

# **Integrated Road Network: A Catalyst for Nation Building**

**Colonel Yogesh Nair\***

## **Introduction**

Availability of physical infrastructure for distributing resources and essential services to the public is one of the key factors for society's success and progress. In fact, nation's economic strength is reflected in its infrastructure assets.<sup>1</sup> An elaborate and effective road network assumes a distinct place and contributes significantly to the growth of the country by bringing in direct benefits from its role in the development of sectors, such as minerals, agriculture, industry and commerce.

Roads as part of country's infrastructural assets not only shape the economic activity of the country but also play an important role in day to day activities of the people. Easy accessibility, flexibility of operations, footstep service and reliability have earned road transport an increasingly higher distinction and has been acknowledged as pivotal engine in fostering trade, economic growth, production and social development. Inclusive economic development brings in prosperity, enhances living standards, that in turn integrates society and provides security. This article attempts to explore the role of road network for nation building in terms of national integration and achieving country's security objectives and future dynamics.

## **Integrating Nation through Network of Roads**

Comprehensive integration of a nation encompasses multiple factors and involves continuous breakdown of all barriers viz political, cultural, social, religious, economical etc. within a defined boundary.<sup>2</sup> Service delivery in the infrastructure sector and a national grid of road network contributes immensely towards attainment of regional integration. However, this is not possible unless every nook and corner of the country is connected systematically. For equitable advancement, the main requirement is to have solidarity and support from relatively more prosperous areas to the less privileged areas within a region. The far flung border regions which are poorly connected with the rest of the country are unable to benefit from the enormous resources available in such places. Physical connectivity and integration with mainstream India is crucial for alleviating regional disparities.<sup>3</sup>

Development of country's infrastructure is one of most important factor for accelerated economic growth. All great civilisations attained greatness only through advancement of adequate infrastructure.<sup>4</sup> Through its backward and forward integration with other sectors it creates employment, promotes specialisation, extends markets and enables exploitation of opportunities, especially in rapidly developing countries such as India. Greater integration of road network is achieved by developing and reinforcing its own capabilities and meshing the model with other transportation systems viz the railways, waterways and airways to efficiently function in the increasingly competitive and fast-changing environment through inter-connection and inter-operability of national networks or as 'an instrument of social integration'.<sup>5</sup> Economic integration has many advantages such as employment generation, conflict resolution, boosting of trading activities, effective administration, resource management for prioritising development and last but not the least, opening up avenues for 'spreading peace and prosperity'. The idea behind the focussed development of remote and far off regions with mainland India is to achieve total integration of the country and to lay a solid foundation for the future of upcoming generations as obtained in the developed nations. Thus, in the contemporary era, infrastructural building including development of a national grid of road network would prove to be a valuable tool for achieving effective national integration. Thus provision of infrastructure including development of comprehensive road network is a vital tool for achieving national cohesion through integrated social and economic growth of the region.

## **Road Network and National Security Dynamics**

From the time, when roads were constructed only for movement and administrative purposes, they have emerged as an essential entity for achieving larger goals. Besides bridging resources differential and meeting socio-economic needs of people they are being designed to achieve territorial integration and to ensure security. Strategic infrastructure close to borders properly connected by road network can act as a force multiplier during war, as they can facilitate faster troops and equipment mobilisation and deployment. During war, road infrastructure could well be used to militarily counter the adversary effectively. Better roads reduce haulage time for operational stores and facilitate sustained logistics support to the Armed Forces deployed in border areas.

The existing roads in the border and remote areas of India are primitive and underdeveloped. They are marred by frequent landslides and fall well short of the desired standard. This state of affairs not only cuts off these areas from the rest of the Country but also hinders the Indian security apparatus operating along the border, especially opposite China. Given the presence of the Chinese military and infrastructural development on the other side of Indian borders,<sup>6</sup> it is strategically prudent to keep the road infrastructure towards own side strong and robust. India as a sovereign nation has to guard its borders and to do this effectively, building-up matching road capacity is of utmost importance.

Border areas have been rendered geographically isolated and economically backward due to poor road infrastructure in those regions. In addition to poor infrastructure, cultural and ethnic diversities in the Country have led to a perceived sense of alienation and neglect on several fronts, particularly in the economic field. Persistent economic discontent and dissatisfaction, have often manifested in the form of violent insurgencies. Inadequate social and economic disparities, brought about by lack of proper communication infrastructure may have contributed largely to the misunderstandings and mistrust which caused political turmoil and catapulted into unrest and illegitimate demands. In sum, vibrant trade and economic activities would solve most of the irritants, uplift the standard of living and enhance a feeling of 'mutual security' amongst the people of the region.

