Indian Low-Volume Roads: A Challenge for Maintenance Organization

M. P. PANDEY

Rural roads, which imply low-volume roads in India, have suffered a great deal for want of resources and organizational support. A paltry amount, without any rationale, is generally provided in the budget of the local authorities. The quality of work done is far below the standard specifications. In many cases, rural roads, bridges, and materials thereof become targets of vandalism at the hands of aggrieved persons and antisocial elements. The need for proper upkeep and maintenance of roads calls for augmentation of adequate resources and their proper utilization. Much of the problems come from inept organizational deficiencies largely emanating from centralized administrative control located in the state and district headquarters. In order to ensure the requisite flow of resources and their proper utilization, the involvement of local beneficiaries appears to be a great imperative. Their involvement will further facilitate preparation of an appropriate plan of road construction and its efficient execution. Beneficiaries' participation can be streamlined through the agency of Gram-Panchayat, a village level administrative unit consisting of a peoples' representative that already exists with fiscal, judiciary, and executive powers. The Gram-Panchayats are a symbol of decentralized administration. They will be ideal from the point of view both of efficiency and equity.

The economic development of a country and the advancement of civilization depend, among other things, on a good road system. In an economically underdeveloped country, there is an inadequacy of roads. The road network is deficient in length, unevenly dispersed, and poor in quality. Development of roads has been largely contingent on economic considerations but quite often on strategic grounds, too. Lately the growing trend toward internal insurgency, or persistent law-and-order problems, have also influenced the decision to construct new roads in many countries (*1*).

In India, low-volume roads comprise (a) feeder roads converging on national highways and state highways, (b) village access roads, (c) market link roads, (d) hill area criss-cross roads, (e) desert area criss-cross roads, (f) river bank roads, (g) canal bank roads, and (h) embankment or peripheral boundary roads. These roads, called "rural roads," have a common nomenclature in India. The rationale behind construction of these roads has flowed from a mix of factors.

Extensive recordings of road construction during the Mughal period are found in various published historical accounts (*2*). Shershah was credited to have constructed the Grand Trunk Road from Calcutta to Peshawar. Some other Kings also built trunk roads in other parts of the country. With the advent of railways, in the latter half of the 18th century, the trunk roads were neglected as most of the railways ran parallel to the then-existing trunk roads (*3*). However, for administrative convenience feeder and local roads proliferated. Some ideas for systematic road development emanated from two meetings of experts; one in the year 1943 at Nagpur, and the other in the year 1958 at Bombay. The outcome of the two meetings bears the popular nomenclature of the Nagpur and Bombay plans. Before that, another expert committee was appointed in 1927, called the Jayakar Committee, whose recommendations were not followed for various reasons. As per the Nagpur plan, roads were classified as (a) national highways, (b) provincial highways, and (c) district roads or village roads. It was decided that in a highly developed agricultural area the average distance of a village from a main road should be less than 2 mi. In a nonagricultural area, it was further decided that the average distance of a village from a main road should not be more than 5 to 6 mi. The Bombay plan did not mention unclassified village roads or municipal roads. The plan's broad objective was that no village in a highly developed area should be over 4 mi from a metaled or hard-surface road or over 1.5 mi from any type of road. In undeveloped and uncultivable areas, the targets were 12 and 5 mi, respectively, from (a) a metaled road; and (b) any type of road. In semideveloped areas, the corresponding distances were proposed to be kept at 8 and 3 mi (*4*), respectively. Figurative variation or improvement occurs between the Nagpur and Bombay plans. But that local decision making was completely absent in the development of the process is more important. Both plans were in the nature of a perspective plan, comprising indicative data, to which state government or local boards were expected to relate their efforts.

The next phase of road planning synchronizes with the five yearly plans, starting from 1950/51. The development of rural roads received little attention in the various 5-year plans. These plans largely concerned themselves with national highways, or trunk roads. In 1967, a special committee was set up to examine the status of rural roads and to suggest a suitable development policy. This committee perceived the crucial role of village roads in the context of speedy socioeconomic development of the countryside. It went a step further to declare that the villagers had an unquestionable democratic right to seek suitable roads from the state for quick and easy access to the outer world. The committee recommended certain planning criteria for rural roads, although the recommendations were not followed up (*5*). The Fifth Five Year Plan (1975/76 to 1979/80) envisaged a minimum needs program for the villages, which contained road needs as one of its segments. It kept the provision that all villages with a population of 1,000 or more should have an all-weather road, but this objective proved to be too big to be realized in the course of one 5-year plan. Later, the program was modified,

A.N.S. Institute of Social Studies, Patna, 800 001, India.

according to which it was planned to link all villages with population of 1,500 or more with all-weather roads by the year 1990. In the Seventh Five Year Plan document (1985 to 1990), the importance of rural roads has been reiterated. It reads as follows:

> Since the country's economy is still largely agrarian in character and the settlement pattern is rural oriented, roads constitute a critical element of the transportation infrastructure. Road construction and maintenance generate sizeable employment opportunities, a factor that has assumed considerable importance with demographic expansion and the growth of the labour force. Better roads also help achieve fuel economy and improve the overall productivity of the Road Transport Sector (*6*).

