancy services. Aside from these, a training component helped to bolster the planning and implementation skills of local small and medium sized construction enterprises (SMEs).

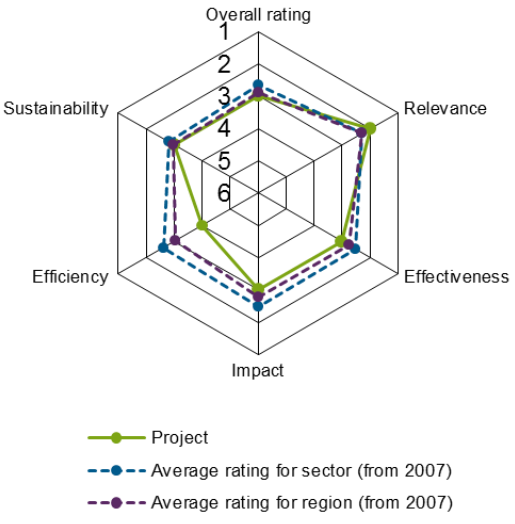
Development objectives: In rehabilitating selected rural routes, the measure's objectives were to reduce transport costs, and improve access to and use of markets and social institutions in the programme region, as well as for this to be sustainable in comparison with the poor initial conditions. The measure's overarching development objective was to contribute to reducing the incidence of poverty in the agriculture-heavy programme districts by an increase in agricultural income and improved access to social infrastructure (the latter of which was added ex-post).

Target group: The poor population in the dirt roads' respective catchment areas were the measure's target group.

Overall rating: still 3

Rationale: Despite a high level of relevance and noticeable impacts for the dirt roads that were actually built, there are serious weaknesses in terms of efficiency. Costs that were massively higher than planned contributed to a severe reduction in the overall scope of the programme (see below). In addition, insufficient funds were provided for the maintenance of the rural routes. Consequently, we can only expect limited basic maintenance to be performed on the programme roads.

Highlights: The programme was designed to encompass 305 km of road. The realised extent ultimately dropped to 113 km because of a variety of increases in construction costs and a seriously protracted programme time that was accordingly met with a rise in consultancy costs.



Rating according to DAC criteria

Overall rating: 3

Relevance

The Ghanaian Government has continued to give the expansion and maintenance of its road network high priority, since the road system handles more than 95% of all transportation. Ghana has managed to significantly expand its road network over the last 15 years with the assistance of international donors and due to its own efforts. Connection to transport is especially important for rural areas, in that it plays a key role in meeting many of the rural population's basic needs such as hospital and secondary school accessibility, as well as increasing the marketing of agricultural production.

The ministry responsible (the Ministry of Roads and Highways) and the international donors regularly obtain information about the activities in this field, both those that are ongoing and those planned for the future. The coordination is therefore rated as good.

The project region is one of Ghana's poorest regions and has high agricultural potential. A clearly improved connection to transport enables agricultural inputs and outputs to be transported more quickly and affordably. Alongside the cost savings, a reduction in storage losses and an incentive to increase production are also worthy of mention. The measures are therefore suitable to confront the core problem of the incidence of poverty. Alongside the material dimension of poverty, this is also true for other non-material facets, since we can expect improved health care, better educational opportunities and so on from the measure.

The roads were selected by committing to five particularly poor districts. Next, each district was allocated a budget, meaning that each could be considered appropriately. In the second stage, roads were selected on the basis of having an especially high number of beneficiaries in their catchment area in relative proportion to the road cost.

For the aforementioned reasons, the programme is a priority area of the Market-oriented Agriculture Programme development cooperation with Ghana and has a particular relevance to poverty. The training component aimed to train employees of small road construction companies in different areas, as well as employees of the DFR regional offices and the district engineers in their respective remits, especially in road maintenance. This was seen as a potentially key starting point for safeguarding the sustainability of the programme, due to future maintenance of the route network being highly relevant.

The measures' operating principle remains convincing from today's perspective, meaning that the programme is highly relevant on the whole.

Relevance rating: 2

Effectiveness

The programme's objectives were to improve access to markets and social institutions in the programme region, and to reduce transport costs. An increase in motorised transport and the (year-round) passability of programme roads for taxis and minibuses were selected as indicators for target achievement.

The programme examined in 2005 planned 29 roads with a total length of 305 km, although only 10 roads with a total length of 107 km were actually built. An eleventh, 6 km-long road is currently under construction. The further content in this section only refers to the programme that has been realised and not on the one originally planned.

The volume of traffic on the programme roads already increased strongly between the first count in 2005 (feasibility study) and the second count prior to actual programme implementation in 2009/2010 (from 5-20 motor vehicles to 19-48 motor vehicles). The count performed in 2014 after the expansion of the routes provided figures between 77 and 406 motor vehicles per day. One must note here that tractors and motorcycles account for around a quarter of the traffic. According to information from representatives of the

Ghana Private Roads Union, the programme roads were generally not used by (the less robust) taxis and minibuses prior to the expansion.