## **Challenges**

In India, since the population centres are dispersed all over, and are also separated by deserts, valleys, mountains and

snow bond areas, a reliable road network for sustainable economic growth of peripheral Indian states becomes imperative. Appropriately designed and integrated road network not only reduces the cost of transportation, both in terms of money and time, but also removes regional imbalances. Some of the emerging challenges for development of an effective road network are described in the succeeding paragraphs.

**Maintaining Ageing and Over-Stressed Networks.** The road infrastructures in India are grossly inadequate and those existing are old, overstressed and increasingly unable to meet emerging requirements of industries and the people. Nevertheless, either as a result of insufficient routine maintenance or because of technical deficiencies in their original construction, or both, roads are rapidly wearing out, necessitating surface strengthening much sooner than anticipated. The need of the hour is conservation of these roads and to ensure that all fortification measures are carried out professionally and to high technical standards. Besides, the road network needs to be expanded and upgraded to cater for ever increasing vehicular traffic to bring in stability and proficiency in service sector. After evaluating the existing road conditions in India, it is emphasised that a major programme for upgradation of road network needs to be undertaken on priority.

**Generation of Funds.** Expansion of surface communication is a prerequisite for every developmental initiative. However, development and maintenance of extensive road network for a country like India, requires substantial resources and funds. Secondly, considering the speed of economic growth, expansion of desired road network system needs to be put on 'Fast Track' to keep pace with current development. Hence, rapid generation of large amount of funds for development, upgradation and maintenance of extensive road network is a challenge, and the same would have to be organised by galvanising all available mechanisms for funding infrastructure projects.

**Capacity Building.** Economic development brings in increased traffic, leading to overcrowding and congestion, requiring wider/multi-lane roads to build higher capacity for seamless transport management. This brings in challenges of land acquisition and environment safeguard issues. Besides, the remote and border areas being mostly mountainous regions with difficult terrain and uncongenial climatic conditions, transport infrastructure has to be essentially road based. The initiatives of the Government to promote various development activities to alleviate the poverty of people are thus, largely dependent on building capability of the road network to carry passengers and goods, efficiently and economically. An appropriately designed and well maintained road network is therefore essential for cost effective movement of people and materials, without which trade and industry cannot maintain a competitive edge.

**Technological Upgradation.** The poor quality of roads is one of the most important causes of high level wear and tear on the vehicles as also large number of vehicular accidents in India. With the industry having suffered from very little technological and managerial improvements in the design and construction of roads, there is a need to effect these changes immediately. Technological knowhow and utilisation of the same in order to build superior roads and also to undertake roads construction in difficult areas is a must. This needs to be looked into with a futuristic vision.

**Environmental Challenges.** Road projects normally commence on receipt of environmental clearance as construction/upgradation of roads has a large potential negative impact on the environment. Inadequate road construction techniques cause significant damage to forests, land and water sources and reduce the very quality and life span of the road. Consequently, a harmonised approach needs to be embraced to prevent and mitigate the negative impacts of roads including protecting flora and fauna, cultural and heritage sites etc. All environmental guidelines need to be stringently followed, including implementation of environmentally sound construction techniques in order to minimise the adverse impact on the society and environment. Hence, the challenge is to adopt environment friendly practices to deliver a safe and efficient network of national roads within the framework of sustainable development and environmental norms.

## **The Way Forward**

In the last few years, Indian economy has seen unprecedented growth. However, due to the lack of infrastructure, the industrial sector has grown at much slower pace than required. The market integration impact due to ineffective roads network is not as strong as it should be. Many experts believe that Indian economy can easily grow at ten per cent if adequate infrastructure, including road network, is put in place. Some of the measures for development of effective road network are discussed in succeeding paragraphs.

**Private Funding.** Development and maintenance of extensive road network in India is an expensive business. Government allocation and funding always falls short and hence other sources of funding need to be explored. Private funding, including Public Private Partnership (PPP), is the order of the day. Injection of private finance in order to accelerate generation of funds is one of the remedy for Country's infrastructural deficits. Highway project executed through the systems of "Private Finance Initiative" as DBFO (Design, Build, Finance, and, Operate) and BOOT (Build, Own, Operate and Transfer) model have been found to be extremely successful in the Western countries.<sup>7</sup> Besides, the work undertaken as Private or PPP projects are completed much faster as it has less bureaucratic hurdles and procedural delays.