The status of rural road network thus far achieved indicates that they connect 64 percent of the villages, though not with all-weather roads. About 18,000 villages were connected with roads under the Minimum Needs Program. A lot more needs to be done to improve the road system. About 36 percent of the villages in the country are still without any road connection, and as much as 65 percent are without an all-weather road. Rural roads are also constructed under other schemes such as the Rural Landless Employment Guarantee Program (RLEGP), National Rural Employment Program (NREP) and Command Area Development Program (CADP). A number of organizations handle road construction and maintenance resulting in duplication of effort, lack of uniformity, and the unbalanced development of the road network. There is a need to unify the organizational structure for rural road planning, construction, and maintenance so as to derive the maximum benefits from the relatively small outlays. While planning roads in hilly regions, consideration of the economy in costs and the preservation of ecological balance must receive due attention. While planning for roads in desert areas, alignment of roads should be closely related to serving water points. Roads should also be planned to link milk centers where processing plants are located.

The foregoing narrative throws light on the experience and vicissitudes faced by India in the course of planning and building rural roads. What strikes most vividly is the fact that the program of rural roads in the country has suffered a great deal for want of resources and organizational support. The effective expansion of the road network in the countryside requires adequate maintenance support to ensure full utilization by road users.

While reflecting on the problems of maintenance of rural roads in India, it is necessary to keep in mind the conditions surrounding road use in the country and the hazards to which the roads remain exposed for most of the time. Quite a lot of such roads are made of earth and mud. Such roads are used mostly by animal-driven carts having solid wood wheels with iron rings, tractors, and heavy trucks that damage the surface of the road during fair weather. The repeated operation, particularly of the solid-wood, iron-wheeled carts, causes deep cutting in the pavement (*7*). Such roads get eroded during rainy season. In flood-prone areas, very often even bitumen roads get washed away. Occasionally such roads get damaged by land slides or severe earthquakes.

Quite often, roads are cut deliberately to facilitate the flow of rain water in the cultivated fields on the other side of the roads. Roads sometimes become a shelter place for cattle and human beings in times of heavy flood. People come out of their flooded houses with all their belongings and stay on the roads till the water recedes. Roads also serve as a market place where one finds vendors, hawkers, and others selling fruits, vegetables, consumer goods, domestic materials, tea, snacks, and allied things. The settlers erect various kinds of structures to provide improvised shops, encroaching on a good portion of the roads. Such encroachments on the road block or obstruct drains. This results in overflowing of drain water, which then damages the crust or upper layers of the roads. They become unusable even by pedestrians.

Roads may also become a target for unscrupulous persons who, to serve their small needs, remove bricks, stone metals, girders of bridges, and other objects, in callous disregard of the interest of road users. Thus the roads, while serving the economy and society in varied ways, occasionally become a curse when they facilitate easy movement of thieves, bandits, terrorists, and similar antisocial elements, who make life miserable for the villagers. To the extent society suffers from such damages, necessary discount should be made in computing the value of the road network.

Maintenance of roads in the countryside of India has suffered chiefly from want of resources. A paltry amount without any rationale is generally provided in the budget of the local authorities or the department of rural development. This amount is hardly ever increased. It is nominal to begin with and it is even more insignificant if one takes into account the loss of its real worth in the wake of ever-rising inflationary prices. In absolute terms, the amount is minimal—and even that gets diverted to other purposes, if the government or the local authority is confronted with a problem of greater urgency (*8*). To cite examples from old records of Gaya District Board (Bihar State), provision for repairing "kuchcha" road in the jurisdiction of Aurangabad Local Board used to be a meager amount of Rs.15,000/- until 1948. The corresponding figure for Nawadah Local Board used to be even less, i.e., Rs.10,000/-.This fixed amount was not spent for even three consecutive years, because the amount used to be diverted for paying the salary of those who were called "work charged staff." The situation was even worse in the case of funds provided for repair of kuchcha roads in the jurisdiction lying with Hajipur and Sitamarhi Local Boards within Muzaffarpur District Board. Whenever some dubious expenditure used to be incurred by the authorities of such District/Local Boards, the amount so spent used to be falsely charged to the head of repairs of kuchcha roads. Often, the earthwork for repairing kuchcha roads was undertaken just about the time when the monsoon was about to set in. The purpose behind the timing of this repair was to camouflage the measurement of the earth cutting. Invariably, an inflated quantity of earth cut used to be shown in order to charge higher prices for the work done. The quality of work done was far below the specifications prescribed in the works manual of the State Works Department (*9*). Pilferage of road materials, such as stone chips, bricks, cement, bridge girders, hume pipes, iron poles, beams, etc. is reported to be rampant in all parts of Bihar state. Such pilferage takes place not merely from work sites when repair or construction is going on, but even from places where construction is complete and roads, bridges, and culverts have been in use for a long time. Although such nefarious acts are indulged in by unscrupulous persons mostly for

