

Chapter 2

Review of Current Practice

2.1 History of Labour-based Road Works in Lao PDR

Labour-based road works technology is not a new technology in Lao PDR. In the 1970s when the country received assistance from the People's Republic of China and Vietnam to construct some 900 km of paved roads in the northern provinces (National Roads 1, 4, 6 and 7), labour-based construction methods were widely used. Despite lack of regular and sufficient maintenance, these roads have stood up to performance requirements and are still passable today. It is also worth mentioning that the Chinese in the neighbouring province to Lao PDR still use labour-based methods to construct and maintain its district road network.

2.1.1 ILO

During the second half of 1980s, two labour-based road projects (LAO/83/001 and LAO/87/003) were carried out in the provinces of Xiengkhuang, Houaphan and Vientiane with financial support from UNDP and technical assistance provided by ILO. These projects served the main purpose of testing the technical and economic feasibility of labour-based road construction and maintenance technology in the country. They showed that labour-based methods were technically feasible and cost-effective as long as supervision and quality control are provided, and payment to the workers are fair and regular. The results suggested that there was a considerable scope for expanding the role of labour-based methods for road works in Lao PDR.

It is worth remembering that these projects were carried out at a time when the rural infrastructure and administration were even less well developed than they are today. This is relevant in the sense that there is often concern that there is limited capacity at the local level to implement what is seen as a supervision intensive technology.

The projects clearly demonstrated the economic advantages of both labour-based construction and maintenance. Moreover, it showed that it was possible to mobilise the necessary capacity at the provincial level to implement labour-based programmes.

2.1.2 SIDA Pilot Road Maintenance Area

In 1991, in the SIDA Pilot Maintenance Area, trials were made to develop suitable methods for routine road maintenance and rural road rehabilitation. The routine maintenance was organised on a lengthman basis to carry out pothole patching, drainage clearing and bush cutting on a gravel road. The road rehabilitation works were carried out on Road No. 207 through Naphok village. An average workforce of 40 workers were recruited from the village to cut bushes, excavate side drains and construct a camber. The results from these trials also confirmed that labour-based methods were competitive to the use of equipment for road maintenance and rural road rehabilitation.

2.1.3 UNDCP Xiengkhuang Highland Development Projects

In the UNDCP Xiengkhuang Highland Development Projects, there was a large component of labour-based road works. During 1992-1994, about 58 km of rural roads were built in hilly and mountainous areas to provide access to hill-tribe villages as part of an anti-opium growing scheme. Large quantities of rock excavation were involved in which rock blasting was required. The rock was thereafter broken manually by labour and used to provide hard surfacing since good quality soil

aggregate was not available in the nearby vicinity. The wage rate adopted was 1.40 US\$/day. Up to 2,300 workers were employed in a month period. Labour were reported to come from villages as far as 10 km away to camps near the road site. The total construction cost was approximately 14,000 US\$/km of which 80% were labour costs.

2.1.4 UNDP Study of Central Region

In 1995, the Government asked the UNDP to carry out a study of the six Provinces of the central region of the country. The study was concerned with defining programmes for rural development. As part of this study, the ILO carried out an assessment of the scope for the application of labour-based methods in rural infrastructure.

The study identified the severe restraints caused by the lack of rural infrastructure in general. In addition, it suggested certain targets for several rural infrastructure sectors including roads. It also suggested that labour-based methods be used to the extent possible and that the private sector should be heavily involved in the implementation.

2.2 On-going Works

Labour-based methods are already experimented with in Lao PDR. Moreover, some initiatives are presently being taken to apply the lessons learned from previous experience.

2.2.1 Routine Maintenance of National Roads

The Government has recently delegated the responsibility for routine maintenance of national roads to the provinces. Starting in 1996, a separate budget item allocates funds to the provincial departments of MCTPC to carry out routine maintenance. Furthermore, it has been decided that this work will be carried out using labour-based methods, recruiting local labour from the areas through which the roads are passing.

This programme is still in its early stage and only a few provinces have so far established a routine maintenance system. In the provinces where works have commenced, it has been organised either as a lengthman system, where individuals have been contracted to carry out maintenance on a one-kilometre section, or on a collective basis where contracts have been entered with the villages to maintain longer sections.

Both methods seem to have advantages and disadvantages, the lengthman system for instance requires extensive supervision on the other hand the community contracts rely on being able to mobilise the community at the appropriate time. It is still too early to conclude which is the better alternative. However, it seems evident already at this stage that for the programme to succeed, there is a demand for training of staff, and to introduce more effective planning, monitoring and reporting procedures.

2.2.2 ADB Rural Feeder Road Maintenance Training Project

The main objective of this technical assistance is to assist the MCTPC and the provincial and district authorities in strengthening the organisation and operation of maintenance of provincial and local roads in rural districts, which are not under the maintenance administration of MCTPC. It is envisaged that the operations for maintenance of such roads of gravel standard will be maintained through labour-intensive methods with the provision of local materials tools and technical guidance from the provincial authorities of MCTPC.