Presently, all the programme roads are regularly used by shared taxis and minibuses on market days. One of the 10 completed roads is used regularly on the other days, whereas the others are used on demand.

The attainment of the programme's target indicators defined at the programme appraisal can be summarised as follows:

Indicator	PA status and target value	Ex post evaluation 2016
(1) Increase in motorised transport	PA status: 5-20 vehicles No target value	Depending on the road, daily average of 77-406 vehicles, not weighted by vehicle type
(2) (Year-round) passability of programme roads for taxis and minibuses	PA status: Not generally passable for taxis and minibuses No target value	Passable throughout the year

The "overarching impacts" section reports on the question of whether transport costs were successfully reduced, since this is a suitable proxy indicator for the programme's poverty-reducing effects.

Training courses were held for the construction company personnel (training component) before and during the construction phase on the topics of cost estimation, the tendering procedure, construction site management, road engineering, concrete work and labour-intensive road construction. On average, the participants rated the courses as "good". Likewise, over the year, multiple further training courses were held for the DFR field office personnel and road engineers in the relevant districts. They covered the topics of road maintenance and contract management in terms of planning and organisation. There is no indication for evaluation of these courses.

All the construction firms organised HIV/AIDS information campaigns in the selected villages on all 10 roads during the construction work. Some of the events were also repeated. Altogether, 17 campaigns were conducted. In these cases, there was also no feedback on quality from the target group.

The programme target indicators were achieved for the roads that were actually built. However, we only rate the effectiveness overall as satisfactory, since the output – and, in this sense, also the extent of the effects – lag far behind the plans.

Effectiveness rating: 3

Efficiency

The estimated construction costs (without taxes) per km were around EUR 18,400 in the programme appraisal. The actual costs (without taxes) were around EUR 45,600, making them around two-and-a-half times higher than originally estimated. The factors responsible for this were serious time delays during programme implementation and an underestimate of the costs in the feasibility study, since additional costs from the focus on poverty reduction were not factored in sufficiently (award of contracts to many small construction firms, sometimes labour-intensive road construction, see below). These delays led to inflation-related price rises over time, a deterioration in the state of the programme roads and higher consulting costs. The poverty-focused tendering procedures, which resulted in considerable cost increases, can be summarised as: 1. Dividing the programme into small contract units (construction lots only around 10 km long); 2. Only one construction lot awarded per firm; 3. Two labour-intensive construction lots allocated, accompanied by significantly higher costs than the machinery-intensive construction lots. Note here that by supporting small construction firms, the tendering procedures also served the objective of developing an assortment of companies that could later be called on to maintain roads in a competitive environment.

Compared with the original estimate, the engineer costs increased by EUR 487,000 to 22.2% of the total costs (with indirect taxes). This rise can be explained by the longer implementation time, the fragmentation of the award of contracts and, in turn, the supervision along with a sometimes unnecessary planning outlay. For example, the detailed plan covered a total length of 260 km. However, records were only then needed for 113 km.

Furthermore, a socioeconomic study was carried out over a total of 260 km of road, concentrating on 10 individual roads. In view of the expansion programme's subsequent modification and reduction, only one of the 10 roads considered in the Baseline Study was actually constructed. The socioeconomic study is therefore of very limited use, even if it did unintentionally provide comparison roads that could be checked against the known programme road as part of a controlled comparison to assess impact.
However, the level of informative value remains unduly low compared with the costs incurred.

The cost increase made it necessary to cut the originally planned extent of the programme from 305 km to 113 km. The reduction of the programme involved the programme districts being restricted to Nkoranza, Ejura-Sekyedumase and Sekyere West. Some of the originally planned project roads were also cancelled within the districts. The criteria DFR used to make the final selection are unknown. Certainly, the ultimate programme did not come to include any new and previously unplanned roads.

In terms of allocation efficiency, we note that the implemented programme had a range of economic effects, some of which can be estimated quantitatively and some only described qualitatively. Regarding the effects that can be quantitatively assessed, the evaluator made a rough calculation of the motor vehicle operating cost savings for 2014, factoring in existing (independent) traffic and traffic induced by the road renovation (details in Annex 8). From the average volume of traffic of 150 motor vehicles per day, he classes 30 vehicles as independent traffic and 120 as induced traffic. The estimated benefits were full savings for the independent traffic and only 50% of calculated savings for the induced traffic, as the latter was not stimulated until the roads were built. In total, the annual value is found to be EUR 405,000. The full investment costs of approx. €8 million would therefore not be amortised until around 20 years' time. Additionally, the costs for road maintenance must be deducted and the useful life of rural (non-asphalted) roads of this type is somewhat shorter than 20 years, resulting in a negative rate of return. However, this does not account for the numerous other positive impacts that can be plausibly assumed. The calculation did not consider the benefits of tractor and motorcycle travel, all the non-motorised transport, elevated income from increased agricultural production and better prices, increased school attendance, improved health care, socialising and so on.

However, these can only partially offset the weaknesses in production efficiency, meaning that, overall, we rate the efficiency as unsatisfactory.

