

**Peru: Rural Road Construction in the Jaén Region**

**Ex post-evaluation report**

<b>OECD sector</b>	21020/Road transport	
<b>BMZ project number</b>	1) 1996 66 413 (investment measure) 2) 1997 70 173 (complementary measure)	
<b>Project executing agency</b>	Instituto Nacional de Desarrollo (INADE): Proyecto Especial Jaén – San Ignacio – Bagua (PEJSIB)	
<b>Consultant</b>	1) Various local firms 2) GITEC Consult	
<b>Year of ex-post evaluation</b>	<b>2006</b>	
	<b>Project appraisal (planned)</b>	<b>Ex-post evaluation (actual)</b>
<b>Start of implementation</b>	1st quarter 1998	4th quarter 1998
<b>Period of implementation</b>	3 years	5.5 years
<b>Investment costs</b>	1) EUR 9.7 million 2) EUR 0.4 million	EUR 10.6 million EUR 0.4 million
<b>Counterpart contribution</b>	EUR 2.4 million	EUR 3.3 million
<b>Finance, of which FC funds</b>	1) EUR 7.3 million 2) EUR 0.4 million	EUR 7.3 million EUR 0.4 million
<b>Other institutions/donors involved</b>	None	None
<b>Performance rating</b>	4	
<b>Significance/Relevance</b>	4	
<b>Effectiveness</b>	4	
<b>Efficiency</b>	4	

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

The programme aimed at improving conditions of life for the poor population in northeastern Peru by rehabilitating and improving altogether 228 km of rural roads in four provinces (Jaén, San Ignacio, Bagua and Utcubamba). The programme objectives were the sustainable reduction of transport costs and increasing the exchange of goods and passenger transport in the areas assisted through road building measures. This was intended to give substantial impetus to mobilizing regional production resources, primarily agriculture, raising income and improving the conditions of life for the resident population (overall objective). In hindsight, the programme and overall objectives would appear adequate.

The indicators for programme objective achievement were a reduction in specific motor vehicle operating costs by an average of 50% and an increase in traffic capacity by at least 4.6% a year. No indicators were defined for the overall objective. In retrospect, approximate indicators and targets should have been defined (e.g. transport costs, times, agricultural yields, etc.) and ascertained in a socio-economic baseline survey. The programme executing agency was the Instituto Nacional de Desarrollo (INADE) with its local implementing unit, Proyecto Especial Jaén San Ignacio Bagua (PEJSIB).

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

Conceived as open-ended, the programme planned to rehabilitate or upgrade 12 rural roads in the programme region measuring a total length of 274 km and to procure building equipment for periodic road maintenance on the one hand (investment measure) and provide support for the implementing agency PEJSIB and the district authorities and municipalities in charge of maintaining the programme roads on the other (complementary measure). Due to increased construction costs, only 10 of the planned 12 roads were financed with a total length of 228 km. In the complementary measure, PEJSIB was supported in drafting and introducing a maintenance programme for the completed roads, in improving workshop organisation and in preparing and executing selective building measures. Maintenance manuals were provided to the responsible district authorities and municipalities concerned. Lasting five-and-a-half years, actual implementation exceeded the planned term of three years.

The layout of the programme roads is adequate and meets national standards. At about EUR 38,000 per road km, however, the costs were 28% higher than originally planned and well above the national average, the reason for this substantial increase being the geographical conditions in the programme region and the shortage of building material. Altogether, the quality of the rehabilitated roads can rate as satisfactory.

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

A comparison of the motor vehicle operating costs on dirt roads in a poor condition (state of most roads before rehabilitation) and paved roads in a very good or good condition (state of the rehabilitated roads after completion) indicate average cost savings of 42-47% for cars and pickup trucks and 48-58% for lorries, depending on the terrain. Added to this are savings due to a different mix of motor vehicles (partial replacement of pickups by cars or lorries), which was not, however, quantified. Altogether, we can assume that the specific motor vehicle operating costs could be halved as planned through the rehabilitation of the programme roads. Traffic censuses on six programme roads for 1996 (62% of rehabilitated road km) showed an increase in car, pickup and lorry transport between 1996 and 2006 from 20 to 86 vehicles a day on average, an annual rise of 16%. Added to this is the very large amount of traffic due to motorcycles, motorcycle taxis, bicycles, horses/mules and pedestrians, for which we have no baseline figures, however. The measured increase in traffic well surpasses the forecast figures. The project objective can therefore be deemed to have been met at the time of final inspection.