petty personal gains, often they occur in the form of vandalism, an expression of some kind of revengeful action against the government, or against the people of certain areas. People give vent to their suppressed anger or acrimony against the government by indulging in acts of vandalism on government property, such as roads, transport vehicles, railways, etc. In India, many militant organizations have risen to serve certain political ends, such as reservation in government services for backward castes, scheduled castes or tribes; regional autonomy; change in language policy; price supports for agricultural commodities; elections to regional or local authorities, etc. The roads, bridges, and culverts become easy prey to these group actions. Such acts add a further dimension to the question of maintenance and upkeep of rural roads, which lie obscurely hidden from the view of law and order authorities. In any case, it is difficult to ensure proper safety to roads, bridges, etc., which are located beyond the limits of towns or villages.

The problem of maintenance of roads, especially village roads is to be viewed in this perspective. What are the matters of most concern if one has to suggest some policy measures for providing fool-proof maintenance and upkeep of rural roads? Such policy measures should be considered in keeping with conditions found in resource-poor developing countries. Looking closely at the problem, cost becomes the first object of concern. Resources in rural areas in the developing countries are always meager, as have been indicated. Their augmentation is a major problem. To put them to the best use is another problem. The twin problems of resources augmentation and their optimum allocation can be better ensured by changing the organizational support. Hitherto, the work used to be done by a department of government or local bodies. In India, the countryside is widely dispersed and limited funds get spread out too thinly to be of much use. Besides, a central organization cannot plan or execute the job properly. To assign the work to each village community would be better.

At the village level, there is a body called the "Panchayat" that functions as a development council and also as an administrative unit. It has the statutory power to raise resources, to plan development programs, and to execute them. This body promotes law and order and is vested with the legal power to punish law breakers. The Panchayats have thus multiprong functions in revenue, administrative, and judicial spheres. This body is ideally suited to plan, execute, monitor, supervise, and oversee the entire process of work involved in construction and maintenance of rural roads. These bodies also have the power to involve the surplus labor power of the rural sector in maintenance works. They can utilize local resources in cash or kind from the people on a pro-rata basis. They can remove unauthorized encroachments or structures from the roads. They can ensure the protection of removable parts of roads and bridges by antisocial elements. They can prevent unauthorized road cuttings by individuals to divert water from one side of the road to the other for personal convenience. They can keep guard against drain blockers and thereby prevent drain water from flowing on the roads. This body also has the power to requisition the services of experts and consultants from the central pool to answer technical matters or intricate problems related to road construction and maintenance. The involvement of the Panchayats in road maintenance would be ideal from an efficiency point of view as well as an equity point of view. Already, we have such organizations working in different parts of India to generate and distribute irrigation water. In the state of Maharashtra there are cooperatives doing a similar job for the benefit of cane growers. In Gujrat, the Anand dairy is a massive organization devoted to the job of promoting the socioeconomic status of small milk producers. The irrigation associations of Taiwan, Indonesia, and Thailand are doing a similar job. Panchayats that are vested with legal and constitutional powers are better suited to take care of the roads in the rural areas, and these bodies have the advantage of being able to involve the community on a voluntary basis. They also have the teeth to enforce rules and guidance that the community formulates to promote their collective interest. This experiment should be undertaken on a high-priority basis in all developing countries.

REFERENCES

1. N. S. Srinivasan. Socio-Economic Benefits and Scientific Planning of Rural Roads. *Civic Affairs*, Vol. 35, No. 7, Feb. 1988, pp. 47–50.
2. K. E. Verghese. *The Development and Significance of Transport in India 1834–1882*. Delhi, 1976, pp. 1–2.
3. Government of India. *Report of the Indian Road Development Committee 1927–28*. Calcutta, 1928, 18 pp.
4. J. Howe and P. Richards (eds.). *Rural Roads and Poverty Alleviation*. London, 1984, 104 pp.
5. N. Koshi. Role of Indian Roads Congress in Road Development. *Economic Times (Supplement)*, Bombay, Dec. 3, 1987, pp. 6–7.
6. Government of India. *Seventh Five Year Plan*. Vol. 2, New Delhi, 1985, 215 pp.
7. M. P. Dhir, N. B. Lal, and K. Mital. The Development of Low-Volume Roads in India. In *Transportation Research Record* 1106, Vol. 2, TRB, National Research Council, Washington, D.C., 1987.
8. M. Singh. Roads—The Favoured Sector for Budgetary Cuts. *Link*, Vol. 30, No. 10, Oct. 11, 1987, pp. 17–19.
9. P. L. Sreedevi. Rural Roads in Kerala: An Analysis. *Southern Economist*, Vol. 26, No. 8, Bombay, Aug. 15, 1987, pp. 31–33.