



Bharat Nirman – Opportunities and Challenges

H.K. Srivastava (Director Projects-I), NRRDA

India's Road Network consists of about 65600 km of National Highways, 64200 km of State Highways and Major District Roads and about 2.7 million km of Rural Roads. About 70% of India's population lives in rural areas. Nearly 40% of rural habitations are not connected to all-weather roads (3.3 lakh out of 8.25 lakh habitations). Many villages still rely on earth tracks that are unsuitable for motorized traffic and become impossible during rainy season. Even where an all-weather connection has been provided in the past, the standard of rural roads is low, maintenance is poor and many roads are in need of improvement in carriage way width, geometrics, cross and longitudinal drainage and appropriate crust thickness. Poor connectivity is well known to have high correlation with illiteracy and poverty. Therefore, as an effective Poverty Alleviation Strategy, Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in the year 2000. The objectives of the Programme is to provide all-weather connectivity to all habitations of 500 and above population (250 and above for hilly, desert and tribal areas) in a definite time frame.

Pradhan Mantri Gram Sadak Yojana is a nationwide Rural Road Programme managed at the Central level by the



National Rural Roads Development Agency (NRRDA), an agency of the Ministry of Rural Development (MoRD), Government of India. The Programme is implemented by the State Governments through dedicated State Rural Road Development Agencies (SRRDAs). While the MoRD, through NRRDA, lays down the general technical and management standards and provides the funding, the design and





execution is done by the SRRDAs and their district level Programme Implementation Units (PIUs) who are also responsible for managing the work contracts and funds.

Based on the data furnished by the States, 365,805 km of road length is required to be constructed to connect 172,772 eligible habitations at a cost of about Rs.78,000 crores. Another 372,816 km of road length is required to be upgraded benefiting 157,875 habitations. Estimated cost of upgradation is about Rs. 54,000 crores. The source of funding for the Pradhan Mantri Gram Sadak Yojana is a cess on diesel accrued into the Central Road Fund (CRF). The management of the CRF is governed by the provisions of the CRF Act 2000, in particular, Section 9 and 10. To speed up the pace of construction, additional funding from the World Bank and the ADB has been arranged for 9 Core States, where the level of unconnectivity is highest. Proposal to leverage future cess on diesel is also under active consideration of the Government. Since launching of the PMGSY in 2000, considerable progress has been made in the field of formulation of District Rural Road Plan (DRRP) and the core network, identifying and serving as the basic instrument for prioritization of construction and allocation of funds for maintenance. Rural Roads Manual, Book of Specification and the Standard Data Book, Standard Bidding Document, Computerized and Online Management Monitoring and Accounting System (OMMAS) have been developed and put in use and are providing a sound technical base to the programme. To build up capacity and capability, training needs have been identified and personnel from SRRDAs are being trained in different aspects of the programme. Contractor's engineers and workmen are also being covered under the training scheme.

Bharat Nirman- Rural Roads

To upgrade rural infrastructure, the Government of India has conceived a time-bound business plan under Bharat Nirman. It is a flagship programme for the country. A commitment of over Rs. 1,74,000 crores has been made to Bharat Nirman with the objective of unleashing the growth potential of our villages. As part of the programme, Government of India intends that, by end of financial year 2008-2009, every village of over 1000 population, or over 500 in Hilly and Tribal areas, has an all-weather road.

State-wise Targets

To achieve the targets of Bharat Nirman, 1,46,185 kms. of road length is required to be constructed by 2009. This will benefit 66,802 unconnected eligible habitations in the

country. To ensure full farm to market connectivity, it also targets to upgrade 1,94,132 kms. of the existing Associated Through Routes. A sum of approximately Rs. 48,000 crores is proposed to be invested to achieve this. Based on core network data furnished by the State, targets for each State have been identified and action plan prepared.