A socio-economic study carried out as part the ex-post evaluation verifies a number of highly beneficial developments for the farming population in the catchment area of the programme roads (target group): better marketing opportunities, increase in trade and services, faster and cheaper transport facilities for passengers and goods, better social services delivery and greater participation in political and social life. No indications of a marked increase in adverse impacts from the programme (e.g. illegal timber felling, narcotics farming, increased road accidents) were ascertained. Based on the information available, we also gauge the overall objective to have been met at the time of final inspection.

The programme was designed so that the assisted local authorities (largely the districts) should take over routine maintenance (cleaning road ditches and drains, cutting back vegetation, removing rubble and repairing minor road damage) to be executed in labour-intensive work by the residents near the programme roads; representatives of the local authorities had given assurances on this prior to programme start. Periodic upkeep requiring heavy building equipment was to be carried out provisionally (and financed from programme funds) by the programme implementing agency PEJSIB until the local authorities (primarily the provinces) were able to do this themselves. At final inspection, however, it turned out that no periodic maintenance of the pro-

gramme roads had been conducted by the assisted local authorities and no funds had been earmarked for this in their budgets. Routine maintenance is also only conducted on a part of the programme roads and this is quite insufficient.

The maintenance scheme therefore proved to be inviable. Besides the financial constraints on the districts and provinces, other major reasons were the inadequate and belated integration of the local authorities and the target population in the road programme. The present maintenance measures are completely insufficient to ensure the upkeep of the programme roads, resulting in a continuous deterioration in quality. At final inspection, none of the 10 programme roads was assessed as being in a very good or good condition (4 roads were assessed as satisfactory, 4 as satisfactory to poor and 2 as poor). The residual value of the total investment for rehabilitation measures was estimated at only 50%. Altogether, there are grounds to fear that the beneficial programme impacts are not sustainable and cannot make a durable contribution to overall objective achievement.

Although the maintenance problem became increasingly apparent in the course of the programme, no direct contact was sought with a road programme extensively supported by the World Bank and Inter-American Development Bank entitled *Provías Rurales*, which has now become a separate unit in the transport ministry (Ministerio de Transporte y Comunicación - MTC) and will soon bear responsibility for the rehabilitation and maintenance of rural roads in the whole of Peru. Information about the programme roads has now been conveyed to *Provías Rurales*. It was not possible at final inspection to predict how far the programme roads will be rapidly brought under the purview of *Provías Rurales* so that the maintenance problem can be alleviated or remedied.

The poverty impacts of the programme warrant the classification, other direct poverty reduction, as a large percentage of the population in the programme region is poor (72.4% and 73.3% resp. in the Amazon and Cajamarca departamentos), but there was no intensive form of target group participation in the shape of ownership and self-organization. Environmental protection and resource conservation were neither a major nor minor objective of the programme. The programme scope for contributing to improving gender equality was generally very limited. Participatory development/good governance was not a programme concern.

We assess the developmental efficacy of the programme as follows:

- The programme objective can be deemed to have been met at the time of final inspection. Due to the maintenance problem, however, the programme objective achievement is unsustainable. The subcriterion of effectiveness for the road programme must therefore be rated as insufficient (Subrating: 4).
- Transport is a major constraint on rural development in the programme region and improving infrastructure makes a decisive contribution to economic growth. The road programme made a major contribution to achieving the overall objective and meets the subcriterion of relevance at final inspection. Due to the maintenance problem, however, as with effectiveness, the road programme's contribution to overall objective achievement is not sustainable. Moreover, it lacks significance since unlike the national road programme, *Provías Rurales*, supported by the World Bank and Inter-American Development Bank, it makes no contribution to a replicatable approach for the rehabilitation and maintenance of rural roads, i.e. it performs no prototype function and has no capacity-building effect, either. Altogether, the relevance and significance of the programme is therefore insufficient (Subrating: 4).
- The layout of the programme roads seems adequate. The investment costs and the

costs of upkeep financed from programme funds well exceed the estimates at programme appraisal, but this would appear to be due to the geographical conditions in the region. Despite the high costs and some shortcomings in construction and the maintenance carried out with programme funds, production efficiency can be rated as sufficient overall. Moreover, the large volume of traffic in comparison with expectations at programme appraisal and the resultant high macroeconomic return of the roads also point to the good allocative efficiency of the road programme at ex-post evaluation. Due to the rapid deterioration in the quality of the programme roads for lack of maintenance, vehicle operating costs will, however, increase again quickly, affecting the volume of traffic, transport tariffs and finally macroeconomic profitability. Owing to the insecure sustainability of allocative efficiency, the efficiency of the programme is assessed as insufficient altogether (Subrating: 4).