Efficiency rating: 4

Impact

The programme was intended to help to increase the agricultural income of the resident poor population (overarching programme objective). Neither the agricultural income nor the amount or value of agricultural production were recorded ex ante, probably due to the large statistical burden associated with this. However, the programme does develop a fertile region in agricultural use. In the interviews during the ex-post evaluation, there were indications that the agricultural real output prices ex-farm have risen. Farmers who were surveyed also indicated the advantages of the improved marketing. In particular, lower harvesting and storage losses played a role here. We consider these correlations plausible, although unfortunately we cannot establish them more substantively and conclusively by means of the socioeconomic study, as this only provides limited and ambiguous information on the matter.

The real transport costs, to be measured on the route between the place of residence and nearest hospital, were expected to decrease due to the road expansion. The socioeconomic study provides rather significant results in this area. The real costs were not found to have fallen, but to have risen for all the roads examined, including the roads expanded by the Financial Cooperation (FC). However, the real transport costs on the non-expanded roads that were examined are much higher (specifically rising by 205%) than on the rehabilitated roads, which demonstrated an average cost increase of only 110.3%. One therefore assumes that a general increase in transport costs has overcompensated the expansion's downward ef-

fect on costs. Representatives of the transport union in Nsuta and Ejura stated that the motor vehicle running cost savings created by road expansion are definitely reflected in the transport fares.

Indicator	Target value, progress review 2011*	Ex post evaluation 2016**
(1) Agricultural output prices ex farm (real)	Average increase by 15%	Unclear. Indications of a rise in interviews. According to study, average rise of 39.1% across seven roads examined; rise of 12.5% for one project road; increase different depending on crops and also in the case of non-expanded roads.
(2) Transport fare between place of residence and nearest hospital (real)	Average decrease of 15%	Rise of 110.3% for seven roads examined; 92.3% for one project road. The indicator is considered to have been achieved, due to the higher increases on non-expanded roads.

* No target values were given in the appraisal report. The target values were specified in the progress review of 2011.

** Implementation consultant's study of 2015

In addition, both the health centres in the neighbouring villages and hospitals in the district capitals are much more accessible than before as a result of the programme. As explained previously, shared taxis and minibuses (main means of transport) now travel on all the programme roads. In cases of emergency, taxis can also be ordered by mobile phone. Additionally, finding staff for the village health centres has become easier, according to the Mayor of Nsuta.

There are primary schools in many neighbouring villages, as well as secondary schools in some. The expansion primarily benefited those only able to reach their desired (high) school using transport, as pupils normally walk to (primary) school. The connection of villages to the main road network has simplified teacher recruitment, similar to the situation with the health centres.

Finally, the connection of villages and settlements serves a range of different purposes. These include shopping in markets, maintaining social contacts, making trips to the authorities and bank visits, only to cite the most important.

There are no indications of how broadly effective this approach was by awarding orders to many construction companies, or of how much training their personnel in particular resulted in improved road maintenance. The risk of accidents on the programme roads is small, because the speed of the motor vehicles and the traffic density are low, according to information from the Mayor of Nsuta and two representatives of transport unions.

Impact rating: 3

Sustainability

In the Ghanaian context, the question of sustainability for a road programme relies on adequate financing for road maintenance. Upkeep and expansion of the road network are financed by way of the Road Fund set up in 1985, budgetary resources and funds from foreign donors. The Road Fund is tasked with maintaining the existing network on a sustained basis. Fuel tax revenues, tolls and license fees support the Road Fund, with the fuel tax accounting for around 70% of the total amount. The fund's revenues have nominally risen, although they have fallen in real terms. Moreover, the fuel tax – raised by 7.4 pesewas in 2015 to a current GHS 0.4 (equivalent to 9.2 euro cents at a diesel price of around 78 euro cents) – is not nearly sufficient to maintain the network. The Road Fund finances the maintenance of national, rural and urban roads. The proportion of rural roads expanded by engineering methods needing to undergo mainte-

nance dropped from 63% in 2013 to 44% in 2014 and 39% in 2015. The figures for national roads over the same period are 90%, and between 27% and 88% for urban roads.

Except for two roads, the programme roads were routinely maintained in all three districts. In the 2016 Annual Programme, they are also intended to receive routine maintenance or in some cases periodic maintenance.

The current state of the roads can predominantly be classified as good. However, there are many instances of major damage to the carriageway of the road from Aframso to Kyeiase, created by construction vehicles associated with the building of a waterworks. Other noteworthy road damage was visible on the Braholo-Dompoase section (ruts and warping in the middle of the road). We can also report lesser road damage on sections 1, 8 and 9. The sides of the carriageway were overgrown in many places due to strong plant growth following the wet season.

The evaluator sees a considerable risk in terms of the road maintenance that will be adequate in the future. In the event of insufficient funds overall, the funds available are primarily expected to be used for roads with appreciable damage. This prioritisation would cause the programme roads' condition to deteriorate, albeit while sustaining a minimum degree of passability. The level of sustainability is therefore rated overall as satisfactory.

Sustainability rating:3

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).