Opportunities

This initiative of Government of India provides an unique opportunity for faster socio-economic development by way of providing single all-weather connectivity to target habitations in a time-bound manner. Performance based monitoring, based on the physical outcomes, in terms of kilometrage of the roads completed and habitation



benefited, has also been introduced. This entails assessing the performance quarterly. Bharat Nirman unfolds an unprecedented field of opportunities:

- To create Core Network of roads in Rural India.
- To build roads meeting prescribed Design, Specifications and Quality parameters.
- To address location specific problems and optimally use local resources by innovation and experimentation.
- To upgrade Project Management capacity and capability of Implementing Agencies.
- To evolve a framework for community participation in planning and implementation.
- To institutionalize community ownership of roads.



Challenges

Though a sound technical and management base has been created through enabling measures taken since launching of the Programme in December 05, the task ahead is a gigantic one. This is amply clear if we compare the achievements in term of habitations connected, kilometrage of road length constructed or upgraded and the financial investment made upto March 05 and required between 2005-09.

Particulars	Achievements	Targets
	2000-05	2005-09
Habitations	36,000	66,802
Length km	67,000	1,46,000 NC Plus 1,94,000 UG
Financial Investment (Rs. Cr.)	13,000	48,000

This has thrown up challenges which can be broadly categorized under following categories:

Executional Capacity at the State level and at the District level

The turnover at the State level is expected to be 3 to 4 times than what has been executed during the last few years. By streamlining the procedures and setting up of a sound technical base, as well as training, it is anticipated that output would generally be higher. However, in case the available capacity is not sufficient, some of the activities at the PIU

level may have to be outsourced to Project Implementation Consultants, particularly for the State where the balance volume of work is large. This is considered prudent, as it does not add to the permanent work force in the executing agency and also is able to make use of expertise available in the private sector.

Getting works executed through eligible Central Public Sector Undertakings could be another way of outsourcing of activities. This enables use of technical and management expertise available with PSUs for implementation of the Project and can be a substitute for PICs to some extent. This





would be more useful to States which do not have a full-fledged executing agency - though cost implications are somewhat higher compared to outsourcing part of activities to PICs.

Contracting Capacity

With an increase in volume of work the contractors are also required to upgrade and enhance their capacity. This is possible by deployment of more machinery, engineering and managerial staff, as well as, training of personnel and workmen. In the bidding document of PMGSY there is a provision to invite tenders under the two envelopes system and the contractor is required to have certain executional experience, financial capacity and the experience of having executed works of similar nature. The 'available bid capacity' would increase only when the contractor is executing the works at a faster pace so that his capacity becomes free to take up further works.

There is also a need to involve bigger construction agencies with a larger package size.

Use of Appropriate Technology

The Rural Roads under PMGSY are envisaged to be carried out using intermediate technology. That is to say that if a work can be done economically and effectively employing labor, use of machinery should be avoided. However, for certain activities in road construction such as carriage of material, compaction, bituminous mix etc. use of machinery cannot

be avoided. Adoption of locally available machinery, such as tractor with a few attachments and or modification is being encouraged.

Social and Environmental Concerns

Though the programme is expected to improve the economic and social welfare of people, care is also been taken so that the position does not become worse than what it was before the programme was undertaken as far as social and environmental issues are concerned. Impact on environment studies and guidelines have been issued so that least quantum of land is utilized (to avoid displacement of people and use of agricultural land), pollution to soil, air and water is reduced, the water bodies are not disturbed and the hill slopes are protected.

Use of New Technology and Materials

The increase in construction activities are bound to increase the requirement of road construction material. Particularly in the hill areas a lot of waste is expected to be generated by way of cutting of hills. Pilot projects are being undertaken to encourage use of low quality materials as well as increasing



the structural capacity of the locally available soil by using soil stabilization techniques. Soil stabilization is expected to result in lower structural thickness of the pavement steps taken to meet the challenge, reducing the requirement of stone aggregates. Such measures would not only optimize the cost but also reduce the time of construction.