Based on the subratings, the developmental efficacy of the road programme overall is judged to be insufficient (Rating: 4).

## **General Conclusions**

Road maintenance after completion of programme measures must be accorded a key role both in design and throughout the implementation of rural road programmes to assure sustainability. This applies in particular for the following aspects:

- Pledges made by local/regional authorities to bear financial and organizational responsibility for maintaining the rehabilitated roads ought not to be overestimated as they are often not 'actionable'. Without appraising the financial resources and the options and incentives of the regional/local authorities for allocating funds elsewhere, little credence can be attached to these kinds of assurances.
- It is a good idea to involve the beneficiary population in the road rehabilitation programme early on for several reasons: First, organizational arrangements and technical capabilities can be established for routine maintenance in due time, if this is to be carried out locally in labour-intensive work. Second, issues of cofinance for future routine maintenance by the beneficiaries, by setting up tollbooths or charging special fees for transport operators, for example, can be settled in time, so that they can come into effect directly after the end of the rehabilitation measures (and not when the condition of the roads has already deteriorated noticeably due to insufficient upkeep). Third, early political pressure can be exerted on the local/regional authorities to actually provide the funds pledged for maintenance after completion of the rehabilitation measures. Fourth, through involving the beneficiary population early on in the programme, they can perform an additional supervisory function in periodic maintenance measures as well, which can have quite a beneficial effect on the quality of the construction and maintenance activities.
- From the outset, the main criterion for selecting the programme executing agency should not be the execution of construction work but also the longer-term responsibility for road maintenance. A 'project executing agency' lacks the institutional incentives to provide intensive support for external maintenance capabilities. Its institutional interest will lie more in carrying out maintenance measures itself as long as funds are available. Generally, funds to strengthen maintenance capabilities should be deployed where the maintenance needs to be performed in the medium to long term and not as a provisional measure. This must apply for both investment capital and for possible complementary measures.

- If a maintenance problem is already apparent at programme appraisal, the complementary measure should focus very closely on remedying this, i.e. the success of the complementary measure must be measured by the sustainability of maintenance after programme completion. So it needs to be suitably designed for the long term and provided with adequate funds.
- Moreover, rural road programmes should be coordinated with other donors engaged in the sector and tied into sectoral reform programmes. If the sectoral framework is weak, road programmes should be designed adaptably enough to be able to respond to changes in national or regional conditions and fit into capacity-building activities by the government and/or other donors even during programme implementation, e.g. by real-locating funds that have not yet been firmly budgeted.
- As a rule, conditionalities should be stipulated so that partners must bear the consequences for non-performance (and action must actually be taken).

### Assessment criteria

Developmentally successful: Ratings 1 to 3	
Rating 1:	Very high or high degree of developmental efficacy
Rating 2:	Satisfactory developmental efficacy
Rating 3:	Overall sufficient degree of developmental efficacy
Developmental failures: Ratings 4 to 6	
Rating 4:	Overall slightly insufficient degree of developmental efficacy
Rating 5:	Clearly insufficient developmental efficacy
Rating 6:	The project is a total failure.

### Performance evaluation criteria

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail below concentrate on the following fundamental questions:

- Have the **project objectives** been achieved to a sufficient degree (project **effectiveness**)?
- Does the programme generate sufficient significant **developmental effects** (project **relevance** and **significance** measured in terms of the achievement of the overall developmental policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the **funds/expenses that were and are being employed/incurred appropriate** with a view to achieving the objectives and how can the programme's microeconomic and macroeconomic impact be measured (**efficiency** of the programme design)?
- To the extent that undesired (**side**) **effects** occur, can these be tolerated?

We do not treat **sustainability**, a key aspect to consider when a project is evaluated, as a separate evaluation category, but rather as an element common to all four fundamental questions on project success. A programme is sustainable if the programme executing agency and/or the target group are able to continue to use the programme facilities that have been built for a period of time that is, overall, adequate in economic terms, or to carry on with the project activities on their own and generate positive results after the financial, organizational and/or technical support has come to an end.