The scope of this project includes (i) providing an overview of the current situation regarding planning, funding and operations of road maintenance for local roads; (ii) formal training of staff of

MCTPC, provincial authorities and local communities in labour-based road maintenance; and (iii) field training in four provinces, Phongsaly, Xayabury, Houaphan and Champasack.

These services are provided by one international expert and one national professional supplied by Royds Consulting. The project duration is one year and will terminate in March 1997.

The project has provided short-courses in road maintenance, focusing on routine maintenance activities, applying labour-based work methods. In relation to this training, the project has prepared a field manual with graphic presentations and minimal text in Lao and English.

2.2.3 KfW Village Based Routine Road Maintenance on RN 6

Under a KfW funded project, which rehabilitates and maintains National Road 6 in Houaphan and Xiengkhuang Provinces, the government has started implementing a labour-based village based routine maintenance system. Similar to the arrangement in the current ILO labour-based project, routine maintenance contracts are awarded to the villages along the road. This project started in late 1996 and receives technical assistance from GITEC Consultants.

2.2.4 Labour-based Rural Roads Construction and Maintenance Project

This project started in November 1994 with financial assistance from the German Government and technical assistance from the ILO, with the aim of building up a capacity in the DCTPCs in two provinces to plan and implement labour-based rural road construction and maintenance. The project was set up in two distinct provinces, in Oudomxay with hilly and mountainous terrain, low population density and mainly shifting agriculture, and in Savannakhet with a relatively high population and with mainly lowland rice production.

The German financial assistance ended in September 1996. Currently, the project receives financial assistance from SIDA to extend project activities until July 1997.

The physical road works have principally served the purposes of (i) providing practical training for DCTPC staff, (ii) assembling data on cost and productivity, (iii) demonstrating that adequate quality can be obtained using labour-based methods, and (iv) developing effective work methods and operational procedures for the use of labour-based technology in Lao PDR.

While the original intention was to give emphasis to spot improvement and maintenance works, the project shifted its focus to new construction and full rehabilitation works due to the poor condition of the existing rural road network in the project areas.

By September 1996, the project has completed some 50 km of all-weather rural access roads to a standard providing a 5.5 metre gravelled carriage width. Average production costs, including the provision of culverts and small bridges, amount to US\$ 9,000:- per kilometre.

Apart from basic hand tools, the project has procured some items of light equipment including single-axle tractors, 1.5 tonne trailers, dead-weight rollers and water bowsers. All tools and equipment, with the exception of supervision vehicles, have been purchased on the local market. While most items originate from China or Thailand, some items have been manufactured locally, according to design specifications given by the project. Such items include ranging rods, profile boards, heavy duty rakes, hand-rammers, wheelbarrows, dead-weight rollers and water bowsers.

The road works are organised as force account operations, directly managed by staff from the DCTPCs. Initially, work was organised as daily work where the labour were paid a fixed daily wage rate (current rate: 1800 Kip/day) for working 7 hours a day, six days a week. Later, when site production rates had been established, the task work system was introduced for most work activities. As expected, the labour productivity increased considerably with the introduction of task rates.

Except for gravel haulage and compaction, the project has applied labour-based methods for the construction and maintenance of the roads.

Local contractors have been involved in the construction of culverts and the provision of gravel. After the first year, the DCTPCs has taken over culvert installations and rehabilitation of small bridges.

Planning, reporting and monitoring systems for the construction activities follow the standard practices on labour-based programmes. For each site, detailed plans are prepared for specific tasks or periods. Daily progress is recorded in terms of quantities executed and labour and equipment inputs for each activity. The daily records are compiled into weekly and monthly progress reports, clearly documenting costs and productivity rates.

The project has introduced a routine maintenance system on all the rehabilitated roads. On most of the completed road sections the lengthman system has been introduced. However, on a trial basis, the project has also awarded maintenance contracts on a collective basis to villages near the roads. Under this system, a village which has participated in the road improvement is contracted to carry out maintenance for a contract sum of 75,000 Kip (approx. US\$ 80:-) per km per year. The project has developed a simple model contract for this purpose. The village committee decides who to participate in the maintenance works and how the funds received should be spent. This village-based system has only been tried out on a limited scale, and it is too early to assess its effectiveness and sustainability.

Labour is recruited from the villages in the vicinity of the road alignment. Female participation has varied from 20 to 40 percent of the total workforce. By September 1996, 78,000 workdays or 250 work years had been generated, giving an average input of 1560 workdays per kilometre.

The seconded provincial and district staff have participated in a comprehensive training programme consisting of practical on-the-job training supplemented with short training courses and study tours. For the delivery of training courses, the project has drawn on the capacity of CTC. Through the involvement of CTC, a labour-based training capacity has been established locally. CTC has also assisted in preparing project training materials and translation into Lao.

The seconded staff have taken an active role in the project activities and have been very motivated for the work. The labour-based road works capacity in the two provinces have gradually been developed, but two years are obviously a too short period to develop and establish an effective organisation to improve and maintain rural roads. The project has to a large extent concentrated its training efforts to site level activities. There is still a demand for more capacity building, emphasising on skills relating to planning and management aspects.