

MAINTENANCE

With the completion of the preceding chapter, the most essential aspects of the construction of rural roads in the hills of Nepal in general and the LJR in particular have been elaborated.

But with the completion of the construction a road is not necessarily serviceable during its life span. This can only be guaranteed by proper maintenance and the better this maintenance is executed, the longer the road will remain serviceable. Moreover, maintenance has to be started not only when first damages have appeared, but right after the construction has been completed.

GENERAL SITUATION IN NEPAL

The importance of maintenance for the securing of investments has only in the last few years gained acceptance among HMG/N officials. This fact as well as insufficient financial resources have contributed to the often deplorable state of roads in Nepal just a few years after construction completion. It is evident that badly maintained roads have not only a shorter life span but also a negative effect on the wear of the vehicles plying on them and are, therefore, twofold uneconomical.

LJR MAINTENANCE PROJECT

Objectives

With the completion of the road construction (May 1985) the project started its third phase: the Road Maintenance Phase. This phase is again implemented under the Nepal-Swiss Cooperation and lasts 8 years (1985-1992). Its objectives are:

- o Build-up of an efficient maintenance system to secure the construction investment as well as to function as a pilot project for the maintenance of hill roads in Nepal;

- o The economisation of maintenance by giving strong emphasis to preventive maintenance methods;
- o Execution of the work based on labour intensive techniques to generate employment and income for the local population of the project area;
- o Maintenance activities not only limited to the road structure but also including its adjoining areas as far as they could affect the security of the road;
- o The maintenance of the blacktop layer using bitumen emulsion as binder to support ongoing efforts towards the regaining of the balance of the environment;
- o Appropriate training of Nepali technicians, supervisors, and labourers to guarantee smooth know-how transfer in favour of the locally existing infrastructure;
- o Establishing a monitoring system to determine the technical, financial, and socio-economic impact of the road.

Organisational Set-Up

Unlike the organisation for the maintenance of Nepal's road network which is centralised in Kathmandu, the LJR maintenance is decentralised and forms a separate unit with its base and administration at Charikot. However, for the first 3 years project management responsible for the implementation of the project is stationed at Kathmandu. After that period, Charikot will take over under a Nepali Road Inspector and his Swiss counterpart.

Besides the maintenance division (headquarter) at Charikot, 4 maintenance subdivisions are responsible for the work execution, namely Thulopakhar (km 18), Charikot

(km 54), Maina Pokhari (km 87), and Jiri Market (km 107).

Maintenance Cost (price basis 1984)

Not considering some additional cost for the reinforcement of the blacktop layer on some sections and inflation cost over the 8 year maintenance period, we have estimated approximately NC 5.2 million/year for the road maintenance which amounts to 2.1% / year of the construction cost (bitumen emulsion procurement in Nepal).

After one year of maintenance experience this estimate seems quite appropriate.

FIRST EXPERIENCE

One year after the project's inception the difficulty of carrying out the objective of preventive maintenance became apparent. We feel that our means (finances as well as personnel) were too limited for preventive maintenance in the proper sense of the word and therefore, we were only able to concentrate on top priority work along the road and had to limit the concerned adjoining road areas to the barest minimum.

Another aspect which became obvious during the construction is the role the local population should play vis-a-vis the road. As end beneficiaries they should identify themselves with the road as a new element in their environment and experience it as a means for communication, development, and a significant rise of living standard. The objective of this identification is to foster an essential awareness of individual as well as group responsibility towards the road and its environment in terms of maintenance and as a part of the ecosystem.

In other words, the local population should be continuously educated about some fragile features of road systems, as for instance:

- o The importance of the proper functioning of the water management system (no throwing of waste into side drains or unauthorised diverting of water from the system to serve a person's immediate purposes),
- o Areas fenced-off due to bioengineering treatment should be respected and kept free from foraging animals and fodder or firewood collecting people,
- o The remaining forest should be well managed for the benefit of the local population and the safety of the road.