**Development of Integrated Road System.** A model of National Road Grid, structured to achieve a fully networked and integrated road system needs to be conceptualised. Key to the success of economic development initiatives in any country or region is the establishment, maintenance, and continued refinement of an appropriate road network. Such networks, which link the core of a region or country to the rings of development leading to the periphery, are essential elements for enhancing communication linkages between distant locations. Significantly, in the case of developing nations experiencing significant growth in population and creation of new centres of commerce and human activity, creating a national strategy<sup>8</sup> for sequential development of a comprehensive road network capable of meeting present and future needs is a must.

**Lucrative Land Compensation Package.** Upgradation and widening of roads require vast tracts of land. However, acquisition of land in India is a difficult and long drawn out process. At times, some stretches of roads have to be cut across constricted, dangerous or circuitous routes which endanger vehicular movement simply because the specified

land was not made available by the land holder. This can be avoided if the people in possession of this land are offered lucrative compensation and jobs in lieu. It must be ensured that no compromise is made in the process of land acquisition based on short term considerations because that would hamper long term development.

**Linking Beyond Borders.** Well-developed roads in border regions would further India's vision of greater economic engagement with surrounding states and also increase its influence in the neighbourhood. In fact, in the era of globalisation, building strategic roads linking its borderlands with neighbouring countries could be a right step towards regional economic integration. The growing ties with neighbouring countries, including China, in various spheres can be exploited to bring a sense of 'trust' and institutionalised arrangement for higher economic and strategic interaction between them. A positive engagement will increase confidence-building measures to resolve complex issues which could benefit the Asian region as a whole.

**Greater Role of the Armed Forces.** The Armed Forces, especially the Army, can be incorporated to fulfil the strategic aims of national integration and security through infrastructure development. Although, the Army is involved in construction work to some extent, however greater role needs to be assigned to it. The Indian Army, in particular the Corps of Engineers, including Border Roads Organisation are most suitable, as they are equipped and organised to undertake asset creation work in most difficult terrain and inhospitable weather conditions with a high degree of professionalism.

## Conclusion

Road network is a valuable national asset and lifeline of the society. An effective road network is of paramount importance for continued economic prosperity of the Country. Demand for infrastructure facilities and services have traditionally outpaced supply in India – even causing concerns about sustaining India's future economic growth. Just like most of the infrastructure sector industries in India, road infrastructure is also grossly underprovided for, especially in the remote and border areas. Special efforts have to be made to integrate these areas holistically with mainland India for achieving comprehensive economic development. Terrain in such areas being difficult, mostly mountainous, the population has to rely solely on roads as a means of communication, hence the importance.

Greater physical connectivity, including communication networks, is essential if economic partnerships such as the South Asian Free Trade Area (SAFTA) and those on the anvil with Southeast Asia and China have to take off and, more importantly, be sustained.<sup>9</sup> Physical connectivity would facilitate easier, cheaper and quicker movement of people and goods between India and her neighbours. Additionally, such physical connectivity with the economies of Southeast Asia holds the best promise for the economic development of India's insurgency-affected and resource-rich Northeastern states. Further, increased trade and improved economic conditions in countries like Bangladesh, Nepal and Bhutan would help in generating more employment and better economic returns to the people. This would significantly check economic migration and demographic shift. Above all, better connectivity and transit facilities go a long way in developing mutual trust and confidence between neighbours.

## Endnotes

1. Building Strategic Roadways in Arunachal Pradesh, 18 June 2006, available at <http://www.indiadefence.com>.
2. Dickey, John W., and Miller, L.H.; Road Project Appraisal for Developing Countries. John Wiley & Sons, Ltd., London; 1984.
3. John Howe and Peter Richards; Rural Road and Poverty Alleviation, Intermediate Technology Publication, London, 1984.
4. Joewono, Tri Basuki; The Evaluation of Road Network Performance; 10th International Student Seminar on Transport; Research Symposium, Hanoi, Vietnam; 2004.
5. Ibid.
6. Rajat Pandit, China way ahead on border infrastructure, The Economic Times, 19 January 2009.
7. Highways Agency ; DBFO- Value in roads- A case study on the first eight DBFO road contracts and their development, London: Highways Agency, 1997.
8. Commission for Global Road Safety; Make Roads Safe – A new Priority for Sustainable Development, London; 2006.
9. D Suba Chandran, N Manoharan; Connecting India: A Road Map for New Roads; Institute of Peace and Conflict Studies; Issue No 58, 2008.

**\*Colonel Yogesh Nair** was commissioned into the Corps of Engineers on 10 Dec 1996. He is an alumnus of Defence Services Staff College, Wellington and also M Tech in Civil Engineering. Presently, he is Commander, 38 Border Road Task Force.

*Journal of the United Service Institution of India*, Vol. CXLI, No. 587, January-March 2012.